

VILLALOVOZ ELEMENTARY SCHOOL INCREMENT #2 - 2023

PROJECT MANUAL



TRACY UNIFIED SCHOOL DISTRICT

JANUARY 2023

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NOTICE TO BIDDERS

1. Notice is hereby given that the governing board ("Board") of the Tracy Unified School District ("District") will receive sealed bids for the following project ("Project" or "Contract"):

VILLALOVOZ ELEMENTARY SCHOOL INCREMENT #2 2023

2. The Project consists of:

ADA upgrades at restrooms, remove and replace mansard roofing, recoating of roofs, supply and installation of new office entry, supply and installation of new intrusion and fire alarm system, complete interior and exterior painting, supply and installation of new teaching walls, supply and installation of new marquee and all work included in plans and specifications.

3. To bid on this Project, the Bidder is required to possess one or more of the following State of California contractors' license:

A, and/or B

The Bidder's license(s) must remain active and in good standing throughout the term of the Contract.

4. To bid on this Project, the Bidder is required to be registered as a public works contractor with the Department of Industrial Relations pursuant to the Labor Code.
5. Contract Documents will be available on or after **January 16, 2023**, and may be downloaded from the District's website, <https://www.tracy.k12.ca.us/departments/facilities>, using the Current Bid Projects tab. In addition, Contract Documents are available for bidders' review at the following builders' exchanges:

- A. **Builder's Exchange of San Joaquin County (209) 478-1000**
- B. **Valley Builder's Exchange, Inc. (209) 522-9031**

6. Sealed bids will be received until **2:00 p.m., February 8, 2023**, at the District Facilities Office, 1875 West Lowell Avenue, Tracy, California 95376 at or after which time the bids will be opened and publicly read aloud. Any bid that is submitted after this time shall be nonresponsive and returned to the bidder. Any claim by a bidder of error in its bid must be made in compliance with section 5100 et seq. of the Public Contract Code.
7. Pursuant to Public Contract Code section 20111.5, only prequalified bidders will be eligible to submit a bid for this Project. Any bid submitted by a bidder who is not prequalified shall be non-responsive and returned unopened to the bidder.
8. All bids shall be on the form provided by the District. Each bid must conform and be responsive to all pertinent Contract Documents, including, but not limited to, the Instructions to Bidders.

9. A bid bond by an admitted surety insurer on the form provided by the District a cashier's check or a certified check, drawn to the order of the Tracy Unified School District, in the amount of ten percent (10%) of the total bid price, shall accompany the Bid Form and Proposal, as a guarantee that the Bidder will, within seven (7) calendar days after the date of the Notice of Award, enter into a contract with the District for the performance of the services as stipulated in the bid.
10. A **mandatory** pre-bid conference and site visit will be held on **January 25, 2023, at 11:00 a.m.** at **Villalovoz Elementary School, 1550 Cypress Dr, Tracy, CA 95376**. All participants are required to sign in at the front of the Administration Building. The site visits is expected to take approximately **1 hour**. Failure to attend or tardiness will render bid ineligible.
11. The successful Bidder shall be required to furnish a 100% Performance Bond and a 100% Payment Bond if it is awarded the Contract for the Work.
12. Pursuant to Education Code section 17550, the District is requiring the Bidder to purchase and to remove from the school grounds all old materials required by the specifications to be removed from any existing school building on the same school grounds and not required for school purposes and to state in his or her bid the amount which he or she will deduct from the price bid for the work as the purchase price of the old materials. The board shall let the contract to any responsible bidder whose net bid is the lowest, or shall reject all bids.
13. The successful Bidder may substitute securities for any monies withheld by the District to ensure performance under the Contract, in accordance with the provisions of section 22300 of the Public Contract Code.
14. The successful bidder will be required to certify that it either meets the Disabled Veteran Business Enterprise ("DVBE") goal of three percent (3%) participation or made a good faith effort to solicit DVBE participation in this Contract if it is awarded the Contract for the Work.
15. The Contractor and all Subcontractors under the Contractor shall pay all workers on all Work performed pursuant to this Contract not less than the general prevailing rate of per diem wages and the general prevailing rate for holiday and overtime work as determined by the Director of the Department of Industrial Relations, State of California, for the type of work performed and the locality in which the work is to be performed within the boundaries of the District, pursuant to section 1770 et seq. of the California Labor Code. Prevailing wage rates are also available from the District or on the Internet at: <<http://www.dir.ca.gov>>.
16. This Project is subject to labor compliance monitoring and enforcement by the Department of Industrial Relations pursuant to Labor Code section 1771.4 and subject to the requirements of Title 8 of the California Code of Regulations. The successful Bidder shall comply with all requirements of Division 2, Part 7, Chapter 1, Articles 1-5 of the Labor Code.
17. The Contractor and all Subcontractors under the Contractor shall comply with applicable federal, State, and local requirements relating to COVID-19 or other public health emergency/epidemic/pandemic including, if required, preparing, posting, and implementing a Social Distancing Protocol. Contractor shall further comply with the most recent CAL/OSHA requirements.

18. The District shall award the Contract, if it awards it at all, to the lowest responsive responsible bidder based on:
 - A. The base bid amount only.
19. The Board reserves the right to reject any and all bids and/or waive any irregularity in any bid received. If the District awards the Contract, the security of unsuccessful bidder(s) shall be returned within sixty (60) days from the time the award is made. Unless otherwise required by law, no bidder may withdraw its bid for ninety (90) days after the date of the bid opening.

END OF DOCUMENT

INSTRUCTIONS TO BIDDERS

Bidders shall follow the instructions in this document, and shall submit all documents, forms, and information required for consideration of a bid.

Tracy Unified School District ("District") will evaluate information submitted by the apparent low Bidder and, if incomplete or unsatisfactory to District, Bidder's bid may be rejected at the sole discretion of District.

1. Bids are requested for a general construction contract, or work described in general, for the following project ("Project" or "Contract"):

VILLALOVOZ ELEMENTARY SCHOOL INCREMENT #2 2023

2. A Bidder and its subcontractors must possess the appropriate State of California contractors' license and must maintain the license throughout the duration of the project. Bidders must also be registered as a public works contractor with the Department of Industrial Relations pursuant to the Labor Code. Bids submitted by a contractor who is not properly licensed or registered shall be deemed nonresponsive and will not be considered.
3. The District has prequalified bidders pursuant to Public Contract Code section 20111.5. Only prequalified bidders will be eligible to submit a bid for this Project. Any bid submitted by a bidder who is not prequalified shall be deemed nonresponsive and will not be considered.
4. District will receive sealed bids from bidders as stipulated in the Notice to Bidders.
 - a. All bids must be sealed in an envelope, marked with the name and address of the Bidder, name of the Project, the Project Number and/or bid number, and time of bid opening.
 - b. Bids must be submitted to the District Office by date and time shown in the Notice to Bidders.
 - c. Bids must contain all documents as required herein.
5. Bidders are advised that on the date that bids are opened, telephones will not be available at the District Offices for use by bidders or their representatives.
6. Bids will be opened at or after the time indicated for receipt of bids.
7. Bidders must submit bids on the documents titled Bid Form and Proposal, and must submit all other required District forms. Bids not submitted on the District's required forms shall be deemed nonresponsive and shall not be considered. Additional sheets required to fully respond to requested information are permissible.
8. Bidders shall not modify the Bid Form and Proposal or qualify their bids. Bidders shall not submit to the District a re-formatted, re-typed, altered, modified, or otherwise recreated version of the Bid Form and Proposal or other District-provided document.

9. Bids shall be clearly written and without erasure or deletions. District reserves the right to reject any bid containing erasures, deletions, or illegible contents.
10. Bidders must supply all information required by each Bid Document. Bids must be full and complete. District reserves the right in its sole discretion to reject any bid as nonresponsive as a result of any error or omission in the bid. Bidders must complete and submit all of the following documents with the Bid Form and Proposal:
 - a. Bid Bond on the District's form, or other security.
 - b. Designated Subcontractors List.
 - c. Site Visit Certification, if a site visit was required.
 - d. Non-Collusion Declaration.
 - e. Iran Contracting Act Certification, if contract value is \$1,000,000 or more.
11. Bidders must submit with their bids cash, a cashier's check or a certified check payable to District, or a bid bond by an admitted surety insurer of not less than ten percent (10%) of amount of Base Bid, plus all additive alternates ("Bid Bond"). If Bidder chooses to provide a Bid Bond as security, Bidder must use the required form of corporate surety provided by District. The Surety on Bidder's Bid Bond must be an insurer admitted in the State of California and authorized to issue surety bonds in the State of California. Bids submitted without necessary bid security will be deemed nonresponsive and will not be considered.
12. If Bidder to whom the Contract is awarded fails or neglects to enter into the Contract and submit required bonds, insurance certificates, and all other required documents, within **SEVEN (7)** calendar days after the date of the Notice of Award, District may deposit Bid Bond, cash, cashier's check, or certified check for collection, and proceeds thereof may be retained by District as liquidated damages for failure of Bidder to enter into Contract, in the sole discretion of District. It is agreed that calculation of damages District may suffer as a result of Bidder's failure to enter into the Contract would be extremely difficult and impractical to determine and that the amount of the Bidder's required bid security shall be the agreed and conclusively presumed amount of damages.
13. Bidders must submit with the bid the Designated Subcontractors List for those subcontractors who will perform any portion of Work, including labor, rendering of service, or specially fabricating and installing a portion of the Work or improvement according to detailed drawings contained in the plans and specifications, in excess of one half of one percent (0.5%) of total bid. Failure to submit this list when required by law shall result in bid being deemed nonresponsive and the bid will not be considered. All of the listed subcontractors are required to be registered as a public works contractor with the Department of Industrial Relations pursuant to the Labor Code.
 - a. An inadvertent error in listing the California contractor license number on the Designated Subcontractors List shall not be grounds for filing a bid protest or grounds for considering the bid nonresponsive if the correct contractor's license number is submitted to the District within 24 hours after the bid opening and

the corrected number corresponds with the submitted name and location for that subcontractor.

- b. An inadvertent error listing an unregistered subcontractor shall not be grounds for filing a bid protest or grounds for considering the bid nonresponsive provided that any of the following apply:
 - (1) The subcontractor is registered prior to the bid opening.
 - (2) The subcontractor is registered and has paid the penalty registration fee within 24 hours after the bid opening.
 - (3) The subcontractor is replaced by another registered subcontractor pursuant to Public Contract Code section 4107.
- 14. If a mandatory pre-bid conference and site visit ("Site Visit") is required as referenced in the Notice to Bidders, then Bidders must submit the Site Visit Certification with their Bid. District will transmit to all prospective Bidders of record such Addenda as District in its discretion considers necessary in response to questions arising at the Site Visit. Oral statements shall not be relied upon and will not be binding or legally effective. Addenda issued by the District as a result of the Site Visit, if any, shall constitute the sole and exclusive record and statement of the results of the Site Visit.
- 15. Bidders shall submit the Non-Collusion Declaration with their bids. Bids submitted without the Non-Collusion Declaration shall be deemed nonresponsive and will not be considered.
- 16. The Contractor and all Subcontractors under the Contractor shall pay all workers on all work performed pursuant to the Contract not less than the general prevailing rate of per diem wages and the general prevailing rate for holiday and overtime work as determined by the Director of the Department of Industrial Relations, State of California, for the type of work performed and the locality in which the work is to be performed within the boundaries of the District, pursuant to sections 1770 et seq. of the California Labor Code. Copies of the general prevailing rates of per diem wages for each craft, classification, or type of worker needed to execute the Contract, as determined by Director of the Department of Industrial Relations, are available upon request at the District's principal office. Prevailing wage rates are also available on the internet at <http://www.dir.ca.gov>.
- 17. Pursuant to Education Code section 17550, the District is requiring the Bidder to purchase and to remove from the school grounds all old materials required by the specifications to be removed from any existing school building on the same school grounds and not required for school purposes and to state in his or her bid the amount which he or she will deduct from the price bid for the work as the purchase price of the old materials. The board shall let the contract to any responsible bidder whose net bid is the lowest, or shall reject all bids.
- 18. Submission of bid signifies careful examination of Contract Documents and complete understanding of the nature, extent, and location of Work to be performed. Bidders must complete the tasks listed below as a condition to bidding, and submission of a bid shall constitute the Bidder's express representation to District that Bidder has fully completed the following:

- a. Bidder has visited the Site, if required, and has examined thoroughly and understood the nature and extent of the Contract Documents, Work, Site, locality, actual conditions, as-built conditions, and all local conditions and federal, state and local laws, and regulations that in any manner may affect cost, progress, performance, or furnishing of Work or that relate to any aspect of the means, methods, techniques, sequences, or procedures of construction to be employed by Bidder and safety precautions and programs incident thereto;
- b. Bidder has conducted or obtained and has understood all examinations, investigations, explorations, tests, reports, and studies that pertain to the subsurface conditions, as-built conditions, underground facilities, and all other physical conditions at or contiguous to the Site or otherwise that may affect the cost, progress, performance, or furnishing of Work, as Bidder considers necessary for the performance or furnishing of Work at the Contract Sum, within the Contract Time, and in accordance with the other terms and conditions of Contract Documents, including specifically the provisions of the General Conditions; and no additional examinations, investigations, explorations, tests, reports, studies, or similar information or data are or will be required by Bidder for such purposes;
- c. Bidder has correlated its knowledge and the results of all such observations, examinations, investigations, explorations, tests, reports, and studies with the terms and conditions of the Contract Documents;
- d. Bidder has given the District prompt written notice of all conflicts, errors, ambiguities, or discrepancies that it has discovered in or among the Contract Documents and the actual conditions, and the written resolution(s) thereof by the District is/are acceptable to Bidder;
- e. Bidder has made a complete disclosure in writing to the District of all facts bearing upon any possible interest, direct or indirect, that Bidder believes any representative of the District or other officer or employee of the District presently has or will have in this Contract or in the performance thereof or in any portion of the profits thereof;
- f. Bidder must, prior to bidding, perform the work, investigations, research, and analysis required by this document and that Bidder represented in its Bid Form and Proposal and the Agreement that it performed prior to bidding. Contractor under this Contract is charged with all information and knowledge that a reasonable bidder would ascertain from having performed this required work, investigation, research, and analysis. Bid prices must include entire cost of all work "incidental" to completion of the Work.
- g. Conditions Shown on the Contract Documents: Information as to underground conditions, as-built conditions, or other conditions or obstructions, indicated in the Contract Documents, e.g., on Drawings or in Specifications, has been obtained with reasonable care, and has been recorded in good faith. However, District only warrants, and Bidder may only rely, on the accuracy of limited types of information.
 - (1) As to above-ground conditions or as-built conditions shown or indicated in the Contract Documents, there is no warranty, express or implied, or

any representation express or implied, that such information is correctly shown or indicated. This information is verifiable by independent investigation and Bidder is required to make such verification as a condition to bidding. In submitting its Bid, Bidder shall rely on the results of its own independent investigation. In submitting its Bid, Bidder shall not rely on District-supplied information regarding above-ground conditions or as-built conditions.

- (2) As to any subsurface condition shown or indicated in the Contract Documents, Bidder may rely only upon the general accuracy of actual reported depths, actual reported character of materials, actual reported soil types, actual reported water conditions, or actual obstructions shown or indicated. District is not responsible for the completeness of such information for bidding or construction; nor is District responsible in any way for any conclusions or opinions that the Bidder has drawn from such information; nor is the District responsible for subsurface conditions that are not specifically shown (for example, District is not responsible for soil conditions in areas contiguous to areas where a subsurface condition is shown).

h. Conditions Shown in Reports and Drawings Supplied for Informational Purposes: Reference is made to the document entitled Geotechnical Data, and the document entitled Existing Conditions, for identification of:

- (1) Subsurface Conditions: Those reports of explorations and tests of subsurface conditions at or contiguous to the Site that have been utilized by Architect in preparing the Contract Documents; and
- (2) Physical Conditions: Those drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site that has been utilized by Architect in preparing the Contract Documents.
- (3) These reports and drawings are **not** Contract Documents and, except for any "technical" data regarding subsurface conditions specifically identified in Geotechnical Data and Existing Conditions, and underground facilities data, Bidder may not in any manner rely on the information in these reports and drawings. Subject to the foregoing, Bidder must make its own independent investigation of all conditions affecting the Work and must not rely on information provided by District.

19. Bids shall be based on products and systems specified in Contract Documents or listed by name in Addenda. Whenever in the Specifications any materials, process, or article is indicated or specified by grade, patent, or proprietary name, or by name of manufacturer, that Specification shall be deemed to be followed by the words "or equal." Bidder may, unless otherwise stated, offer any material, process, or article that shall be substantially equal or better in every respect to that so indicated or specified. The District is not responsible and/or liable in any way for a Contractor's damages and/or claims related, in any way, to that Contractor's basing its bid on any requested substitution that the District has not approved in advance and in writing. Contractors and materials suppliers who submit requests for substitutions prior to the award of the Contract must do so in writing and in compliance with Public Contract Code section 3400. All requests must comply with the following:

- a. District must receive any notice of request for substitution of a specified item a minimum of **TEN (10)** calendar days prior to bid opening. The Successful Bidder will not be allowed to substitute specified items unless properly noticed.
 - b. Within 35 days after the date of the Notice of Award, the Successful Bidder shall submit data substantiating the request(s) for all substitution(s) containing sufficient information to assess acceptability of product or system and impact on Project, including, without limitation, the requirements specified in the Special Conditions and the Specifications. Insufficient information shall be grounds for rejection of substitution.
 - c. Approved substitutions, if any, shall be listed in Addenda. District reserves the right not to act upon submittals of substitutions until after bid opening.
 - d. Substitutions may be requested after Contract has been awarded only if indicated in and in accordance with requirements specified in the Special Conditions and the Specifications.
- 20. Bidders may examine any available "as-built" drawings of previous work by giving District reasonable advance notice. District will not be responsible for accuracy of "as-built" drawings. The document entitled Existing Conditions applies to all supplied "as-built" drawings.
 - 21. All questions about the meaning or intent of the Contract Documents are to be directed via email to the District to Orlandod@rgmkramer.com Interpretations or clarifications considered necessary by the District in response to such questions will be issued in writing by Addenda and emailed, faxed, mailed, or delivered to all parties recorded by the District as having received the Contract Documents or posted on the District's website at <https://www.tracy.k12.ca.us/departments/facilities> Questions received less than **SEVEN (7)** calendar days prior to the date for opening bids may not be answered. Only questions answered by formal written Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.
 - 22. Addenda may also be issued to modify other parts of the Contract Documents as deemed advisable by the District.
 - 23. Each Bidder must acknowledge each Addendum in its Bid Form and Proposal by number or its Bid shall be considered non-responsive. Each Addendum shall be part of the Contract Documents. A complete listing of Addenda may be secured from the District.
 - 24. This Contract may include alternates. Alternates are defined as alternate products, materials, equipment, systems, methods, or major elements of the construction that may, at the District's option and under terms established in the Contract and pursuant to section 20103.8 of the Public Contract Code, be selected for the Work.
 - 25. The District shall award the Contract, if it awards it at all, to the lowest responsive responsible bidder based on the criteria as indicated in the Notice to Bidders. In the event two or more responsible bidders submit identical bids, the District shall select the Bidder to whom to award the Contract by lot.
 - 26. Discrepancies between written words and figures, or words and numerals, will be resolved in favor of figures or numerals.

27. Bidders in contention for contract awards shall be required to attend a Post-Bid interview, which will be set within three (3) calendar days following bid opening. A duly authorized representative of the apparent low bidder is required to attend the Post Bid Interview, in person. The apparent low bidder's authorized representative(s) must have (1) knowledge of how the bid submitted was prepared, (2) the person responsible for supervising performance of the Work, and (3) the authority to bind the apparent low bidder. Failure to attend the Post Bid Interview as scheduled will be considered just cause for the District to reject the Bid as nonresponsive.
28. Any bid protest by any Bidder regarding any other bid must be submitted in writing to the District, before 5:00 p.m. of the **THIRD (3rd)** business day following bid opening.
- a. Only a Bidder who has actually submitted a bid, and who could be awarded the Contract if the bid protest is upheld, is eligible to submit a bid protest. Subcontractors are not eligible to submit bid protests. A Bidder may not rely on the bid protest submitted by another Bidder.
 - b. A bid protest must contain a complete statement of any and all bases for the protest and all supporting documentation. Materials submitted after the bid protest deadline will not be considered.
 - c. The protest must refer to the specific portions of all documents that form the basis for the protest.
 - (1) Without limitation to any other basis for protest, an inadvertent error in listing the California contractor's license number on the Designated Subcontractors List shall not be grounds for filing a bid protest or grounds for considering the bid nonresponsive if the correct contractor's license number is submitted to the District within 24 hours after the bid opening and the corrected number corresponds with the submitted name and location for that subcontractor.
 - (2) Without limitation to any other basis for protest, an inadvertent error listing an unregistered subcontractor shall not be grounds for filing a bid protest or grounds for considering the bid nonresponsive provided that any of the following apply:
 - (i) The subcontractor is registered prior to the bid opening.
 - (ii) The subcontractor is registered and has paid the penalty registration fee within 24 hours after the bid opening.
 - (iii) The subcontractor is replaced by another registered subcontractor pursuant to Public Contract Code section 4107.
 - d. The protest must include the name, address and telephone number of the person representing the protesting party.
 - e. The party filing the protest must concurrently transmit a copy of the protest and any attached documentation to all other parties with a direct financial interest that may be adversely affected by the outcome of the protest. Such parties shall include all other bidders or proposers who appear to have a

reasonable prospect of receiving an award depending upon the outcome of the protest.

- f. The procedure and time limits set forth in this paragraph are mandatory and are each bidder's sole and exclusive remedy in the event of bid protest. Failure to comply with these procedures shall constitute a waiver of any right to further pursue the bid protest, including filing a Government Code Claim or legal proceedings.
29. The Bidder to whom Contract is awarded shall execute and submit the following documents by 5:00 p.m. of the **SEVENTH (7th)** calendar day following the date of the Notice of Award. Failure to properly and timely submit these documents entitles District to reject the bid as nonresponsive.
- a. Agreement: To be executed by successful Bidder. Submit four (4) copies, each bearing an original signature.
 - b. Escrow of Bid Documentation: This must include all required documentation. See the document titled Escrow Bid Documentation for more information.
 - c. Performance Bond (100%): On the form provided in the Contract Documents and fully executed as indicated on the form.
 - d. Payment Bond (Contractor's Labor and Material Bond) (100%): On the form provided in the Contract Documents and fully executed as indicated on the form.
 - e. Insurance Certificates and Endorsements as required.
 - f. Workers' Compensation Certification.
 - g. Prevailing Wage and Related Labor Requirements Certification.
 - h. Disabled Veteran Business Enterprise Participation Certification.
 - i. Drug-Free Workplace Certification.
 - j. Tobacco-Free Environment Certification.
 - k. Hazardous Materials Certification.
 - l. Lead-Based Materials Certification.
 - m. Imported Materials Certification.
 - n. Criminal Background Investigation/Fingerprinting Certification.
 - o. Buy American Certification.
 - p. Registered Subcontractors List: Must include Department of Industrial Relations (DIR) registration number of each subcontractor for all tiers.

30. Time for Completion: District may issue a Notice to Proceed within **NINETY (90)** days from the date of the Notice of Award. Once Contractor has received the Notice to Proceed, Contractor shall complete the Work within the period of time indicated in the Contract Documents.
- a. In the event that the District desires to postpone issuing the Notice to Proceed beyond this 90-day period, it is expressly understood that with reasonable notice to the Contractor, the District may postpone issuing the Notice to Proceed.
 - b. It is further expressly understood by Contractor that Contractor shall not be entitled to any claim of additional compensation as a result of the postponement of the issuance of the Notice to Proceed beyond a 90-day period. If the Contractor believes that a postponement of issuance of the Notice to Proceed will cause a hardship to the Contractor, the Contractor may terminate the Contract. Contractor's termination due to a postponement beyond this 90-day period shall be by written notice to District within **TEN (10)** calendar days after receipt by Contractor of District's notice of postponement.
 - c. It is further understood by the Contractor that in the event that Contractor terminates the Contract as a result of postponement by the District, the District shall only be obligated to pay Contractor for the Work that Contractor had performed at the time of notification of postponement and which the District had in writing authorized Contractor to perform prior to issuing a Notice to Proceed.
 - d. Should the Contractor terminate the Contract as a result of a notice of postponement, District shall have the authority to award the Contract to the next lowest responsive responsible bidder.
31. District reserves the right to reject any or all bids, including without limitation the right to reject any or all nonconforming, nonresponsive, unbalanced, or conditional bids, to re-bid, and to reject the bid of any bidder if District believes that it would not be in the best interest of the District to make an award to that bidder, whether because the bid is not responsive or the bidder is unqualified or of doubtful financial ability or fails to meet any other pertinent standard or criteria established by District. District also reserves the right to waive any inconsequential deviations or irregularities in any bid. For purposes of this paragraph, an "unbalanced bid" is one having nominal prices for some work items and/or enhanced prices for other work items.
32. It is the policy of the District that no qualified person shall be excluded from participating in, be denied the benefits of, or otherwise be subjected to discrimination in any consideration leading to the award of contract, based on race, color, gender, sexual orientation, political affiliation, age, ancestry, religion, marital status, national origin, medical condition or disability. The Successful Bidder and its subcontractors shall comply with applicable federal and state laws, including, but not limited to the California Fair Employment and Housing Act, beginning with Government Code section 12900, and Labor Code section 1735.
33. Prior to the award of Contract, District reserves the right to consider the responsibility of the Bidder. District may conduct investigations as District deems necessary to assist in the evaluation of any bid and to establish the responsibility, including, without limitation, qualifications and financial ability of Bidders, proposed subcontractors,

suppliers, and other persons and organizations to perform and furnish the Work in accordance with the Contract Documents to District's satisfaction within the prescribed time.

34. Bidder expressly acknowledges that it is familiar with and capable of complying with applicable federal, State, and local requirements relating to COVID-19 or other public health emergency/epidemic/pandemic.

END OF DOCUMENT

EXISTING CONDITIONS

1. Summary

This document describes existing conditions at or near the Project, and use of information available regarding existing conditions. This document is **not** part of the Contract Documents. See General Conditions for definition(s) of terms used herein.

2. Reports and Information on Existing Conditions

- a. Documents providing a general description of the Site and conditions of the Work may have been collected by the Tracy Unified School District ("District"), its consultants, contractors, and tenants. These documents may, but are not required to, include previous contracts, contract specifications, tenant improvement contracts, as-built drawings, utility drawings, and information regarding underground facilities.
- b. Information regarding existing conditions may be inspected at the District offices or the Construction Manager's offices, if any, and copies may be obtained at cost of reproduction and handling upon Bidder's agreement to pay for such copies. These reports, documents, and other information are **not** part of the Contract Documents. These reports, documents, and other information do **not** excuse Contractor from fulfilling Contractor's obligation to independently investigate any or all existing conditions or from using reasonable prudent measures to avoid damaging existing improvements.
- c. Information regarding existing conditions may also be included in the Project Manual, but shall **not** be considered part of the Contract Documents.
- d. Prior to commencing this Work, Contractor and the District's representative shall survey the Site to document the condition of the Site. Contractor will record the survey in digital videotape format and provide an electronic copy to the District within fourteen (14) days of the survey.
- e. Contractor may also document any pre-existing conditions in writing, provided that both the Contractor and the District's representative agree on said conditions and sign a memorandum documenting the same.
- f. The reports and other data or information regarding existing conditions and underground facilities at or contiguous to the Project are the following:
 - (1) Original Construction Drawings.
 - (2) Survey of Site.
 - (3) Geotechnical Report(s).
 - (4) Hazardous Material Report(s).

3. Use of Information

- a. Information regarding existing conditions was obtained only for use of District and its consultants, contractors, and tenants for planning and design and is **not** part of the Contract Documents.
- b. District does not warrant, and makes no representation regarding, the accuracy or thoroughness of any information regarding existing conditions. Bidder represents and agrees that in submitting a bid it is not relying on any information regarding existing conditions supplied by District.
- c. Under no circumstances shall District be deemed to warrant or represent existing above-ground conditions, as-built conditions, or other actual conditions, verifiable by independent investigation. These conditions are verifiable by Bidder by the performance of its own independent investigation that Bidder must perform as a condition to bidding and Bidder should not and shall not rely on this information or any other information supplied by District regarding existing conditions.
- d. Any information shown or indicated in the reports and other data supplied herein with respect to existing underground facilities at or contiguous to the Project may be based upon information and data furnished to District by the District's employees and/or consultants or builders of such underground facilities or others. District does not assume responsibility for the completeness of this information, and Bidder is solely responsible for any interpretation or conclusion drawn from this information.
- e. District shall be responsible only for the general accuracy of information regarding underground facilities, and only for those underground facilities that are owned by District, and only where Bidder has conducted the independent investigation required of it pursuant to the Instructions to Bidders, and discrepancies are not apparent.

4. Investigations/Site Examinations

- a. Before submitting a bid, each Bidder is responsible for conducting or obtaining any additional or supplementary examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, and underground facilities) at or contiguous to the Site or otherwise, that may affect cost, progress, performance, or furnishing of Work or that relate to any aspect of the means, methods, techniques, sequences, or procedures of construction to be employed by Bidder and safety precautions and programs incident thereto or that Bidder deems necessary to determine its Bid for performing and furnishing the Work in accordance with the time, price, and other terms and conditions of Contract Documents.
- b. On request, District will provide each Bidder access to the Site to conduct such examinations, investigations, explorations, tests, and studies, as each Bidder deems necessary for submission of a bid. Bidders must fill all holes and clean up and restore the Site to its former condition upon completion of its explorations, investigations, tests, and studies. Such investigations and Site examinations may be performed during any and all Site visits indicated in the Notice to Bidders and only under the provisions of the Contract

Documents, including, but not limited to, proof of insurance and obligation to indemnify against claims arising from such work, and District's prior approval.

END OF DOCUMENT

GEOTECHNICAL DATA

1. Summary

This document describes geotechnical data at or near the Project that is in the District's possession available for Contractor's review, and use of data resulting from various investigations. This document is **not** part of the Contract Documents. See General Conditions for definition(s) of terms used herein.

2. Geotechnical Reports

- a. Geotechnical reports may have been prepared for and around the Site and/or in connection with the Work by soil investigation engineers hired by Tracy Unified School District ("District"), and its consultants, contractors, and tenants.
- b. Geotechnical reports may be inspected at the District offices or the Construction Manager's offices, if any, and copies may be obtained at cost of reproduction and handling upon Bidder's agreement to pay for such copies. These reports are **not** part of the Contract Documents.
- c. The reports and drawings of physical conditions that may relate to the Project are the following:

3. Use of Data

- a. Geotechnical data were obtained only for use of District and its consultants, contractors, and tenants for planning and design and are **not** a part of Contract Documents.
- b. Except as expressly set forth below, District does not warrant, and makes no representation regarding, the accuracy or thoroughness of any geotechnical data. Bidder represents and agrees that in submitting a bid it is not relying on any geotechnical data supplied by District, except as specifically allowed
- c. Under no circumstances shall District be deemed to make a warranty or representation of existing above ground conditions, as-built conditions, geotechnical conditions, or other actual conditions verifiable by independent investigation. These conditions are verifiable by Bidder by the performance of its own independent investigation that Bidder should perform as a condition to bidding and Bidder must not and shall not rely on information supplied by District.

4. Limited Reliance Permitted on Certain Information

- a. Reference is made herein for identification of:

Reports of explorations and tests of subsurface conditions at or contiguous to the Site that have been utilized by District in preparation of the Contract Documents.

Drawings of physical conditions in or relating to existing subsurface structures (except underground facilities) that are at or contiguous to the Site and have been utilized by District in preparation of the Contract Documents.

- b. Bidder may rely upon the general accuracy of the "technical data" contained in the reports and drawings identified above, but only insofar as it relates to subsurface conditions, provided Bidder has conducted the independent investigation required pursuant to Instructions to Bidders, and discrepancies are not apparent. The term "technical data" in the referenced reports and drawings shall be limited as follows:

- (1) The term "technical data" shall include actual reported depths, reported quantities, reported soil types, reported soil conditions, and reported material, equipment or structures that were encountered during subsurface exploration. The term "technical data" does not include, and Bidder may not rely upon, any other data, interpretations, opinions or information shown or indicated in such drawings or reports that otherwise relate to subsurface conditions or described structures.
- (2) The term "technical data" shall not include the location of underground facilities.
- (3) Bidder may not rely on the completeness of reports and drawings for the purposes of bidding or construction. Bidder may rely upon the general accuracy of the "technical data" contained in such reports or drawings.
- (4) Bidder is solely responsible for any interpretation or conclusion drawn from any "technical data" or any other data, interpretations, opinions, or information provided in the identified reports and drawings.

5. Investigations/Site Examinations

- a. Before submitting a bid, each Bidder is responsible for conducting or obtaining any additional or supplementary examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, and underground facilities) at or contiguous to the Site or otherwise, that may affect cost, progress, performance, or furnishing of Work or that relate to any aspect of the means, methods, techniques, sequences, or procedures of construction to be employed by Bidder and safety precautions and programs incident thereto or that Bidder deems necessary to determine its Bid for performing and furnishing the Work in accordance with the time, price, and other terms and conditions of Contract Documents.
- b. On request, District will provide each Bidder access to the Site to conduct such examinations, investigations, explorations, tests, and studies, as each Bidder

deems necessary for submission of a bid. Bidders must fill all holes and clean up and restore the Site to its former condition upon completion of its explorations, investigations, tests, and studies. Such investigations and Site examinations may be performed during any and all Site visits indicated in the Notice to Bidders and only under the provisions of the Contract Documents, including, but not limited to, proof of insurance and obligation to indemnify against claims arising from such work, and District's prior approval.

END OF DOCUMENT

BID FORM AND PROPOSAL

To: Governing Board of the Tracy Unified School District ("District" or "Owner")

From: _____
(Proper Name of Bidder)

The undersigned declares that Bidder has read and understands the Contract Documents, including, without limitation, the Notice to Bidders and the Instructions to Bidders, and agrees and proposes to furnish all necessary labor, materials, and equipment to perform and furnish all work in accordance with the terms and conditions of the Contract Documents, including, without limitation, the Drawings and Specifications of Bid No. _____, for the following project known as:

VILLALOVOZ ELEMENTARY SCHOOL INCREMENT #2 2023

("Project" or "Contract") and will accept in full payment for that Work the following total lump sum amount, all taxes included:

BID BEFORE ALLOWANCE	\$ _____
UNFORESEEN ALLOWANCE 10% OF BID BEFORE ALLOWANCE	\$ _____

_____ dollars	\$ _____
TOTAL BASE BID (INCLUDING ALLOWANCE)	
<i>Bidder acknowledges and agrees that the Base Bid accounts for any and all Allowance(s).</i>	

Additive/Deductive Alternates:

Alternate #1

_____ dollars	\$ _____
Additive/Deductive	
Add Alt #1: Interior lighting replacement per plan sheets E2.1.1-2, E2.1.2-2, E2.1.3-2, E2.1.4-2, E2.2.1-2, E2.2.2-2, E2.3.1-2, E2.3.2-2, E2.4.1-2, E2.4.2-2	

Descriptions of alternates are primarily scope definitions and do not necessarily detail the full range of materials and processes needed to complete the construction.

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Additional Detail Regarding Calculation of Base Bid

1. **Allowance.** The Bidder's Base Bid and each alternate shall include a ten percent (10%) allowance for Unforeseen Conditions.

The above allowance shall only be allocated for unforeseen items relating to the Work. Contractor shall not bill for or be due any portion of this allowance unless the District has identified specific work, Contractor has submitted a price for that work or the District has proposed a price for that work, the District has accepted the cost for that work, and the District has prepared an Allowance Expenditure Directive incorporating that work. Contractor hereby authorizes the District to execute a unilateral deductive change order at or near the end of the Project for all or any portion of the allowance not allocated. Any unused portion of the allowance will revert back to the District documented by a deductive change order.

2. The undersigned has reviewed the Work outlined in the Contract Documents and fully understands the scope of Work required in this Proposal, understands the construction and project management function(s) is described in the Contract Documents, and that each Bidder who is awarded a contract shall be in fact a prime contractor, not a subcontractor, to the District, and agrees that its Proposal, if accepted by the District, will be the basis for the Bidder to enter into a contract with the District in accordance with the intent of the Contract Documents.
3. The undersigned has notified the District in writing of any discrepancies or omissions or of any doubt, questions, or ambiguities about the meaning of any of the Contract Documents, and has contacted the Construction Manager before bid date to verify the issuance of any clarifying Addenda.
4. The undersigned agrees to commence work under this Contract on the date established in the Contract Documents and to complete all work within the time specified in the Contract Documents.
5. The liquidated damages clause of the General Conditions and Agreement is hereby acknowledged.
6. It is understood that the District reserves the right to reject this bid and that the bid shall remain open to acceptance and is irrevocable for a period of ninety (90) days.
7. The following documents are attached hereto:
 - Bid Bond on the District's form or other security
 - Designated Subcontractors List
 - Site Visit Certification
 - Non-Collusion Declaration
 - Iran Contracting Act Certification

8. Receipt and acceptance of the following Addenda is hereby acknowledged:

No. _____, Dated _____	No. _____, Dated _____
No. _____, Dated _____	No. _____, Dated _____
No. _____, Dated _____	No. _____, Dated _____

9. Bidder acknowledges that the license required for performance of the Work is a **A and /or B** license.
10. Bidder hereby certifies that Bidder is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the Work.
11. Bidder specifically acknowledges and understands that if it is awarded the Contract, that it shall perform the Work of the Project while complying with all requirements of the Department of Industrial Relations.
12. Bidder hereby certifies that its bid includes sufficient funds to permit Bidder to comply with all local, state or federal labor laws or regulations during the Project, including payment of prevailing wage, and that Bidder will comply with the provisions of Labor Code section 2810(d) if awarded the Contract
13. Bidder represents that it is competent, knowledgeable, and has special skills with respect to the nature, extent, and inherent conditions of the Work to be performed. Bidder further acknowledges that there are certain peculiar and inherent conditions existent in the construction of the Work that may create, during the Work, unusual or peculiar unsafe conditions hazardous to persons and property.
14. Bidder expressly acknowledges that it is aware of such peculiar risks and that it has the skill and experience to foresee and to adopt protective measures to adequately and safely perform the Work with respect to such hazards.
15. Bidder expressly acknowledges that it is familiar with and capable of complying with applicable federal, State, and local requirements relating to COVID-19 or other public health emergency/epidemic/pandemic including, if required, preparing, posting, and implementing a Social Distancing Protocol.
16. Bidder expressly acknowledges that it is aware that if a false claim is knowingly submitted (as the terms "claim" and "knowingly" are defined in the California False Claims Act, Gov. Code, § 12650 et seq.), the District will be entitled to civil remedies set forth in the California False Claim Act. It may also be considered fraud and the Contractor may be subject to criminal prosecution.
17. The undersigned Bidder certifies that it is, at the time of bidding, and shall be throughout the period of the Contract, licensed by the State of California to do the type of work required under the terms of the Contract Documents and registered as a public works contractor with the Department of Industrial Relations. Bidder further

certifies that it is regularly engaged in the general class and type of work called for in the Contract Documents.

Furthermore, Bidder hereby certifies to the District that all representations, certifications, and statements made by Bidder, as set forth in this bid form, are true and correct and are made under penalty of perjury.

Dated this _____ day of _____ 20 ____

Name of Bidder: _____

Type of Organization: _____

Signature: _____

Print Name: _____

Title: _____

Address of Bidder: _____

Taxpayer Identification No. of Bidder: _____

Telephone Number: _____

Fax Number: _____

E-mail: _____ Web Page: _____

Contractor's License No(s): No.: _____ Class: _____ Expiration Date: _____

No.: _____ Class: _____ Expiration Date: _____

No.: _____ Class: _____ Expiration Date: _____

Public Works Contractor Registration No.: _____

END OF DOCUMENT

BID BOND

(Note: If Bidder is providing a bid bond as its bid security, Bidder must use this form, NOT a surety company form.)

KNOW ALL PERSONS BY THESE PRESENTS:

That the undersigned, _____, as Principal ("Principal"),

and _____, as Surety ("Surety"), a corporation organized and existing under and by virtue of the laws of the State of California and authorized to do business as a surety in the State of California, are held and firmly bound unto the Tracy Unified School District ("District") of San Joaquin County, State of California, as Obligee, in an amount equal to ten percent (10%) of the Base Bid plus alternates, in the sum of

_____ Dollars (\$ _____)

lawful money of the United States of America, for the payment of which sum well and truly to be made, we, and each of us, bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH that whereas the Principal has submitted a bid to the District for all Work specifically described in the accompanying bid for the following project: _____ ("Project" or "Contract").

NOW, THEREFORE, if the Principal is awarded the Contract and, within the time and manner required under the Contract Documents, after the prescribed forms are presented to Principal for signature, enters into a written contract, in the prescribed form in accordance with the bid, and files two bonds, one guaranteeing faithful performance and the other guaranteeing payment for labor and materials as required by law, and meets all other conditions to the Contract between the Principal and the Obligee becoming effective, or if the Principal shall fully reimburse and save harmless the Obligee from any damage sustained by the Obligee through failure of the Principal to enter into the written contract and to file the required performance and labor and material bonds, and to meet all other conditions to the Contract between the Principal and the Obligee becoming effective, then this obligation shall be null and void; otherwise, it shall be and remain in full force and effect. The full payment of the sum stated above shall be due immediately if Principal fails to execute the Contract within seven (7) days of the date of the District's Notice of Award to Principal.

Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract or the call for bids, or to the work to be performed thereunder, or the specifications accompanying the same, shall in any way affect its obligation under this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract or the call for bids, or to the work, or to the specifications.

In the event suit is brought upon this bond by the Obligee and judgment is recovered, the Surety shall pay all costs incurred by the Obligee in such suit, including a reasonable attorneys' fee to be fixed by the Court.

If the District awards the bid, the security of unsuccessful bidder(s) shall be returned within sixty (60) days from the time the award is made. Unless otherwise required by law, no bidder may withdraw its bid for ninety (90) days after the date of the bid opening.

IN WITNESS WHEREOF, this instrument has been duly executed by the Principal and Surety above named, on the _____ day of _____, 20____.

Principal

By

Surety

By

Name of California Agent of Surety

Address of California Agent of Surety

Telephone Number of California Agent of Surety

Bidder must attach Power of Attorney and Certificate of Authority for Surety and a Notarial Acknowledgment for all Surety's signatures. The California Department of Insurance must authorize the Surety to be an admitted Surety Insurer.

END OF DOCUMENT

DESIGNATED SUBCONTRACTORS LIST
(Public Contact Code Sections 4100-4114)

PROJECT: **VILLALOVOZ ELEMENTARY SCHOOL INCREMENT #2 2023**

Bidder acknowledges and agrees that it must clearly set forth below the name, location and California contractor license number of each subcontractor who will perform work or labor or render service to the Bidder in or about the construction of the Work or who will specially fabricate and install a portion of the Work according to detailed drawings contained in the plans and specifications in an amount in excess of one-half of one percent (0.5%) of Bidder's total Base Bid and the kind of Work that each will perform. Vendors or suppliers of materials only do not need to be listed.

Bidder acknowledges and agrees that, if Bidder fails to list as to any portion of Work, or if Bidder lists more than one subcontractor to perform the same portion of Work, Bidder must perform that portion itself or be subjected to penalty under applicable law. In case more than one subcontractor is named for the same kind of Work, state the portion of the kind of Work that each subcontractor will perform.

If alternate bid(s) is/are called for and Bidder intends to use subcontractors different from or in addition to those subcontractors listed for work under the Base Bid, Bidder must list subcontractors that will perform Work in an amount in excess of one half of one percent (0.5%) of Bidder's total Base Bid plus alternate(s).

If further space is required for the list of proposed subcontractors, attach additional copies of page 2 showing the required information, as indicated below.

Subcontractor Name: _____

CA Cont. Lic. #: _____ Location: _____

DIR Registration #: _____

Portion of Work: _____

Subcontractor Name: _____

CA Cont. Lic. #: _____ Location: _____

DIR Registration #: _____

Portion of Work: _____

Subcontractor Name: _____

CA Cont. Lic. #: _____ Location: _____

DIR Registration #: _____

Portion of Work: _____

Subcontractor Name: _____

CA Cont. Lic. #: _____ Location: _____

DIR Registration #: _____

Portion of Work: _____

Subcontractor Name: _____

CA Cont. Lic. #: _____ Location: _____

DIR Registration #: _____

Portion of Work: _____

Subcontractor Name: _____

CA Cont. Lic. #: _____ Location: _____

DIR Registration #: _____

Portion of Work: _____

Subcontractor Name: _____

CA Cont. Lic. #: _____ Location: _____

DIR Registration #: _____

Portion of Work: _____

Subcontractor Name: _____

CA Cont. Lic. #: _____ Location: _____

DIR Registration #: _____

Portion of Work: _____

Date: _____

Proper Name of Bidder: _____

Signature: _____

Print Name: _____

Title: _____

END OF DOCUMENT

SITE VISIT CERTIFICATION

TO BE EXECUTED BY BIDDER AND SUBMITTED WITH BID
IF SITE VISIT WAS MANDATORY

PROJECT: **VILLALOVOZ ELEMENTARY SCHOOL INCREMENT #2 2023**

Check option that applies:

_____ I certify that I visited the Site of the proposed Work, received the attached _____ pages of information, and became fully acquainted with the conditions relating to construction and labor. I fully understand the facilities, difficulties, and restrictions attending the execution of the Work under contract.

_____ I certify that _____ (Bidder's representative) visited the Site of the proposed Work, received the attached _____ pages of information, and became fully acquainted with the conditions relating to construction and labor. The Bidder's representative fully understood the facilities, difficulties, and restrictions attending the execution of the Work under contract.

Bidder fully indemnifies the Tracy Unified School District, its Architect, its Engineers, its Construction Manager, and all of their respective officers, agents, employees, and consultants from any damage, or omissions, related to conditions that could have been identified during my visit and/or the Bidder's representative's visit to the Site.

I certify under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Date: _____

Proper Name of Bidder: _____

Signature: _____

Print Name: _____

Title: _____

ATTACHMENTS:

- 1.
- 2.
- 3.

END OF DOCUMENT

**NON-COLLUSION DECLARATION
(Public Contract Code Section 7106)**

The undersigned declares:

I am the _____ of _____, the party making the foregoing bid.
[Title] [Name of Firm]

The bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation. The bid is genuine and not collusive or sham. The bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid. The bidder has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or to refrain from bidding. The bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the bidder or any other bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other bidder. All statements contained in the bid are true. The bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, to any corporation, partnership, company, association, organization, bid depository, or to any member or agent thereof, to effectuate a collusive or sham bid, and has not paid, and will not pay, any person or entity for such purpose.

Any person executing this declaration on behalf of a bidder that is a corporation, partnership, joint venture, limited liability company, limited liability partnership, or any other entity, hereby represents that he or she has full power to execute, and does execute, this declaration on behalf of the bidder.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct and that this declaration is executed on _____,
[Date]

at _____, _____.
[City] [State]

Date: _____

Proper Name of Bidder: _____

Signature: _____

Print Name: _____

Title: _____

END OF DOCUMENT

IRAN CONTRACTING ACT CERTIFICATION
(Public Contract Code Sections 2202-2208)

PROJECT/CONTRACT NO.: _____ between the Tracy Unified School District ("District") and _____ ("Contractor" or "Bidder") ("Contract" or "Project").

Prior to bidding on or submitting a proposal for a contract for goods or services of \$1,000,000 or more, the bidder/proposer must submit this certification pursuant to Public Contract Code section 2204.

The bidder/proposer must complete **ONLY ONE** of the following two options. To complete OPTION 1, check the corresponding box **and** complete the certification below. To complete OPTION 2, check the corresponding box, complete the certification below, and attach documentation demonstrating the exemption approval.

☐ **OPTION 1.** Bidder/Proposer is not on the current list of persons engaged in investment activities in Iran created by the California Department of General Services ("DGS") pursuant to Public Contract Code section 2203(b), and we are not a financial institution extending twenty million dollars (\$20,000,000) or more in credit to another person, for 45 days or more, if that other person will use the credit to provide goods or services in the energy sector in Iran and is identified on the current list of persons engaged in investment activities in Iran created by DGS.

☐ **OPTION 2.** Bidder/Proposer has received a written exemption from the certification requirement pursuant to Public Contract Code sections 2203(c) and (d). *A copy of the written documentation demonstrating the exemption approval is included with our bid/proposal.*

CERTIFICATION:

I, the official named below, CERTIFY UNDER PENALTY OF PERJURY, that I am duly authorized to legally bind the bidder/proposer to the OPTION selected above. This certification is made under the laws of the State of California.

<i>Vendor Name/Financial Institution (Printed)</i>	<i>Federal ID Number (or n/a)</i>
<i>By (Authorized Signature)</i>	
<i>Printed Name and Title of Person Signing</i>	<i>Date Executed</i>

END OF DOCUMENT

WORKERS' COMPENSATION CERTIFICATION

PROJECT/CONTRACT NO.: _____ between the Tracy Unified School District ("District") and _____ ("Contractor" or "Bidder") ("Contract" or "Project").

Labor Code section 3700, in relevant part, provides:

Every employer except the State shall secure the payment of compensation in one or more of the following ways:

- a. By being insured against liability to pay compensation by one or more insurers duly authorized to write compensation insurance in this state; and/or
- b. By securing from the Director of Industrial Relations a certificate of consent to self-insure, which may be given upon furnishing proof satisfactory to the Director of Industrial Relations of ability to self-insure and to pay any compensation that may become due to his employees.

I am aware of the provisions of section 3700 of the Labor Code which require every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that code, and I will comply with such provisions before commencing the performance of the Work of this Contract.

Date: _____

Proper Name of Contractor: _____

Signature: _____

Print Name: _____

Title: _____

(In accordance with Labor Code sections 1860 and 1861, the above certificate must be signed and filed with the awarding body prior to performing any Work under this Contract.)

END OF DOCUMENT

**PREVAILING WAGE AND
RELATED LABOR REQUIREMENTS CERTIFICATION**

PROJECT/CONTRACT NO.: _____ between the Tracy Unified School District ("District") and _____ ("Contractor" or "Bidder") ("Contract" or "Project").

I hereby certify that I will conform to the State of California Public Works Contract requirements regarding prevailing wages, benefits, on-site audits with 48-hours' notice, payroll records, and apprentice and trainee employment requirements, for all Work on the above Project including, without limitation, labor compliance monitoring and enforcement by the Department of Industrial Relations.

Date: _____

Proper Name of Contractor: _____

Signature: _____

Print Name: _____

Title: _____

END OF DOCUMENT

**DISABLED VETERAN BUSINESS
ENTERPRISE PARTICIPATION CERTIFICATION**

PROJECT/CONTRACT NO.: _____ between the Tracy Unified School District ("District") and _____ ("Contractor" or "Bidder") ("Contract" or "Project").

GENERAL INSTRUCTIONS

Section 17076.11 of the Education Code requires school districts using, or planning to use, funds allocated pursuant to the State of California School Facility Program ("Program") for the construction and/or modernization of school buildings to have a participation goal for disabled veteran business enterprises ("DVBE") of at least three percent (3%) per year of the overall dollar amount expended each year by the school district on projects that receive state funding. Therefore, the lowest responsive responsible Bidder awarded the Contract must submit this document to the District with its executed Agreement, identifying the steps contractor took to solicit DVBE participation in conjunction with this Contract. **Do not submit this form with your bids.**

PART I – Method of Compliance with DVBE Participation Goals. Check the appropriate box to indicate your method of committing the contract dollar amount.

YOUR BUSINESS ENTERPRISE IS:	AND YOU WILL	AND YOU WILL
A. <input type="checkbox"/> Disabled veteran owned and your forces will perform at least 3% of this Contract	Include a copy of your DVBE letter from Office of Small Business and Disabled Veterans Business Enterprise Services ("OSDS")*	Complete Part 1 of this form and the Certification
B. <input type="checkbox"/> Disabled veteran owned but is unable to perform 3% of this Contract with your forces	Use DVBE subcontractors /suppliers to bring the Contract participation to at least 3%	Include a copy of each DVBE's letter from OSDS (including yours, if applicable), and complete Part 1 of this form and the Certification
C. <input type="checkbox"/> NOT disabled veteran owned	Use DVBE subcontractors /suppliers for at least 3% of this Contract	
D. <input type="checkbox"/> Unable to meet the required participation goals after good faith efforts	Make good faith efforts, including contacts, advertisement and DVBE solicitation	Complete all of this form and the Certification

* A DVBE letter from OSDS is obtained from the participating DVBE.

You must complete the following table to show the dollar amount of DVBE participation:

	TOTAL CONTRACT PRICE
A. Prime Bidder, if DVBE (own participation)	\$
B. DVBE Subcontractor or Supplier	
1.	
2.	
3.	
4.	
C. Subtotal (A & B)	
D. Non-DVBE	
E. Total Bid	

PART II – Contacts. To identify DVBE subcontractors/suppliers for participation in your contract, you must contact each of the following categories. You should contact several DVBE organizations.

CATEGORY	TELEPHONE NUMBER	DATE CONTACTED	PERSON CONTACTED
1. The District, if any			*
2. OSDS, provides assistance locating DVBEs at https://caleprocure.ca.gov/pages/PublicSearch/supplier-search.aspx	(916) 375-4940		*
3. DVBE Organization (List)			*

*Write "recorded message" in this column, if applicable.

PART III – Advertisement. You must advertise for DVBE participation in both a trade and focus paper. List the advertisement you place to solicit DVBE participation. Advertisements should be published at least fourteen (14) days prior to bid/proposal opening; if you cannot advertise fourteen (14) days prior, advertisements should be published as soon as possible. Advertisements must include that your firm is seeking DVBE participation, the project name and location, and your firm’s name, your contact person, and telephone number. Attach copies of advertisements to this form.

FOCUS/TRADE PAPER NAME	CHECK ONE		DATE OF ADVERTISEMENT
	TRADE	FOCUS	

PART IV – DVBE Solicitations. List DVBE subcontractors/suppliers that were invited to bid. Use the following instructions to complete the remainder of this section (read the three columns as a sentence from left to right). If you need additional space to list DVBE solicitations, please use a separate page and attach to this form.

IF THE DVBE.....	THEN.....		AND.....	
was selected to participate	Check "YES" in the "SELECTED" column		include a copy of their DVBE letter(s) from OSDS	
was NOT selected to participate	Check "NO" in the "SELECTED" column		state why in the "REASON NOT SELECTED" column	
did not respond to your solicitation	Check the "NO RESPONSE" column.			
DVBE CONTACTED	SELECTED		REASON NOT SELECTED	NO RESPONSE
	YES	NO		

A copy of this form must be retained by you and may be subject to a future audit.

CERTIFICATION

I, _____, certify that I am the bidder's _____
and that I have made a diligent effort to ascertain the facts with regard to the representations
made herein. In making this certification, I am aware of section 12650 et seq. of the
Government Code providing for the imposition of treble damages for making false claims.

Date: _____

Proper Name of Contractor: _____

Signature: _____

Print Name: _____

Title: _____

END OF DOCUMENT

DRUG-FREE WORKPLACE CERTIFICATION

PROJECT/CONTRACT NO.: _____ between the Tracy Unified School District ("District") and _____ ("Contractor" or "Bidder") ("Contract" or "Project").

This Drug-Free Workplace Certification form is required from the successful Bidder pursuant to Government Code section 8350 et seq., the Drug-Free Workplace Act of 1990. The Drug-Free Workplace Act of 1990 requires that every person or organization awarded a contract or grant for the procurement of any property or service from any state agency must certify that it will provide a drug-free workplace by doing certain specified acts. In addition, the Act provides that each contract or grant awarded by a state agency may be subject to suspension of payments or termination of the contract or grant, and the contractor or grantee may be subject to debarment from future contracting, if the contracting agency determines that specified acts have occurred.

The District is not a "state agency" as defined in the applicable section(s) of the Government Code, but the District is a local agency and public school district under California law and requires all contractors on District projects to comply with the provisions and requirements of the Drug-Free Workplace Act of 1990.

Contractor must also comply with the provisions of Health & Safety Code section 11362.3 which prohibits the consumption or possession of cannabis or cannabis products in any public place, including school grounds, and specifically on school grounds while children are present.

Contractor shall certify that it will provide a drug-free workplace by doing all of the following:

- a. Publishing a statement notifying employees that the unlawful manufacture, distribution, dispensation, possession, or use of a controlled substance is prohibited in the person's or organization's workplace and specifying actions which will be taken against employees for violations of the prohibition.
- b. Establishing a drug-free awareness program to inform employees about all of the following:
 - (1) The dangers of drug abuse in the workplace.
 - (2) The person's or organization's policy of maintaining a drug-free workplace.
 - (3) The availability of drug counseling, rehabilitation, and employee-assistance programs.
 - (4) The penalties that may be imposed upon employees for drug abuse violations.
- c. Requiring that each employee engaged in the performance of the contract or grant be given a copy of the statement required above, and that, as a condition of employment on the contract or grant, the employee agrees to abide by the terms of the statement.

I, the undersigned, agree to fulfill the terms and requirements of Government Code section 8355 listed above and will publish a statement notifying employees concerning (a) the prohibition of controlled substance at the workplace, (b) establishing a drug-free awareness program, and (c) requiring that each employee engaged in the performance of the Contract be given a copy of the statement required by section 8355(a), and requiring that the employee agree to abide by the terms of that statement.

I also understand that if the District determines that I have either (a) made a false certification herein, or (b) violated this certification by failing to carry out the requirements of section 8355, that the Contract awarded herein is subject to termination, suspension of payments, or both. I further understand that, should I violate the terms of the Drug-Free Workplace Act of 1990, I may be subject to debarment in accordance with the requirements of the aforementioned Act.

I acknowledge that I am aware of the provisions of and hereby certify that I will adhere to the requirements of the Drug-Free Workplace Act of 1990 and Health and Safety Code section 11362.3.

Date: _____

Proper Name of Contractor: _____

Signature: _____

Print Name: _____

Title: _____

END OF DOCUMENT

TOBACCO-FREE ENVIRONMENT CERTIFICATION

PROJECT/CONTRACT NO.: _____ between the Tracy Unified School District ("District") and _____ ("Contractor" or "Bidder") ("Contract" or "Project").

This Tobacco-Free Environment Certification form is required from the successful Bidder.

Pursuant to, without limitation, 20 U.S.C. section 6083, Labor Code section 6400 et seq., Health & Safety Code section 104350 et seq., Business and Professions Code section 22950 et seq., and District Board policies, all District sites, including the Project site, are tobacco-free environments. Smoking and the use of tobacco products by all persons is prohibited on or in District property. District property includes school buildings, school grounds, school-owned vehicles and vehicles owned by others while on District property. The prohibition on smoking includes the use of any electronic smoking device that creates an aerosol or vapor, in any manner or in any form, and the use of any oral smoking device for the purpose of circumventing the prohibition of tobacco smoking. Further, Health & Safety Code section 11362.3 prohibits the smoking or use of cannabis or cannabis products in any place where smoking tobacco is prohibited.

I acknowledge that I am aware of the District's policy regarding tobacco-free environments at District sites, including the Project site and hereby certify that I will adhere to the requirements of that policy and not permit any of my firm's employees, agents, subcontractors, or my firm's subcontractors' employees or agents, to use tobacco and/or smoke on the Project site.

Date: _____

Proper Name of Contractor: _____

Signature: _____

Print Name: _____

Title: _____

END OF DOCUMENT

HAZARDOUS MATERIALS CERTIFICATION

PROJECT/CONTRACT NO.: _____ between Tracy Unified School District ("District") and _____ ("Contractor" or "Bidder") ("Contract" or "Project").

1. Contractor hereby certifies that no asbestos, or asbestos-containing materials, polychlorinated biphenyl (PCB), or any material listed by the federal or state Environmental Protection Agency or federal or state health agencies as a hazardous material, or any other material defined as being hazardous under federal or state laws, rules, or regulations, ("New Hazardous Material"), shall be furnished, installed, or incorporated in any way into the Project or in any tools, devices, clothing, or equipment used to affect any portion of Contractor's work on the Project for District.
2. Contractor further certifies that it has instructed its employees with respect to the above-mentioned standards, hazards, risks, and liabilities.
3. Asbestos and/or asbestos-containing material shall be defined as all items containing but not limited to chrysotile, crocidolite, amosite, anthophyllite, tremolite, and actinolite. Any or all material containing greater than one-tenth of one percent (0.1%) asbestos shall be defined as asbestos-containing material.
4. Any disputes involving the question of whether or not material is New Hazardous Material shall be settled by electron microscopy or other appropriate and recognized testing procedure, at the District's determination. The costs of any such tests shall be paid by Contractor if the material is found to be New Hazardous Material.
5. All Work or materials found to be New Hazardous Material or Work or material installed with equipment containing New Hazardous Material will be immediately rejected and this Work will be removed at Contractor's expense at no additional cost to the District.
6. Contractor has read and understood the document titled Hazardous Materials Procedures & Requirements, and shall comply with all the provisions outlined therein. Contractor certifies that it is knowledgeable of, and shall comply with, all laws applicable to the Work including, but not limited to, all federal, state, and local laws, statutes, standards, rules, regulations, and ordinances applicable to the Work.

Date: _____

Proper Name of Contractor: _____

Signature: _____

Print Name: _____

Title: _____

END OF DOCUMENT

LEAD-BASED MATERIALS CERTIFICATION

PROJECT/CONTRACT NO.: _____ between the Tracy Unified School District ("District") and _____ ("Contractor" or "Bidder") ("Contract" or "Project").

This certification provides notice to the Contractor that:

- (1) Contractor's work may disturb lead-containing building materials.
- (2) Contractor shall notify the District if any work may result in the disturbance of lead-containing building materials.
- (3) Contractor shall comply with the Renovation, Repair and Painting Rule, if lead-based paint is disturbed in a six-square-foot or greater area indoors or a 20-square-foot or greater area outdoors.

1. Lead as a Health Hazard

Lead poisoning is recognized as a serious environmental health hazard facing children today. Even at low levels of exposure, much lower than previously believed, lead can impair the development of a child's central nervous system, causing learning disabilities, and leading to serious behavioral problems. Lead enters the environment as tiny lead particles and lead dust disburses when paint chips, chalks, peels, wears away over time, or is otherwise disturbed. Ingestion of lead dust is the most common pathway of childhood poisoning; lead dust gets on a child's hands and toys and then into a child's mouth through common hand-to-mouth activity. Exposures may result from construction or remodeling activities that disturb lead paint, from ordinary wear and tear of windows and doors, or from friction on other surfaces.

Ordinary construction and renovation or repainting activities carried out without lead-safe work practices can disturb lead-based paint and create significant hazards. Improper removal practices, such as dry scraping, sanding, or water blasting painted surfaces, are likely to generate high volumes of lead dust.

Because the Contractor and its employees will be providing services for the District, and because the Contractor's work may disturb lead-containing building materials, CONTRACTOR IS HEREBY NOTIFIED of the potential presence of lead-containing materials located within certain buildings utilized by the District. All school buildings built prior to 1978 are presumed to contain some lead-based paint until sampling proves otherwise.

2. Overview of California Law

Education Code section 32240 et seq. is known as the Lead-Safe Schools Protection Act. Under this act, the Department of Health Services is to conduct a sample survey of schools in the State of California for the purpose of developing risk factors to predict lead contamination in public schools. (Ed. Code, § 32241.)

Any school that undertakes any action to abate existing risk factors for lead is required to utilize trained and state-certified contractors, inspectors, and workers. (Ed. Code, § 32243, subd. (b).) Moreover, lead-based paint, lead plumbing, and solders, or other potential sources of lead contamination, shall not be utilized in the construction of any new school facility or the modernization or renovation of any existing school facility. (Ed. Code, § 32244.)

Both the Federal Occupational Safety and Health Administration ("Fed/OSHA") and the California Division of Occupational Safety and Health ("Cal/OSHA") have implemented safety orders applicable to all construction work where a contractor's employee may be occupationally exposed to lead.

The OSHA Regulations apply to all construction work where a contractor's employee may be occupationally exposed to lead. The OSHA Regulations contain specific and detailed requirements imposed on contractors subject to those regulations. The OSHA Regulations define construction work as work for construction, alteration, and/or repair, including painting and decorating. Regulated work includes, but is not limited to, the following:

- a. Demolition or salvage of structures where lead or materials containing lead are present;
- b. Removal or encapsulation of materials containing lead;
- c. New construction, alteration, repair, or renovation of structures, substrates, or portions thereof, that contain lead, or materials containing lead;
- d. Installation of products containing lead;
- e. Lead contamination/emergency cleanup;
- f. Transportation, disposal, storage, or containment of lead or materials containing lead on the site or location at which construction activities are performed; and
- g. Maintenance operations associated with the construction activities described in the subsection.

Because it is assumed by the District that all painted surfaces (interior as well as exterior) within the District contain some level of lead, it is imperative that the Contractor, its workers and subcontractors fully and adequately comply with all applicable laws, rules and regulations governing lead-based materials (including title 8, California Code of Regulations, section 1532.1).

Contractor shall notify the District if any Work may result in the disturbance of lead-containing building materials. Any and all Work that may result in the disturbance of lead-containing building materials shall be coordinated through the District. A signed copy of this Certification shall be on file prior to beginning Work on the Project, along with all current insurance certificates.

3. Renovation, Repair and Painting Rule, Section 402(c)(3) of the Toxic Substances Control Act

The EPA requires lead safe work practices to reduce exposure to lead hazards created by renovation, repair and painting activities that disturb lead-based paint. Pursuant to the Renovation, Repair and Painting Rule (RRP), renovations in homes, childcare facilities, and schools built prior to 1978 must be conducted by certified renovations firms, using renovators with training by a EPA-accredited training provider, and fully and adequately complying with all applicable laws, rules and regulations governing lead-based materials, including those rules and regulations appearing within title 40 of the Code of Federal Regulations as part 745 (40 CFR 745).

The RRP requirements apply to all contractors who disturb lead-based paint in a six-square-foot or greater area indoors or a 20-square-foot or greater area outdoors. If a DPH-certified inspector or risk assessor determines that a home constructed before 1978 is lead-free, the federal certification is not required for anyone working on that particular building.

4. Contractor's Liability

If the Contractor fails to comply with any applicable laws, rules, or regulations, and that failure results in a site or worker contamination, the Contractor will be held solely responsible for all costs involved in any required corrective actions, and shall defend, indemnify, and hold harmless the District, pursuant to the indemnification provisions of the Contract, for all damages and other claims arising therefrom.

If lead disturbance is anticipated in the Work, only persons with appropriate accreditation, registrations, licenses, and training shall conduct this Work.

It shall be the responsibility of the Contractor to properly dispose of any and all waste products, including, but not limited to, paint chips, any collected residue, or any other visual material that may occur from the prepping of any painted surface. It will be the responsibility of the Contractor to provide the proper disposal of any hazardous waste by a certified hazardous waste hauler. This company shall be registered with the Department of Transportation (DOT) and shall be able to issue a current manifest number upon transporting any hazardous material from any school site within the District.

The Contractor shall provide the District with any sample results prior to beginning Work, during the Work, and after the completion of the Work. The District may request to examine, prior to the commencement of the Work, the lead training records of each employee of the Contractor.

THE CONTRACTOR HEREBY ACKNOWLEDGES, UNDER PENALTY OF PERJURY, THAT IT:

1. HAS RECEIVED NOTIFICATION OF POTENTIAL LEAD-BASED MATERIALS ON THE OWNER'S PROPERTY;
2. IS KNOWLEDGEABLE REGARDING AND WILL COMPLY WITH ALL APPLICABLE LAWS, RULES, AND REGULATIONS GOVERNING WORK WITH, AND DISPOSAL, OF LEAD.
- 3.

THE UNDERSIGNED WARRANTS THAT HE/SHE HAS THE AUTHORITY TO SIGN ON BEHALF OF AND BIND THE CONTRACTOR. THE DISTRICT MAY REQUIRE PROOF OF SUCH AUTHORITY.

Date: _____

Proper Name of Contractor: _____

Signature: _____

Print Name: _____

Title: _____

END OF DOCUMENT

IMPORTED MATERIALS CERTIFICATION

PROJECT/CONTRACT NO.: _____ between the Tracy Unified School District ("District") and _____ ("Contractor" or "Bidder") ("Contract" or "Project").

This form shall be executed by all entities that, in any way, provide or deliver and/or supply any soils, aggregate, or related materials ("Fill") to the Project Site and shall be provided to the District at least ten (10) days before delivery. All Fill shall satisfy all requirements of any environmental review of the Project performed pursuant to the statutes and guidelines of the California Environmental Quality Act, section 21000 et seq. of the Public Resources Code ("CEQA"), and all requirements of section 17210 et seq. of the Education Code, including requirements for a Phase I environmental assessment acceptable to the State of California Department of Education and Department of Toxic Substances Control.

Certification of: ☐ Delivery Firm/Transporter ☐ Supplier ☐ Manufacturer
☐ Wholesaler ☐ Broker ☐ Retailer
☐ Distributor ☐ Other _____

Type of Entity ☐ Corporation ☐ General Partnership
☐ Limited Partnership ☐ Limited Liability Company
☐ Sole Proprietorship ☐ Other _____

Name of firm ("Firm"): _____

Mailing address: _____

Addresses of branch office used for this Project: _____

If subsidiary, name and address of parent company: _____

By my signature below, I hereby certify that I am aware of section 25260 of the Health and Safety Code and the sections referenced therein regarding the definition of hazardous material. I further certify on behalf of the Firm that all soils, aggregates, or related materials provided, delivered, and/or supplied or that will be provided, delivered, and/or supplied by this Firm to the Project Site are free of any and all hazardous material as defined in section 25260 of the Health and Safety Code. I further certify that I am authorized to make this certification on behalf of the Firm.

Date: _____

Proper Name of Firm: _____

Signature: _____

Print Name: _____

Title: _____

END OF DOCUMENT

CRIMINAL BACKGROUND INVESTIGATION
/FINGERPRINTING CERTIFICATION

PROJECT/CONTRACT NO.: _____ between the Tracy Unified School District ("District") and _____ ("Contractor" or "Bidder") ("Contract" or "Project").

The undersigned does hereby certify to the District that I am a representative of the Contractor currently under contract with the District; that I am familiar with the facts herein certified; and that I am authorized and qualified to execute this certificate on behalf of Contractor.

Contractor certifies that it has taken at least one of the following actions (check all that apply):

- ☐ Pursuant to Education Code section 45125.2(a), Contractor has installed or will install, prior to commencement of Work, a physical barrier at the Work Site, that will limit contact between Contractor's employees, Subcontractors or suppliers and District pupils at all times; and/or
- ☐ Pursuant to Education Code section 45125.2(a), Contractor certifies that all employees will be under the continual supervision of, and monitored by, an employee of the Contractor who the California Department of Justice ("DOJ") has ascertained, or as described below, will ascertain, has not been convicted of a violent or serious felony. The name and title of the employee who will be supervising Contractor's and its subcontractors' or suppliers' employees is:

Name: _____

Title: _____

NOTE: If Contractor is a sole proprietor, and elects the above option, Contractor must have the above-named employee's fingerprints prepared and submitted by District for submission to the DOJ, in accordance with Education Code section 45125.1(h). No work shall commence until such determination by DOJ has been made.

- ☐ Pursuant to Education Code section 45125.2(a), the District will take appropriate steps to protect the safety of any pupils that may come in contact with Contractor's employees, subcontractors or suppliers so that the fingerprinting and criminal background investigation requirements of Education Code section 45125.2 shall not apply to Contractor under the Contract.
- ☐ The Work on the Contract is either (i) at an unoccupied school site and no employee of Contractor and/or subcontractor or supplier of any tier of the Contract shall come in contact with the District pupils or (ii) if Contractor's employees or any subcontractor or supplier of any tier of the Contract interacts with pupils, such interaction shall only take place under the immediate supervision and control of the pupil's parent or guardian or a school employee, so that the fingerprinting and criminal background investigation requirements of Education Code section 45125.1 shall not apply to Contractor under the Contract.

- ☐ The Contractor, who is not a sole proprietor, has complied with the fingerprinting requirements of Education Code section 45125.1 with respect to all Contractor's employees and all of its Subcontractors' employees who may have contact with District pupils in the course of providing services pursuant to the Contract, and the DOJ has determined (A) that none of those employees has been convicted of a felony, as that term is defined in Education Code section 45122.1 and/or (B) that the prohibition does not apply to an employee as provided by Education Code section 45125.1(e)(2) or (3). When the Contractor performs the criminal background check, it shall immediately provide any subsequent arrest and conviction information it receives to the District pursuant to the subsequent arrest service. No work shall commence until the Department of Justice ascertains that Contractor's employees and any subcontractors' employees have not been convicted of a felony as defined in Government Code Section 45122.1.

A complete and accurate list of Contractor's employees and of all of its subcontractors' employees who may come in contact with District pupils during the course and scope of the Contract is attached hereto as ATTACHMENT "A;" and/or

- ☐ The Contractor is a sole proprietor and intends to comply with the fingerprinting requirements of Education Code section 45125.1(h) with respect to all Contractor's employees who may have contact with District pupils in the course of providing services pursuant to the Contract, and hereby agrees to the District's preparation and submission of fingerprints such that the DOJ may determine (A) that none of those employees has been convicted of a felony, as that term is defined in Education Code section 45122.1 and/or (B) that the prohibition does not apply to an employee as provided by Education Code section 45125.1(e)(2) or (3). No work shall commence until the Department of Justice ascertains that Contractor's employees and any subcontractors' employees have not been convicted of a felony as defined in Government Code Section 45122.1.

Contractor's responsibility for background clearance extends to all of its employees, Subcontractors or suppliers, and employees of Subcontractors or suppliers coming into contact with District pupils regardless of whether they are designated as employees or acting as independent contractors of the Contractor.

[CONTINUED ON NEXT PAGE]

ATTACHMENT "A"

List of Employees/Subcontractors

Name/Company: _____

Name/Company: _____

Name/Company: _____

Name/Company: _____

Name/Company: _____

Name/Company: _____

Name/Company: _____

Name/Company: _____

Name/Company: _____

Name/Company: _____

Name/Company: _____

Name/Company: _____

Name/Company: _____

Name/Company: _____

Name/Company: _____

Name/Company: _____

Name/Company: _____

If further space is required for the list of employees/subcontractors, attach additional copies of this page.

Date: _____

Proper Name of Contractor: _____

Signature: _____

Print Name: _____

Title: _____

END OF DOCUMENT

BUY AMERICAN CERTIFICATION

PROJECT/CONTRACT NO.: _____ between the Tracy Unified School District ("District") and _____ ("Contractor" or "Bidder") ("Contract" or "Project").

Federal regulations require that all of the iron, steel, and manufactured goods used in projects for the construction, installation, repairs, renovation, modernization, or maintenance of a public building or public work funded in part or in whole by federal stimulus funds, with the exception of projects funded by Qualified School Construction Bonds, be produced in the United States of America, unless a federal department waives this requirement because (1) it is inconsistent with the public interest, (2) the goods are not produced in sufficient quantities or of satisfactory quality in the United States, or (3) the requirement would increase the cost of the Project overall by more than twenty-five percent (25%) ("Buy American").

Contractor shall submit this Certification with its executed agreement, identifying the steps Contractor will take to use goods produced in the United States of America in carrying out this Contract. Bidder should not submit this form with its bid.

Contractor shall retain a copy of this form and may be subject to a future audit.

CERTIFICATION

On behalf of Contractor, I represent and covenant that Contractor will use on the Project only iron, steel and manufactured goods produced in the United States of America except goods for which a federal department has waived this requirement.

I, _____, certify that I am the Contractor's _____ and that the representations and covenants made herein are true and correct. In making this certification, I am aware of section 12650 et seq. of the Government Code providing for the imposition of treble damages for making false claims.

Date: _____

Proper Name of Contractor: _____

Signature: _____

Print Name: _____

Title: _____

END OF DOCUMENT

FEDERAL DEBARMENT CERTIFICATION

PROJECT/CONTRACT NO.: _____ between the Tracy Unified School District ("District") and _____ ("Contractor" or "Bidder") ("Contract" or "Project").

1. Bidder certifies to the best of its knowledge and belief, that it and its principals:

a. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded by any Federal department or Board;

b. Have not within a three-year period preceding this bid been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

c. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (1)(b) of this certification; and

d. Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

2. Where Bidder is unable to certify to any of the statements in this certification, Bidder shall attach an explanation to this certification.

3. Bidder agrees to include the following certification in all subcontracts, for all lower tiers:

"Debarment and Suspension Certification – By submission of its proposal, the contractor (or vendor, or consultant, depending on the transaction) certifies to the best of its knowledge and belief that it and its principals are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency in accordance with 2 CFR 200.213 and 2 CFR 180."

Date: _____

Proper Name of Contractor: _____

Signature: _____

Print Name: _____

Title: _____

END OF DOCUMENT

REGISTERED SUBCONTRACTORS LIST
(Labor Code Section 1771.1)

PROJECT: **VILLALOVOZ ELEMENTARY SCHOOL INCREMENT #2 2023**

Date Submitted (for Updates): _____

Contractor acknowledges and agrees that it must clearly set forth below the name and Department of Industrial Relations (DIR) registration number of each subcontractor **for all tiers** who will perform work or labor or render service to Contractor or its subcontractors in or about the construction of the Work **at least two (2) weeks before the subcontractor is scheduled to perform work**. This document is to be updated as all tiers of subcontractors are identified.

Contractor acknowledges and agrees that, if Contractor fails to list as to any subcontractor of any tier who performs any portion of Work, the Contract is subject to cancellation and the Contractor will be subjected to penalty under applicable law.

If further space is required for the list of proposed subcontractors, attach additional copies of page 2 showing the required information, as indicated below.

Subcontractor Name: _____

DIR Registration #: _____

Portion of Work: _____

Subcontractor Name: _____

DIR Registration #: _____

Portion of Work: _____

Subcontractor Name: _____

DIR Registration #: _____

Portion of Work: _____

Subcontractor Name: _____

DIR Registration #: _____

Portion of Work: _____

Subcontractor Name: _____

DIR Registration #: _____

Portion of Work: _____

Subcontractor Name: _____

DIR Registration #: _____

Portion of Work: _____

Subcontractor Name: _____

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Subcontractor Name: _____

DIR Registration #: _____

Portion of Work: _____

Subcontractor Name: _____

DIR Registration #: _____

Portion of Work: _____

Subcontractor Name: _____

DIR Registration #: _____

Portion of Work: _____

Subcontractor Name: _____

DIR Registration #: _____

Portion of Work: _____

Date: _____

Name of Contractor: _____

Signature: _____

Print Name: _____

Title: _____

END OF DOCUMENT

POST BID INTERVIEW

PART 1 – GENERAL

1.01 SUMMARY

If requested by the District, this Section requires the apparent low bidder to attend and participate in a Post Bid Interview with the Construction Manager, prior to award of any contract by the District. The Post Bid Interview will be scheduled by the Construction Manager within three (3) calendar days after the date of bid.

1.02 REQUIRED ATTENDANCE

- A. A duly authorized representative of the apparent low bidder is required to attend the Post Bid Interview, in person.
- B. The apparent low bidder's authorized representative(s) must have (1) knowledge of how the bid submitted was prepared, (2) the person responsible for supervising performance of the Work, and (3) the authority to bind the apparent low bidder.
- C. Failure to attend the Post Bid Interview as scheduled will be considered just cause for the District to reject the Bid as nonresponsive.

1.03 POST BID INTERVIEW PROCEDURE

- A. The Construction Manager will review the Bid with the attendees.
- B. The Construction Manager will review the Contract Documents with the attendees, including but not limited to:
 - (1) Insurance
 - (2) Bonding
 - (3) Addenda
 - (4) Pre-Bid Clarifications
 - (5) Scope of Work
 - (6) Bid Packages Descriptions
 - (7) Bid Alternates
 - (8) Contract Plans
 - (9) Contract Specifications
 - (10) Project Schedule and Schedule Requirements

- (11) Critical Dates Requirement for Other Bid Packages
- (12) Prevailing Wage Requirements
- (13) Liquidated Damages
- (14) Required Documentation for Contract Administration
- (15) Contract Coordination Requirements

1.04 POST BID INTERVIEW DOCUMENTATION

The Construction Manager will document the Post Bid Interview on the form attached to this Section. Both the apparent low bidder and the Construction Manager are required to sign the Post Bid Interview Documentation.

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK]

POST BID INTERVIEW

CONSTRUCTION MANAGER

[Name]

[Address 1]

[Address 2]

[Phone]

[Fax]

BIDDER: _____

DATE: _____ TIME: _____ PHONE: _____

I. INTRODUCTIONS:

A. Present

CONTRACTOR

CONTRACTOR

[CM]

[CM]

II. PROPOSED CONTRACT:

III. PURPOSE OF INTERVIEW IS TO ASSURE A MUTUAL UNDERSTANDING OF THE FOLLOWING:

- | | | |
|--|-----|----|
| A. Do you acknowledge submission of a complete and accurate bid? | Yes | No |
| B. Do you acknowledge the Bid Document submittal timelines after NOA and NTP and can you meet those timelines? | Yes | No |
| C. Do you acknowledge the requirements for the escrow of bid documents? | Yes | No |
| D. Are you comfortable with your listed subcontractors? | Yes | No |

IV. CONTRACTUAL REQUIREMENTS:

- | | | |
|--|-----|----|
| A. Do you understand you are a prime contractor? | Yes | No |
| B. Can you meet specified insurance requirements? | Yes | No |
| 1. Do any of your policies that require Additional Insured endorsements exceed the minimum coverage requirements? | Yes | No |
| 2. Are you requesting that the District accept an Excess Liability Insurance Policy to meet the policy limit? | Yes | No |
| 3. Will there be a gap between the per occurrence amount of any underlying policy and the start of the coverage under the Umbrella or Excess Liability Insurance Policy? | Yes | No |

C.	Will you provide the Performance Bond and Labor and Material Bond for 100% of the Contract Price as stipulated?	Yes	No
1.	Cost for bonds: _____%	Yes	No
2.	Is the cost of your bonds in your base bid?	Yes	No
3.	Is your surety licensed to issue bonds in California?	Yes	No
D.	Do you understand the fingerprinting requirements?	Yes	No
E.	Is it understood that all workers must be paid prevailing wage?	Yes	No
F.	Is it understood that all subcontractors of every tier must be registered as a public works contractor with the Department of Industrial Relations?	Yes	No
V. SCOPE OF WORK:			
A.	Acknowledged Receipt of Addenda #1-__	Yes	No
B.	Are the costs for addenda items included in your bid? (if applicable)	Yes	No
C.	Do you have a complete understanding of your Scope of Work under the proposed Agreement?	Yes	No
D.	You have re-reviewed the documents and understand the Scope of the Work. Are there any items that require clarification?	Yes	No
If yes, please identify them.			
1.	_____		

2.	_____		

3.	_____		

	Is (are) there additional cost(s) for the above item(s)?	Yes	No
E.	Is the cost for allowance included in your bid?	Yes	No
F.	Have you reviewed bid alternative(s) #1-___? (if applicable)	Yes	No
G.	Are the costs for bid alternatives included in your bid?	Yes	No
H.	Are the plans and specifications clear and understandable to your satisfaction?	Yes	No

- I. Do you acknowledge that the time to submit notice of requests for substitution of specified materials has expired? Yes No
- VI. SCHEDULE:
- A. Do you acknowledge and agree to the stipulated completion dates and milestones in the contract? Yes No
1. Will you provide a detailed construction schedule to _____ within the required ten (10) days of the Notice to Proceed, per the contract? Yes No
2. Can you meet the submittal deadline? Yes No
3. It is understood that the Project schedule is critical and that that weekend and overtime work may be required to meet the milestones. Yes No
4. It is understood that if rain does occur, then all dewatering and protection of work is required, per the contract. Yes No
If not, what do you believe must change and why? _____

- B. Identify critical materials, deliveries, long lead items and other dependencies, including Owner Furnished items that could affect the completion of your work. Yes No
1. _____
2. _____
3. _____
4. _____
5. _____
- C. Do you understand that there is going to be maintenance and other construction taking place on site during the course of the project? Yes No
- VII. EXECUTION OF WORK
- A. Do you understand the access to the site? Yes No
- B. Do you understand the staging area restrictions? Yes No
- C. Have you included protection of [asphalt, floors, and roofs]? Yes No

- D. Do you understand that the site is occupied by students, teachers, administrators, parents, etc.? Yes No

VIII. CONTRACTOR COMMENTS/SUGGESTIONS:

1. _____
2. _____
3. _____
4. _____
5. _____

IX. CONTRACTOR

You agree the information contained herein is part of your contractual obligations. Your signature acknowledges your agreement to perform all Work in the Contract Documents, and that costs for all Work are included in your bid.

The foregoing information is true and accurate, and I am authorized to sign as an officer of the company I am representing.

[Company Name]

Signature _____ Title: _____

Date: _____

X. CONSTRUCTION MANAGER

Signature _____ Title: _____

Date: _____

Title of Document: POST BID INTERVIEW

Number of Pages: _____

Date of Document: _____

END OF DOCUMENT

NOTICE OF AWARD

Dated: _____, 2023

To: _____ (Contractor)

(Address)

From: Governing Board ("Board") of the Tracy Unified School District ("District")

Re: **VILLALOVOZ ELEMENTARY SCHOOL INCREMENT #2 2023** ("Project").

Contractor has been awarded the Contract for the above-referenced Project on _____, 2023, by action of the District's Board.

The Contract Price is _____ Dollars (\$_____), and includes alternates _____.

Three (3) copies of each of the Contract Documents (except Drawings) accompany this Notice of Award. Three (3) sets of the Drawings will be delivered separately or otherwise made available. Additional copies are available at cost of reproduction.

You must comply with the following conditions precedent within **SEVEN (7)** calendar days of the date of this Notice of Award.

The Contractor shall execute and submit the following documents by 5:00 p.m. of the **SEVENTH (7th)** calendar day following the date of the Notice of Award.

- a. Agreement: To be executed by successful Bidder. Submit three (3) copies, each bearing an original signature.
- b. Escrow of Bid Documentation: This must include all required documentation. See the document titled Escrow Bid Documentation for more information.
- c. Performance Bond (100%): On the form provided in the Contract Documents and fully executed as indicated on the form.
- d. Payment Bond (Contractor's Labor & Material Bond) (100%): On the form provided in the Contract Documents and fully executed as indicated on the form.
- e. Insurance Certificates and Endorsements as required.
- f. Workers' Compensation Certification.
- g. Prevailing Wage and Related Labor Requirements Certification.
- h. Disabled Veteran Business Enterprise Participation Certification.
- i. Drug-Free Workplace Certification.

- j. Tobacco-Free Environment Certification.
- k. Hazardous Materials Certification.
- l. Lead-Based Materials Certification.
- m. Imported Materials Certification.
- n. Criminal Background Investigation/Fingerprinting Certification.
- o. Buy American Certification.

Failure to comply with these conditions within the time specified will entitle District to consider your bid abandoned, to annul this Notice of Award, and to declare your Bid Security forfeited, as well as any other rights the District may have against the Contractor.

After you comply with those conditions, District will return to you one fully signed counterpart of the Agreement.

TRACY UNIFIED SCHOOL DISTRICT

BY: _____

NAME: _____

TITLE: _____

END OF DOCUMENT

AGREEMENT

THIS AGREEMENT IS MADE AND ENTERED INTO THIS _____ DAY OF _____
_____, 20____, by and between the Tracy Unified School District ("District") and _____
_____ ("Contractor") ("Agreement").

WITNESSETH: That the parties hereto have mutually covenanted and agreed, and by these presents do covenant and agree with each other, as follows:

- 1. The Work:** Contractor agrees to furnish all tools, equipment, apparatus, facilities, labor, and material necessary to perform and complete in a good and workmanlike manner, the work of the following project:

VILLALOVOZ ELEMENTARY SCHOOL INCREMENT #2 2023
("Project" or "Contract" or "Work")

It is understood and agreed that the Work shall be performed and completed as required in the Contract Documents including, without limitation, the Drawings and Specifications and submission of all documents required to secure funding or by the Division of the State Architect for close-out of the Project, under the direction and supervision of, and subject to the approval of, the District or its authorized representative.

- 2. The Contract Documents:** The complete Contract consists of all Contract Documents as defined in the General Conditions and incorporated herein by this reference. Any and all obligations of the District and Contractor are fully set forth and described in the Contract Documents. All Contract Documents are intended to cooperate so that any Work called for in one and not mentioned in the other or vice versa is to be executed the same as if mentioned in all Contract Documents.
- 3. Interpretation of Contract Documents:** Should any question arise concerning the intent or meaning of Contract Documents, including the Drawings or Specifications, the question shall be submitted to the District for interpretation. If a conflict exists in the Contract Documents, valid, written modifications, beginning with the most recent, shall control over this Agreement (if any), which shall control over the Special Conditions, which shall control over any Supplemental Conditions, which shall control over the General Conditions, which shall control over the remaining Division 0 documents, which shall control over Division 1 Documents which shall control over Division 2 through Division 49 documents, which shall control over figured dimensions, which shall control over large-scale drawings, which shall control over small-scale drawings. In the case of a discrepancy or ambiguity solely between and among the Drawings and Specifications, the discrepancy or ambiguity shall be resolved in favor of the interpretation that will provide District with the functionally complete and operable Project described in the Drawings and Specifications. In no case shall a document calling for lower quality and/or quantity material or workmanship control. The decision of the District in the matter shall be final.
- 4. Time for Completion:** It is hereby understood and agreed that the Work under this Contract shall be completed within **Sixty-Four (64)** consecutive calendar days ("Contract Time") from the date specified for Contractor to mobilize.

5. **Completion - Extension of Time:** Should the Contractor fail to complete this Contract, and the Work provided herein, within the time fixed for completion, due allowance being made for the contingencies provided for herein, the Contractor shall become liable to the District for all loss and damage that the District may suffer on account thereof. The Contractor shall coordinate its Work with the Work of all other contractors. The District shall not be liable for delays resulting from Contractor's failure to coordinate its Work with other contractors in a manner that will allow timely completion of Contractor's Work. Contractor shall be liable for delays to other contractors caused by Contractor's failure to coordinate its Work with the Work of other contractors.
6. **Liquidated Damages:** Time is of the essence for all work under this Agreement. It is hereby understood and agreed that it is and will be difficult and/or impossible to ascertain and determine the actual damage that the District will sustain in the event of and by reason of Contractor's delay; therefore, Contractor agrees that it shall pay to the District the sum of **One Thousand dollars (\$1,000.00)** per day as liquidated damages for each and every day's delay beyond the time herein prescribed in completion of the Work.

It is hereby understood and agreed that this amount is not a penalty.

In the event that any portion of the liquidated damages is not paid to the District, the District may deduct that amount from any money due or that may become due the Contractor under this Agreement, and such deduction does not constitute a withholding or penalty. The District's right to assess liquidated damages is as indicated herein and in the General Conditions.

The time during which the Contract is delayed for cause, as hereinafter specified, may extend the time of completion for a reasonable time as the District may grant, provided that Contractor has complied with the claims procedure of the Contract Documents. This provision does not exclude the recovery of damages by either party under other provisions in the Contract Documents.

7. **Loss Or Damage:** The District and its agents and authorized representatives shall not in any way or manner be answerable or suffer loss, damage, expense, or liability for any loss or damage that may happen to the Work, or any part thereof, or in or about the same during its construction and before acceptance, and the Contractor shall assume all liabilities of every kind or nature arising from the Work, either by accident, negligence, theft, vandalism, or any cause whatsoever; and shall hold the District and its agents and authorized representatives harmless from all liability of every kind and nature arising from accident, negligence, or any cause whatsoever.
8. **Limitation Of District Liability:** District's financial obligations under this Contract shall be limited to the payment of the compensation provided in this Contract. Notwithstanding any other provision of this Contract, in no event shall District be liable, regardless of whether any claim is based on contract or tort, for any special, consequential, indirect or incidental damages, including, but not limited to, lost profits or revenue, lost bonding capacity, arising out of or in connection with this Contract for the services performed in connection with this Contract.
9. **Insurance and Bonds:** Prior to issuance of the Notice to Proceed by the District, Contractor shall provide all required certificates of insurance, insurance endorsements, and payment and performance bonds as evidence thereof.

- 10. Prosecution of Work:** If the Contractor should neglect to prosecute the Work properly or fail to perform any provisions of this Contract, the District, may, pursuant to the General Conditions and without prejudice to any other remedy it may have, make good such deficiencies and may deduct the cost thereof from the payment then or thereafter due the Contractor.
- 11. Authority of Architect, Project Inspector, and DSA:** Contractor hereby acknowledges that the Architect(s), the Project Inspector(s), and the Division of the State Architect ("DSA") have authority to approve and/or suspend Work if the Contractor's Work does not comply with the requirements of the Contract Documents, Title 24 of the California Code of Regulations, and all applicable laws and regulations. The Contractor shall be liable for any delay caused by its non-compliant Work.
- 12. Assignment of Contract:** Neither the Contract, nor any part thereof, nor any moneys due or to become due thereunder, may be assigned by the Contractor without the prior written approval of the District, nor without the written consent of the Surety on the Contractor's Performance Bond (the "Surety"), unless the Surety has waived in writing its right to notice of assignment.
- 13. Classification of Contractor's License:** Contractor hereby acknowledges that it currently holds valid Type **A, and/or B** Contractor's license(s) issued by the State of California, Contractors' State License Board, in accordance with division 3, chapter 9, of the Business and Professions Code and in the classification called for in the Contract Documents.
- 14. Registration as Public Works Contractor:** The Contractor and all Subcontractors currently are registered as public works contractors with the Department of Industrial Relations, State of California, in accordance with Labor Code section 1771.1.
- 15. Payment of Prevailing Wages:** The Contractor and all Subcontractors shall pay all workers on all Work performed pursuant to this Contract not less than the general prevailing rate of per diem wages and the general prevailing rate for holiday and overtime work as determined by the Director of the Department of Industrial Relations, State of California, for the type of work performed and the locality in which the work is to be performed within the boundaries of the District, pursuant to sections 1770 et seq. of the California Labor Code.
- 16. Labor Compliance Monitoring and Enforcement:** This Project is subject to labor compliance monitoring and enforcement by the Department of Industrial Relations pursuant to Labor Code section 1771.4 and Title 8 of the California Code of Regulations. Contractor specifically acknowledges and understands that it shall perform the Work of this Agreement while complying with all the applicable provisions of Division 2, Part 7, Chapter 1, of the Labor Code, including, without limitation, the requirement that the Contractor and all of its Subcontractors shall timely submit complete and accurate electronic certified payroll records as required by the Contract Documents, or the District may not issue payment.
- 17. Contract Price:** In consideration of the foregoing covenants, promises, and agreements on the part of the Contractor, and the strict and literal fulfillment of each and every covenant, promise, and agreement, and as compensation agreed upon for the Work and construction, erection, and completion as aforesaid, the District

covenants, promises, and agrees that it will well and truly pay and cause to be paid to the Contractor in full, and as the full Contract Price and compensation for construction, erection, and completion of the Work hereinabove agreed to be performed by the Contractor, the following price:

_____ Dollars
(\$ _____),

in lawful money of the United States, which sum is to be paid according to the schedule provided by the Contractor and accepted by the District and subject to additions and deductions as provided in the Contract. This amount supersedes any previously stated and/or agreed to amount(s).

- 18. No Representations:** No representations have been made other than as set forth in writing in the Contract Documents, including this Agreement. Each of the Parties to this Agreement warrants that it has carefully read and understood the terms and conditions of this Agreement and all Contract Documents, and that it has not relied upon the representations or advice of any other Party or any attorney not its own.
- 19. Entire Agreement:** The Contract Documents, including this Agreement, set forth the entire agreement between the parties hereto and fully supersede any and all prior agreements, understandings, written or oral, between the parties hereto pertaining to the subject matter thereof.
- 20. Severability:** If any term, covenant, condition, or provision in any of the Contract Documents is held by a court of competent jurisdiction to be invalid, void or unenforceable, the remainder of the provisions in the Contract Documents shall remain in full force and effect and shall in no way be affected, impaired, or invalidated thereby.
- 21. Authority of Signatories:** Each party has the full power and authority to enter into and perform this Contract, and the person signing this Contract on behalf of each party has been properly authorized and empowered to enter into this Contract. This Contract may be executed in one or more counterparts, each of which shall be deemed an original. For this Agreement, and for all Contract Documents requiring a signature, a facsimile or electronic signature shall be deemed to be the equivalent of the actual original signature. All counterparts so executed shall constitute one Contract binding all the Parties hereto.

[SIGNATURES ON FOLLOWING PAGE]

IN WITNESS WHEREOF, accepted and agreed on the date indicated above:

[CONTRACTOR NAME]

TRACY UNIFIED SCHOOL DISTRICT

By: _____

By: _____

Title: _____

Title: _____

NOTE: If the party executing this Contract is a corporation, a certified copy of the by-laws, or of the resolution of the Board of Directors, authorizing the officers of said corporation to execute the Contract and the bonds required thereby must be attached hereto.

END OF DOCUMENT

NOTICE TO PROCEED

Dated: _____, 2023

TO: _____
("Contractor")

ADDRESS: _____

PROJECT: **VILLALOVOZ ELEMENTARY SCHOOL INCREMENT #2 2023**

PROJECT/CONTRACT NO.: _____ between the Tracy Unified School District and Contractor ("Contract").

You are notified that the Contract Time under the above Contract will commence to run on _____, 2023. By that date, you are to start performing your obligations under the Contract Documents. In accordance with the Agreement executed by Contractor, the Contract shall be completed within **Sixty-Four (64)** consecutive calendar days from the date specified for Contractor to mobilize.

You must submit the following documents by 5:00 p.m. of the TENTH (10th) calendar day following the date of this Notice to Proceed:

- a. Contractor's preliminary schedule of construction.
- b. Contractor's preliminary schedule of values for all of the Work.
- c. Contractor's preliminary schedule of submittals, including Shop Drawings, Product Data, and Samples submittals
- d. Contractor's Safety Plan specifically adapted for the Project.
- e. Registered Subcontractors List: A complete subcontractors list for all tiers, including the name, address, telephone number, email address, facsimile number, California State Contractors License number, license classification, Department of Industrial Relations registration number, and monetary value of all Subcontracts.

Thank you. We look forward to a very successful Project.

TRACY UNIFIED SCHOOL DISTRICT

BY: _____

NAME: _____

TITLE: _____

END OF DOCUMENT

ESCROW BID DOCUMENTATION

1. Requirement to Escrow Bid Documentation

- a. Contractor shall submit, within **SEVEN (7)** calendar days after the date of the Notice of Award, one copy of all documentary information received or generated by Contractor in preparation of bid prices for this Contract, as specified herein. This material is referred to herein as "Escrow Bid Documentation." The Escrow Bid Documentation of the Contractor will be held in escrow for the duration of the Contract.
- b. Contractor agrees, as a condition of award of the Contract, that the Escrow Bid Documentation constitutes all written information used in the preparation of its bid, and that no other written bid preparation information shall be considered in resolving disputes or claims. Contractor also agrees that nothing in the Escrow Bid Documentation shall change or modify the terms or conditions of the Contract Documents.
- c. The Escrow Bid Documentation will not be opened by District except as indicated herein. The Escrow Bid Documentation will be used only for the resolution of change orders and claims disputes.
- d. Contractor's submission of the Escrow Bid Documentation, as with the bonds and insurance documents required, is considered an essential part of the Contract award. Should the Contractor fail to make the submission within the allowed time specified above, District may deem the Contractor to have failed to enter into the Contract, and the Contractor shall forfeit the amount of its bid security, accompanying the Contractor's bid, and District may award the Contract to the next lowest responsive bidder.
- e. NO PAYMENTS WILL BE MADE, NOR WILL DISTRICT ACCEPT PROPOSED CHANGE ORDERS UNTIL THE ABOVE REQUIRED INFORMATION IS SUBMITTED AND APPROVED.
- f. The Escrow Bid Documentation shall be submitted in person by an authorized representative of the Contractor to the District.

2. Ownership of Escrow Bid Documentation

- a. The Escrow Bid Documentation is, and shall always remain, the property of Contractor, subject to review by District, as provided herein.
- b. Escrow Bid Documentation constitute trade secrets, not known outside Contractor's business, known only to a limited extent and only by a limited number of employees of Contractor, safeguarded while in Contractor's possession, extremely valuable to Contractor, and could be extremely valuable to Contractor's competitors by virtue of reflecting Contractor's contemplated techniques of construction. Subject to the provisions herein, District agrees to safeguard the Escrow Bid Documentation, and all information contained therein, against disclosure to the fullest extent permitted by law.

3. Format and Contents of Escrow Bid Documentation

- a. Contractor may submit Escrow Bid Documentation in its usual cost-estimating format; a standard format is not required. The Escrow Bid Documentation shall be submitted in the language (e.g., English) of the specification.
- b. Escrow Bid Documentation must clearly itemize the estimated costs of performing the work of each bid item contained in the bid schedule, separating bid items into sub-items as required to present a detailed cost estimate and allow a detailed cost review. The Escrow Bid Documentation shall include all subcontractor bids or quotes, supplier bids or quotes, quantity takeoffs, crews, equipment, calculations of rates of production and progress, copies of quotes from subcontractors and suppliers, and memoranda, narratives, add/deduct sheets, and all other information used by the Contractor to arrive at the prices contained in the bid proposal. Estimated costs should be broken down into Contractor's usual estimate categories such as direct labor, repair labor, equipment ownership and operation, expendable materials, permanent materials, and subcontract costs as appropriate. All labor rates must be broken down to specify any and all burden costs including, but not limited to, health and welfare pay, vacation and holiday pay, pension contributions, training rates, benefits of any kind, insurance of any kind, workers' compensation, liability insurance, truck expenses, supply expenses of any kind, payroll taxes, and any other taxes of any kind. Plant and equipment and indirect costs should be detailed in the Contractor's usual format. The Contractor's allocation of indirect costs, contingencies, markup, and other items to each bid item shall be identified.
- c. All costs shall be identified. For bid items amounting to less than \$10,000, estimated unit costs are acceptable without a detailed cost estimate, provided that labor, equipment, materials, and subcontracts, as applicable, are included and provided that indirect costs, contingencies, and markup, as applicable, are allocated.
- d. Bid Documentation provided by District should not be included in the Escrow Bid Documentation unless needed to comply with the following requirements.

4. Submittal of Escrow Bid Documentation

- a. The Escrow Bid Documentation shall be submitted by the Contractor in a sealed container within **SEVEN (7)** calendar days after the date of the Notice of Award. The container shall be clearly marked on the outside with the Contractor's name, date of submittal, project name and the words "Escrow Bid Documentation – Intended to be opened in the presence of Authorized Representatives of Both District and Contractor".
- b. By submitting Escrow Bid Documentation, Contractor represents that the material in the Escrow Bid Documentation constitutes all the documentary information used in preparation of the bid and that the Contractor has personally examined the contents of the Escrow Bid Documentation container and has found that the documents in the container are complete.
- c. If Contractor's proposal is based upon subcontracting any part of the work, each subcontractor whose total subcontract price exceeds 5 percent of the total contract price proposed by Contractor, shall provide separate Escrow Documents to be included with those of Contractor. Those documents shall be opened and examined in the same manner and at the same time as the examination described above for Contractor.

- d. If Contractor wishes to subcontract any portion of the Work after award, District retains the right to require Contractor to submit Escrow Documents for the Subcontractor before the subcontract is approved.

5. Storage, Examination and Final Disposition of Escrow Bid Documentation

- a. The Escrow Bid Documentation will be placed in escrow, for the life of the Contract, in a mutually agreeable institution. The cost of storage will be paid by Contractor for the duration of the project until final Contract payment. The storage facilities shall be the appropriate size for all the Escrow Bid Documentation and located conveniently to both District's and Contractor's offices.
- b. The Escrow Bid Documentation shall be examined by both District and Contractor, at any time deemed necessary by either District or Contractor, to assist in the negotiation of price adjustments and change orders or the settlement of disputes and claims. In the case of legal proceedings, Escrow Bid Documentation shall be used subject to the terms of an appropriate protective order if requested by Contractor and ordered by a court of competent jurisdiction. Examination of the Escrow Bid Documentation is subject to the following conditions:
 - (1) As trade secrets, the Escrow Bid Documentation is proprietary and confidential to the extent allowed by law.
 - (2) District and Contractor shall each designate, in writing to the other party **SEVEN (7)** calendar days prior to any examination, the names of representatives who are authorized to examine the Escrow Bid Documentation. No other person shall have access to the Escrow Bid Documentation.
 - (3) Access to the documents may take place only in the presence of duly designated representatives of the District and Contractor. If Contractor fails to designate a representative or appear for joint examination on **SEVEN (7)** calendar days' notice, then the District representative may examine the Escrow Bid Documents alone upon an additional **THREE (3)** calendar days' notice if a representative of the Contractor does not appear at the time set.
- (4) If a subcontractor has submitted sealed information to be included in the Escrow Bid Documents, access to those documents may take place only in the presence of a duly designated representative of the District, Contractor and that subcontractor. If that subcontractor fails to designate a representative or appear for joint examination on **SEVEN (7)** calendar days' notice, then the District representative and/or the Contractor may examine the Escrow Bid Documentation without that subcontractor present upon an additional **THREE (3)** calendar days' notice if a representative of that subcontractor does not appear at the time set.
- c. The Escrow Bid Documentation will be returned to Contractor at such time as the Contract has been completed and final settlement has been achieved.

END OF DOCUMENT

ESCROW AGREEMENT IN LIEU OF RETENTION
(Public Contract Code Section 22300)

(Note: Contractor must use this form.)

This Escrow Agreement in Lieu of Retention ("Escrow Agreement") is made and entered into this _____ day of _____, 2023, by and between the Tracy Unified School District ("District"), whose address is 1875 West Lowell Avenue, Tracy, California 95376, and _____ ("Contractor"), whose address is _____, and _____ ("Escrow Agent"), a state or federally chartered bank in the state of California, whose address is _____.

For the consideration hereinafter set forth, District, Contractor, and Escrow Agent agree as follows:

1. Pursuant to section 22300 of Public Contract Code of the State of California, which is hereby incorporated by reference, Contractor has the following two (2) options:
 - ☐ Deposit securities with Escrow Agent as a substitute for retention earnings required to be withheld by District pursuant to the Construction Contract No. _____ entered into between District and Contractor for the _____ Project, in the amount of _____ Dollars (\$ _____) dated, _____, 2023, (the "Contract"); **or**
 - ☐ On written request of Contractor, District shall make payments of the retention earnings for the above referenced Contract directly to Escrow Agent.

When Contractor deposits the securities as a substitute for Contract earnings (first option), Escrow Agent shall notify District within ten (10) calendar days of the deposit. The market value of the securities at the time of substitution and at all times from substitution until the termination of the Escrow Agreement shall be at least equal to the cash amount then required to be withheld as retention under the terms of the Contract between District and Contractor.

Securities shall be held in the name of Tracy Unified School District, and shall designate Contractor as beneficial owner.

2. District shall make progress payments to Contractor for those funds which otherwise would be withheld from progress payments pursuant to Contract provisions, provided that Escrow Agent holds securities in form and amount specified above.
3. When District makes payment of retentions earned directly to Escrow Agent, Escrow Agent shall hold them for the benefit of Contractor until the time that the escrow created under this Escrow Agreement is terminated. Contractor may direct the investment of the payments into securities. All terms and conditions of this Escrow Agreement and the rights and responsibilities of the Parties shall be equally applicable and binding when District pays Escrow Agent directly.

4. Contractor shall be responsible for paying all fees for the expenses incurred by Escrow Agent in administering the Escrow Account, and all expenses of District. The District will charge Contractor \$_____ for each of District's deposits to the escrow account. These expenses and payment terms shall be determined by District, Contractor, and Escrow Agent.
5. Interest earned on securities or money market accounts held in escrow and all interest earned on that interest shall be for sole account of Contractor and shall be subject to withdrawal by Contractor at any time and from time to time without notice to District.
6. Contractor shall have the right to withdraw all or any part of the principal in the Escrow Account only by written notice to Escrow Agent accompanied by written authorization from District to Escrow Agent that District consents to withdrawal of amount sought to be withdrawn by Contractor.
7. District shall have the right to draw upon the securities and/or withdraw amounts from the Escrow Account in the event of default by Contractor. Upon seven (7) days' written notice to Escrow Agent from District of the default, if applicable, Escrow Agent shall immediately convert the securities to cash and shall distribute the cash as instructed by District. Escrow Agent shall not be authorized to determine the validity of any notice of default given by District pursuant to this paragraph, and shall promptly comply with District's instructions to pay over said escrowed assets. Escrow Agent further agrees to not interplead the escrowed assets in response to a conflicting demand.
8. Upon receipt of written notification from District certifying that the Contract is final and complete, and that Contractor has complied with all requirements and procedures applicable to the Contract, Escrow Agent shall release to Contractor all securities and interest on deposit less escrow fees and charges of the Escrow Account. The escrow shall be closed immediately upon disbursement of all monies and securities on deposit and payments of fees and charges.
9. Escrow Agent shall rely on written notifications from District and Contractor pursuant to Paragraphs 5 through 8, inclusive, of this Escrow Agreement and District and Contractor shall hold Escrow Agent harmless from Escrow Agent's release and disbursement of securities and interest as set forth above.

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10. Names of persons who are authorized to give written notice or to receive written notice on behalf of District and on behalf of Contractor in connection with the foregoing, and exemplars of their respective signatures are as follows:

On behalf of District:

Title

Name

Signature

Address

On behalf of Contractor:

Title

Name

Signature

Address

On behalf of Escrow Agent:

Title

Name

Signature

Address

At the time that the Escrow Account is opened, District and Contractor shall deliver to Escrow Agent a fully executed copy of this Agreement.

IN WITNESS WHEREOF, the parties have executed this Agreement by their proper officers on the date first set forth above.

On behalf of District:

Title

Name

Signature

Address

On behalf of Contractor:

Title

Name

Signature

Address

END OF DOCUMENT

PERFORMANCE BOND
(100% of Contract Price)

(Note: Contractor must use this form, NOT a surety company form.)

KNOW ALL PERSONS BY THESE PRESENTS:

WHEREAS, the governing board ("Board") of the Tracy Unified School District, ("District") and _____ ("Principal") have entered into a contract for the furnishing of all materials and labor, services and transportation, necessary, convenient, and proper to perform the following project:

VILLALOVOZ ELEMENTARY SCHOOL INCREMENT #2 2023

("Project" or "Contract") which Contract dated _____, 2023, and all of the Contract Documents attached to or forming a part of the Contract, are hereby referred to and made a part hereof; and

WHEREAS, said Principal is required under the terms of the Contract to furnish a bond for the faithful performance of the Contract.

NOW, THEREFORE, the Principal and _____ ("Surety") are held and firmly bound unto the Board of the District in the penal sum of

Dollars (\$_____), lawful money of the United States, for the payment of which sum well and truly to be made we bind ourselves, our heirs, executors, administrators, successors, and assigns jointly and severally, firmly by these presents, to:

- Promptly perform all the work required to complete the Project; and
- Pay to the District all damages the District incurs as a result of the Principal's failure to perform all the Work required to complete the Project.

Or, at the District's sole discretion and election, the Surety shall obtain a bid or bids for completing the Contract in accordance with its terms and conditions, and upon determination by the District of the lowest responsible bidder, arrange for a contract between such bidder and the District and make available as Work progresses sufficient funds to pay the cost of completion less the "balance of the Contract Price," and to pay and perform all obligations of Principals under the Contract, including, without limitation, all obligations with respect to warranties, guarantees and the payment of liquidated damages. The term "balance of the Contract Price," as used in this paragraph, shall mean the total amount payable to Principal by the District under the Contract and any modifications thereto, less the amount previously paid by the District to the Principal, less any withholdings by the District allowed under the Contract. District shall not be required or obligated to accept a tender of a completion contractor from the Surety for any or no reason.

The condition of the obligation is such that, if the above bound Principal, its heirs, executors, administrators, successors, or assigns, shall in all things stand to and abide by, and well and truly keep and perform the covenants, conditions, and agreements in the Contract and any alteration

thereof made as therein provided, on its part to be kept and performed at the time and in the intent and meaning, including all contractual guarantees and warranties of materials and workmanship, and shall indemnify and save harmless the District, its trustees, officers and agents, as therein stipulated, then this obligation shall become null and void, otherwise it shall be and remain in full force and virtue.

Surety expressly agrees that the District may reject any contractor or subcontractor proposed by Surety to fulfill its obligations in the event of default by the Principal. Surety shall not utilize Principal in completing the Work nor shall Surety accept a Bid from Principal for completion of the Work if the District declares the Principal to be in default and notifies Surety of the District's objection to Principal's further participation in the completion of the Work.

As a condition precedent to the satisfactory completion of the Contract, the above obligation shall hold good for a period equal to the warranty and/or guarantee period of the Contract, during which time Surety's obligation shall continue if Contractor shall fail to make full, complete, and satisfactory repair and replacements and totally protect the District from loss or damage resulting from or caused by defective materials or faulty workmanship. The obligations of Surety hereunder shall continue so long as any obligation of Contractor remains. Nothing herein shall limit the District's rights or the Contractor or Surety's obligations under the Contract, law or equity, including, but not limited to, California Code of Civil Procedure section 337.15.

The Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration, or addition to the terms of the contract or to the work to be performed thereunder or the specifications accompanying the same shall in any way affect its obligation on this bond. The Surety also stipulates and agrees that it shall not be exonerated or released from the obligation of this bond by any overpayment or underpayment by the District that is based upon estimates approved by the Architect. The Surety does hereby waive notice of any such change, extension of time, alteration, or addition to the terms of the Contract or to the work or to the specifications.

IN WITNESS WHEREOF, two (2) identical counterparts of this instrument, each of which shall for all purposes be deemed an original thereof, have been duly executed by the Principal and Surety above named, on the _____ day of _____, 2023.

Principal	Surety
By	By
	Name of California Agent of Surety
	Address of California Agent of Surety
	Telephone No. of California Agent of Surety

Contractor must attach a Notarial Acknowledgment for all Surety's signatures and a Power of Attorney and Certificate of Authority for Surety. The California Department of Insurance must authorize the Surety to be an admitted surety insurer.

END OF DOCUMENT

PAYMENT BOND
Contractor's Labor & Material Bond
(100% Of Contract Price)

(Note: Contractor must use this form, NOT a surety company form.)

KNOW ALL PERSONS BY THESE PRESENTS:

WHEREAS, the governing board ("Board") of the Tracy Unified School District, ("District") and _____, ("Principal") have entered into a contract for the furnishing of all materials and labor, services and transportation, necessary, convenient, and proper to perform the following project:

VILLALOVOZ ELEMENTARY SCHOOL INCREMENT #2 2023

("Project" or "Contract") which Contract dated _____, 2023, and all of the Contract Documents attached to or forming a part of the Contract, are hereby referred to and made a part hereof; and

WHEREAS, pursuant to law and the Contract, the Principal is required, before entering upon the performance of the work, to file a good and sufficient bond with the body by which the Contract is awarded in an amount equal to one hundred percent (100%) of the Contract price, to secure the claims to which reference is made in sections 9000 through 9510 and 9550 through 9566 of the Civil Code, and division 2, part 7, of the Labor Code.

NOW, THEREFORE, the Principal and _____ ("Surety") are held and firmly bound unto all laborers, material men, and other persons referred to in said statutes in the sum of _____ Dollars (\$_____), lawful money of the United States, being a sum not less than the total amount payable by the terms of Contract, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, or assigns, jointly and severally, by these presents.

The condition of this obligation is that if the Principal or any of its subcontractors, or their heirs, executors, administrators, successors, or assigns of any, all, or either of them shall fail to pay for any labor, materials, provisions, or other supplies, used in, upon, for or about the performance of the work contracted to be done, or for any work or labor thereon of any kind, or for amounts required to be deducted, withheld, and paid over to the Employment Development Department from the wages of employees of the Principal or any of his or its subcontractors of any tier under Section 13020 of the Unemployment Insurance Code with respect to such work or labor, that the Surety will pay the same in an amount not exceeding the amount herein above set forth, and also in case suit is brought upon this bond, will pay a reasonable attorney's fee to be awarded and fixed by the court, and to be taxed as costs and to be included in the judgment therein rendered.

It is hereby expressly stipulated and agreed that this bond shall inure to the benefit of any and all persons, companies, and corporations entitled to file claims under section 9100 of the Civil Code, so as to give a right of action to them or their assigns in any suit brought upon this bond.

Should the condition of this bond be fully performed, then this obligation shall become null and void; otherwise it shall be and remain in full force and affect.

And the Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration, or addition to the terms of Contract or the specifications accompanying the same shall in any manner affect its obligations on this bond, and it does hereby waive notice of any such change, extension, alteration, or addition.

IN WITNESS WHEREOF, two (2) identical counterparts of this instrument, each of which shall for all purposes be deemed an original thereof, have been duly executed by the Principal and Surety above named, on the _____ day of _____, 2023.

Principal	Surety
By	By
	Name of California Agent of Surety
	Address of California Agent of Surety
	Telephone No. of California Agent of Surety

Contractor must attach a Notarial Acknowledgment for all Surety's signatures and a Power of Attorney and Certificate of Authority for Surety. The California Department of Insurance must authorize the Surety to be an admitted surety insurer.

END OF DOCUMENT

ALLOWANCE EXPENDITURE DIRECTIVE FORM

Tracy Unified School District
1875 West Lowell Avenue
Tracy, CA 95376

**ALLOWANCE
EXPENDITURE
DIRECTIVE NO.:**

ALLOWANCE EXPENDITURE DIRECTIVE

**Project: VILLALOVOZ ELEMENTARY SCHOOL
INCREMENT #2 2023
Bid No.:** _____

Date: _____
DSA File No.: _____
DSA Appl. No. _____

The following parties agree to the terms of this Allowance Expenditure Directive ("AED"):

Owner Name, Address, Telephone:

Contractor Name, Address, Telephone:

Reference	Description	Allowance Authorized for Expenditure
Request for AED # Requested by: Performed by: Reason:	[Description of unforeseen item relating to Work] [Requester] [Performer] [Reason]	\$
Request for AED # Requested by: Performed by: Reason:	[Description of unforeseen item relating to Work] [Requester] [Performer] [Reason]	\$
Request for AED # Requested by: Performed by: Reason:	[Description of unforeseen item relating to Work] [Requester] [Performer] [Reason]	\$

Total Contract Allowance Amount:	\$
Amount of Previously Approved Allowance Expenditure Directive(s):	\$
Amount of this Allowance Expenditure Directive:	\$

The undersigned Contractor approves the foregoing release of allowance for completion of each specified item, and agrees to furnish all labor, materials and services and perform all work necessary to complete any additional work specified for the consideration stated therein ("Work"). Submission of sums which have no basis in fact or which Contractor knows are false are at the sole risk of Contractor and may be a violation of the False Claims Act set forth under Government Code section 12650, et seq.

This Allowance Expenditure Directive must be signed by an authorized District representative.

It is expressly understood that the authorized allowance expenditure granted herein represents a full accord and satisfaction for any and all cost impacts of the items herein, and Contractor waives any and all further compensation based on the items herein. The value of the extra work or changes expressly includes any and all of the Contractor's costs and expenses, and its subcontractors, both direct and indirect. Any costs, expenses, or damages not included are deemed waived.

Signatures:

DISTRICT: TRACY UNIFIED SCHOOL DISTRICT Date: _____ By: _____ [Print Name and Title here]	CONTRACTOR: _____ Date: _____ By: _____ [Print Name and Title here]
ARCHITECT: _____ Date: _____ By: _____ [Print Name and Title here]	PROJECT INSPECTOR: _____ Date: _____ By: _____ [Print Name and Title here]

END OF DOCUMENT

PROPOSED CHANGE ORDER FORM

Tracy Unified School District
1875 West Lowell Avenue
Tracy, CA 95376

PCO NO.:

**Project: VILLALOVOZ ELEMENTARY SCHOOL
INCREMENT #2 2023**

Bid No.: _____
RFI #: _____

Date: _____
DSA File No.: _____
DSA Appl. No.: _____

Contractor hereby submits for District's review and evaluation this Proposed Change Order ("PCO"), submitted in accordance with and subject to the terms of the Contract Documents, including Sections 17.7 and 17.8 of the General Conditions. Any spaces left blank below are deemed no change to cost or time.

Contractor understands and acknowledges that documentation supporting Contractor's PCO must be attached and included for District review and evaluation. Contractor further understands and acknowledges that failure to include documentation sufficient to, in District's discretion, support some or all of the PCO, shall result in a rejected PCO.

	<u>WORK PERFORMED OTHER THAN BY CONTRACTOR</u>	<u>ADD</u>	<u>DEDUCT</u>
(a)	<u>Material</u> (attach suppliers' invoice or itemized quantity and unit cost plus sales tax)		
(b)	<u>Add Labor</u> (attach itemized hours and rates, fully Burdened, and specify the hourly rate for each additional labor burden, for example, payroll taxes, fringe benefits, etc.)		
(c)	<u>Add Equipment</u> (attach suppliers' invoice)		
(d)	<u>Subtotal</u>		
(e)	<u>Add overhead and profit for any and all tiers of Subcontractor</u> , the total not to exceed ten percent (10%) of Item (d)		
(f)	<u>Subtotal</u>		
(g)	<u>Add General Conditions</u> (if Time is Compensable) (attach supporting documentation)		
(h)	<u>Subtotal</u>		
(i)	<u>Add Overhead and Profit for Contractor</u> , not to exceed five percent (5%) of Item (h)		
(j)	<u>Subtotal</u>		
(k)	<u>Add Bond and Insurance</u> , not to exceed two percent (2%) of Item (j)		
(l)	<u>TOTAL</u>		
(m)	<u>Time</u> (zero unless indicated; "TBD" not permitted)	Calendar Days	

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	WORK PERFORMED BY CONTRACTOR	ADD	DEDUCT
(a)	Material (attach itemized quantity and unit cost plus sales tax)		
(b)	Add Labor (attach itemized hours and rates, fully Burdened, and specify the hourly rate for each additional labor burden, for example, payroll taxes, fringe benefits, etc.)		
(c)	Add Equipment (attach suppliers' invoice)		
(d)	Add General Conditions (if Time is Compensable) (attach supporting documentation)		
(e)	Subtotal		
(f)	Add Overhead and Profit for Contractor , not to exceed fifteen percent (15%) of Item (e)		
(g)	Subtotal		
(h)	Add Bond and Insurance , not to exceed two percent (2%) of Item (g)		
(i)	TOTAL		
(j)	Time (zero unless indicated; "TBD" not permitted)	Calendar Days	

The undersigned Contractor approves the foregoing as to the changes, if any, to the Contract Price specified for each item, and as to the extension of time allowed, if any, for completion of the entire Work as stated herein, and agrees to furnish all labor, materials, and service, and perform all work necessary to complete any additional work specified for the consideration stated herein. Submission of sums which have no basis in fact or which Contractor knows are false are at the sole risk of Contractor and may be a violation of the False Claims Act set forth under Government Code section 12650 et seq. It is understood that the changes herein to the Contract shall only be effective when approved by the governing board of the District.

It is expressly understood that the value of the extra Work or changes expressly includes any and all of the Contractor's costs and expenses, direct and indirect, resulting from additional time required on the Project or resulting from delay to the Project including, without limitation, cumulative impacts. Contractor is not entitled to separately recover amounts for overhead or other indirect costs. Any costs, expenses, damages, or time extensions not included are deemed waived.

SUBMITTED BY:

Contractor:

[Name]

Date

END OF DOCUMENT

CHANGE ORDER FORM

Tracy Unified School District
1875 West Lowell Avenue
Tracy, CA 95376

CHANGE ORDER NO.:**CHANGE ORDER**

**Project: VILLALOVOZ ELEMENTARY SCHOOL
INCREMENT #2 2023**

Bid No.: _____

Date: _____

DSA File No.: _____

DSA Appl. No.: _____

The following parties agree to the terms of this Change Order:

Owner: _____
[Name / Address]

Contractor: _____
[Name / Address]

Architect: _____
[Name / Address]

Project Inspector: _____
[Name / Address]

Reference	Description	Cost	Days Ext.
PCO # Requested by: Performed by: Reason:	[Description of change] [Requester] [Performer] [Reason]	\$	
PCO # Requested by: Performed by: Reason:	[Description of change] [Requester] [Performer] [Reason]	\$	
PCO # Requested by: Performed by: Reason:	[Description of change] [Requester] [Performer] [Reason]	\$	
Contract time will be adjusted as follows:		Original Contract Amount:	\$
Previous Completion Date: __[Date]		Amount of Previously Approved Change Order(s):	\$
_____[#] Calendar Days Extension (zero unless otherwise indicated)		Amount of this Change Order:	\$
Current Completion Date: __[Date]		Contract Amount:	\$

The undersigned Contractor approves the foregoing as to the changes, if any, to the Contract Price specified for each item, and as to the extension of time allowed, if any, for completion of the entire work as stated therein, and agrees to furnish all labor, materials and services and perform all work necessary to complete any additional work specified for the consideration stated therein. Submission of sums which have no basis in fact or which Contractor knows are false are at the sole risk of Contractor and may be a violation of the False Claims Act set forth under Government Code section 12650 et seq.

This change order is subject to approval by the governing board of this District and must be signed by the District. Until such time as this change order is approved by the District's governing board and executed by a duly authorized District representative, this change order is not effective and not binding.

It is expressly understood that the compensation and time, if any, granted herein represent a full accord and satisfaction for any and all time and cost impacts of the items herein, and Contractor waives any and all further compensation or time extension based on the items herein. The value of the extra work or changes expressly includes any and all of the Contractor's costs and expenses, and its subcontractors, both direct and indirect, resulting from additional time required on the project or resulting from delay to the project including without limitation, cumulative impacts. Any costs, expenses, damages or time extensions not included are deemed waived.

Signatures:

District:

Contractor:

[Name] Date

[Name] Date

Architect:

Project Inspector:

[Name] Date

[Name] Date

END OF DOCUMENT

AGREEMENT AND RELEASE OF ANY AND ALL CLAIMS

THIS AGREEMENT AND RELEASE OF CLAIMS ("Agreement and Release") IS MADE AND ENTERED INTO THIS _____ DAY OF _____, 2023 by and between the TRACY UNIFIED SCHOOL DISTRICT ("District") and _____ ("Contractor"), whose place of business is _____.

RECITALS

WHEREAS, District and Contractor entered into PROJECT/CONTRACT NO.: _____ ("Contract" or "Project") in the County of San Joaquin, California; and

WHEREAS, the Work under the Contract was completed on _____, and a Notice of Completion was recorded with the County Recorder on _____.

NOW, THEREFORE, it is mutually agreed between District and Contractor as follows:

AGREEMENT AND RELEASE

1. Contractor will only be assessed liquidated damages as detailed below:

Original Contract Sum \$ _____

Modified Contract Sum \$ _____

Payment to Date \$ _____

Liquidated Damages \$ _____

Payment Due Contractor \$ _____

2. Subject to the provisions hereof, District shall forthwith pay to Contractor the undisputed sum of _____ Dollars (\$ _____) under the Contract, less any amounts represented by any notice to withhold funds on file with District as of the date of such payment.
3. Contractor acknowledges and hereby agrees that there are no unresolved or outstanding claims in dispute against District arising from the performance of work under the Contract, except for the claims described in Paragraph 4 and continuing obligations described in Paragraph 6. It is the intention of the parties in executing this Agreement and Release that this Agreement and Release shall be effective as a full, final and general release of all claims, demands, actions, causes of action, obligations, costs, expenses, damages, losses and liabilities of Contractor against District and all of its respective agents, employees, trustees, inspectors, assignees, consultants and transferees, except for any Disputed Claim that may be set forth in Paragraph 4 and the continuing obligations described in Paragraph 6 hereof.

4. The following claims are disputed (hereinafter, the "Disputed Claims") and are specifically excluded from the operation of this Agreement and Release:

<u>Claim No.</u>	<u>Description of Claim</u>	<u>Amount of Claim</u>	<u>Date Claim Submitted</u>
_____	_____	\$ _____	_____
_____	_____	\$ _____	_____
_____	_____	\$ _____	_____
_____	_____	\$ _____	_____
_____	_____	\$ _____	_____
_____	_____	\$ _____	_____

[If further space is required, attach additional sheets showing the required information.]

5. Consistent with California Public Contract Code section 7100, Contractor hereby agrees that, in consideration of the payment set forth in Paragraph 2 hereof, Contractor hereby releases and forever discharges District, all its agents, employees, inspectors, assignees, and transferees from any and all liability, claims, demands, actions, or causes of action of whatever kind or nature arising out of or in any way concerned with the Work under the Contract.
6. Guarantees and warranties for the Work, and any other continuing obligation of Contractor, including without limitation, the duty to defend, indemnify and hold harmless the District, shall remain in full force and effect as specified in the Contract Documents.
7. Contractor hereby waives the provisions of California Civil Code section 1542 which provides as follows:
- A GENERAL RELEASE DOES NOT EXTEND TO CLAIMS THAT THE CREDITOR OR RELEASING PARTY DOES NOT KNOW OR SUSPECT TO EXIST IN HIS OR HER FAVOR AT THE TIME OF EXECUTING THE RELEASE AND THAT, IF KNOWN BY HIM OR HER, WOULD HAVE MATERIALLY AFFECTED HIS OR HER SETTLEMENT WITH THE DEBTOR OR RELEASED PARTY.
8. The provisions of this Agreement and Release are contractual in nature and not mere recitals and shall be considered independent and severable. If any such provision or any part thereof shall be at any time held invalid in whole or in part under any federal, state, county, municipal, or other law, ruling, or regulations, then such provision, or part thereof, shall remain in force and effect to the extent permitted by law, and the remaining provisions of this Agreement and Release shall also remain in full force and effect, and shall be enforceable.

9. All rights of District shall survive completion of the Work or termination of Contract, and execution of this Release.

* * * CAUTION: THIS IS A RELEASE - READ BEFORE EXECUTING * * *

TRACY UNIFIED SCHOOL DISTRICT

Signature: _____

Print Name: _____

Title: _____

CONTRACTOR: _____

Signature: _____

Print Name: _____

Title: _____

END OF DOCUMENT

GUARANTEE FORM

_____ ("Contractor") hereby agrees that the _____
_____ ("Work" of Contractor) which Contractor has installed for the Tracy Unified
School District ("District") for the following project:

PROJECT: **VILLALOVOZ ELEMENTARY SCHOOL INCREMENT #2 2023**

("Project" or "Contract") has been performed in accordance with the requirements of the
Contract Documents and that the Work as installed will fulfill the requirements of the Contract
Documents.

The undersigned agrees to repair or replace any or all of such Work that may prove to be
defective in workmanship or material together with any other adjacent Work that may be
displaced in connection with such replacement within a period of **Two (2)** year(s) from the
date of completion as defined in Public Contract Code section 7107, subdivision (c), ordinary
wear and tear and unusual abuse or neglect excepted. The date of completion is
_____, 2023.

In the event of the undersigned's failure to comply with the above-mentioned conditions
within a reasonable period of time, as determined by the District, but not later than seven (7)
days after being notified in writing by the District, the undersigned authorizes the District to
proceed to have said defects repaired and made good at the expense of the undersigned. The
undersigned shall pay the costs and charges therefor upon demand.

Date: _____

Proper Name of Contractor: _____

Signature: _____

Print Name: _____

Title: _____

Representatives to be contacted for service subject to terms of Contract:

Name: _____

Address: _____

Phone No.: _____

Email: _____

END OF DOCUMENT

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GENERAL CONDITIONS

1. CONTRACT TERMS AND DEFINITIONS

1.1 Definitions

Wherever used in the Contract Documents, the following terms shall have the meanings indicated, which shall be applicable to both the singular and plural thereof:

1.1.1 Adverse Weather: Shall be only weather that satisfies all of the following conditions: (1) unusually severe precipitation, sleet, snow, hail, or extreme temperature conditions in excess of the norm for the location and time of year it occurred based on the closest weather station data averaged over the past five years, (2) that is unanticipated and would cause unsafe work conditions and/or is unsuitable for scheduled work that should not be performed during inclement weather (i.e., exterior finishes), and (3) at the Project.

1.1.2 Allowance Expenditure Directive: Written authorization for expenditure of allowance, if any.

1.1.3 Approval, Approved, and/or Accepted: Written authorization, unless stated otherwise.

1.1.4 Architect (or "Design Professional in General Responsible Charge"): The individual, partnership, corporation, joint venture, or any combination thereof, named as Architect, who will have the rights and authority assigned to the Architect in the Contract Documents. The term Architect means the Design Professional in General Responsible Charge as defined in DSA PR 13-02 on this Project or the Architect's authorized representative.

1.1.5 As-Builts: Reproducible blue line prints of drawings to be prepared on a monthly basis pursuant to the Contract Documents, that reflect changes made during the performance of the Work, recording differences between the original design of the Work and the Work as constructed since the preceding monthly submittal. See **Record Drawings**.

1.1.6 Bidder: A contractor who intends to provide a proposal to the District to perform the Work of this Contract.

1.1.7 Burdened: The labor rate for Contractor or any Subcontractor inclusive of any and all burden costs including, but not limited to, health and welfare pay, vacation and holiday pay, pension contributions, training rates, benefits of any kind, insurance of any kind, workers' compensation, liability insurance, truck expenses, supply expenses of any kind, payroll taxes, and any other taxes of any kind.

1.1.8 Change Order: A written order to the Contractor authorizing an addition to, deletion from, or revision in the Work, and/or authorizing an adjustment in the Contract Price or Contract Time.

1.1.9 Claim: A Dispute that remains unresolved at the conclusion of the all the applicable Dispute Resolution requirements provided herein.

1.1.10 Construction Change Directive: A written order prepared and issued by the District, the Construction Manager, and/or the Architect and signed by the District and the Architect, directing a change in the Work.

1.1.11 Construction Manager: The individual, partnership, corporation, joint venture, or any combination thereof, or its authorized representative, named as such by the District. If no Construction Manager is used on the Project that is the subject of this Contract, then all references to Construction Manager herein shall be read to refer to District.

1.1.12 Construction Schedule: The progress schedule of construction of the Project as provided by Contractor and approved by District.

1.1.13 Contract, Contract Documents: The Contract consists exclusively of the documents evidencing the agreement of the District and Contractor, identified as the Contract Documents. The Contract Documents consist of the following documents:

- 1.1.13.1** Notice to Bidders
- 1.1.13.2** Instructions to Bidders
- 1.1.13.3** Bid Form and Proposal
- 1.1.13.4** Bid Bond
- 1.1.13.5** Designated Subcontractors List
- 1.1.13.6** Site Visit Certification (if a site visit was required)
- 1.1.13.7** Non-Collusion Declaration
- 1.1.13.8** Notice of Award
- 1.1.13.9** Notice to Proceed
- 1.1.13.10** Agreement
- 1.1.13.11** Escrow of Bid Documentation
- 1.1.13.12** Escrow Agreement for Security Deposits in Lieu of Retention (if applicable)
- 1.1.13.13** Performance Bond
- 1.1.13.14** Payment Bond (Contractor's Labor & Material Bond)
- 1.1.13.15** General Conditions
- 1.1.13.16** Special Conditions (if applicable)
- 1.1.13.17** Project Labor Agreement (if applicable)
- 1.1.13.18** Hazardous Materials Procedures and Requirements
- 1.1.13.19** Workers' Compensation Certification
- 1.1.13.20** Prevailing Wage Certification
- 1.1.13.21** Disabled Veteran Business Enterprise Participation Certification (if applicable)
- 1.1.13.22** Drug-Free Workplace Certification (if applicable)
- 1.1.13.23** Tobacco-Free Environment Certification
- 1.1.13.24** Hazardous Materials Certification (if applicable)
- 1.1.13.25** Lead-Based Materials Certification (if applicable)
- 1.1.13.26** Imported Materials Certification (if applicable)
- 1.1.13.27** Criminal Background Investigation/Fingerprinting Certification
- 1.1.13.28** Buy American Certification (if certain federal funds used)
- 1.1.13.29** Roofing Project Certification (if applicable)
- 1.1.13.30** Registered Subcontractors List
- 1.1.13.31** Iran Contracting Act Certification (if applicable)

- 1.1.13.32** COVID-19 Vaccination/Testing Certification
- 1.1.13.33** Federal Debarment Certification (if applicable)
- 1.1.13.34** Federal Byrd Anti-Lobbying Certification (if applicable)
- 1.1.13.35** Post Bid Interview
- 1.1.13.36** All Plans, Technical Specifications, and Drawings
- 1.1.13.37** Any and all addenda to any of the above documents
- 1.1.13.38** Any and all change orders or written modifications to the above documents if approved in writing by the District

1.1.14 Contract Price: The total monies payable to the Contractor under the terms and conditions of the Contract Documents.

1.1.15 Contract Time: The time period stated in the Agreement for the completion of the Work.

1.1.16 Contractor: The person or persons identified in the Agreement as contracting to perform the Work to be done under this Contract, or the legal representative of such a person or persons.

1.1.17 Daily Job Report(s): Daily Project reports prepared by the Contractor's employee(s) who are present on Site, which shall include the information required herein.

1.1.18 Day(s): Unless otherwise designated, day(s) means calendar day(s).

1.1.19 Department of Industrial Relations (or "DIR"): is responsible, among other things, for labor compliance monitoring and enforcement of California prevailing wage laws and regulations for public works contracts.

1.1.20 Design Professional in General Responsible Charge: See definition of **Architect** above.

1.1.21 Dispute: A separate demand by Contractor for a time extension, or payment of money or damages arising from Work done by or on behalf of the Contractor pursuant to the Contract and payment of which is not otherwise expressly provided for or Contractor is not otherwise entitled to; or an amount of payment disputed by the District.

1.1.22 District: The public agency or the school district for which the Work is performed. The governing board of the District or its designees will act for the District in all matters pertaining to the Contract. The District may, at any time,

1.1.22.1 Direct the Contractor to communicate with or provide notice to the Construction Manager or the Architect on matters for which the Contract Documents indicate the Contractor will communicate with or provide notice to the District; and/or

1.1.22.2 Direct the Construction Manager or the Architect to communicate with or direct the Contractor on matters for which the Contract Documents indicate the District will communicate with or direct the Contractor.

1.1.23 Drawings (or "Plans"): The graphic and pictorial portions of the Contract Documents showing the design, location, scope and dimensions of the work, generally

including plans, elevations, sections, details, schedules, sequence of operation, and diagrams.

1.1.24 DSA: Division of the State Architect.

1.1.25 Force Account Directive: A process that may be used when the District and the Contractor cannot agree on a price for a specific portion of work or before the Contractor prepares a price for a specific portion of work and whereby the Contractor performs the work as indicated herein on a time and materials basis.

1.1.26 Job Cost Reports: Any and all reports or records detailing the costs associated with work performed on or related to the Project that Contractor shall maintain for the Project. Specifically, Job Cost Reports shall contain, but are not limited by or to, the following information: a description of the work performed or to be performed on the Project; quantity, if applicable, of work performed (hours, square feet, cubic yards, pounds, etc.) for the Project; Project budget; costs for the Project to date; estimated costs to complete the Project; and expected costs at completion. The Job Cost Reports shall also reflect all Contract cost codes, change orders, elements of non-conforming work, back charges, and additional services.

1.1.27 Labor Commissioner's Office (or "Labor Commissioner", also known as the Division of Labor Standards Enforcement ("DLSE")): Division of the DIR responsible for adjudicating wage claims, investigating discrimination and public works complaints, and enforcing Labor Code statutes and Industrial Welfare Commission orders.

1.1.28 Municipal Separate Storm Sewer System (or "MS4"): A system of conveyances used to collect and/or convey storm water, including, without limitation, catch basins, curbs, gutters, ditches, man-made channels, and storm drains.

1.1.29 Plans: See **Drawings**.

1.1.30 Premises: The real property owned by the District on which the Site is located.

1.1.31 Product(s): New material, machinery, components, equipment, fixtures and systems forming the Work, including existing materials or components required and approved by the District for reuse.

1.1.32 Product Data: Illustrations, standard schedules, performance charts, instructions, brochures, diagrams, and other information furnished by the Contractor to illustrate a material, product, or system for some portion of the Work.

1.1.33 Program Manager: The individual, partnership, corporation, joint venture, or any combination thereof, or its authorized representative, named as such by the District. If no Program Manager is designated for Project that is the subject of this Contract, then all references to Project Manager herein shall be read to refer to District.

1.1.34 Project: The planned undertaking as provided for in the Contract Documents.

1.1.35 Project Inspector (or "Inspector"): The individual(s) retained by the District in accordance with title 24 of the California Code of Regulations to monitor and inspect the Project.

1.1.36 Project Labor Agreement (or "PLA"): a prehire collective bargaining agreement in accordance with Public Contract Code section 2500 et seq. that establishes terms and conditions of employment for a specific construction project or projects and/or is an agreement described in Section 158(f) of Title 29 of the United States Code.

1.1.37 Proposed Change Order (or "PCO"): a written request prepared by the Contractor requesting that the District and the Architect issue a Change Order based upon a proposed change to the Work.

1.1.38 Provide: Shall include "provide complete in place," that is, "furnish and install," and "provide complete and functioning as intended in place" unless specifically stated otherwise.

1.1.39 Qualified SWPPP Practitioners (or "QSP"): certified personnel that attended a State Water Resources Control Board sponsored or approved training class and passed the qualifying exam.

1.1.40 Record Drawings: Reproducible drawings (or Plans) prepared pursuant to the requirements of the Contract Documents that reflect all changes made during the performance of the Work, recording differences between the original design of the Work and the Work as constructed upon completion of the Project. See also **As-Builts**.

1.1.41 Request for Information (or "RFI"): A written request prepared by the Contractor requesting that the Architect provide additional information necessary to clarify or amplify an item in the Contract Documents that the Contractor believes is not clearly shown or called for in the Drawings or Specifications or other portions of the Contract Documents, or to address problems that have arisen under field conditions.

1.1.42 Request for Substitution for Specified Item: A request by Contractor to substitute an equal or superior material, product, thing, or service for a specific material, product, thing, or service that has been designated in the Contract Documents by a specific brand or trade name.

1.1.43 Safety Orders: Written and/or verbal orders for construction issued by the California Division of Occupational Safety and Health ("CalOSHA") or by the United States Occupational Safety and Health Administration ("OSHA").

1.1.44 Safety Plan: Contractor's safety plan specifically adapted for the Project. Contractor's Safety Plan shall comply with all provisions regarding Project safety, including all applicable provisions in these General Conditions.

1.1.45 Samples: Physical examples that illustrate materials, products, equipment, finishes, colors, or workmanship and that, when approved in accordance with the Contract Documents, establish standards by which portions of the Work will be judged.

1.1.46 Shop Drawings: All drawings, prints, diagrams, illustrations, brochures, schedules, and other data that are prepared by the Contractor, a subcontractor, manufacturer, supplier, or distributor, that illustrate how specific portions of the Work shall be fabricated or installed.

1.1.47 Site: The Project site as shown on the Drawings.

1.1.48 Specifications: That portion of the Contract Documents, Division 1 through Division 49, and all technical sections, and addenda to all of these, if any, consisting of written descriptions and requirements of a technical nature of materials, equipment, construction methods and systems, standards, and workmanship.

1.1.49 State: The State of California.

1.1.50 Storm Water Pollution Prevention Plan (or "SWPPP"): A document which identifies sources and activities at a particular facility that may contribute pollutants to storm water and contains specific control measures and time frames to prevent or treat such pollutants.

1.1.51 Subcontractor: A contractor and/or supplier who is under contract with the Contractor or with any other subcontractor, regardless of tier, to perform a portion of the Work of the Project.

1.1.52 Submittal Schedule: The schedule of submittals as provided by Contractor and approved by District.

1.1.53 Surety: The person, firm, or corporation that executes as surety the Contractor's Performance Bond and Payment Bond, and must be a California admitted surety insurer as defined in the Code of Civil Procedure section 995.120.

1.1.54 Work: All labor, materials, equipment, components, appliances, supervision, coordination, and services required by, or reasonably inferred from, the Contract Documents, that are necessary for the construction and completion of the Project.

1.2 Laws Concerning the Contract

Contract is subject to all provisions of the Constitution and laws of California and the United States governing, controlling, or affecting District, or the property, funds, operations, or powers of District, and such provisions are by this reference made a part hereof. Any provision required by law to be included in this Contract shall be deemed to be inserted.

1.3 No Oral Agreements

No oral agreement or conversation with any officer, agent, or employee of District, either before or after execution of Contract, shall affect or modify any of the terms or obligations contained in any of the documents comprising the Contract.

1.4 No Assignment

Contractor shall not assign this Contract or any part thereof including, without limitation, any Work or money to become due hereunder without the prior written consent of the

District. Assignment without District's prior written consent shall be null and void. Any assignment of money due or to become due under this Contract shall be subject to a prior lien for services rendered or material supplied for performance of work called for under this Contract in favor of all persons, firms, or corporations rendering services or supplying material to the extent that claims are filed pursuant to the Civil Code, Code of Civil Procedure, Government Code, Labor Code, and/or Public Contract Code, and shall also be subject to deductions for liquidated damages or withholding of payments as determined by District in accordance with this Contract. Contractor shall not assign or transfer in any manner to a Subcontractor or supplier the right to prosecute or maintain an action against the District.

1.5 Notice and Service Thereof

1.5.1 Any notice from one party to the other or otherwise under Contract shall be in writing and shall be dated and signed by the party giving notice or by a duly authorized representative of that party. Any notice shall not be effective for any purpose whatsoever unless served in one of the following manners:

1.5.1.1 If notice is given by personal delivery thereof, it shall be considered delivered on the day of delivery.

1.5.1.2 If notice is given by overnight delivery service, it shall be considered delivered one (1) day after date deposited, as indicated by the delivery service.

1.5.1.3 If notice is given by depositing same in United States mail, enclosed in a sealed envelope, it shall be considered delivered three (3) days after date deposited, as indicated by the postmarked date.

1.5.1.4 If notice is given by registered or certified mail with postage prepaid, return receipt requested, it shall be considered delivered on the day the notice is signed for.

1.5.1.5 Electronic mail may be used for convenience but is not a substitute for the notice and service requirements herein.

1.6 No Waiver

The failure of District in any one or more instances to insist upon strict performance of any of the terms of this Contract or to exercise any option herein conferred shall not be construed as a waiver or relinquishment to any extent of the right to assert or rely upon any such terms or option on any future occasion. No action or failure to act by the District, Architect, or Construction Manager shall constitute a waiver of any right or duty afforded the District under the Contract, nor shall any action or failure to act constitute an approval of or acquiescence in any breach thereunder, except as may be specifically agreed in writing.

1.7 Substitutions for Specified Items

Unless the Special Conditions contain different provisions, Contractor shall not substitute different items for any items identified in the Contract Documents without prior written approval of the District.

1.8 Materials and Work

1.8.1 Except as otherwise specifically stated in this Contract, Contractor shall provide and pay for all materials, labor, tools, equipment, transportation, supervision, temporary constructions of every nature, and all other services, management, and facilities of every nature whatsoever necessary to execute and complete this Contract, in a good and workmanlike manner, within the Contract Time.

1.8.2 Unless otherwise specified, all materials shall be new and of the best quality of their respective kinds and grades as noted or specified, workmanship shall be of good quality, and Contractor shall use all diligence to inform itself fully as to the required manufacturer's instructions and to comply therewith.

1.8.3 Materials shall be furnished in ample quantities and at such times as to insure uninterrupted progress of Work and shall be stored properly and protected from the elements, theft, vandalism, or other loss or damage as required.

1.8.4 For all materials and equipment specified or indicated in the Drawings, the Contractor shall provide all labor, materials, equipment, and services necessary for complete assemblies and complete working systems, functioning as intended. Incidental items not indicated on Drawings, nor mentioned in the Specifications, that can legitimately and reasonably be inferred to belong to the Work described, or be necessary in good practice to provide a complete assembly or system, shall be furnished as though itemized here in every detail. In all instances, material and equipment shall be installed in strict accordance with each manufacturer's most recent published recommendations and specifications.

1.8.5 Contractor shall, after award of Contract by District and after relevant submittals have been reviewed, place orders for materials and/or equipment as specified so that delivery of same may be made without delays to the Work. Contractor shall, upon five (5) days' demand from District, present documentary evidence showing that orders have been placed.

1.8.6 District reserves the right but has no obligation, in response to Contractor's neglect or failure in complying with the above instructions, to place orders for such materials and/or equipment as the District may deem advisable in order that the Work may be completed at the date specified in the Contract, and all expenses incidental to the procuring of said materials and/or equipment shall be paid for by Contractor or deducted from payment(s) to Contractor.

1.8.7 Contractor warrants good title to all material, supplies, and equipment installed or incorporated in Work and agrees upon completion of all Work to deliver the Site to District, together with all improvements and appurtenances constructed or placed thereon by it, and free from any claims, liens, or charges. Contractor further agrees that neither it nor any person, firm, or corporation furnishing any materials or labor for any work covered by the Contract shall have any right to lien any portion of the Premises or any improvement or appurtenance thereon, except that Contractor may install metering devices or other equipment of utility companies or of political subdivision, title to which is commonly retained by utility company or political subdivision. In the event of installation of any such metering device or equipment, Contractor shall advise District as to owner thereof.

1.8.7.1 If a lien or a claim based on a stop payment notice of any nature should at any time be filed against the Work or any District property, by any entity that has supplied material or services at the request of the Contractor, Contractor and Contractor's Surety shall promptly, on demand by District and at Contractor's and Surety's own expense, take any and all action necessary to cause any such lien or a claim based on a stop payment notice to be released or discharged immediately therefrom.

1.8.7.2 If the Contractor fails to furnish to the District within ten (10) calendar days after demand by the District, satisfactory evidence that a lien or a claim based on a stop payment notice has been so released, discharged, or secured, the District may discharge such indebtedness and deduct the amount required therefor, together with any and all losses, costs, damages, and attorney's fees and expense incurred or suffered by District from any sum payable to Contractor under the Contract.

1.8.8 Nothing contained in this Article, however, shall defeat or impair the rights of persons furnishing materials or labor under any bond given by Contractor for their protection or any rights under any law permitting such protection or any rights under any law permitting such persons to look to funds due Contractor in hands of District (e.g., stop payment notices), and this provision shall be inserted in all subcontracts and material contracts and notice of its provisions shall be given to all persons furnishing material for work when no formal contract is entered into for such material.

1.8.9 Title to new materials and/or equipment for the Work of this Contract and attendant liability for its protection and safety shall remain with Contractor until incorporated in the Work of this Contract and accepted by District. No part of any materials and/or equipment shall be removed from its place of storage except for immediate installation in the Work of this Contract. Should the District, in its discretion, allow the Contractor to store materials and/or equipment for the Work off-site, Contractor will store said materials and/or equipment at a bonded warehouse and with appropriate insurance coverage at no cost to District. Contractor shall keep an accurate inventory of all materials and/or equipment in a manner satisfactory to District or its authorized representative and shall, at the District's request, forward it to the District.

1.8.10 [RESERVED]

2. [RESERVED]

3. ARCHITECT

3.1 The Architect shall represent the District during the Project and will observe the progress and quality of the Work on behalf of the District. Architect shall have the authority to act on behalf of District to the extent expressly provided in the Contract Documents and to the extent determined by District. Architect shall have authority to reject materials, workmanship, and/or the Work whenever rejection may be necessary, in Architect's reasonable opinion, to ensure the proper execution of the Contract.

3.2 Architect shall, with the District and on behalf of the District, determine the amount, quality, acceptability, and fitness of all parts of the Work, and interpret the Specifications, Drawings, and shall, with the District, interpret all other Contract Documents.

3.3 Architect shall have all authority and responsibility established by law, including title 24 of the California Code of Regulations.

3.4 Contractor shall provide District and the Construction Manager with a copy of all written communication between Contractor and Architect at the same time as that communication is made to Architect, including, without limitation, all RFIs, correspondence, submittals, claims, and proposed change orders.

4. CONSTRUCTION MANAGER

4.1 If a Construction Manager is used on this Project ("Construction Manager" or "CM"), the Construction Manager will provide administration of the Contract on the District's behalf. After execution of the Contract and Notice to Proceed, all correspondence and/or instructions from Contractor and/or District shall be forwarded through the Construction Manager. The Construction Manager will not be responsible for and will not have control or charge of construction means, methods, techniques, sequences, or procedures or for safety precautions in connection with the Work, which shall all remain the Contractor's responsibility.

4.2 The Construction Manager, however, will have authority to reject materials and/or workmanship not conforming to the Contract Documents, as determined by the District, the Architect, and/or the Project Inspector. The Construction Manager shall also have the authority to require special inspection or testing of any portion of the Work, whether it has been fabricated, installed, or fully completed. Any decision made by the Construction Manager, in good faith, shall not give rise to any duty or responsibility of the Construction Manager to: the Contractor; any Subcontractor; the Contractor or Subcontractor's respective agents, employees; or other persons performing any of the Work. The Construction Manager shall have free access to any or all parts of Work at any time.

4.3 If the District does not use a Construction Manager on this Project, all references within the Contract Documents to Construction Manager or CM shall be read as District.

5. INSPECTOR, INSPECTIONS, AND TESTS

5.1 Project Inspector

5.1.1 One or more Project Inspector(s), including special Project Inspector(s), as required, will be assigned to the Work by District, in accordance with requirements of title 24, part 1, of the California Code of Regulations, to enforce the building code and monitor compliance with Plans and Specifications for the Project previously approved by the DSA. Duties of Project Inspector(s) are specifically defined in section 4-342 of said part 1 of title 24.

5.1.2 No Work shall be carried on except with the knowledge and under the inspection of the Project Inspector(s). The Project Inspector(s) shall have free access to any or all parts of Work at any time. Contractor shall furnish Project Inspector(s) reasonable opportunities for obtaining such information as may be necessary to keep Project Inspector(s) fully informed respecting progress and manner of work and character of materials, including, but not limited to, submission of form DSA 156 (or the most current version applicable at the time the Work is performed) to the Project Inspector at least 48 hours in advance of the commencement and completion of

construction of each and every aspect of the Work. Forms are available on the DSA's website at: <http://www.dgs.ca.gov/dsa/Forms.aspx>. Inspection of Work shall not relieve Contractor from an obligation to fulfill this Contract. Project Inspector(s) and the DSA are authorized to suspend work whenever the Contractor and/or its Subcontractor(s) are not complying with the Contract Documents. Any work stoppage by the Project Inspector(s) and/or DSA shall be without liability to the District. Contractor shall instruct its Subcontractors and employees accordingly.

5.1.3 If Contractor and/or any Subcontractor requests that the Project Inspector(s) perform any inspection off-site, this shall only be done if it is allowable pursuant to applicable regulations and DSA approval, if the Project Inspector(s) agree to do so, and at the expense of the Contractor.

5.2 Tests and Inspections

5.2.1 Tests and Inspections shall comply with title 24, part 1, California Code of Regulations, group 1, article 5, section 4-335, and with the provisions of the Specifications.

5.2.2 The District will select an independent testing laboratory to conduct the tests. Selection of the materials required to be tested shall be by the laboratory or the District's representative and not by the Contractor. The Contractor shall notify the District's representative a sufficient time in advance of its readiness for required observation or inspection.

5.2.3 The Contractor shall notify the District's representative a sufficient time in advance of the manufacture of material to be supplied under the Contract Documents, which must by terms of the Contract Documents be tested, in order that the District may arrange for the testing of same at the source of supply. This notice shall be provided, at a minimum, seventy-two (72) hours prior to the manufacture of the material that needs to be tested.

5.2.4 Any material shipped by the Contractor from the source of supply prior to having satisfactorily passed such testing and inspection or prior to the receipt of notice from said representative that such testing and inspection will not be required, shall not be incorporated into and/or onto the Project.

5.2.5 The District will select the testing laboratory and pay for the cost of all tests and inspections, excepting those inspections performed at Contractor's request and expense. Contractor shall reimburse the District for any and all laboratory costs or other testing costs for any materials found to be not in compliance with the Contract Documents. At the District's discretion, District may elect to deduct laboratory or other testing costs for noncompliant materials from the Contract Price, and such deduction shall not constitute a withholding.

5.3 Costs for After Hours and/or Off Site Inspections

If the Contractor performs Work outside the Inspector's regular working hours or requests the Inspector to perform inspections off Site, costs of any inspections required outside regular working hours or off Site shall be borne by the Contractor and may be invoiced to the Contractor by the District or the District may deduct those expenses from the next Progress Payment.

6. CONTRACTOR

Contractor shall construct and complete, in a good and workmanlike manner, the Work for the Contract Price including any adjustment(s) to the Contract Price pursuant to provisions herein regarding changes to the Contract Price. Except as otherwise noted, Contractor shall provide and pay for all labor, materials, equipment, permits (excluding DSA), fees, licenses, facilities, transportation, taxes, bonds and insurance, and services necessary for the proper execution and completion of the Work, except as indicated herein.

6.1 Status of Contractor

6.1.1 Contractor is and shall at all times be deemed to be an independent contractor and shall be wholly responsible for the manner in which it and its Subcontractors perform the services required of it by the Contract Documents. Nothing herein contained shall be construed as creating the relationship of employer and employee, or principal and agent, between the District, or any of the District's employees or agents, and Contractor or any of Contractor's Subcontractors, agents or employees. Contractor assumes exclusively the responsibility for the acts of its agents, and employees as they relate to the services to be provided during the course and scope of their employment. Contractor, its Subcontractors, agents, and its employees shall not be entitled to any rights or privileges of District employees. District shall be permitted to monitor the Contractor's activities to determine compliance with the terms of this Contract.

6.1.2 As required by law, Contractor and all Subcontractors shall be properly licensed and regulated by the Contractors State License Board, 9821 Business Park Drive, Sacramento, California 95827, <http://www.cslb.ca.gov>.

6.1.3 As required by law, Contractor and all Subcontractors shall be properly registered as public works contractors by the Department of Industrial Relations at: <https://efiling.dir.ca.gov/PWCR/ActionServlet?action=displayPWCRRegistrationForm> or current URL.

6.1.4 Contractor represents that Contractor and all Subcontractors shall not be presently debarred, suspended, proposed for disbarment, declared ineligible or excluded pursuant to either Labor Code section 1777.1 or Labor Code section 1777.7.

6.1.5 [RESERVED]

6.1.6 Contractor represents that it has no existing interest and will not acquire any interest, direct or indirect, which could conflict in any manner or degree with the performance of Work required under this Contract and that no person having any such interest shall be employed by Contractor.

6.1.7 [RESERVED]

6.1.8 If Contractor intends to make any change in the name or legal nature of the Contractor's entity, Contractor must first notify the District in writing prior to making any contemplated change. The District shall determine in writing if Contractor's intended change is permissible while performing this Contract.

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6.2 Project Inspection Card(s)

Contractor shall verify that forms DSA 152 (or the current version applicable at the time the Work is performed) are issued for the Project prior to the commencement of construction.

6.3 Contractor's Supervision

6.3.1 During progress of the Work, Contractor shall keep on the Premises, and at all other locations where any Work related to the Contract is being performed, an experienced and competent project manager and construction superintendent who are employees of the Contractor, to whom the District does not object and at least one of whom shall be fluent in English, written and verbal.

6.3.2 The project manager and construction superintendent shall both speak fluently the predominant language of the Contractor's employees.

6.3.3 Before commencing the Work herein, Contractor shall give written notice to District of the name of its project manager and construction superintendent. Neither the Contractor's project manager nor construction superintendent shall be changed except with prior written notice to District. If the Contractor's project manager and/or construction superintendent proves to be unsatisfactory to Contractor, or to District, any of the District's employees, agents, the Construction Manager, or the Architect, the unsatisfactory project manager and/or construction superintendent shall be replaced. However, Contractor shall notify District in writing before any change occurs, but no less than two (2) business days prior. Any replacement of the project manager and/or construction superintendent shall be made promptly and must be satisfactory to the District. The Contractor's project manager and construction superintendent shall each represent Contractor, and all directions given to Contractor's project manager and/or construction superintendent shall be as binding as if given to Contractor.

6.3.4 Contractor shall give efficient supervision to Work, using its best skill and attention. Contractor shall carefully study and compare all Contract Documents, Drawings, Specifications, and other instructions and shall at once report to District, Construction Manager, and Architect any error, inconsistency, or omission that Contractor or its employees and Subcontractors may discover, in writing, with a copy to District's Project Inspector(s). The Contractor shall have responsibility for discovery of errors, inconsistencies, or omissions.

6.4 Duty to Provide Fit Workers

6.4.1 Contractor and Subcontractor(s) shall at all times enforce strict discipline and good order among their employees and shall not employ or work any unfit person or anyone not skilled in work assigned to that person. It shall be the responsibility of Contractor to ensure compliance with this requirement. District may require Contractor to permanently remove unfit persons from Project Site.

6.4.2 Any person in the employ of Contractor or Subcontractor(s) whom District may deem incompetent or unfit shall be excluded from working on the Project and shall not again be employed on the Project except with the prior written consent of District.

6.4.3 The Contractor shall furnish labor that can work in harmony with all other elements of labor employed or to be employed in the Work.

6.4.4 Fingerprinting. Contractor shall comply with the provisions of Education Code section 45125.2 regarding the submission of employee fingerprints to the California Department of Justice and the completion of criminal background investigations of its employees, its subcontractor(s), and its subcontractors' employees. Contractor shall not permit any employee to have any contact with District pupils until such time as Contractor has verified in writing to the governing board of the District, (A) that such employee has not been convicted of a violent or serious felony, as defined in Education Code section 45122.1 and/or (B) that the prohibition does not apply to an employee as provided by Education Code section 45125.1(e)(2) or (3). Contractor shall fully complete and perform all tasks required pursuant to the Criminal Background Investigation/ Fingerprinting Certification.

6.5 Field Office

6.5.1 Contractor shall provide a temporary office on the Site for the District's use exclusively, during the term of the Contract.

6.6 Purchase of Materials and Equipment

The Contractor is required to order, obtain, and store materials and equipment sufficiently in advance of its Work at no additional cost or advance payment from District to assure that there will be no delays.

6.7 Documents on Work

6.7.1 Contractor shall at all times keep on the Site, or at another location as the District may authorize in writing, one legible copy of all Contract Documents, including Addenda and Change Orders, and Titles 19 and 24 of the California Code of Regulations, the specified edition(s) of the Uniform Building Code, all approved Drawings, Plans, Schedules, and Specifications, and all codes and documents referred to in the Specifications, and made part thereof. These documents shall be kept in good order and available to District, Construction Manager, Architect, Architect's representatives, the Project Inspector(s), and all authorities having jurisdiction. Contractor shall be acquainted with and comply with the provisions of these titles as they relate to this Project. (See particularly the duties of Contractor, Title 24, Part 1, California Code of Regulations, section 4-343.) Contractor shall also be acquainted with and comply with all California Code of Regulations provisions relating to conditions on this Project, particularly Titles 8 and 17. Contractor shall coordinate with Architect and Construction Manager and shall submit its verified report(s) according to the requirements of Title 24.

6.7.2 Daily Job Reports.

6.7.2.1 Contractor shall maintain, at a minimum, at least one (1) set of Daily Job Reports on the Project. These must be prepared by the Contractor's employee(s) who are present on Site, and must include, at a minimum, the following information:

6.7.2.1.1 A brief description of all Work performed on that day.

- 6.7.2.1.2** A summary of all other pertinent events and/or occurrences on that day.
- 6.7.2.1.3** The weather conditions on that day.
- 6.7.2.1.4** A list of all Subcontractor(s) working on that day, including DIR registration numbers.
- 6.7.2.1.5** A list of each Contractor employee working on that day and the total hours worked for each employee.
- 6.7.2.1.6** A complete list of all equipment on Site that day, whether in use or not.
- 6.7.2.1.7** A complete list of all materials, supplies, and equipment delivered on that day.
- 6.7.2.1.8** A complete list of all inspections and tests performed on that day.

6.7.2.2 Each day Contractor shall provide a copy of the previous day's Daily Job Report to the District or the Construction Manager.

6.8 Preservation of Records

Contractor shall maintain, and District shall have the right to inspect, Contractor's financial records for the Project, including, without limitation, Job Cost Reports for the Project in compliance with the criteria set forth herein. The District shall have the right to examine and audit all Daily Job Reports or other Project records of Contractor's project manager(s), project superintendent(s), and/or project foreperson(s), all certified payroll records and/or related documents including, without limitation, Job Cost Reports, payroll, payment, timekeeping and tracking documents; all books, estimates, records, contracts, documents, bid documents, bid cost data, subcontract job cost reports, and other data of the Contractor, any Subcontractor, and/or supplier, including computations and projections related to bidding, negotiating, pricing, or performing the Work or Contract modification, in order to evaluate the accuracy, completeness, and currency of the cost, manpower, coordination, supervision, or pricing data at no additional cost to the District. These documents may be duplicative and/or be in addition to any Bid Documents held in escrow by the District. The Contractor shall make available at its office at all reasonable times the materials described in this paragraph for the examination, audit, or reproduction until three (3) years after final payment under this Contract. Notwithstanding the provisions above, Contractor shall provide any records requested by any governmental agency, if available, after the time set forth above.

6.9 Integration of Work

6.9.1 Contractor shall do all cutting, fitting, patching, and preparation of Work as required to make its several parts come together properly, to fit it to receive or be received by work of other contractors, and to coordinate tolerances to various pieces of work, showing upon, or reasonably implied by, the Drawings and Specifications for the completed structure, and shall conform them as District and/or Architect may direct.

6.9.2 Contractor shall make its own layout of lines and elevations and shall be responsible for the accuracy of both Contractor's and Subcontractors' work resulting therefrom.

6.9.3 Contractor and all Subcontractors shall take all field dimensions required in performance of the Work, and shall verify all dimensions and conditions on the Site. All dimensions affecting proper fabrication and installation of all Work must be verified

prior to fabrication by taking field measurements of the true conditions. If there are any discrepancies between dimensions in drawings and existing conditions which will affect the Work, Contractor shall bring such discrepancies to the attention of the District and Architect for adjustment before proceeding with the Work. In doing so, it is recognized that Contractor is not acting in the capacity of a licensed design professional, and that Contractor's examination is made in good faith to facilitate construction and does not create an affirmative responsibility of a design professional to detect errors, omissions or inconsistencies in the Contract Documents or to ascertain compliance with applicable laws, building codes or regulations. However, nothing in this provision shall abrogate Contractor's responsibilities for discovering and reporting any error, inconsistency, or omission pursuant to the Contract within the Contractor's standard of care including, without limitation, any applicable laws, ordinance, rules, or regulations. Following receipt of written notice from Contractor, the District and/or Architect shall inform Contractor what action, if any, Contractor shall take with regard to such discrepancies.

6.9.4 All costs caused by noncompliant, defective, or delayed Work shall be borne by Contractor, inclusive of repair work. Schedule delays resulting from unauthorized work shall be Contractor's responsibility.

6.9.5 Contractor shall not endanger any work performed by it or anyone else by cutting, excavating, or otherwise altering work and shall not cut or alter work of any other contractor except with consent of District.

6.10 Notifications

6.10.1 Contractor shall notify the Architect and Project Inspector, in writing, of the commencement of construction of each and every aspect of the Work at least 48 hours in advance by submitting form DSA 156 (or the most current version applicable at the time the Work is performed) to the Project Inspector. Forms are available on the DSA's website at: <http://www.dgs.ca.gov/dsa/Forms.aspx>.

6.10.2 Contractor shall notify the Architect and Project Inspector, in writing, of the completion of construction of each and every aspect of the Work at least 48 hours in advance by submitting form DSA 156 (or current version) to the Project Inspector.

6.11 Obtaining of Permits, Licenses and Registrations

6.11.1 Contractor shall secure and pay for all permits (except DSA), licenses, registrations, approvals and certificates necessary for prosecution of Work, including but not limited to those listed in the Special Conditions, if any, before the date of the commencement of the Work or before the permits, licenses, registrations, approvals and certificates are legally required to continue the Work without interruption. The Contractor shall obtain and pay, only when legally required, for all licenses, registrations, approvals, permits, inspections, and inspection certificates required to be obtained from or issued by any authority having jurisdiction over any part of the Work included in the Contract. All final permits, licenses, registrations, approvals and certificates shall be delivered to District before demand is made for final payment.

6.11.2 General Permit For Storm Water Discharges Associated With Construction and Land Disturbance Activities.

6.11.2.1 Contractor acknowledges that all California school districts are obligated to develop and implement the following requirements for the discharge of storm water to surface waters from its construction and land disturbance activities pursuant to the Clean Water Act and Porter Cologne Water Quality Act. District has determined that the construction of this Project requires enrollment in the Construction Storm Water Permit. District has filed certain submittals referred to as Permit Registration Documents ("PRDS") with the Regional Water Control Board ("Storm Water Pollution Prevention Plan" or "SWPPP").

6.11.2.2 Contractor shall comply with any District SWPPP that is approved by the District and applicable to the Project, at no additional cost to the District. Contractor shall pay any fees and any penalties that may imposed by a regulatory agency for its non-compliance with the SWPPP during the course of Work.

6.11.2.3 Contractor shall provide a Qualified Storm Water Practitioner ("QSP") at no additional cost to the District, who shall be onsite and implement and monitor any and all SWPPP requirements applicable to the Project, including but not limited to:

6.11.2.3.1 All required visual observations, sampling, analysis, reporting and record keeping, including any Numeric Action Levels ("NALs"), if applicable;

6.11.2.3.2 Rain Event Action Plan ("REAP") at least forty eight (48) hours prior to any forecasted rain event requiring implementation of the REAP, including any erosion and sediment control measures needed to protect all exposed portions of the site, if applicable;

6.11.2.3.3 Active Treatment System ("ATS"), if applicable; and

6.11.2.3.4 Best management practices ("BMPs").

6.12 Royalties and Patents

6.12.1 Contractor shall obtain and pay, only when legally required, all royalties and license fees necessary for prosecution of Work before the earlier of the date of the commencement of the Work or the date that the license is legally required to continue the Work without interruption. Contractor shall defend suits or claims of infringement of patent, copyright, or other rights and shall hold the District, the Architect, and the Construction Manager harmless and indemnify them from loss on account thereof except when a particular design, process, or make or model of product is required by the Contract Documents. However, if the Contractor has reason to believe that the required design, process, or product is an infringement of a patent or copyright, the Contractor shall indemnify and defend the District, Architect and Construction Manager against any loss or damage unless the Contractor promptly informs the District of its information.

6.12.2 The review by the District or Architect of any method of construction, invention, appliance, process, article, device, or material of any kind shall be only its adequacy for the Work and shall not approve use by the Contractor in violation of any patent or other rights of any person or entity.

6.13 Work to Comply With Applicable Laws and Regulations

6.13.1 Contractor shall give all notices and comply with the following specific laws, ordinances, rules, and regulations and all other applicable laws, ordinances, rules, and regulations bearing on conduct of Work as indicated and specified, including but not limited to the appropriate statutes and administrative code sections. If Contractor observes that Drawings and Specifications are at variance therewith, or should Contractor become aware of the development of conditions not covered by Contract Documents that may result in finished Work being at variance therewith, Contractor shall promptly notify District in writing and any changes deemed necessary by District shall be made as provided in Contract for changes in Work.

6.13.1.1 National Electrical Safety Code, U. S. Department of Commerce

6.13.1.2 National Board of Fire Underwriters' Regulations

6.13.1.3 International Building Code, latest addition, and the California Code of Regulations, title 24, and other amendments

6.13.1.4 Manual of Accident Prevention in Construction, latest edition, published by A.G.C. of America

6.13.1.5 Industrial Accident Commission's Safety Orders, State of California

6.13.1.6 Regulations of the State Fire Marshall (title 19, California Code of Regulations) and Pertinent Local Fire Safety Codes

6.13.1.7 Americans with Disabilities Act

6.13.1.8 Education Code of the State of California

6.13.1.9 Government Code of the State of California

6.13.1.10 Labor Code of the State of California, division 2, part 7, Public Works and Public Agencies

6.13.1.11 Public Contract Code of the State of California

6.13.1.12 California Art Preservation Act

6.13.1.13 U. S. Copyright Act

6.13.1.14 U. S. Visual Artists Rights Act

6.13.2 Contractor shall comply with all applicable mitigation measures, if any, adopted by any public agency with respect to this Project pursuant to the California Environmental Quality Act (Public Resources Code section 21000 et seq.).

6.13.3 If Contractor performs any Work that it knew, or through exercise of reasonable care should have known, to be contrary to any applicable laws, ordinance, rules, or regulations, Contractor shall bear all costs arising therefrom and arising from the correction of said Work.

6.13.4 Where Specifications or Drawings state that materials, processes, or procedures must be approved by the DSA, State Fire Marshall, or other body or agency, Contractor shall be responsible for satisfying requirements of such bodies or agencies applicable at the time the Work is performed, and as determined by those bodies or agencies.

6.13.5 [RESERVED]

6.14 Safety/Protection of Persons and Property

6.14.1 The Contractor will be solely and completely responsible for conditions of the Site, including safety of all persons and property during performance of the Work. This requirement will apply continuously and not be limited to normal working hours.

6.14.2 The wearing of hard hats will be mandatory at all times for all personnel on Site. Contractor shall supply sufficient hard hats to properly equip all employees and visitors.

6.14.3 Any construction review of the Contractor's performance is not intended to include review of the adequacy of the Contractor's safety measures in, on, or near the Site.

6.14.4 Implementation and maintenance of safety programs shall be the sole responsibility of the Contractor.

6.14.5 The Contractor shall furnish to the District a copy of the Contractor's safety plan within the time frame indicated in the Contract Documents and specifically adapted for the Project.

6.14.6 Contractor shall be responsible for all damages to persons or property that occur as a result of its fault or negligence in connection with the prosecution of this Contract and shall take all necessary measures and be responsible for the proper care and completion and final acceptance by District. All Work shall be solely at Contractor's risk with the exception of damage to the Work caused by "acts of God" as defined in Public Contract Code section 7105.

6.14.7 Contractor shall take, and require Subcontractors to take, all necessary precautions for safety of workers on the Project and shall comply with all applicable federal, state, local, and other safety laws, standards, orders, rules, regulations, and building codes to prevent accidents or injury to persons on, about, or adjacent to premises where Work is being performed and to provide a safe and healthful place of employment. Contractor shall furnish, erect, and properly maintain at all times, all necessary safety devices, safeguards, construction canopies, signs, nets, barriers, lights, and watchmen for protection of workers and the public and shall post danger signs warning against hazards created by such features in the course of construction.

6.14.8 Hazards Control – Contractor shall store volatile wastes in covered metal containers and remove them from the Site daily. Contractor shall prevent accumulation of wastes that create hazardous conditions. Contractor shall provide adequate ventilation during use of volatile or noxious substances.

6.14.9 Contractor shall designate a responsible member of its organization on the Project, whose duty shall be to post information regarding protection and obligations

of workers and other notices required under occupational safety and health laws, to comply with reporting and other occupational safety requirements, and to protect the life, safety, and health of workers. Name and position of person so designated shall be reported to District by Contractor.

6.14.10 Contractor shall correct any violations of safety laws, rules, orders, standards, or regulations. Upon the issuance of a citation or notice of violation by the Division of Occupational Safety and Health, Contractor shall correct such violation promptly.

6.14.11 Contractor shall comply with any District storm water requirements that are approved by the District and applicable to the Project, at no additional cost to the District.

6.14.12 In an emergency affecting safety of life or of work or of adjoining property, Contractor, without special instruction or authorization, shall act, at its discretion, to prevent such threatened loss or injury. Any compensation claimed by Contractor on account of emergency work shall be determined by agreement.

6.14.13 All salvage materials will become the property of the Contractor and shall be removed from the Site unless otherwise called for in the Contract Documents. However, the District reserves the right to designate certain items of value that shall be turned over to the District unless otherwise directed by District.

6.14.14 All connections to public utilities and/or existing on-site services, including, without limitation, internet, phone and data connections, shall be made and maintained in such a manner as to not interfere with the continuing use of same by the District during the entire progress of the Work.

6.14.15 Contractor shall provide such heat, covering, and enclosures as are necessary to protect all Work, materials, equipment, appliances, and tools against damage by weather conditions, such as extreme heat, cold, rain, snow, dry winds, flooding, or dampness.

6.14.16 The Contractor shall protect and preserve the Work from all damage or accident, providing any temporary roofs, window and door coverings, boxings, or other construction as required by the Architect. The Contractor shall be responsible for existing structures, walks, roads, trees, landscaping, and/or improvements in working areas; and shall provide adequate protection therefore. If temporary removal is necessary of any of the above items, or damage occurs due to the Work, the Contractor shall replace same at his expense with same kind, quality, and size of Work or item damaged. This shall include any adjoining property of the District and others.

6.14.17 Contractor shall take adequate precautions to protect existing roads, sidewalks, curbs, pavements, utilities, adjoining property, and structures (including, without limitation, protection from settlement or loss of lateral support), and to avoid damage thereto, and repair any damage thereto caused by construction operations.

6.14.18 Contractor shall confine apparatus, the storage of materials, and the operations of workers to limits indicated by law, ordinances, permits, or directions of Architect, and shall not interfere with the Work or unreasonably encumber Premises or overload any structure with materials. Contractor shall enforce all instructions of

District and Architect regarding signs, advertising, fires, and smoking, and require that all workers comply with all regulations while on Project Site.

6.14.19 Contractor, Contractor's employees, Subcontractors, Subcontractors' employees, or any person associated with the Work shall conduct themselves in a manner appropriate for a school site. No verbal or physical contact with neighbors, students, and faculty, profanity, or inappropriate attire and/or logos, or behavior will be permitted. District may require Contractor to temporarily or permanently remove non-complying persons from Project Site.

6.14.20 Contractor shall take care to prevent disturbing or covering any survey markers, monuments, or other devices marking property boundaries or corners. If such markers are disturbed, Contractor shall have a civil engineer, registered as a professional engineer in California, replace them at no cost to District.

6.14.21 In the event that the Contractor enters into any agreement with owners of any adjacent property to enter upon the adjacent property for the purpose of performing the Work, Contractor shall fully indemnify, defend, and hold harmless each person, entity, firm, or agency that owns or has any interest in adjacent property. The form and content of the agreement of indemnification shall be approved by the District prior to the commencement of any Work on or about the adjacent property. The Contractor shall also indemnify the District as provided in the indemnification provision herein. These provisions shall be in addition to any other requirements of the owners of the adjacent property.

6.15 Working Evenings and Weekends

Contractor may be required to work increased hours, evenings, and/or weekends at no additional cost to the District. Contractor shall give the District seventy-two (72) hours' notice prior to performing any evening and/or weekend work. Contractor shall perform all evening and/or weekend work only upon District's approval and in compliance with all applicable rules, regulations, laws, and local ordinances including, without limitation, all noise and light limitations. Contractor shall reimburse the District for any increased or additional Inspector charges as a result of Contractor's increased hours, or evening and/or weekend work.

6.16 Cleaning Up

6.16.1 The Contractor shall provide all services, labor, materials, and equipment necessary for protecting and securing the Work, all school occupants, furnishings, equipment, and building structure from damage until its completion and final acceptance by District. Dust barriers shall be provided to isolate dust and dirt from construction operations. At completion of the Work and portions thereof, Contractor shall clean to the original state any areas beyond the Work area that become dust laden as a result of the Work. The Contractor must erect the necessary warning signs and barricades to ensure the safety of all school occupants. The Contractor at all times must maintain good housekeeping practices to reduce the risk of fire damage and must make a fire extinguisher, fire blanket, and/or fire watch, as applicable, available at each location where cutting, braising, soldering, and/or welding is being performed or where there is an increased risk of fire.

6.16.2 Contractor at all times shall keep Premises, including property immediately adjacent thereto, free from debris such as waste, rubbish (including personal rubbish

of workers, e.g., food wrappers, etc.), and excess materials and equipment caused by the Work. Contractor shall not leave debris under, in, or about the Premises (or surrounding property or neighborhood), but shall promptly remove same from the Premises on a daily basis. If Contractor fails to clean up, District may do so and the cost thereof shall be charged to Contractor. If Contract is for work on an existing facility, Contractor shall also perform specific clean-up on or about the Premises upon request by the District as it deems necessary for continued operations. Contractor shall comply with all related provisions of the Specifications.

6.16.3 If the Construction Manager, Architect, or District observes the accumulation of trash and debris, the District will give the Contractor a 24-hour written notice to mitigate the condition.

6.16.4 Should the Contractor fail to perform the required clean-up, or should the clean-up be deemed unsatisfactory by the District, the District may, at its sole discretion, then perform the clean-up. All cost associated with the clean-up work (including all travel, payroll burden, and costs for supervision) will be deducted from the Contract Price.

6.17 No Relief from Obligations Based on Review by Other Persons

6.17.1 Contractor shall not be relieved of obligations to perform the Work in accordance with the Contract Documents by act or omission of the District, Architect, Construction Manager, Project Inspector, or DSA or other entities having jurisdiction including, but not limited to, administration of the Contract, review of submittals, or by tests, observation, inspection, or permit/interconnection approvals.

7. SUBCONTRACTORS

7.1 Contractor shall provide the District with information for all Subcontracts as indicated in the Contractor's Submittals and Schedules Section herein.

7.2 No contractual relationship exists between the District and any Subcontractor, supplier, or sub-subcontractor by reason of this Contract.

7.3 Contractor agrees to bind every Subcontractor by terms of this Contract as far as those terms that are applicable to Subcontractor's work including, without limitation, all labor, wage & hour, apprentice and related provisions and requirements. If Contractor shall subcontract any part of this Contract, Contractor shall be as fully responsible to District for acts and omissions of any Subcontractor and of persons either directly or indirectly employed by any Subcontractor, including Subcontractor caused Project delays, as it is for acts and omissions of persons directly employed by Contractor. The divisions or sections of the Specifications and/or the arrangement of the drawings are not intended to control the Contractor in dividing the Work among Subcontractors or limit the work performed by any trade.

7.4 District's consent to, or approval of, or failure to object to, any Subcontractor under this Contract shall not in any way relieve Contractor of any obligations under this Contract and no such consent shall be deemed to waive any provisions of this Contract.

7.5 Contractor is directed to familiarize itself with sections 4100 through 4114 of the Public Contract Code of the State of California, as regards subletting and subcontracting, and to comply with all applicable requirements therein. In addition,

Contractor is directed to familiarize itself with sections 1720 through 1861 of the Labor Code of the State of California, as regards the payment of prevailing wages and related issues, and to comply with all applicable requirements therein including, without limitation, section 1775 and the Contractor's and Subcontractors' obligations and liability for violations of prevailing wage law and other applicable laws.

7.6 No Contractor whose Bid is accepted shall, without consent of the awarding authority and in full compliance with section 4100 et seq. of the Public Contract Code, including, without limitation, sections 4107, 4107.5, and 4109 of the Public Contract Code, and section 1771.1 of the Labor Code, either:

7.6.1 Substitute any person as a Subcontractor in place of the Subcontractor designated in the original Bid; or

7.6.2 Permit any Subcontract to be assigned or transferred, or allow any portion of the Work to be performed by anyone other than the original Subcontractor listed in the Bid; or

7.6.3 Sublet or subcontract any portion of the Work in excess of one-half of one percent (0.5%) of the Contractor's total bid as to which his original bid did not designate a Subcontractor.

7.7 The Contractor shall be responsible for the coordination of the trades, Subcontractors, sub-subcontractors, and material or equipment suppliers working on the Project.

7.7.1 If the Contract is valued at \$1 million or more and uses, or plans to use, state bond funds, then Contractor is responsible for ensuring that first tier Subcontractors holding C-4, C-7, C-10, C-16, C-20, C-34, C-36, C-38, C-42, C-43, and/or C-46 licenses are prequalified by the District to work on the Project pursuant to Public Contract Code section 20111.6.

7.7.2 Contractor is responsible for ensuring that all Subcontractors are properly registered as public works contractors by the Department of Industrial Relations.

7.8 Contractor is solely responsible for settling any differences between the Contractor and its Subcontractor(s) or between Subcontractors.

7.9 Contractor must include in all of its subcontracts the assignment provisions as indicated in the Termination section of these General Conditions.

8. OTHER CONTRACTS/CONTRACTORS

8.1 District reserves the right to let other contracts, and/or to perform work with its own forces, in connection with the Project. Contractor shall afford other contractors reasonable opportunity for introduction and storage of their materials and execution of their work and shall properly coordinate and connect Contractor's Work with the work of other contractors.

8.2 In addition to Contractor's obligation to protect its own Work, Contractor shall protect the work of any other contractor that Contractor encounters while working on the Project.

8.3 If any part of Contractor's Work depends for proper execution or results upon work of District or any other contractor, the Contractor shall inspect and, before proceeding with its Work, promptly report to the District in writing any defects in District's or any other contractor's work that render Contractor's Work unsuitable for proper execution and results. Contractor shall be held accountable for damages to District for District's or any other contractor's work that Contractor failed to inspect or should have inspected. Contractor's failure to inspect and report shall constitute Contractor's acceptance of all District's or any other contractor's work as fit and proper for reception of Contractor's Work, except as to defects that may develop in District's or any other contractor's work after execution of Contractor's Work and not caused by execution of Contractor's Work.

8.4 To ensure proper execution of its subsequent work, Contractor shall measure and inspect work already in place and shall at once report to the District in writing any discrepancy between that executed work and the Contract Documents.

8.5 Contractor shall ascertain to its own satisfaction the scope of the Project and nature of District's or any other contracts that have been or may be awarded by District in prosecution of the Project to the end that Contractor may perform this Contract in light of the other contracts, if any.

8.6 Nothing herein contained shall be interpreted as granting to Contractor exclusive occupancy of the Site, the Premises, or of the Project. Contractor shall not cause any unnecessary hindrance or delay to the use and/or operation(s) of the Premises and/or to District or any other contractor working on the Project. If simultaneous execution of any contract or Premises operation is likely to cause interference with performance of Contractor's Contract, Contractor shall coordinate with those contractor(s), person(s), and/or entity(s) and shall notify the District of the resolution.

9. DRAWINGS AND SPECIFICATIONS

9.1 A complete list of all Drawings that form a part of the Contract is to be found as an index on the Drawings themselves, and/or may be provided to the Contractor and/or in the Table of Contents.

9.2 Materials or Work described in words that so applied have a well-known technical or trade meaning shall be deemed to refer to recognized standards, unless noted otherwise.

9.3 Trade Name or Trade Term. It is not the intention of this Contract to go into detailed descriptions of any materials and/or methods commonly known to the trade under "trade name" or "trade term." The mere mention or notation of "trade name" or "trade term" shall be considered a sufficient notice to Contractor that it will be required to complete the work so named, complete, finished, and operable, with all its appurtenances, according to the best practices of the trade.

9.4 The naming of any material and/or equipment shall mean furnishing and installing of same, including all incidental and accessory items thereto and/or labor therefor, as per best practices of the trade(s) involved, unless specifically noted otherwise.

9.5 Contract Documents are complementary, and what is called for by one shall be binding as if called for by all. As such, Drawings and Specifications are intended to be fully cooperative and to agree. However, if Contractor observes that Drawings and

Specifications are in conflict with the Contract Documents, Contractor shall promptly notify District and Architect in writing, and any necessary changes shall be made as provided in the Contract Documents.

9.6 In the case of discrepancy or ambiguity in the Contract Documents, the order of precedence in the Agreement shall prevail. However, in the case of discrepancy or ambiguity solely between and among the Drawings and Specifications, the discrepancy or ambiguity shall be resolved in favor of the interpretation that will provide District with the functionally complete and operable Project described in the Drawings and Specifications. In case of ambiguity, conflict, or lack of information, District will furnish clarifications with reasonable promptness.

9.7 Drawings and Specifications are intended to comply with all laws, ordinances, rules, and regulations of constituted authorities having jurisdiction, and where referred to in the Contract Documents, the laws, ordinances, rules, and regulations shall be considered as a part of the Contract within the limits specified. Contractor shall bear all expense of correcting work done contrary to said laws, ordinances, rules, and regulations.

9.8 As required by Section 4-317(c), Part 1, Title 24, CCR: "Should any existing conditions such as deterioration or non-complying construction be discovered which is not covered by the DSA-approved documents wherein the finished work will not comply with Title 24, California Code of Regulations, a construction change document, or a separate set of plans and specifications, detailing and specifying the required repair work shall be submitted to and approved by DSA before proceeding with the repair work."

9.9 Ownership of Drawings

All copies of Plans, Drawings, Designs, Specifications, and copies of other incidental architectural and engineering work, or copies of other Contract Documents furnished by District, are the property of District. They are not to be used by Contractor in other work and, with the exception of signed sets of Contract Documents, are to be returned to District on request at completion of Work, or may be used by District as it may require without any additional costs to District. Neither the Contractor nor any Subcontractor, or material or equipment supplier shall own or claim a copyright in the Drawings, Specifications, and other documents prepared by the Architect. District hereby grants the Contractor, Subcontractors, sub-subcontractors, and material or equipment suppliers a limited license to use applicable portions of the Drawings prepared for the Project in the execution of their Work under the Contract Documents.

10. CONTRACTOR'S SUBMITTALS AND SCHEDULES

Contractor's submittals shall comply with the provisions and requirements of the Specifications including, without limitation Submittals.

10.1 Schedule of Work, Schedule of Submittals, and Schedule of Values

10.1.1 Within **TEN (10)** calendar days after the date of the Notice to Proceed (unless otherwise specified in the Specifications), the Contractor shall prepare and submit to the District for review, in a form supported by sufficient data to substantiate its accuracy as the District may require:

10.1.1.1 Preliminary Schedule. A preliminary schedule of construction indicating the starting and completion dates of the various stages of the Work, including any

information and following any form as may be specified in the Specifications. Once approved by District, this shall become the Construction Schedule. This schedule shall include and identify all tasks that are on the Project's critical path with a specific determination of the start and completion of each critical path task as well as all Contract milestones and each milestone's completion date(s) as may be required by the District.

10.1.1.1.1 The District is not required to approve a preliminary schedule of construction with early completion, i.e., one that shows early completion dates for the Work and/or milestones. Contractor shall not be entitled to extra compensation if the District approves a Construction Schedule with an early completion date and Contractor completes the Project beyond the date shown in the schedule but within the Contract Time. A Construction Schedule showing the Work completed in less than the Contract Time, the time between the early completion date and the end of the Contract Time shall be Float.

10.1.1.2 Preliminary Schedule of Values. A preliminary schedule of values for all of the Work, which must include quantities and prices of items aggregating the Contract Price and must subdivide the Work into component parts in sufficient detail to serve as the basis for progress payments during construction. Unless the Special Conditions contain different limits, this preliminary schedule of values shall include, at a minimum, the following information and the following structure:

10.1.1.2.1 Divided into at least the following categories:

- 10.1.1.2.1.1** Overhead and profit;
- 10.1.1.2.1.2** Supervision;
- 10.1.1.2.1.3** General conditions;
- 10.1.1.2.1.4** Layout;
- 10.1.1.2.1.5** Mobilization;
- 10.1.1.2.1.6** Submittals;
- 10.1.1.2.1.7** Bonds and insurance;
- 10.1.1.2.1.8** Close-out/Certification documentation;
- 10.1.1.2.1.9** Demolition;
- 10.1.1.2.1.10** Installation;
- 10.1.1.2.1.11** Rough-in;
- 10.1.1.2.1.12** Finishes;
- 10.1.1.2.1.13** Testing;
- 10.1.1.2.1.14** Punchlist and District acceptance.

10.1.1.2.2 And also divided by each of the following areas:

- 10.1.1.2.2.1** Site work;
- 10.1.1.2.2.2** By each building;
- 10.1.1.2.2.3** By each floor.

10.1.1.2.3 The preliminary schedule of values shall not provide for values any greater than the following percentages of the Contract value:

- 10.1.1.2.3.1** Mobilization and layout combined to equal not more than 1%;
- 10.1.1.2.3.2** Submittals, samples and shop drawings combined to equal not more than 3%;

- 10.1.1.2.3.3** Bonds and insurance combined to equal not more than 2%.
- 10.1.1.2.3.4** Closeout documentation shall have a value in the preliminary schedule of not less than 5%.

10.1.1.2.4 Notwithstanding any provision of the Contract Documents to the contrary, payment of the Contractor's overhead, supervision, general conditions costs, and profit, as reflected in the Cost Breakdown, shall be paid based on percentage complete, with the disbursement of Progress Payments and the Final Payment.

10.1.1.2.5 Contractor shall certify that the preliminary schedule of values as submitted to the District is accurate and reflects the costs as developed in preparing Contractor's bid. For example, without limiting the foregoing, Contractor shall not "front-load" the preliminary schedule of values with dollar amounts greater than the value of activities performed early in the Project.

10.1.1.2.6 The preliminary schedule of values shall be subject to the District's review and approval of the form and content thereof. In the event that the District objects to any portion of the preliminary schedule of values, the District shall notify the Contractor, in writing, of the District's objection(s) to the preliminary schedule of values. Within five (5) calendar days of the date of the District's written objection(s), Contractor shall submit a revised preliminary schedule of values to the District for review and approval. The foregoing procedure for the preparation, review and approval of the preliminary schedule of values shall continue until the District has approved the entirety of the preliminary schedule of values.

10.1.1.2.7 Once the preliminary schedule of values is approved by the District, this shall become the Schedule of Values. The Schedule of Values shall not be thereafter modified or amended by the Contractor without the prior consent and approval of the District, which may be granted or withheld in the sole discretion of the District.

10.1.1.3 Preliminary Schedule of Submittals. A preliminary schedule of submittals, including Shop Drawings, Product Data, and Samples submittals. Once approved by District, this shall become the Submittal Schedule. All submittals shall be forwarded to the District by the date indicated on the approved Submittal Schedule, unless an earlier date is necessary to maintain the Construction Schedule, in which case those submittals shall be forwarded to the District so as not to delay the Construction Schedule. Upon request by the District, Contractor shall provide an electronic copy of all submittals to the District. All submittals shall be submitted no later than 90 days after the Notice to Proceed.

10.1.1.4 Safety Plan. Contractor's Safety Plan specifically adapted for the Project. Contractor's Safety Plan shall comply with the following requirements:

10.1.1.4.1 All applicable requirements of California Division of Occupational Safety and Health ("CalOSHA") and/or of the United States Occupational Safety and Health Administration ("OSHA").

10.1.1.4.2 All provisions regarding Project safety, including all applicable provisions in these General Conditions.

10.1.1.4.3 Contractor's Safety Plan shall be in English and in the language(s) of the Contractor's and its Subcontractors' employees.

10.1.1.5 Complete Registered Subcontractors List. The name, address, telephone number, facsimile number, California State Contractors License number, classification, DIR registration number and monetary value of all Subcontracts of any tier for parties furnishing labor, material, or equipment for completion of the Project.

10.1.2 Contractor must provide all schedules both in hard copy and electronically, in a format (e.g., Microsoft Project or Primavera) approved in advance by the District.

10.1.3 The District will review the schedules submitted and the Contractor shall make changes and corrections in the schedules as requested by the District and resubmit the schedules until approved by the District.

10.1.4 The District shall have the right at any time to revise the schedule of values if, in the District's sole opinion, the schedule of values does not accurately reflect the value of the Work performed.

10.1.5 All schedules must be approved by the District before Contractor can rely on them as a basis for payment.

10.2 Monthly Progress Schedule(s)

10.2.1 Contractor shall provide Monthly Progress Schedule(s) to the District. A Monthly Progress Schedule shall update the approved Construction Schedule or the last Monthly Progress Schedule, showing all work completed and to be completed as well as updating the Registered Subcontractors List. The monthly Progress Schedule shall be sent within the timeframe requested by the District and shall be in a format acceptable to the District and contain a written narrative of the progress of work that month and any changes, delays, or events that may affect the work. The process for District approval of the Monthly Progress Schedule shall be the same as the process for approval of the Construction Schedule.

10.2.2 Contractor shall submit Monthly Progress Schedule(s) with all payment applications.

10.2.3 Contractor must provide all schedules both in hard copy and electronically, in a format (e.g., Microsoft Project or Primavera) approved in advance by the District.

10.2.4 The District will review the schedules submitted and the Contractor shall make changes and corrections in the schedules as requested by the District and resubmit the schedules until approved by the District.

10.2.5 The District shall have the right at any time to revise the schedule of values if, in the District's sole opinion, the schedule of values does not accurately reflect the value of the Work performed.

10.2.6 All schedules must be approved by the District before Contractor can rely on them as a basis for payment.

10.3 Material Safety Data Sheets (MSDS)

Contractor is required to ensure Material Safety Data Sheets are available in a readily accessible place at the Site for any material requiring a Material Safety Data Sheet per the federal "Hazard Communication" standard, or employees' "right to know" law. The Contractor is also required to ensure proper labeling on substances brought onto the job site and that any person working with the material or within the general area of the material is informed of the hazards of the substance and follows proper handling and protection procedures. Two additional copies of the Material Safety Data Sheets shall also be submitted directly to the District.

10.4 Submittals

10.4.1 Architect's favorable review shall neither be construed as a complete check nor relieve the Contractor, Subcontractor, manufacturer, fabricator, or supplier from responsibility for any deficiency that may exist or from any departures or deviations from the requirements of the Contract Documents unless the Contractor has, in writing, called Architect's attention to the deviations at the time of submission and the Architect has given specific written response. "Favorable review" shall mean merely that Architect has no objection to Contractor using, upon Contractor's own full responsibility, plan or method of Work proposed, or furnishing materials or equipment proposed.

11. SITE ACCESS, CONDITIONS, AND REQUIREMENTS

11.1 Site Investigation

Before bidding on this Work, Contractor shall make a careful investigation of the Site and thoroughly familiarize itself with the requirements of the Contract. By the act of submitting a bid for the Work included in this Contract, Contractor shall be deemed to have made a complete study and investigation, and to be familiar with and accepted the existing conditions of the Site.

Prior to commencing the Work, Contractor and the District's representative shall survey the Site to document the condition of the Site. Contractor will record the survey in digital videotape format and provide an electronic copy to the District within fourteen (14) days of the survey. This electronic record shall serve as a basis for determining any damages caused by the Contractor during the Project. The Contractor may also document any pre-existing conditions in writing, provided that both the Contractor and the District's representative agree on said conditions and sign a memorandum documenting the same.

11.2 Soils Investigation Report

11.2.1 When a soils investigation report obtained from test holes at Site or for the Project is available, that report may be available to the Contractor but shall not be a part of this Contract and shall not alleviate or excuse the Contractor's obligation to perform its own investigation. Any information obtained from that report or any information given on Drawings as to subsurface soil condition or to elevations of existing grades or elevations of underlying rock is approximate only, is not guaranteed, does not form a part of this Contract, and Contractor may not rely thereon. By submitting its bid, Contractor acknowledges that it has made visual examination of Site and has made whatever tests Contractor deems appropriate to determine underground condition of soil. Although any such report is not a part of this Contract,

recommendations from the report may be included in the Drawings, Specifications, or other Contract Documents. It is Contractor's sole responsibility to thoroughly review all Contract Documents, Drawings, and Specifications.

11.2.2 Contractor agrees that no claim against District will be made by Contractor for damages and hereby waives any rights to damages if, during progress of Work, Contractor encounters subsurface or latent conditions at Site materially differing from those shown on Drawings or indicated in Specifications, or for unknown conditions of an unusual nature that differ materially from those ordinarily encountered in the work of the character provided for in Plans and Specifications, except as indicated in the provisions of these General Conditions regarding trenches, trenching, and/or existing utility lines.

11.3 Access to Work

District and its representatives shall at all times have access to Work wherever it is in preparation or progress, including storage and fabrication. Contractor shall provide safe and proper facilities for such access so that District's representatives may perform their functions.

11.4 Layout and Field Engineering

11.4.1 All field engineering required for layout of this Work and establishing grades for earthwork operations shall be furnished by Contractor at its expense. This Work shall be done by a qualified, California-registered civil engineer approved in writing by District and Architect. Any required Record and/or As-Built Drawings of Site development shall be prepared by the approved civil engineer.

11.4.2 The Contractor shall be responsible for having ascertained pertinent local conditions such as location, accessibility, and general character of the Site and for having satisfied itself as to the conditions under which the Work is to be performed. Contractor shall follow best practices, including but not limited to potholing to avoid utilities. District shall not be liable for any claim for allowances because of Contractor's error, failure to follow best practices, or negligence in acquainting itself with the conditions at the Site.

11.4.3 Contractor shall protect and preserve established benchmarks and monuments and shall make no changes in locations without the prior written approval of District. Contractor shall replace any benchmarks or monuments that are lost or destroyed subsequent to proper notification of District and with District's approval.

11.5 Utilities

Utilities shall be provided as indicated in the Specifications.

11.6 Sanitary Facilities

Sanitary facilities shall be provided as indicated in the Specifications.

11.7 Surveys

Contractor shall provide surveys done by a California-licensed civil engineer surveyor to determine locations of construction, grading, and site work as required to perform the Work.

11.8 Regional Notification Center

The Contractor, except in an emergency, shall contact the appropriate regional notification center at least two (2) days prior to commencing any excavation if the excavation will be conducted in an area or in a private easement that is known, or reasonably should be known, to contain subsurface installations other than the underground facilities owned or operated by the District, and obtain an inquiry identification number from that notification center. No excavation shall be commenced and/or carried out by the Contractor unless an inquiry identification number has been assigned to the Contractor or any Subcontractor and the Contractor has given the District the identification number. Any damages arising from Contractor's failure to make appropriate notification shall be at the sole risk and expense of the Contractor. Any delays caused by failure to make appropriate notification shall be at the sole risk of the Contractor and shall not be considered for an extension of the Contract Time.

11.9 Existing Utility Lines

11.9.1 Pursuant to Government Code section 4215, District assumes the responsibility for removal, relocation, and protection of main or trunk utility lines and facilities located on the construction Site at the time of commencement of construction under this Contract with respect to any such utility facilities that are not identified in the Plans and Specifications. Contractor shall not be assessed for liquidated damages for delay in completion of the Project caused by failure of District or the owner of a utility to provide for removal or relocation of such utility facilities.

11.9.2 Locations of existing utilities provided by District shall not be considered exact, but approximate within a reasonable margin and shall not relieve Contractor of responsibilities to exercise reasonable care or costs of repair due to Contractor's failure to do so. District shall compensate Contractor for the costs of locating, repairing damage not due to the failure of Contractor to exercise reasonable care, and removing or relocating such utility facilities not indicated in the Plans and Specifications with reasonable accuracy, and for equipment necessarily idle during such work.

11.9.3 No provision herein shall be construed to preclude assessment against Contractor for any other delays in completion of the Work. Nothing in this Article shall be deemed to require District to indicate the presence of existing service laterals, appurtenances, or other utility lines, within the exception of main or trunk utility lines or whenever the presence of these utilities on the Site of the construction Project can be inferred from the presence of other visible facilities, such as buildings, meter junction boxes, on or adjacent to the Site of the construction.

11.9.4 If Contractor, while performing Work under this Contract, discovers utility facilities not identified by District in Contract Plans and Specifications, Contractor shall immediately notify the District and the utility in writing. The cost of repair for damage to above-mentioned visible facilities without prior written notification to the District shall be borne by the Contractor.

11.10 Notification

Contractor understands, acknowledges and agrees that the purpose for prompt notification to the District pursuant to these provisions is to allow the District to investigate the condition(s) so that the District shall have the opportunity to decide how the District desires to proceed as a result of the condition(s). Accordingly, failure of Contractor to promptly notify the District in writing, pursuant to these provisions, shall constitute Contractor's waiver of any claim for damages or delay incurred as a result of the condition(s).

11.11 Hazardous Materials

Contractor shall comply with all provisions and requirements of the Contract Documents related to hazardous materials including, without limitation, Hazardous Materials Procedures and Requirements.

11.12 No Signs

Neither the Contractor nor any other person or entity shall display any signs not required by law or the Contract Documents at the Site, fences trailers, offices, or elsewhere on the Site without specific prior written approval of the District.

12. TRENCHES

12.1 Trenches Greater Than Five Feet

Pursuant to Labor Code section 6705, if the Contract Price exceeds \$25,000 and involves the excavation of any trench or trenches five (5) feet or more in depth, the Contractor shall, in advance of excavation, promptly submit to the District and/or a registered civil or structural engineer employed by the District or Architect, a detailed plan, stamped by a licensed engineer retained by the Contractor, showing the design of shoring for protection from the hazard of caving ground during the excavation of such trench or trenches.

12.2 Excavation Safety

If such plan varies from the Shoring System Standards established by the Construction Safety Orders, the plan shall be prepared by a registered civil or structural engineer, but in no case shall such plan be less effective than that required by the Construction Safety Orders. No excavation of such trench or trenches shall be commenced until said plan has been accepted by the District or by the person to whom authority to accept has been delegated by the District.

12.3 No Tort Liability of District

Pursuant to Labor Code section 6705, nothing in this Article shall impose tort liability upon the District or any of its employees.

12.4 No Excavation without Permits

The Contractor shall not commence any excavation Work until it has secured all necessary permits including the required CalOSHA excavation/shoring permit. Any permits shall be prominently displayed on the Site prior to the commencement of any excavation.

12.5 Discovery of Hazardous Waste and/or Unusual Conditions

12.5.1 Pursuant to Public Contract Code section 7104, if the Work involves digging trenches or other excavations that extend deeper than four feet below the Surface, the Contractor shall promptly, and before the following conditions are disturbed, notify the District, in writing, of any:

12.5.1.1 Material that the Contractor believes may be material that is hazardous waste, as defined in section 25117 of the Health and Safety Code, is required to be removed to a Class I, Class II, or Class III disposal site in accordance with provisions of existing law.

12.5.1.2 Subsurface or latent physical conditions at the Site differing from those indicated.

12.5.1.3 Unknown physical conditions at the Site of any unusual nature, different materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract.

12.5.2 The District shall promptly investigate the conditions, and if it finds that the conditions do materially so differ, or do involve hazardous waste, and cause a decrease or increase in the Contractor's cost of, or the time required for, performance of any part of the Work, shall issue a Change Order under the procedures described herein.

12.5.3 In the event that a dispute arises between District and the Contractor whether the conditions materially differ, or involve hazardous waste, or cause a decrease or increase in the Contractor's cost of, or time required for, performance of any part of the Work, the Contractor shall not be excused from any scheduled completion date provided for by the Contract, but shall proceed with all work to be performed under the Contract. The Contractor shall retain any and all rights provided either by Contract or by law that pertain to the resolution of disputes and protests.

13. INSURANCE AND BONDS

13.1 Insurance

Unless different provisions and/or limits are indicated in the Special Conditions, all insurance required of Contractor and/or its Subcontractor(s) shall be at least as broad as the amounts and include the provisions set forth herein.

13.1.1 Commercial General Liability and Automobile Liability Insurance

13.1.1.1 Contractor shall procure and maintain, during the life of this Contract, Commercial General Liability Insurance and Automobile Liability Insurance that shall protect Contractor, District, State, Construction Manager(s), Project Inspector(s), and Architect(s) from all claims for bodily injury, property damage, personal injury, death, advertising injury, and medical payments arising from, or in connection with, operations under this Contract. This coverage shall be provided in a form at least as broad as Insurance Services (ISO) Form CG 0001 11188. Contractor shall ensure that Products Liability and Completed Operations coverage, Fire Damage Liability coverage, and Automobile Liability Insurance coverage including owned, non-owned, and hired automobiles, are included within the above

policies and at the required limits, or Contractor shall procure and maintain these coverages separately.

13.1.1.2 Contractor's deductible or self-insured retention for its Commercial General Liability Insurance policy shall not exceed \$25,000 unless approved in writing by District.

13.1.1.3 All such policies shall be written on an occurrence form.

13.1.2 Excess Liability Insurance

13.1.2.1 If Contractor's underlying policy limits are less than required, subject to the District's sole discretion, Contractor may procure and maintain, during the life of this Contract, an Excess Liability Insurance Policy to meet the policy limit requirements of the required policies in order to satisfy, in the aggregate with its underlying policy, the insurance requirements herein..

13.1.2.2 There shall be no gap between the per occurrence amount of any underlying policy and the start of the coverage under the Excess Liability Insurance Policy. Any Excess Liability Insurance Policy shall be written on a following form and shall protect Contractor, District, State, Construction Manager(s), Project Manager(s), and Architect(s) in amounts and including the provisions as set forth in the Supplementary Conditions (if any) and/or Special Conditions, and that complies with all requirements for Commercial General Liability and Automobile Liability and Employers' Liability Insurance.

13.1.2.3 The District, in its sole discretion, may accept the Excess Liability Insurance Policy that brings Contractor's primary limits to the minimum requirements herein.

13.1.3 Subcontractor(s): Contractor shall require its Subcontractor(s), if any, to procure and maintain Commercial General Liability Insurance, Automobile Liability Insurance, and Excess Liability Insurance (if Subcontractor elects to satisfy, in part the insurance required herein by procuring and maintaining an Excess Liability Insurance Policy) with forms of coverage and limits equal to the amounts required of the Contractor.

13.1.4 Workers' Compensation and Employers' Liability Insurance

13.1.4.1 In accordance with provisions of section 3700 of the California Labor Code, the Contractor and every Subcontractor shall be required to secure the payment of compensation to its employees.

13.1.4.2 Contractor shall procure and maintain, during the life of this Contract, Workers' Compensation Insurance and Employers' Liability Insurance for all of its employees engaged in work under this Contract, on/or at the Site of the Project. This coverage shall cover, at a minimum, medical and surgical treatment, disability benefits, rehabilitation therapy, and survivors' death benefits. Contractor shall require its Subcontractor(s), if any, to procure and maintain Workers' Compensation Insurance and Employers' Liability Insurance for all employees of Subcontractor(s). Any class of employee or employees not covered by a Subcontractor's insurance shall be covered by Contractor's insurance. If any class of employee or employee engaged in Work under this Contract, on or at the Site

of the Project, is not protected under the Workers' Compensation Insurance, Contractor shall provide, or shall cause a Subcontractor to provide, adequate insurance coverage for the protection of any employee(s) not otherwise protected before any of those employee(s) commence work.

13.1.5 Builder's Risk Insurance: Builder's Risk "All Risk" Insurance

Contractor shall procure and maintain, during the life of this Contract, Builder's Risk (Course of Construction), or similar first party property coverage acceptable to the District, issued on a replacement cost value basis. The cost shall be consistent with the total replacement cost of all insurable Work of the Project included within the Contract Documents. Coverage is to insure against all risks of accidental physical loss and shall include without limitation the perils of vandalism and/or malicious mischief (both without any limitation regarding vacancy or occupancy), sprinkler leakage, civil authority, theft, sonic disturbance, earthquake, flood, collapse, wind, rain, dust, fire, war, terrorism, lightning, smoke, and rioting. Coverage shall include debris removal, demolition, increased costs due to enforcement of all applicable ordinances and/or laws in the repair and replacement of damaged and undamaged portions of the property, and reasonable costs for the Architect's and engineering services and expenses required as a result of any insured loss upon the Work and Project, including completed Work and Work in progress, to the full insurable value thereof.

13.1.6 Pollution Liability Insurance

13.1.6.1 Contractor shall procure and maintain Pollution Liability Insurance that shall protect Contractor, District, State, Construction Manager(s), Project Inspector(s), and Architect(s) from all claims for bodily injury, property damage, including natural resource damage, cleanup costs, removal, storage, disposal, and/or use of the pollutant arising from operations under this Contract, and defense, including costs and expenses incurred in the investigation, defense, or settlement of claims. Coverage shall apply to sudden and/or gradual pollution conditions resulting from the escape or release of smoke, vapors, fumes, acids, alkalis, toxic chemicals, liquids, or gases, natural gas, waste materials, or other irritants, contaminants, or pollutants, including asbestos. This coverage shall be provided in a form at least as broad as Insurance Services Offices, Inc. (ISO) Form CG 2415, or Contractor shall procure and maintain these coverages separately.

13.1.6.2 Contractor warrants that any retroactive date applicable to coverage under the policy shall predate the effective date of the Contract and that continuous coverage will be maintained or an extended reporting or discovery period will be exercised for a period of three (3) years, beginning from the time that the Work under the Contract is completed.

13.1.6.3 If Contractor is responsible for removing any pollutants from a site, then Contractor shall ensure that Any Auto, including owned, non-owned, and hired, is included within the above policies and at the required limits, to cover its automobile exposure from transporting the pollutants from the site to an approved disposal site. This coverage shall include the Motor Carrier Act Endorsement, MCS 90.

13.1.7 Proof of Insurance and Other Requirements: Endorsements and Certificates

13.1.7.1 Contractor shall not commence Work nor shall it allow any Subcontractor to commence Work under this Contract, until Contractor and its Subcontractor(s) have procured all required insurance and Contractor has delivered in duplicate to the District complete endorsements (or entire insurance policies) and certificates indicating the required coverages have been obtained, and the District has approved these documents.

13.1.7.2 Endorsements, certificates, and insurance policies shall include the following:

13.1.7.2.1 A clause stating the following, or other language acceptable to the District:

"This policy shall not be canceled until written notice to District, Architect, and Construction Manager stating date of the cancellation by the insurance carrier. Date of cancellation may not be less than thirty (30) days after date of mailing notice."

13.1.7.2.2 Language stating in particular those insured, extent of insurance, location and operation to which insurance applies, expiration date, to whom cancellation and reduction notice will be sent, and length of notice period.

13.1.7.2.3 All endorsements, certificates and insurance policies shall state that District, its trustees, employees and agents, the State of California, Construction Manager(s), Project Manager(s), Inspector(s) and Architect(s) are named additional insureds under all policies except Workers' Compensation Insurance and Employers' Liability Insurance.

13.1.7.2.4 All endorsements shall waive any right to subrogation against any of the named additional insureds.

13.1.7.2.5 Contractor's and Subcontractors' insurance policy(s) shall be primary and non-contributory to any insurance or self-insurance maintained by District, its trustees, employees and/or agents, the State of California, Construction Manager(s), Project Manager(s), Inspector(s), and/or Architect(s).

13.1.7.2.6 Contractor's insurance limit shall apply separately to each insured against whom a claim is made or suit is brought.

13.1.7.3 No policy shall be amended, canceled or modified, and the coverage amounts shall not be reduced, until Contractor or Contractor's broker has provided written notice to District, Architect(s), and Construction Manager(s) stating date of the amendment, modification, cancellation or reduction, and a description of the change. Date of amendment, modification, cancellation or reduction may not be less than thirty (30) days after date of mailing notice.

13.1.7.4 Insurance written on a "claims made" basis shall be retroactive to a date that coincides with or precedes Contractor's commencement of Work, including subsequent policies purchased as renewals or replacements. Said policy is to be

renewed by the Contractor and all Subcontractors for a period of five (5) years following completion of the Work or termination of this Agreement. Such insurance must have the same coverage and limits as the policy that was in effect during the term of this Agreement, and will cover the Contractor and all Subcontractors for all claims made.

13.1.7.5 Unless otherwise stated in the Special Conditions, all of Contractor's insurance shall be with insurance companies with an A.M. Best rating of no less than **A: VII**.

13.1.7.6 The insurance requirements set forth herein shall in no way limit the Contractor's liability arising out of or relating to the performance of the Work or related activities.

13.1.7.7 Failure of Contractor and/or its Subcontractor(s) to comply with the insurance requirements herein shall be deemed a material breach of the Contract.

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13.1.8 Insurance Policy Limits

13.1.8.1 Unless different limits are indicated in the Special Conditions, the limits of insurance shall not be less than the following amounts:

Commercial General Liability	Product Liability and Completed Operations, Fire Damage Liability – Split Limit	\$1,000,000 per occurrence; \$2,000,000 aggregate
Automobile Liability	Any Auto – Combined Single Limit	\$1,000,000
Workers' Compensation		Statutory limits pursuant to State law
Employers' Liability		\$1,000,000
Builder's Risk (Course of Construction)		Issued for the value and scope of Work indicated herein.
Pollution Liability		\$1,000,000 per claim; \$2,000,000 aggregate

13.1.8.2 If Contractor normally carries insurance in an amount greater than the minimum amounts required by District, that greater amount shall become the minimum required amount of insurance for purposes of the Contract. Therefore, Contractor hereby acknowledges and agrees that all insurance carried by it shall be deemed liability coverage for all actions it performs in connection with the Contract.

13.2 Contract Security - Bonds

13.2.1 Contractor shall furnish two surety bonds issued by a California admitted surety insurer as follows:

13.2.1.1 Performance Bond: A bond in an amount at least equal to one hundred percent (100%) of Contract Price as security for faithful performance of this Contract.

13.2.1.2 Payment Bond: A bond in an amount at least equal to one hundred percent (100%) of the Contract Price as security for payment of persons performing labor and/or furnishing materials in connection with this Contract.

13.2.2 Cost of bonds shall be included in the Bid and Contract Price.

13.2.3 All bonds related to this Project shall be in the forms set forth in these Contract Documents and shall comply with all requirements of the Contract Documents, including, without limitation, the bond forms.

14. WARRANTY/GUARANTEE/INDEMNITY

14.1 Warranty/Guarantee

14.1.1 The Contractor shall obtain and preserve for the benefit of the District, manufacturer's warranties on materials, fixtures, and equipment incorporated into the Work.

14.1.2 In addition to guarantees required elsewhere, Contractor shall, and hereby does guarantee and warrant all Work furnished on the job against all defects for a period of **ONE (1)** year after the later of the following dates, unless a longer period is provided for in the Contract Documents:

14.1.2.1 The acceptance by the District's governing board of the Work, subject to these General Conditions, or

14.1.2.2 The date that commissioning for the Project, if any, was completed.

At the District's sole option, Contractor shall repair or replace any and all of that Work, together with any other Work that may be displaced in so doing, that may prove defective in workmanship and/or materials within a **ONE (1)** year period from date of completion as defined above, unless a longer period is provided for in the Contract Documents, without expense whatsoever to District. In the event of failure of Contractor and/or Surety to commence and pursue with diligence said replacements or repairs within ten (10) days after being notified in writing, Contractor and Surety hereby acknowledge and agree that District is authorized to proceed to have defects repaired and made good at expense of Contractor and/or Surety who hereby agree to pay costs and charges therefore immediately on demand.

14.1.3 If, in the opinion of District, defective work creates a dangerous condition or requires immediate correction or attention to prevent further loss to District or to prevent interruption of District operations, District will attempt to give the notice required above. If Contractor or Surety cannot be contacted or neither complies with District's request for correction within a reasonable time as determined by District,

District may, notwithstanding the above provision, proceed to make any and all corrections and/or provide attentions the District believes are necessary. The costs of correction or attention shall be charged against Contractor and Surety of the guarantees provided in this Article or elsewhere in this Contract.

14.1.4 The above provisions do not in any way limit the guarantees on any items for which a longer guarantee is specified or on any items for which a manufacturer gives a guarantee for a longer period. Contractor shall furnish to District all appropriate guarantee or warranty certificates as indicated in the Specifications or upon request by District.

14.1.5 Nothing herein shall limit any other rights or remedies available to District.

14.2 Indemnity and Defense

14.2.1 To the furthest extent permitted by California law, the Contractor shall indemnify, keep and hold harmless the District, the Architect(s), and the Construction Manager(s), their respective consultants, separate contractors, board members, officers, representatives, agents, and employees, in both individual and official capacities ("Indemnitees"), against all suits, claims, injury, damages, losses, and expenses ("Claims"), including but not limited to attorney's fees, caused by, arising out of, resulting from, or incidental to, in whole or in part, the performance of the Work under this Contract by the Contractor, its Subcontractors, vendors, or suppliers. However, the Contractor's indemnification and hold harmless obligation shall be reduced by the proportion of the Indemnitees' and/or Architect's liability to the extent the Claim(s) is/are caused by the sole negligence, active negligence, or willful misconduct of the Indemnitees, and/or defects in design furnished by the Architect, as found by a court or arbitrator of competent jurisdiction. This indemnification and hold harmless obligation of the Contractor shall not be construed to negate, abridge, or otherwise reduce any right or obligation of indemnity that would otherwise exist or arise as to any Indemnitee or other person described herein. This indemnification and hold harmless obligation includes, but is not limited to, any failure or alleged failure by Contractor to comply with any provision of law, any failure or alleged failure to timely and properly fulfill all of its obligations under the Contract Documents in strict accordance with their terms, and without limitation, any failure or alleged failure of Contractor's obligations regarding any stop payment notice actions or liens, including Civil Wage and Penalty Assessments and/or Orders by the DIR.

14.2.2 To the furthest extent permitted by California law, Contractor shall also defend Indemnitees, at its own expense, including but not limited to attorneys' fees and costs, against all Claims caused by, arising out of, resulting from, or incidental to, in whole or in part, the performance of the Work under this Contract by the Contractor, its Subcontractors, vendors, or suppliers. However, without impacting Contractor's obligation to provide an immediate and ongoing defense of Indemnitees, the Contractor's defense obligation shall be retroactively reduced by the proportion of the Indemnitees' and/or Architect's liability to the extent caused by the sole negligence, active negligence, or willful misconduct of the Indemnitees, and/or defects in design furnished by the Architect, as found by a court or arbitrator of competent jurisdiction. The District shall have the right to accept or reject any legal representation that Contractor proposes to defend the Indemnitees. If any Indemnitee provides its own defense due to failure to timely respond to tender of defense, rejection of tender of defense, or conflict of interest of proposed counsel, Contractor shall reimburse such Indemnitee for any expenditures. Contractor's defense obligation shall not be

construed to negate, abridge, or otherwise reduce any right or obligation of defense that would otherwise exist as to any Indemnitee or other person described herein. Contractor's defense obligation includes, but is not limited to, any failure or alleged failure by Contractor to comply with any provision of law, any failure or alleged failure to timely and properly fulfill all of its obligations under the Contract Documents in strict accordance with their terms, and without limitation, any failure or alleged failure of Contractor's obligations regarding any stop payment notice actions or liens, including Civil Wage and Penalty Assessments and/or Orders by the DIR. The Contractor shall give prompt notice to the District in the event of any Claim(s).

14.2.3 Without limitation of the provisions herein, if the Contractor's obligation to indemnify and hold harmless the Indemnitees or its obligation to defend Indemnitees as provided herein shall be determined to be void or unenforceable, in whole or in part, it is the intention of the parties that these circumstances shall not otherwise affect the validity or enforceability of the Contractor's agreement to indemnify, defend, and hold harmless the rest of the Indemnitees, as provided herein. Further, the Contractor shall be and remain fully liable on its agreements and obligations herein to the fullest extent permitted by law.

14.2.4 Pursuant to Public Contract Code section 9201, the District shall provide timely notification to Contractor of the receipt of any third-party Claim relating to this Contract. The District shall be entitled to recover its reasonable costs incurred in providing said notification.

14.2.5 In any and all Claims against any of the Indemnitees by any employee of the Contractor, any Subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, the Contractor's indemnification obligation herein shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for the Contractor or any Subcontractor under workers' compensation acts, disability benefit acts, or other employee benefit acts.

14.2.6 The District may retain so much of the moneys due the Contractor as shall be considered necessary, until disposition of any such Claims or until the District, Architect(s) and Construction Manager(s) have received written agreement from the Contractor that they will unconditionally defend the District, Architect(s) and Construction Manager(s), their respective officers, agents and employees, and pay any damages due by reason of settlement or judgment.

14.2.7 The Contractor's defense and indemnification obligations hereunder shall survive the completion of Work, the warranty/guarantee period, and the termination of the Contract.

15. TIME

15.1 Notice to Proceed

15.1.1 District may issue a Notice to Proceed within ninety (90) days from the date of the Notice of Award. Once Contractor has received the Notice to Proceed, Contractor shall complete the Work within the period of time indicated in the Contract Documents.

15.1.2 In the event that the District desires to postpone issuing the Notice to Proceed beyond ninety (90) days from the date of the Notice of Award, it is expressly

understood that with reasonable notice to the Contractor, the District may postpone issuing the Notice to Proceed. It is further expressly understood by Contractor that Contractor shall not be entitled to any claim of additional compensation as a result of the postponement of the issuance of the Notice to Proceed.

15.1.3 If the Contractor believes that a postponement of issuance of the Notice to Proceed will cause a hardship to Contractor, Contractor may terminate the Contract. Contractor's termination due to a postponement shall be by written notice to District within ten (10) days after receipt by Contractor of District's notice of postponement. It is further understood by Contractor that in the event that Contractor terminates the Contract as a result of postponement by the District, the District shall only be obligated to pay Contractor for the Work that Contractor had performed at the time of notification of postponement. Should Contractor terminate the Contract as a result of a notice of postponement, District shall have the authority to award the Contract to the next lowest responsive responsible bidder.

15.2 Computation of Time / Adverse Weather

15.2.1 The Contractor will only be allowed a time extension for Adverse Weather conditions if requested by Contractor in compliance with the time extension request procedures and only if all of the following conditions are met:

15.2.1.1 The weather conditions constitute Adverse Weather, as defined herein;

15.2.1.2 Contractor can verify that the Adverse Weather caused delays in excess of five (5) hours of the indicated labor required to complete the scheduled tasks of Work on the day affected by the Adverse Weather;

15.2.1.3 The Contractor's crew is dismissed as a result of the Adverse Weather;

15.2.1.4 Said delay adversely affects the critical path in the Construction Schedule; and

15.2.1.5 Exceeds twelve (12) days of delay per year.

15.2.2 If the aforementioned conditions are met, a non-compensable day-for-day extension will only be allowed for those days in excess of those indicated herein.

15.2.3 The Contractor shall work seven (7) days per week, if necessary, irrespective of inclement weather, to maintain access and the Construction Schedule, and to protect the Work under construction from the effects of Adverse Weather, all at no further cost to the District.

15.2.4 The Contract Time has been determined with consideration given to the average climate weather conditions prevailing in the County in which the Project is located.

15.3 Hours of Work

15.3.1 Sufficient Forces

Contractor and Subcontractors shall continuously furnish sufficient and competent work forces with the required levels of familiarity with the Project and skill, training and experience to ensure the prosecution of the Work in accordance with the Construction Schedule.

15.3.2 Performance During Working Hours

Work shall be performed during regular working hours as permitted by the appropriate governmental agency except that in the event of an emergency, or when required to complete the Work in accordance with job progress, Work may be performed outside of regular working hours with the advance written consent of the District and approval of any required governmental agencies.

15.3.3 No Work during State Testing

Contractor shall, at no additional cost to the District and at the District's request, coordinate its Work to not disturb District students including, without limitation, not performing any Work when students at the Site are taking State or Federally-required tests. The District or District's Representative will provide Contractor with a schedule of test dates concurrent with the District's issuance of the Notice to Proceed, or as soon as test dates are made available to the District.

15.4 Progress and Completion

15.4.1 Time of the Essence

Time limits stated in the Contract Documents are of the essence to the Contract. By executing the Agreement, the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

15.4.2 No Commencement Without Insurance or Bonds

The Contractor shall not commence operations on the Project or elsewhere prior to the effective date of insurance and bonds. The date of commencement of the Work shall not be changed by the effective date of such insurance or bonds. If Contractor commences Work without insurance and bonds, all Work is performed at Contractor's peril and shall not be compensable until and unless Contractor secures bonds and insurance pursuant to the terms of the Contract Documents and subject to District claim for damages.

15.5 Schedule

Contractor shall provide to District, Construction Manager, and Architect a schedule in conformance with the Contract Documents and as required in the Notice to Proceed and the Contractor's Submittals and Schedules section of these General Conditions.

15.6 Expeditious Completion

The Contractor shall proceed expeditiously with adequate forces and shall achieve Completion within the Contract Time.

16. EXTENSIONS OF TIME – LIQUIDATED DAMAGES

16.1 Liquidated Damages

Contractor and District hereby agree that the exact amount of damages for failure to complete the Work within the time specified is extremely difficult or impossible to determine. If the Work is not completed within the time specified in the Contract Documents, it is understood that the District will suffer damage. It being impractical and unfeasible to determine the amount of actual damage, it is agreed the Contractor shall pay to District as fixed and liquidated damages, and not as a penalty, the amount set forth in the Agreement for each calendar day of delay in completion. Contractor and its Surety shall be liable for the amount thereof pursuant to Government Code section 53069.85.

16.2 Excusable Delay

16.2.1 Contractor shall not be charged for liquidated damages because of any delays in completion of the Work which are not the fault of Contractor or its Subcontractors, including acts of God as defined in Public Contract Code section 7105, acts of enemy, epidemics, and quarantine restrictions. Contractor shall, within five (5) calendar days of beginning of any delay, notify District in writing of causes of delay including documentation and facts explaining the delay and the direct correlation between the cause and effect. District shall review the facts and extent of any delay and shall grant extension(s) of time for completing Work when, in its judgment, the findings of fact justify an extension. Extension(s) of time shall apply only to that portion of Work affected by delay, and shall not apply to other portions of Work not so affected. An extension of time may only be granted if Contractor has timely submitted the Construction Schedule as required herein.

16.2.2 Contractor shall notify the District pursuant to the claims provisions in these General Conditions of any anticipated delay and its cause. Following submission of a claim, the District may determine whether the delay is to be considered avoidable or unavoidable, how long it continues, and to what extent the prosecution and completion of the Work might be delayed thereby.

16.2.3 In the event the Contractor requests an extension of Contract Time for unavoidable delay, such request shall be submitted in accordance with the provisions in the Contract Documents governing changes in Work. When requesting time, requests must be submitted with full justification and documentation. If the Contractor fails to submit justification, it waives its right to a time extension at a later date. Such justification must be based on the official Construction Schedule as updated at the time of occurrence of the delay or execution of Work related to any changes to the Scope of Work. Any claim for delay must include the following information as support, without limitation:

16.2.3.1 The duration of the activity relating to the changes in the Work and the resources (manpower, equipment, material, etc.) required to perform the activities within the stated duration.

16.2.3.2 Specific logical ties to the Contract Schedule for the proposed changes and/or delay showing the activity/activities in the Construction Schedule that are affected by the change and/or delay. In particular, Contractor must show an actual impact to the schedule, after making a good faith effort to mitigate the delay by rescheduling the work, by providing an analysis of the schedule ("Time Impact Analysis"). Such Time Impact Analysis shall describe in detail the cause and effect of the delay and the impact on the critical dates in the Project schedule. (A portion of any delay of seven (7) days or more must be provided.)

16.2.3.3 A recovery schedule must be submitted within twenty (20) calendar days of written notification to the District of causes of delay.

16.3 No Additional Compensation for Delays Within Contractor's Control

16.3.1 Contractor is aware that governmental agencies, including, without limitation, the Division of the State Architect, the Department of General Services, gas companies, electrical utility companies, water districts, and other agencies may have to approve Contractor-prepared drawings or approve a proposed installation. Accordingly, Contractor shall include in its bid, time for possible review of its drawings and for reasonable delays and damages that may be caused by such agencies. Thus, Contractor is not entitled to make a claim for damages or delays arising from the review of Contractor's drawings.

16.3.2 Contractor shall only be entitled to compensation for delay when all of the following conditions are met:

16.3.2.1 The District is responsible for the delay;

16.3.2.2 The delay is unreasonable under the circumstances involved;

16.3.2.3 The delay was not within the contemplation of the District and Contractor;

16.3.2.4 The delay could not have been avoided or mitigated by Contractor's reasonable diligence; and

16.3.2.5 Contractor timely complies with the claims procedure of the Contract Documents.

16.3.3 Where a change in the Work extends the Contract Time, Contractor may request and recover additional, actual direct costs, provided that Contractor can demonstrate such additional costs are:

16.3.3.1 Actually incurred performing the Work;

16.3.3.2 Not compensated by the Markup allowed; and

16.3.3.3 Directly result from the extended Contract Time.

Contractor shall comply with all required procedures, documentation and time requirements in the Contract Documents. Contractor may not seek or recover such costs using formulas (e.g. Eichleay, labor factors).

16.4 Float or Slack in the Schedule

Float or slack is the amount of time between the early start date and the late start date, or the early finish date and the late finish date, of any of the activities in the schedule. Float or slack is not for the exclusive use of or benefit of either the District or the Contractor, but its use shall be determined solely by the District.

17. CHANGES IN THE WORK

17.1 No Changes Without Authorization

17.1.1 There shall be no change whatsoever in the Drawings, Specifications, or in the Work without an executed Change Order or a written Construction Change Directive authorized by the District as herein provided. District shall not be liable for the cost of any extra work or any substitutions, changes, additions, omissions, or deviations from the Drawings and Specifications unless the District's governing board has authorized the same and the cost thereof has been approved in writing by Change Order or Construction Change Directive in advance of the changed Work being performed. No extension of time for performance of the Work shall be allowed hereunder unless claim for such extension is made at the time changes in the Work are ordered, and such time duly adjusted and approved in writing in the Change Order or Construction Change Directive. Contractor shall be responsible for any costs incurred by the District for professional services and DSA fees and/or delay to the Project Schedule, if any, for DSA to review any request for changes to the DSA approved plans and specifications for the convenience of the Contractor and/or to accommodate the Contractor's means and methods. The provisions of the Contract Documents shall apply to all such changes, additions, and omissions with the same effect as if originally embodied in the Drawings and Specifications.

17.1.2 Contractor shall perform immediately all work that has been authorized by a fully executed Change Order or Construction Change Directive. Contractor shall be fully responsible for any and all delays and/or expenses caused by Contractor's failure to expeditiously perform this Work.

17.1.3 Should any Change Order result in an increase in the Contract Price or extend the Contract Time, the cost of or length of extension in that Change Order shall be agreed to, in writing, by the District in advance of the Work by Contractor, and shall be subject to the monetary limitations set forth in Public Contract Code section 20118.4. In the event that Contractor proceeds with any change in Work without a Change Order executed by the District or Construction Change Directive, Contractor waives any claim of additional compensation or time for that additional work. Under no circumstances shall Contractor be entitled to any claim of additional compensation or time not expressly requested by Contractor in a Proposed Change Order or approved by District in an executed Change Order.

17.1.4 A Change Order or Construction Change Directive will become effective when approved by the Board, notwithstanding that Contractor has not signed it. A Change Order or Construction Change Directive will become effective without Contractor's signature provided District indicates it as a "Unilateral Change Order". Any dispute as to the adjustment in the Contract Price or Contract Time, if any, of the Unilateral Change Order shall be resolved pursuant to the Payment and Claims and Disputes provisions herein.

17.1.5 Contractor understands, acknowledges, and agrees that the reason for District authorization is so that District may have an opportunity to analyze the Work and decide whether the District shall proceed with the Change Order or alter the Project so that a change in Work becomes unnecessary.

17.2 Architect Authority

The Architect will have authority to order minor changes in the Work not involving any adjustment in the Contract Price, or an extension of the Contract Time, or a change that is inconsistent with the intent of the Contract Documents. These changes shall be effected by written Change Order, Construction Change Directive, by Architect's response(s) to RFI(s), or by Architect's Supplemental Instructions ("ASI").

17.3 Change Orders

17.3.1 A Change Order is a written instrument prepared and issued by the District and/or the Architect and signed by the District (as authorized by the District's Governing Board), the Contractor, the Architect, and approved by the Project Inspector (if necessary) and DSA (if necessary), stating their agreement regarding all of the following:

17.3.1.1 A description of a change in the Work;

17.3.1.2 The amount of the adjustment in the Contract Price, if any; and

17.3.1.3 The extent of the adjustment in the Contract Time, if any.

17.4 Construction Change Directives

17.4.1 A Construction Change Directive is a written order prepared and issued by the District, the Construction Manager, and/or the Architect and signed by the District and the Architect, directing a change in the Work. The District may, as provided by law, by Construction Change Directive and without invalidating the Contract, order changes in the Work consisting of additions, deletions, or other revisions. The adjustment to the Contract Price or Time, if any, is subject to the provisions of this section regarding Changes in the Work. If all or a portion of the Project is being funded by funds requiring approval by the State Allocation Board ("SAB"), these revisions may be subject to compensation once approval of same is received and funded by the SAB, and funds are released by the Office of Public School Construction ("OPSC"). Any dispute as to the adjustment in the Contract Price, if any, of the Construction Change Directive or timing of payment shall be resolved pursuant to the Payment and Claims and Disputes provisions herein.

17.4.2 The District may issue a Construction Change Directive in the absence of agreement on the terms of a Change Order.

17.5 Force Account Directives

17.5.1 When work, for which a definite price has not been agreed upon in advance, is to be paid for on a force account basis, all direct costs necessarily incurred and paid by the Contractor for labor, material, and equipment used in the performance of that Work, shall be subject to the approval of the District and compensation will be determined as set forth herein.

17.5.2 The District will issue a Force Account Directive to proceed with the Work on a force account basis, and a not-to-exceed budget will be established by the District.

17.5.3 All requirements regarding direct cost for labor, labor burden, material, equipment, and markups on direct costs for overhead and profit described in this section shall apply to Force Account Directives. However, the District will only pay for actual costs verified in the field by the District or its authorized representative(s) on a daily basis.

17.5.4 The Contractor shall be responsible for all cost related to the administration of Force Account Directive. The markup for overhead and profit for Contractor modifications shall be full compensation to the Contractor to administer Force Account Directive, and Contractor shall not be entitled to separately recover additional amounts for overhead and/or profit.

17.5.5 The Contractor shall notify the District or its authorized representative(s) at least twenty-four (24) hours prior to proceeding with any of the force account work. Furthermore, the Contractor shall notify the District when it has consumed eighty percent (80%) of the budget, and shall not exceed the budget unless specifically authorized in writing by the District. The Contractor will not be compensated for force account work in the event that the Contractor fails to timely notify the District regarding the commencement of force account work, or exceeding the force account budget.

17.5.6 The Contractor shall diligently proceed with the work, and on a daily basis, submit a daily force account report using Document 00 63 47, "Daily Force Account Report," no later than 5:00 p.m. each day. The report shall contain a detailed itemization of the daily labor, material, and equipment used on the force account work only. The names of the individuals performing the force account work shall be included on the daily force account reports. The type and model of equipment shall be identified and listed. The District will review the information contained in the reports, and sign the reports no later than the next work day, and return a copy of the report to the Contractor for their records. The District will not sign, nor will the Contractor receive compensation for work the District cannot verify. The Contractor will provide a weekly force account summary indicating the status of each Force Account Directive in terms of percent complete of the not-to-exceed budget and the estimated percent complete of the work.

17.5.7 In the event the Contractor and the District reach a written agreement on a set cost for the work while the work is proceeding based on a Force Account Directive, the Contractor's signed daily force account reports shall be discontinued and all previously signed reports shall be invalid.

17.6 Price Request

17.6.1 Definition of Price Request

A Price Request is a written request prepared by the Architect requesting the Contractor to submit to the District and the Architect an estimate of the effect of a proposed change in the Work on the Contract Price and the Contract Time.

17.6.2 Scope of Price Request

A Price Request shall contain adequate information, including any necessary Drawings and Specifications, to enable Contractor to provide the cost breakdowns required herein. The Contractor shall not be entitled to any additional compensation for preparing a response to a Price Request, whether ultimately accepted or not.

17.7 Proposed Change Order

17.7.1 Definition of Proposed Change Order

A Proposed Change Order ("PCO") is a written request prepared by the Contractor requesting that the District and the Architect issue a Change Order based upon a proposed change to the Work.

17.7.2 Changes in Contract Price

A PCO shall include breakdowns and backup documentation pursuant to the revisions herein and sufficient, in the District's judgment, to validate any change in Contract Price. In no case shall Contractor or any of its Subcontractors be permitted to reserve rights for additional compensation for Change Order Work.

17.7.3 Changes in Time

A PCO shall also include any changes in time required to complete the Project. Any additional time requested shall not be the number of days to make the proposed change, but must be based upon the impact to the Construction Schedule as defined in the Contract Documents. The Contractor shall justify the proposed change in time by submittal of a schedule analysis that accurately shows the impact of the change on the critical path of the Construction Schedule ("Time Impact Analysis"). If Contractor fails to request a time extension in a PCO, including the Time Impact Analysis, then the Contractor is thereafter precluded from requesting, and waives any right to request, additional time and/or claim a delay. In no case shall Contractor or any of its Subcontractors be permitted to reserve rights for additional time for Change Order Work. A PCO that leaves the amount of time requested blank, or states that such time requested is "to be determined", is not permitted and shall also constitute a waiver of any right to request additional time and/or claim a delay.

17.7.4 Unknown and/or Unforeseen Conditions

If there is an Allowance, then Contractor must submit a Request for Allowance Expenditure Directive, including supporting documentation as described below, to receive authorization for the release of funds from the Allowance. Allowance Expenditure Directives shall be based on Contractor's costs, without overhead and profit, for products, delivery, installation, labor, insurance, payroll, taxes, bonding and equipment rental will be included in Allowance Expenditure Directive authorizing expenditure of funds from this Allowance. No overhead and profit shall be added to the Allowance Expenditure Directive. If cost of the unforeseen condition(s) exceed the Allowance, Contractor must submit a PCO for amounts in excess of the Allowance requesting an increase in Contract Price and/or Contract Time that is based at least partially on Contractor's assertion that Contractor has encountered unknown and/or unforeseen condition(s) on the Project, then Contractor shall base the PCO on provable information that, beyond a reasonable doubt and to the District's satisfaction, demonstrates that the unknown and/or unforeseen condition(s) were actually unknown and/or unforeseen and that the condition(s) were reasonably unknown

and/or unforeseen. If not, the District shall deny the PCO as unsubstantiated, and the Contractor shall complete the Project without any increase in Contract Price and/or Contract Time based on that PCO.

17.7.5 Time to Submit Proposed Change Order

Contractor shall submit its PCO within five (5) working days of the date Contractor discovers, or reasonably should have discovered, the circumstances giving rise to the PCO, unless additional time to submit a PCO is granted in writing by the District. Time is of the essence in Contractor's submission of PCOs so that the District can promptly investigate the basis for the PCO. Accordingly, if Contractor fails to submit its PCO within this timeframe, Contractor waives, releases, and discharges any right to assert or claim any entitlement to an adjustment of the Contract Price and/or Time based on circumstances giving rise to the PCO.

17.7.6 Proposed Change Order Certification

In submitting a PCO, Contractor certifies and affirms that the cost and/or time request is submitted in good faith, that the cost and/or time request is accurate and in accordance with the provisions of the Contract Documents, and the Contractor submits the cost and/or request for extension of time recognizing the significant civil penalties and treble damages which follow from making a false claim or presenting a false claim under Government Code section 12650 et seq.

It is expressly understood that the value of the extra Work or changes expressly includes any and all of the Contractor's costs and expenses, direct and indirect, resulting from additional time required on the Project or resulting from delay to the Project including, without limitation, cumulative impacts. Contractor is not entitled to separately recover amounts for overhead or other indirect costs. Any costs, expenses, damages, or time extensions not included are deemed waived.

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17.8 Format for Proposed Change Order

17.8.1 The following format shall be used as applicable by the District and the Contractor (e.g. Change Orders, PCO's) to communicate proposed additions and deductions to the Contract, supported by attached documentation. Any spaces left blank will be deemed no change to cost or time.

	WORK PERFORMED OTHER THAN BY CONTRACTOR	ADD	DEDUCT
(a)	Material (attach suppliers' invoice or itemized quantity and unit cost plus sales tax)		
(b)	Add Labor (attach itemized hours and rates, fully Burdened, and specify the hourly rate for each additional labor burden, for example, payroll taxes, fringe benefits, etc.)		
(c)	Add Equipment (attach suppliers' invoice)		
(d)	Subtotal		
(e)	Add Overhead and Profit for any and all tiers of Subcontractor , the total not to exceed ten percent (10%) of Item (d)		
(f)	Subtotal		
(g)	Add General Conditions Cost (if Time is Compensable) (attach supporting documentation)		
(h)	Subtotal		
(i)	Add Overhead and Profit for Contractor , not to exceed five percent (5%) of Item (h)		
(j)	Subtotal		
(k)	Add Bond and Insurance , not to exceed two percent (2%) of Item (j)		
(l)	TOTAL		
(m)	Time (zero unless indicated; "TBD" not permitted)	_____ Calendar Days	

	WORK PERFORMED BY CONTRACTOR	ADD	DEDUCT
(a)	Material (attach itemized quantity and unit cost plus sales tax)		
(b)	Add Labor (attach itemized hours and rates, fully Burdened, and specify the hourly rate for each additional labor burden, for example, payroll taxes, fringe benefits, etc.)		
(c)	Add Equipment (attach suppliers' invoice)		
(d)	Add General Conditions Cost (if Time is Compensable) (attach supporting documentation)		
(e)	Subtotal		
(f)	Add Overhead and Profit for Contractor , not to exceed fifteen percent (15%) of Item (e)		
(g)	Subtotal		
(h)	Add Bond and Insurance , not to exceed two percent (2%) of Item (g)		
(i)	TOTAL		
(j)	Time (zero unless indicated; "TBD" not permitted)	_____ Calendar Days	

17.8.2 Labor. Contractor shall be compensated for the costs of labor actually and directly utilized in the performance of the Work. Such labor costs shall be the actual cost, use of any formulas (e.g. labor factors) is not allowed, not to exceed prevailing wage rates in the locality of the Site and shall be in the labor classification(s) necessary for the performance of the Work, fully Burdened. Labor costs shall exclude costs incurred by the Contractor in preparing estimate(s) of the costs of the change in the Work, in the maintenance of records relating to the costs of the change in the Work, coordination and assembly of materials and information relating to the change in the Work or performance thereof, or the supervision and other overhead and general conditions costs associated with the change in the Work or performance thereof, including but not limited to the cost for the job superintendent. If applicable, District will pay Contractor the reasonable costs for room and board, supported with appropriate backup documentation, without markup for profit or overhead as provided by U.S. General Services Administration per diem rates for California lodging, meals and incidentals, <https://www.gsa.gov/travel/plan-book/per-diem-rates/per-diem-rates-lookup>.

17.8.3 Materials. Contractor shall be compensated for the costs of materials necessarily and actually used or consumed in connection with the performance of the change in the Work. Costs of materials may include reasonable costs of transportation from a source closest to the Site of the Work and delivery to the Site. If discounts by material suppliers are available for materials necessarily used in the performance of the change in the Work, they shall be credited to the District. If materials necessarily used in the performance of the change in the Work are obtained from a supplier or source owned in whole or in part by the Contractor, compensation therefor shall not exceed the current wholesale price for such materials. If, in the reasonable opinion of the District, the costs asserted by the Contractor for materials in connection with any change in the Work are excessive, or if the Contractor fails to provide satisfactory evidence of the actual costs of such materials from its supplier or vendor of the same, the costs of such materials and the District's obligation to pay for the same shall be limited to the then lowest wholesale price at which similar materials are available in the quantities required to perform the change in the Work. The District may elect to furnish materials for the change in the Work, in which event the Contractor shall not be compensated for the costs of furnishing such materials or any mark-up thereon.

17.8.4 Equipment. As a precondition to the District's duty to pay for Equipment rental or loading and transportation, Contractor shall provide satisfactory evidence of the actual costs of Equipment from the supplier, vendor or rental agency of same. Contractor shall be compensated for the actual cost of the necessary and direct use of Equipment in the performance of the change in the Work. Use of such Equipment in the performance of the change in the Work shall be compensated in increments of fifteen (15) minutes. Rental time for Equipment moved by its own power shall include time required to move such Equipment to the site of the Work from the nearest available rental source of the same. If Equipment is not moved to the Site by its own power, Contractor will be compensated for the loading and transportation costs in lieu of rental time. The foregoing notwithstanding, neither moving time or loading and transportation time shall be allowed if the Equipment is used for performance of any portion of the Work other than the change in the Work. Unless prior approval in writing is obtained by the Contractor from the Architect, the Project Inspector and the District, no costs or compensation shall be allowed for time while Construction Equipment is inoperative, idle or on standby, for any reason. Contractor shall not be entitled to an allowance or any other compensation for Equipment or tools used in the performance of change in the Work where such Equipment or tools have a replacement value of

\$500.00 or less. Equipment costs claimed by the Contractor in connection with the performance of any Work shall not exceed rental rates established by distributors or construction equipment rental agencies in the locality of the Site; any costs asserted which exceed such rental rates shall not be allowed or paid. Unless otherwise specifically approved in writing by the Architect, the Project Inspector and the District, the allowable rate for the use of Equipment in connection with the Work shall constitute full compensation to the Contractor for the cost of rental, fuel, power, oil, lubrication, supplies, necessary attachments, repairs or maintenance of any kind, depreciation, storage, insurance, labor (exclusive of labor costs of the Equipment operator), and any and all other costs incurred by the Contractor incidental to the use of such Equipment.

17.8.5 General Conditions Cost. The phrase "General Conditions Cost" shall mean, other than expressly limited or excluded herein, the costs of Contractor during the construction phase, including but not limited to: payroll costs for project manager for Work conducted at the Site, payroll costs for the superintendent and full-time general foremen, workers not included as direct labor costs engaged in support functions (e.g., loading/unloading, clean-up), costs of offices and temporary facilities including office materials, office supplies, office equipment, minor expenses, utilities, fuel, sanitary facilities and telephone services at the Site, costs of consultants not in the direct employ of Contractor or Subcontractors, and fees for permits and licenses.

17.8.6 Overhead and Profit. The phrase "Overhead and Profit" shall include field and office supervisors and assistants, watchperson, use of small tools, consumable, insurance other than construction bonds and insurance required herein, general conditions costs and home office expenses.

17.9 Change Order Certification

17.9.1 All Change Orders and PCOs include the following certification by the Contractor, either in the form specifically or incorporated by this reference:

17.9.1.1 The undersigned Contractor approves the foregoing as to the changes, if any, to the Contract Price specified for each item, and as to the extension of time allowed, if any, for completion of the entire Work as stated herein, and agrees to furnish all labor, materials, and service, and perform all work necessary to complete any additional work specified for the consideration stated herein. Submission of sums which have no basis in fact or which Contractor knows are false are at the sole risk of Contractor and may be a violation of the False Claims Act set forth under Government Code section 12650 et seq. It is understood that the changes herein to the Contract shall only be effective when approved by the governing board of the District.

17.9.1.2 It is expressly understood that the value of the extra Work or changes expressly includes any and all of the Contractor's costs and expenses, direct and indirect, resulting from additional time required on the Project or resulting from delay to the Project including, without limitation, cumulative impacts. Contractor is not entitled to separately recover amounts for overhead or other indirect costs. Any costs, expenses, damages, or time extensions not included are deemed waived.

17.9.2 Accord and Satisfaction: Contractor's execution of any Change Order shall constitute a full accord and satisfaction, and release, of all Contractor (and if applicable, Subcontractor) claims for additional time, money or other relief arising from

or relating to the subject matter of the change including, without limitation, impacts of all types, cumulative impacts, inefficiency, overtime, delay and any other type of claim.

17.10 Determination of Change Order Cost

17.10.1 The amount of the increase or decrease in the Contract Price from a Change Order, if any, shall be determined in one or more of the following ways as applicable to a specific situation and at the District's discretion:

17.10.1.1 District acceptance of a PCO;

17.10.1.2 By unit prices contained in Contractor's original bid;

17.10.1.3 By agreement between District and Contractor.

17.11 Deductive Change Orders

All deductive Change Order(s) must be prepared pursuant to the provisions herein. Where a portion of the Work is deleted from the Contract, the reasonable value of the deducted work less the value of work performed shall be considered the appropriate deduction. The value submitted on the Schedule of Values shall be used to calculate the credit amount unless the bid documentation is being held in escrow as part of the Contract Documents. Unit Prices, if any, may be used in District's discretion in calculating reasonable value. If Contractor offers a proposed amount for a deductive Change Order(s), Contractor shall include a minimum of five percent (5%) total profit and overhead to be deducted with the amount of the work of the Change Order(s). If Subcontractor work is involved, Subcontractors shall also include a minimum of five percent (5%) profit and overhead to be deducted with the amount of its deducted work. Any deviation from this provision shall not be allowed.

17.12 Addition or Deletion of Alternate Bid Item(s)

If the Bid Form and Proposal includes proposal(s) for Alternate Bid Item(s), during Contractor's performance of the Work, the District may elect to add or delete any such Alternate Bid Item(s) if not included in the Contract at the time of award. If the District elects to add or delete Alternate Bid Item(s) after Contract award, the cost or credit for such Alternate Bid Item(s) shall be as set forth in the Bid Form and Proposal unless the parties agree to a different price and the Contract Time shall be adjusted by the number of days allocated in the Contract Documents. If days are not allocated in the Contract Documents, the Contract Time shall be equitably adjusted.

17.13 Discounts, Rebates, and Refunds

For purposes of determining the cost, if any, of any change, addition, or omission to the Work hereunder, all trade discounts, rebates, refunds, and all returns from the sale of surplus materials and equipment shall accrue and be credited to the Contractor, and the Contractor shall make provisions so that such discounts, rebates, refunds, and returns may be secured, and the amount thereof shall be allowed as a reduction of the Contractor's cost in determining the actual cost of construction for purposes of any change, addition, or omission in the Work as provided herein.

17.14 Accounting Records

With respect to portions of the Work performed by Change Orders and Construction Change Directives, the Contractor shall keep and maintain cost-accounting records satisfactory to the District, including, without limitation, Job Cost Reports as provided in these General Conditions, which shall be available to the District on the same terms as any other books and records the Contractor is required to maintain under the Contract Documents. Such records shall include without limitation hourly records for Labor and Equipment and itemized records of materials and Equipment used that day in connection with the performance of any Work. All records maintained hereunder shall be subject to inspection, review and/or reproduction by the District, the Architect or the Project Inspector upon request. In the event that the Contractor fails or refuses, for any reason, to maintain or make available for inspection, review and/or reproduction such records, the District's reasonable good faith determination of the extent of adjustment to the Contract Price shall be final, conclusive, dispositive and binding upon Contractor.

17.15 Notice Required

If the Contractor desires to make a claim for an increase in the Contract Price, or any extension in the Contract Time for completion, it shall notify the District pursuant to the provisions herein, including the Article on Claims and Disputes. No claim shall be considered unless made in accordance with this subparagraph. Contractor shall proceed to execute the Work even though the adjustment may not have been agreed upon. Any change in the Contract Price or extension of the Contract Time resulting from such claim shall be authorized by a Change Order.

17.16 Applicability to Subcontractors

Any requirements under this Article shall be equally applicable to Change Orders or Construction Change Directives issued to Subcontractors by the Contractor to the extent as required by the Contract Documents.

17.17 Alteration to Change Order Language

Contractor shall not alter Change Orders or reserve time in Change Orders. Change Orders altered in violation of this provision, if in conflict with the terms set forth herein, shall be construed in accordance with the terms set forth herein. Contractor shall execute finalized Change Orders and proceed under the provisions herein with proper notice.

17.18 Failure of Contractor to Execute Change Order

Contractor shall be in default of the Contract if Contractor fails to execute a Change Order when the Contractor agrees with the addition and/or deletion of the Work in that Change Order.

18. REQUEST FOR INFORMATION

18.1 Any Request for Information shall reference all applicable Contract Document(s), including Specification section(s), detail(s), page number(s), drawing number(s), and sheet number(s), etc. The Contractor shall make suggestions and interpretations of the issue raised by each Request for Information. A Request for Information cannot modify the Contract Price, Contract Time, or the Contract Documents.

Upon request by the District, Contractor shall provide an electronic copy of the Request for Information in addition to the hard copy.

18.2 The Contractor shall be responsible for any costs incurred for professional services that District may deduct from any amounts owing to the Contractor, if a Request for Information requests an interpretation or decision of a matter where the information sought is equally available to the party making the request. District, at its sole discretion, shall deduct from and/or invoice Contractor for all the professional services arising herein.

19. PAYMENTS

19.1 Contract Price

The Contract Price is stated in the Agreement and, including authorized adjustments, is the total amount payable by the District to the Contractor for performance of the Work under the Contract Documents.

19.2 Applications for Progress Payments

19.2.1 Procedure for Applications for Progress Payments

19.2.1.1 Application for Progress Payment

19.2.1.1.1 Not before the fifth (5th) day of each calendar month during the progress of the Work, Contractor shall submit to the District and the Architect an itemized Application for Payment for operations completed in accordance with the Schedule of Values. Such application shall be notarized, if required, and supported by the following or each portion thereof unless waived by the District in writing:

19.2.1.1.1.1 The amount paid to the date of the Application to the Contractor, to all its Subcontractors, and all others furnishing labor, material, or equipment for its Contract;

19.2.1.1.1.2 The amount being requested under the Application for Payment by the Contractor on its own behalf and separately stating the amount requested on behalf of each of the Subcontractors and all others furnishing labor, material, and equipment under the Contract;

19.2.1.1.1.3 The balance that will be due to each of such entities after said payment is made;

19.2.1.1.1.4 A certification that the As-Built Drawings and annotated Specifications are current;

19.2.1.1.1.5 Itemized breakdown of work done for the purpose of requesting partial payment;

19.2.1.1.1.6 An updated and acceptable construction schedule in conformance with the provisions herein;

19.2.1.1.1.7 The additions to and subtractions from the Contract Price and Contract Time;

19.2.1.1.1.8 A total of the retentions held;

19.2.1.1.1.9 Material invoices, evidence of equipment purchases, rentals, and other support and details of cost as the District may require from time to time;

19.2.1.1.1.10 The percentage of completion of the Contractor's Work by line item;

19.2.1.1.1.11 Schedule of Values updated from the preceding Application for Payment;

19.2.1.1.1.12 A duly completed and executed conditional waiver and release upon progress payment compliant with Civil Code section 8132 from the Contractor and each subcontractor of any tier and supplier to be paid from the current progress payment;

19.2.1.1.1.13 A duly completed and executed unconditional waiver and release upon progress payment compliant with Civil Code section 8134 from the Contractor and each subcontractor of any tier and supplier that was paid from the previous progress payment(s); and

19.2.1.1.1.14 A certification by the Contractor of the following:

The Contractor warrants title to all Work performed as of the date of this payment application has been completed in accordance with the Contract Documents for the Project. The Contractor further warrants that all amounts have been paid for work which previous Certificates for Payment were issued and payments received and all Work performed as of the date of this payment application is free and clear of liens, claims, security interests, or encumbrances in favor of the Contractor, Subcontractors, material and equipment suppliers, workers, or other persons or entities making a claim by reason of having provided labor, materials, and equipment relating to the Work, except those of which the District has been informed. Submission of sums which have no basis in fact or which Contractor knows are false are at the sole risk of Contractor and may be a violation of the False Claims Act set forth under Government Code section 12650 et seq.

19.2.1.1.1.15 The Contractor shall be subject to the False Claims Act set forth in Government Code section 12650 et seq. for information provided with any Application for Progress Payment.

19.2.1.1.1.16 All remaining certified payroll records ("CPR(s)") for each journeyman, apprentice, worker, or other employee employed by the Contractor and/or each Subcontractor in connection with the Work for the period of the Application for Payment. As indicated herein, the District shall not make any payment to Contractor until:

19.2.1.1.1.16.1 Contractor and/or its Subcontractor(s) provide electronic CPRs directly to the DIR on no less than every 30 days while Work is being performed and within 30 days after the final day of Work performed on the Project for any journeyman, apprentice, worker or

other employee was employed in connection with the Work, or within ten (10) days of any request by the District or the DIR to the requesting entity, and

19.2.1.1.1.16.2 Any delay in Contractor and/or its Subcontractor(s) providing CPRs in a timely manner may directly delay the Contractor's payment.

19.2.1.1.2 Applications received after June 20th will not be paid until the second week of July and applications received after December 12th will not be paid until the first week of January.

19.2.2 Prerequisites for Progress Payments

19.2.2.1 First Payment Request: The following items, if applicable, must be completed before the District will accept and/or process the Contractor's first payment request:

19.2.2.1.1 Installation of the Project sign;

19.2.2.1.2 Installation of field office;

19.2.2.1.3 Installation of temporary facilities and fencing;

19.2.2.1.4 Schedule of Values;

19.2.2.1.5 Contractor's Construction Schedule;

19.2.2.1.6 Schedule of unit prices, if applicable;

19.2.2.1.7 Submittal Schedule;

19.2.2.1.8 Receipt by Architect of all submittals due as of the date of the payment application;

19.2.2.1.9 Copies of necessary permits;

19.2.2.1.10 Copies of authorizations and licenses from governing authorities;

19.2.2.1.11 Initial progress report;

19.2.2.1.12 Surveyor qualifications;

19.2.2.1.13 Written acceptance of District's survey of rough grading, if applicable;

19.2.2.1.14 List of all Subcontractors, with names, license numbers, telephone numbers, and Scope of Work;

19.2.2.1.15 All bonds and insurance endorsements; and

19.2.2.1.16 Resumes of Contractor's project manager, and if applicable, job site secretary, record documents recorder, and job site superintendent.

19.2.2.2 Second Payment Request: The District will not process the second payment request until and unless all submittals and Shop Drawings have been accepted for review by the Architect.

19.2.2.3 No Waiver of Criteria: Any payments made to Contractor where criteria set forth herein have not been met shall not constitute a waiver of said criteria by District. Instead, such payment shall be construed as a good faith effort by District to resolve differences so Contractor may pay its Subcontractors and suppliers. Contractor agrees that failure to submit such items may constitute a breach of contract by Contractor and may subject Contractor to termination.

19.3 Progress Payments

19.3.1 District's Approval of Application for Payment

19.3.1.1 Upon receipt of an Application for Payment, The District shall act in accordance with both of the following:

19.3.1.1.1 Each Application for Payment shall be reviewed by the District as soon as practicable after receipt for the purpose of determining that the Application for Payment is a proper Application for Payment.

19.3.1.1.2 Any Application for Payment determined not to be a proper Application for Payment suitable for payment shall be returned to the Contractor as soon as practicable, but not later than seven (7) days, after receipt. An Application for Payment returned pursuant to this paragraph shall be accompanied by a document setting forth in writing the reasons why the Application for Payment is not proper. The number of days available to the District to make a payment without incurring interest pursuant to this section shall be reduced by the number of days by which the District exceeds this seven-day return requirement.

19.3.1.1.3 An Application for Payment shall be considered properly executed if funds are available for payment of the Application for Payment, and payment is not delayed due to an audit inquiry by the financial officer of the District.

19.3.1.2 The District's review of the Contractor's Application for Payment will be based on the District's and the Architect's observations at the Site and the data comprising the Application for Payment that the Work has progressed to the point indicated and that, to the best of the District's and the Architect's knowledge, information, and belief, the quality of the Work is in accordance with the Contract Documents. The foregoing representations are subject to:

19.3.1.2.1 Observation of the Work for general conformance with the Contract Documents,

19.3.1.2.2 Results of subsequent tests and inspections,

19.3.1.2.3 Minor deviations from the Contract Documents correctable prior to completion, and

19.3.1.2.4 Specific qualifications expressed by the Architect.

19.3.1.3 District's approval of the certified Application for Payment shall be based on Contractor complying with all requirements for a fully complete and valid certified Application for Payment.

19.3.2 Payments to Contractor

19.3.2.1 Within thirty (30) days after approval of the Application for Payment, Contractor shall be paid a sum equal to ninety-five percent (95%) of the value of the Work performed (as verified by Architect and Inspector and certified by Contractor) up to the last day of the previous month, less the aggregate of previous payments and amount to be withheld. The value of the Work completed shall be Contractor's best estimate. No inaccuracy or error in said estimate shall operate to release the Contractor, or any Surety upon any bond, from damages arising from such Work, or from the District's right to enforce each and every provision of this Contract, and the District shall have the right subsequently to correct any error made in any estimate for payment.

19.3.2.2 The Contractor shall not be entitled to have any payment requests processed, or be entitled to have any payment made for Work performed, so long as any lawful or proper direction given by the District concerning the Work, or any portion thereof, remains incomplete.

19.3.2.3 If the District fails to make any progress payment within thirty (30) days after receipt of an undisputed and properly submitted Application for Payment from the Contractor, the District shall pay interest to the Contractor equivalent to the legal rate set forth in subdivision (a) of Section 685.010 of the Code of Civil Procedure.

19.3.3 No Waiver

No payment by District hereunder shall be interpreted so as to imply that District has inspected, approved, or accepted any part of the Work. Notwithstanding any payment, the District may enforce each and every provision of this Contract. The District may correct or require correction of any error subsequent to any payment.

19.4 Decisions to Withhold Payment

19.4.1 Reasons to Withhold Payment

The District may withhold payment in whole, or in part, to the extent reasonably necessary to protect the District if, in the District's opinion, the representations to the District required herein cannot be made. The District may withhold payment, in whole, or in part, to such extent as may be necessary to protect the District from loss because of, but not limited to any of the following:

19.4.1.1 Defective Work not remedied within **FORTY-EIGHT (48)** hours of written notice to Contractor.

19.4.1.2 Stop Payment Notices or other liens served upon the District as a result of the Contract. Contractor agrees that the District may withhold up to 125% of the amount claimed in the Stop Payment Notice to answer the claim and to provide for the District's reasonable cost of any litigation pursuant to the stop payment notice.

19.4.1.3 Written notice to withhold payment from Contractor by payment and/or performance bond surety(ies).

19.4.1.4 Liquidated damages assessed against the Contractor.

19.4.1.5 The cost of completion of the Contract if there exists a reasonable doubt that the Work can be completed for the unpaid balance of the Contract Price or by the completion date.

19.4.1.6 Damage to the District or other contractor(s).

19.4.1.7 Unsatisfactory prosecution of the Work by the Contractor.

19.4.1.8 Failure to store and properly secure materials.

19.4.1.9 Failure of the Contractor to submit, on a timely basis, proper, sufficient, and acceptable documentation required by the Contract Documents, including, without limitation, a Construction Schedule, Schedule of Submittals, Schedule of Values, Monthly Progress Schedules, Shop Drawings, Product Data and samples, Proposed product lists, executed Change Orders, and/or verified reports.

19.4.1.10 Failure of the Contractor to maintain As-Built Drawings.

19.4.1.11 Erroneous estimates by the Contractor of the value of the Work performed, or other false statements in an Application for Payment.

19.4.1.12 Unauthorized deviations from the Contract Documents.

19.4.1.13 Failure of the Contractor to prosecute the Work in a timely manner in compliance with the Construction Schedule, established progress schedules, and/or completion dates.

19.4.1.14 Failure to provide acceptable electronic certified payroll records, as required by the Labor Code, by these Contract Documents, or by written request; for each journeyman, apprentice, worker, or other employee employed by the Contractor and/or by each Subcontractor in connection with the Work for the period of the Application for Payment or if payroll records are delinquent or inadequate.

19.4.1.15 Failure to properly pay prevailing wages as required in Labor Code section 1720 et seq., failure to comply with any other Labor Code requirements, and/or failure to comply with labor compliance monitoring and enforcement by the DIR.

19.4.1.16 Allowing an unregistered subcontractor, as described in Labor Code section 1725.5, to engage in the performance of any work under this Contract.

19.4.1.17 Failure to comply with any applicable federal statutes and regulations regarding minimum wages, withholding, payrolls and basic records, apprentice and trainee employment requirements, equal employment opportunity requirements, Copeland Act requirements, Davis-Bacon Act and related requirements, Contract Work Hours and Safety Standards Act requirements, if applicable.

19.4.1.18 Failure to properly maintain or clean up the Site.

19.4.1.19 Failure to timely indemnify, defend, or hold harmless the District.

19.4.1.20 Any payments due to the District, including but not limited to payments for failed tests, utilities changes, or permits.

19.4.1.21 Failure to pay Subcontractor(s) or supplier(s) as required by law and by the Contract Documents.

19.4.1.22 Failure to pay any royalty, license or similar fees.

19.4.1.23 Contractor is otherwise in breach, default, or in substantial violation of any provision of this Contract.

19.4.1.24 Failure to perform any implementation and/or monitoring required by any SWPPP for the Project and/or the imposition of any penalties or fines therefore whether imposed on the District or Contractor.

19.4.2 Reallocation of Withheld Amounts

19.4.2.1 District may, in its discretion, apply any withheld amount to pay outstanding claims or obligations as defined herein. In so doing, District shall make such payments on behalf of Contractor. If any payment is so made by District, then that amount shall be considered a payment made under Contract by District to Contractor and District shall not be liable to Contractor for any payment made in good faith. These payments may be made without prior judicial determination of claim or obligation. District will render Contractor an accounting of funds disbursed on behalf of Contractor.

19.4.2.2 If Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents or fails to perform any provision thereof, District may, after **FORTY-EIGHT (48)** hours' written notice to the Contractor and, without prejudice to any other remedy, make good such deficiencies. The District shall adjust the total Contract Price by reducing the amount thereof by the cost of making good such deficiencies. If District deems it inexpedient to correct Work that is damaged, defective, or not done in accordance with Contract provisions, an equitable reduction in the Contract Price (of at least one hundred fifty percent (150%) of the estimated reasonable value of the nonconforming Work) shall be made therefor.

19.4.3 Payment After Cure

When Contractor removes the grounds for declining approval, payment shall be made for amounts withheld because of them. No interest shall be paid on any retainage or amounts withheld due to the failure of the Contractor to perform in accordance with the terms and conditions of the Contract Documents.

19.5 Subcontractor Payments

19.5.1 Payments to Subcontractors

No later than seven (7) days after receipt, or pursuant to Business and Professions Code section 7108.5 and Public Contract Code section 7107, the Contractor shall pay to each Subcontractor, out of the amount paid to the Contractor on account of such

Subcontractor's portion of the Work, the amount to which said Subcontractor is entitled. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to its Sub-subcontractors in a similar manner.

19.5.2 No Obligation of District for Subcontractor Payment

The District shall have no obligation to pay, or to see to the payment of, money to a Subcontractor except as may otherwise be required by law.

19.5.3 Joint Checks

District shall have the right in its sole discretion, if necessary for the protection of the District, to issue joint checks made payable to the Contractor and Subcontractors and/or material or equipment suppliers. The joint check payees shall be responsible for the allocation and disbursement of funds included as part of any such joint payment. In no event shall any joint check payment be construed to create any contract between the District and a Subcontractor of any tier, or a material or equipment supplier, any obligation from the District to such Subcontractor or a material or equipment supplier, or rights in such Subcontractor or a material or equipment supplier against the District.

20. COMPLETION OF THE WORK

20.1 Completion

20.1.1 District will accept completion of Contract and have the Notice of Completion recorded when the entire Work shall have been completed to the satisfaction of District.

20.1.2 The Work may only be accepted as complete by action of the governing board of the District.

20.1.3 District, at its sole option, may accept completion of Contract and have the Notice of Completion recorded when the entire Work shall have been completed to the satisfaction of District, except for minor corrective items, as distinguished from incomplete items. If Contractor fails to complete all minor corrective items within fifteen (15) days after the date of the District's acceptance of completion, District shall withhold from the final payment one hundred fifty percent (150%) of an estimate of the amount sufficient to complete the corrective items, as determined by District, until the item(s) are completed.

20.1.4 At the end of the 15-day period, if there are any items remaining to be corrected, District may elect to proceed as provided herein related to adjustments to Contract Price, and/or District's right to perform the Work of the Contractor.

20.2 Close-Out/Certification Procedures

20.2.1 Punch List

The Contractor shall notify the Architect when Contractor considers the Work complete. Upon notification, Architect will prepare a list of minor items to be completed or corrected ("Punch List"). The Contractor and/or its Subcontractors shall proceed

promptly to complete and correct items on the Punch List. Failure to include an item on Punch List does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

20.2.2 Close-Out/Certification Requirements

20.2.2.1 Utility Connections

Buildings shall be connected to water, gas, sewer, and electric services, complete and ready for use. Service connections shall be made and existing services reconnected.

20.2.2.2 Record Drawings and Record Specifications

20.2.2.2.1 Contractor shall provide exact Record Drawings of the Work ("As-Built") and Record Specifications upon completion of the Project and as a condition precedent to approval of final payment.

20.2.2.2.2 Contractor shall obtain the Inspector's approval of the corrected prints and employ a competent draftsman to transfer the Record Drawings information to the most current version of AutoCAD that is, at that time, currently utilized for plan check submission by either the District, the Architect, OPSC, and/or DSA, and print a complete set of transparent sepias. When completed, Contractor shall deliver corrected sepias and diskette/CD/other data storage device acceptable to District with AutoCAD file to the District.

20.2.2.2.3 Contractor is liable and responsible for any and all inaccuracies in the Record Drawings and Record Specifications, even if inaccuracies become evident at a future date.

20.2.2.3 Construction Storm Water Permit, if applicable

Contractor shall submit to District all electronic or hard copy records required by the Construction Storm Water Permit, if applicable, within seven (7) days of Completion of the Project.

20.2.2.4 Maintenance Manuals: Contractor shall prepare all operation and maintenance manuals and date as indicated in the Specifications.

20.2.2.5 Source Programming: Contractor shall provide all source programming for all items in the Project.

20.2.2.6 Verified Reports: Contractor shall completely and accurately fill out and file forms DSA 6-C or DSA 152 (or current form), as appropriate. Refer to section 4-336 and section 4-343 of Part 1, Title 24 of the California Code of Regulations.

20.3 Final Inspection

20.3.1 Contractor shall comply with Punch List procedures as provided herein, and maintain the presence of a Project Superintendent and Project Manager until the Punch List is complete to ensure proper and timely completion of the Punch List. Under no circumstances shall Contractor demobilize its forces prior to completion of the Punch

List without District's prior written approval. Upon receipt of Contractor's written notice that all of the Punch List items have been fully completed and the Work is ready for final inspection and District acceptance, Architect and Project Inspector will inspect the Work and shall submit to Contractor and District a final inspection report noting the Work, if any, required in order to complete in accordance with the Contract Documents. Absent unusual circumstances, this report shall consist of the Punch List items not yet satisfactorily completed.

20.3.2 Upon Contractor's completion of all items on the Punch List and any other uncompleted portions of the Work, the Contractor shall notify the District and Architect, who shall again inspect such Work. If the Architect finds the Work complete and acceptable under the Contract Documents, the Architect will notify Contractor, who shall then jointly submit to the Architect and the District its final Application for Payment.

20.3.3 Final Inspection Requirements

20.3.3.1 Before calling for final inspection, Contractor shall determine that the following have been performed:

20.3.3.1.1 The Work has been completed.

20.3.3.1.2 All life safety items are completed and in working order.

20.3.3.1.3 Mechanical and electrical Work including, without limitation, security system, data, and fire alarm, are complete and tested, fixtures are in place, connected, and ready for tryout.

20.3.3.1.4 Electrical circuits scheduled in panels and disconnect switches labeled.

20.3.3.1.5 Painting and special finishes complete.

20.3.3.1.6 Doors complete with hardware, cleaned of protective film, relieved of sticking or binding, and in working order.

20.3.3.1.7 Tops and bottoms of doors sealed.

20.3.3.1.8 Floors waxed and polished as specified.

20.3.3.1.9 Broken glass replaced and glass cleaned.

20.3.3.1.10 Grounds cleared of Contractor's equipment, raked clean of debris, and trash removed from Site.

20.3.3.1.11 Work cleaned, free of stains, scratches, and other foreign matter, and damaged and broken material replaced.

20.3.3.1.12 Finished and decorative work shall have marks, dirt, and superfluous labels removed.

20.3.3.1.13 Final cleanup, as provided herein.

20.4 Costs of Multiple Inspections

More than two (2) requests of the District to make a final inspection shall be considered an additional service of District, Architect, Construction Manager, and/or Project Inspector, and all subsequent costs will be invoiced to Contractor and if funds are available, withheld from remaining payments.

20.5 Partial Occupancy or Use Prior to Completion

20.5.1 District's Rights to Occupancy

The District may occupy or use any completed or partially completed portion of the Work at any stage, and such occupancy shall not constitute the District's Final Acceptance of any part of the Work. Neither the District's Final Acceptance, the making of Final Payment, any provision in Contract Documents, nor the use or occupancy of the Work, in whole or in part, by District shall constitute acceptance of Work not in accordance with the Contract Documents nor relieve the Contractor or the Contractor's Performance Bond Surety from liability with respect to any warranties or responsibility for faulty or defective Work or materials, equipment and workmanship incorporated therein. In the event that the District occupies or uses any completed or partially completed portion of the Work, the Contractor shall remain responsible for payments, security, maintenance, heat, utilities, damage to the Work, insurance, the period for correction of the Work, and the commencement of warranties required by the Contract Documents unless the Contractor requests in writing, and the District agrees, to otherwise divide those responsibilities. Any dispute as to responsibilities shall be resolved pursuant to the Claims and Disputes provisions herein, with the added provision that during the dispute process, the District shall have the right to occupy or use any portion of the Work that it needs or desires to use.

20.5.2 Inspection Prior to Occupancy or Use

Immediately prior to partial occupancy or use, the District, the Contractor, and the Architect shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

20.5.3 No Waiver

Unless otherwise agreed upon, partial or entire occupancy or use of a portion or portions of the Work shall not constitute beneficial occupancy or District's acceptance of the Work not complying with the requirements of the Contract Documents.

21. FINAL PAYMENT AND RETENTION

21.1 Final Payment

Upon receipt and approval of a valid and final Application for Payment, the Architect will issue a final Certificate of Payment. The District shall thereupon jointly inspect the Work and either accept the Work as complete or notify the Architect and the Contractor in writing of reasons why the Work is not complete. Upon District's acceptance of the Work of the Contractor as fully complete by the Governing Board of the District (that, absent unusual circumstances, will occur when the Punch List items have been satisfactorily completed), the District shall record a Notice of Completion with the County Recorder, and

the Contractor shall, upon receipt of final payment from the District, pay the amount due Subcontractors.

21.2 Prerequisites for Final Payment

The following conditions must be fulfilled prior to Final Payment:

21.2.1 A full release of all Stop Payment Notices served in connection with the Work shall be submitted by Contractor.

21.2.2 A duly completed and executed conditional waiver and release upon final payment compliant with Civil Code section 8136, from the Contractor and each subcontractor of any tier and supplier to be paid from the final payment.

21.2.3 A duly completed and executed unconditional waiver and release upon progress payment compliant with Civil Code section 8134, from the Contractor and each subcontractor of any tier and supplier that was paid from the previous progress payments.

21.2.4 A duly completed and executed Document 00 65 19.26, "AGREEMENT AND RELEASE OF ANY AND ALL CLAIMS" from the Contractor.

21.2.5 The Contractor shall have made all corrections to the Work that are required to remedy any defects therein, to obtain compliance with the Contract Documents or any requirements of applicable codes and ordinances, or to fulfill any of the orders or directions of District required under the Contract Documents.

21.2.6 Each Subcontractor shall have delivered to the Contractor all written guarantees, warranties, applications, and bonds required by the Contract Documents for its portion of the Work.

21.2.7 Contractor must have completed all requirements set forth under "Close-Out/Certification Procedures," including, without limitation, submission of an approved set of complete Record Drawings.

21.2.8 Architect shall have issued its written approval that final payment can be made.

21.2.9 The Contractor shall have delivered to the District all manuals and materials required by the Contract Documents, which must be approved by the District.

21.2.10 The Contractor shall have completed final clean-up as provided herein.

21.3 Retention

21.3.1 The retention, less any amounts disputed by the District or that the District has the right to withhold pursuant to provisions herein, shall be paid:

21.3.1.1 After approval by the Architect of the Application and Certificate of Payment,

21.3.1.2 After the satisfaction of the conditions set forth herein, and

21.3.1.3 After forty-five (45) days after the recording of the Notice of Completion by District.

21.3.2 No interest shall be paid on any retention, or on any amounts withheld due to a failure of the Contractor to perform, in accordance with the terms and conditions of the Contract Documents, except as provided to the contrary in any Escrow Agreement between the District and the Contractor pursuant to Public Contract Code section 22300.

21.4 Substitution of Securities

The District will permit the substitution of securities in accordance with the provisions of Public Contract Code section 22300.

22. UNCOVERING OF WORK

If a portion of the Work is covered without Inspector or Architect approval or not in compliance with the Contract Documents, it must, if required in writing by the District, the Project Inspector, or the Architect, be uncovered for the Project Inspector's or the Architect's observation and be corrected, replaced, and/or recovered at the Contractor's expense without change in the Contract Price or Contract Time.

23. NONCONFORMING WORK AND CORRECTION OF WORK

23.1 Nonconforming Work

23.1.1 Contractor shall promptly remove from Premises all Work identified by District as failing to conform to the Contract Documents whether incorporated or not. Contractor shall promptly replace and re-execute its own Work to comply with the Contract Documents without additional expense to the District and shall bear the expense of making good all work of other contractors destroyed or damaged by any removal or replacement pursuant hereto and/or any delays to the District or other Contractors caused thereby.

23.1.2 If Contractor does not remove Work that District has identified as failing to conform to the Contract Documents within a reasonable time, not to exceed **FORTY-EIGHT (48)** hours, District may remove it and may store any material at Contractor's expense. If Contractor does not pay expense(s) of that removal within ten (10) days' time thereafter, District may, upon ten (10) days' written notice, sell any material at auction or at private sale and shall deduct all costs and expenses incurred by the District and/or District may withhold those amounts from payment(s) to Contractor.

23.2 Correction of Work

23.2.1 Correction of Rejected Work

Pursuant to the notice provisions herein, the Contractor shall immediately correct the Work rejected by the District, the Architect, or the Project Inspector as failing to conform to the requirements of the Contract Documents, whether observed before or after Completion and whether or not fabricated, installed, or completed. The Contractor shall bear costs of correcting the rejected Work, including additional testing, inspections, and compensation for the Inspector's or the Architect's services and expenses made necessary thereby.

23.2.2 One-Year Warranty Corrections

If, within one (1) year after the date of Completion of the Work or a designated portion thereof, or after the date for commencement of warranties established hereunder, or by the terms of an applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of written notice from the District to do so. This period of one (1) year shall be extended with respect to portions of the Work first performed after Completion by the period of time between Completion and the actual performance of the Work. This obligation hereunder shall survive District's acceptance of the Work under the Contract and termination of the Contract. The District shall give such notice promptly after discovery of the condition.

23.3 District's Right to Perform Work

23.3.1 If the Contractor should neglect to prosecute the Work properly or fail to perform any provisions of this contract, the District, after **FORTY-EIGHT (48)** hours' written notice to the Contractor, may, without prejudice to any other remedy it may have, make good such deficiencies and may deduct the cost thereof from the payment then or thereafter due the Contractor.

23.3.2 If it is found at any time, before or after completion of the Work, that Contractor has varied from the Drawings and/or Specifications, including, but not limited to, variation in material, quality, form, or finish, or in the amount or value of the materials and labor used, District may require at its option:

23.3.2.1 That all such improper Work be removed, remade or replaced, and all work disturbed by these changes be made good by Contractor at no additional cost to the District;

23.3.2.2 That the District deduct from any amount due Contractor the sum of money equivalent to the difference in value between the work performed and that called for by the Drawings and Specifications; or

23.3.2.3 That the District exercise any other remedy it may have at law or under the Contract Documents, including but not limited to the District hiring its own forces or another contractor to replace the Contractor's nonconforming Work, in which case the District shall either issue a deductive Change Order, a Construction Change Directive, or invoice the Contractor for the cost of that work. Contractor shall pay any invoices within thirty (30) days of receipt of same or District may withhold those amounts from payment(s) to Contractor.

24. TERMINATION AND SUSPENSION

24.1 District's Request for Assurances

If District at any time reasonably believes Contractor is or may be in default under this Contract, District may in its sole discretion notify Contractor of this fact and request written assurances from Contractor of performance of Work and a written plan from Contractor to remedy any potential default under the terms this Contract that the District may advise Contractor of in writing. Contractor shall, within ten (10) calendar days of District's request, deliver a written cure plan that meets the District's requirements in its request for assurances. Contractor's failure to provide such written assurances of

performance and the required written plan, within ten (10) calendar days of request, will constitute a material breach of this Contract sufficient to justify termination for cause.

24.2 District's Right to Terminate Contractor for Cause

24.2.1 Grounds for Termination: The District, in its sole discretion, may terminate the Contract and/or terminate the Contractor's right to perform the work of the Contract based upon any of the following:

24.2.1.1 Contractor refuses or fails to execute the Work or any separable part thereof with sufficient diligence as will ensure its completion within the time specified or any extension thereof, or

24.2.1.2 Contractor fails to complete said Work within the time specified or any extension thereof, or

24.2.1.3 Contractor persistently fails or refuses to perform Work or provide material of sufficient quality as to be in compliance with Contract Documents; or

24.2.1.4 Contractor persistently refuses, or repeatedly fails, except in cases for which extension of time is provided, to supply enough properly skilled workers or proper materials to complete the Work in the time specified; or

24.2.1.5 Contractor fails to make prompt payment to Subcontractors, or for material, or for labor; or

24.2.1.6 Contractor persistently disregards laws, or ordinances, or instructions of District; or

24.2.1.7 Contractor fails to supply labor, including that of Subcontractors, that is sufficient to prosecute the Work or that can work in harmony with all other elements of labor employed or to be employed on the Work; or

24.2.1.8 Contractor or its Subcontractor(s) is/are otherwise in breach, default, or in substantial violation of any provision of this Contract, including but not limited to a lapse in licensing or registration.

24.2.2 Notification of Termination

24.2.2.1 Upon the occurrence at District's sole determination of any of the above conditions, District may, without prejudice to any other right or remedy, serve written notice upon Contractor and its Surety of District's termination of this Contract and/or the Contractor's right to perform the work of the Contract. This notice will contain the reasons for termination. Unless, within three (3) days after the service of the notice, any and all condition(s) shall cease, and any and all violation(s) shall cease, or arrangement satisfactory to District for the correction of the condition(s) and/or violation(s) be made, this Contract and/or the Contractor's right to perform the Work of the Contract shall cease and terminate. Upon termination, Contractor shall not be entitled to receive any further payment until the entire Work is finished.

24.2.2.2 Upon termination, District may immediately serve written notice of tender upon Surety whereby Surety shall have the right to take over and perform this Contract only if Surety:

24.2.2.2.1 Within three (3) days after service upon it of the notice of tender, gives District written notice of Surety's intention to take over and perform this Contract; and

24.2.2.2.2 Commences performance of this Contract within three (3) days from date of serving of its notice to District.

24.2.2.3 Surety shall not utilize Contractor in completing the Project if the District notifies Surety of the District's objection to Contractor's further participation in the completion of the Project. Surety expressly agrees that any contractor which Surety proposes to fulfill Surety's obligations is subject to District's approval. District's approval shall not be unreasonably withheld, conditioned or delayed.

24.2.2.4 If Surety fails to notify District or begin performance as indicated herein, District may take over the Work and execute the Work to completion by any method it may deem advisable at the expense of Contractor and/or its Surety. Contractor and/or its Surety shall be liable to District for any excess cost or other damages the District incurs thereby. Time is of the essence in this Contract. If the District takes over the Work as herein provided, District may, without liability for so doing, take possession of and utilize in completing the Work such materials, appliances, plan, and other property belonging to Contractor as may be on the Site of the Work, in bonded storage, or previously paid for.

24.3 Termination of Contractor for Convenience

24.3.1 District in its sole discretion may terminate the Contract in whole or in part upon three (3) days' written notice to the Contractor.

24.3.2 Upon notice, Contractor shall:

24.3.2.1 Cease operations as directed by the District in the notice;

24.3.2.2 Take necessary actions for the protection and preservation of the Work as soon as possible; and

24.3.2.3 Terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

24.3.3 Within 30 days of the notice, Contractor submit to the District a payment application for the actual cost for labor, materials, and services performed, including all Contractor's and Subcontractor(s)' mobilization and/or demobilization costs, that is unpaid. Contractor shall have no claims against the District except for the actual cost for labor, materials, and services performed that adequately documented through timesheets, invoices, receipts, or otherwise. District shall pay all undisputed invoice(s) for work performed until the notice of termination.

24.3.4 Under a termination for convenience, the District retains the right to all the options available to the District if there is a termination for cause.

24.4 Effect of Termination

24.4.1 Contractor shall, only if ordered to do so by the District, immediately remove from the Site all or any materials and personal property belonging to Contractor that have not been incorporated in the construction of the Work, or which are not in place in the Work. The District retains the right, but not the obligation, to keep and use any materials and personal property belonging to Contractor that have not been incorporated in the construction of the Work, or which are not in place in the Work. The Contractor and its Surety shall be liable upon the Performance Bond for all damages caused to the District by reason of the Contractor's failure to complete the Contract.

24.4.2 In the event that the District shall perform any portion of, or the whole of the Work, pursuant to the provisions of the General Conditions, the District shall not be liable nor account to the Contractor in any way for the time within which, or the manner in which, the Work is performed by the District or for any changes the District may make in the Work or for the money expended by the District in satisfying claims and/or suits and/or other obligations in connection with the Work.

24.4.3 In the event termination for cause is determined to have not been for cause, the termination shall be deemed to have been a termination for convenience effective as of the same date as the purported termination for cause.

24.4.4 In the event that the Contract is terminated for any reason, no allowances or compensation will be granted for the loss of any anticipated profit by the Contractor or any impact or impairment of Contractor's bonding capacity.

24.4.5 If the expense to the District to finish the Work exceeds the unpaid Contract Price, Contractor and Surety shall pay difference to District within twenty-one (21) days of District's request.

24.4.6 The District shall have the right (but shall have no obligation) to assume and/or assign to a general contractor or construction manager or other third party who is qualified and has sufficient resources to complete the Work, the rights of the Contractor under its subcontracts with any or all Subcontractors. In the event of an assumption or assignment by the District, no Subcontractor shall have any claim against the District or third party for Work performed by Subcontractor or other matters arising prior to termination of the Contract. The District or any third party, as the case may be, shall be liable only for obligations to the Subcontractor arising after assumption or assignment. Should the District so elect, the Contractor shall execute and deliver all documents and take all steps, including the legal assignment of its contractual rights, as the District may require, for the purpose of fully vesting in the District the rights and benefits of its Subcontractor under Subcontracts or other obligations or commitments. All payments due the Contractor hereunder shall be subject to a right of offset by the District for expenses and damages suffered by the District as a result of any default, acts, or omissions of the Contractor. Contractor must include this assignment provision in all of its contracts with its Subcontractors.

24.4.7 The foregoing provisions are in addition to and not in limitation of any other rights or remedies available to District.

24.5 Emergency Termination of Public Contracts Act of 1949

24.5.1 This Contract is subject to termination as provided by sections 4410 and 4411 of the Government Code of the State of California, being a portion of the Emergency Termination of Public Contracts Act of 1949.

24.5.1.1 Section 4410 of the Government Code states:

In the event a national emergency occurs, and public work, being performed by contract, is stopped, directly or indirectly, because of the freezing or diversion of materials, equipment or labor, as the result of an order or a proclamation of the President of the United States, or of an order of any federal authority, and the circumstances or conditions are such that it is impracticable within a reasonable time to proceed with a substantial portion of the work, then the public agency and the contractor may, by written agreement, terminate said contract.

24.5.1.2 Section 4411 of the Government Code states:

Such an agreement shall include the terms and conditions of the termination of the contract and provision for the payment of compensation or money, if any, which either party shall pay to the other or any other person, under the facts and circumstances in the case.

24.5.2 Compensation to the Contractor shall be determined at the sole discretion of District on the basis of the reasonable value of the Work done, including preparatory work. As an exception to the foregoing and at the District's discretion, in the case of any fully completed separate item or portion of the Work for which there is a separate previously submitted unit price or item on the accepted schedule of values, that price shall control. The District, at its sole discretion, may adopt the Contract Price as the reasonable value of the work done or any portion thereof.

24.6 Suspension of Work

24.6.1 District in its sole discretion may suspend, delay or interrupt the Work in whole or in part for such period of time as the District may determine upon three (3) days written notice to the Contractor.

24.6.1.1 An adjustment may be made for changes in the cost of performance of the Work caused by any such suspension, delay or interruption. No adjustment shall be made to the extent:

24.6.1.1.1 That performance is, was or would have been so suspended, delayed or interrupted by another cause for which Contractor is responsible; or

24.6.1.1.2 That an equitable adjustment is made or denied under another provision of the Contract; or

24.6.1.1.3 That the suspension of Work was the direct or indirect result of Contractor's failure to perform any of its obligations hereunder.

24.6.1.2 Any adjustments in cost of performance may have a fixed or percentage fee as provided in the section on Format for Proposed Change Order herein. This amount shall be full compensation for all Contractor's and its Subcontractor(s)'

changes in the cost of performance of the Contract caused by any such suspension, delay or interruption.

25. CLAIMS PROCESS

25.1 Obligation to File Claims for Disputed Work

25.1.1 Should Contractor otherwise seek extra time or compensation for any reason whatsoever ("Disputed Work"), then Contractor shall first follow procedures set forth in the Contract Documents including, without limitation, Articles 15, 16 and 17, all of which are conditions precedent to submitting a Claim pursuant to Article 25. A Notice of Delay or Proposed Change Order are less formal procedures that proceed the formal claim and do not constitute a Claim. A Claim also does not include correspondence, RFIs, vouchers, invoices, progress payment applications, or other routine or authorized form of requests for progress payments in compliance with the Contract. If a dispute remains, then Contractor shall give written notice to District that expressly invokes this Article 25 within the time limits set forth herein.

25.1.2 Contractor's sole and exclusive remedy for Disputed Work is to file a written claim setting forth Contractor's position as required herein within the time limits set forth herein.

25.2 Duty to Perform during Claim Process

Contractor and its subcontractors shall continue to perform its Work under the Contract including the disputed work, and shall not cause a delay of the Work during any dispute, claim, negotiation, mediation, or arbitration proceeding, except by written agreement by the District.

25.3 Definition of Claim

25.3.1 Pursuant to Public Contract Code section 9204, the term "Claim" means a separate demand by the Contractor sent by registered mail or certified mail with return receipt requested, for one or more of the following:

25.3.1.1 A time extension, including without limitation, for relief of damages or penalties for delay assessed by the District under the Contract;

25.3.1.2 Payment by the District of money or damages arising from work done by, or on behalf of, the Contractor pursuant to the Contract and payment of which is not otherwise expressly provided for or to which Contractor is not otherwise entitled to; or

25.3.1.3 An amount of payment disputed by the District.

25.4 Claims Presentation

25.4.1 Form and Contents of Claim

25.4.1.1 If Contractor intends to submit a Claim for an increase in the Contract Price and/or Contract Time for any reason including, without limitation, the acts of District or its agents, Contractor shall, within thirty (30) days after the event giving rise to the Claim, give notice of the Claim ("Notice of Potential Claim") in writing

specifically identifying Contractor is invoking this Article 25 Claims Presentation. The Notice of Potential Claim shall provide Contractor's preliminary request for an adjustment to the Contract Price and/or Contract Time, with a description of the grounds therefore.

25.4.1.2 Within thirty (30) days after serving the written Notice of Potential Claim, Contractor shall provide a Claim including an itemized statement of the details and amounts of its Claim for any increase in the Contract Price of Contract Time as provided below, including a Time Impact Analysis and any and all other documentation substantiating Contractor's claimed damages:

25.4.1.2.1 The issues, events, conditions, circumstances and/or causes giving rise to the dispute, and shall show, in detail, the cause and effect of same;

25.4.1.2.2 Citation to provisions in the Contract Documents, statute sections, and/or case law entitling Contractor to an increase in the Contract Price or Contract Time;

25.4.1.2.3 The pertinent dates and/or durations and actual and/or anticipated effects on the Contract Price, Contract Schedule milestones and/or Contract Time adjustments;

25.4.1.2.4 The Time Impact Analysis of all time delays that shows actual time impact on the critical path; and

25.4.1.2.5 The line-item costs for labor, material, and/or equipment, if applicable, for all cost impacts priced like a change order according to Article 17 and must be updated monthly as to cost and entitlement if a continuing claim.

25.4.1.3 The Claim shall include the following certification by the Contractor:

25.4.1.3.1 The undersigned Contractor certifies under penalty of perjury that the attached dispute is made in good faith; that the supporting data is accurate and complete to the best of my knowledge and belief; that the amount requested accurately reflects the adjustment for which Contractor believes the District is liable; and that I am duly authorized to certify the dispute on behalf of the Contractor.

25.4.1.3.2 Furthermore, Contractor understands that the value of the attached dispute expressly includes any and all of the Contractor's costs and expenses, direct and indirect, resulting from the Work performed on the Project, additional time required on the Project and/or resulting from delay to the Project including, without limitation, cumulative impacts. Contractor may not separately recover for overhead or other indirect costs. Any costs, expenses, damages, or time extensions not included are deemed waived.

25.4.2 Contractor shall bear all costs incurred in the preparation and submission of a Claim.

25.4.3 Failure to timely submit a Claim and the requisite supporting documentation shall constitute a waiver of Contractor's claim(s) against the District and Contractor's

Claim(s) for compensation or an extension of time shall be deemed waived, released, and discharged as to any entitlement for adjustment to Contract Price and/or Contract Time.

25.5 Claim Resolution pursuant to Public Contract Code section 9204

Contractor may request to waive the claims procedure under Public Contract Code section 9204 and proceed directly to the commencement of a civil action or binding arbitration. If Contractor chooses to proceed, Contractor shall comply with the following steps:

25.5.1 STEP 1:

25.5.1.1 Upon receipt of a Claim by registered or certified mail, return receipt requested, including the documents necessary to substantiate it, the District shall conduct a reasonable review of the Claim and, within a period not to exceed 45 days, shall provide the Contractor a written statement identifying what portion of the Claim is disputed and what portion is undisputed. Upon receipt of a Claim, the District and Contractor may, by mutual agreement, extend the time period to provide a written statement. If the District needs approval from its governing body to provide the Contractor a written statement identifying the disputed portion and the undisputed portion of the Claim, and the governing body does not meet within the 45 days or within the mutually agreed to extension of time following receipt of Claim sent by registered mail or certified mail, return receipt requested, the District shall have up to three (3) days following the next duly publicly noticed meeting of the governing body after the 45-day period, or extension, expires to provide Contractor a written statement identifying the disputed portion and the undisputed portion.

25.5.1.1.1 Any payment due on an undisputed portion of the Claim shall be processed and made within 60 days after the District issues its written statement. Amounts not paid in a timely manner as required by this section, section 25.4, shall bear interest at seven percent (7%) per annum.

25.5.1.2 Upon receipt of a Claim, the parties may mutually agree to waive, in writing, mediation and proceed directly to the commencement of a civil action or binding arbitration, as applicable. In this instance, District and Contractor must comply with the sections below regarding Public Contract Code section 20104 et seq. and Government Code Claim Act Claims.

25.5.1.3 If the District fails to issue a written statement, or to otherwise meet the time requirements of this section, this shall result in the Claim being deemed rejected in its entirety. A Claim that is denied by reason of the District's failure to have responded to a Claim, or its failure to otherwise meet the time requirements of this section, shall not constitute an adverse finding with regard to the merits of the Claim or the responsibility or qualifications of Contractor.

25.5.2 STEP 2:

25.5.2.1 If Contractor disputes the District's written response, or if the District fails to respond to a Claim within the time prescribed, Contractor may demand in writing an informal conference to meet and confer for settlement of the issues in dispute. Upon receipt of a demand in writing sent by registered mail or certified

mail, return receipt requested, the District shall schedule a meet and confer conference within 30 days for settlement of the dispute. Within 10 business days following the conclusion of the meet and confer conference, if the Claim or any portion of the Claim remains in dispute, the District shall provide the Contractor a written statement identifying the portion of the Claim that remains in dispute and the portion that is undisputed.

25.5.2.1.1.1 Any payment due on an undisputed portion of the Claim shall be processed and made within 60 days after the District issues its written statement. Amounts not paid in a timely manner as required by this section, section 25.4, shall bear interest at seven percent (7%) per annum.

25.5.3 STEP 3:

25.5.3.1 Any disputed portion of the Claim, as identified by Contractor in writing, shall be submitted to nonbinding mediation, with the District and Contractor sharing the associated costs equally. The District and Contractor shall mutually agree to a mediator within 10 business days after the disputed portion of the Claim has been identified in writing. If the parties cannot agree upon a mediator, each party shall select a mediator and those mediators shall select a qualified neutral third party to mediate with regard to the disputed portion of the Claim. Each party shall bear the fees and costs charged by its respective mediator in connection with the selection of the neutral mediator. If mediation is unsuccessful, the parts of the Claim remaining in dispute shall be subject to applicable procedures outside this section.

25.5.3.1.1 For purposes of this section, mediation includes any nonbinding process, including, but not limited to, neutral evaluation or a dispute review board, in which an independent third party or board assists the parties in dispute resolution through negotiation or by issuance of an evaluation. Any mediation utilized shall conform to the timeframes in this section.

25.5.3.2 Unless otherwise agreed to by the District and Contractor in writing, the mediation conducted pursuant to this section shall excuse any further obligation under Public Contract Code section 20104.4 to mediate after litigation has been commenced.

25.5.4 STEP 4:

25.5.4.1 If mediation under this section does not resolve the parties' dispute, the District may, but does not require arbitration of disputes under private arbitration or the Public Works Contract Arbitration Program.

25.6 Subcontractor Pass-Through Claims

25.6.1 If a subcontractor or a lower tier subcontractor lacks legal standing to assert a claim against a District because privity of contract does not exist, the contractor may present to the District a Claim on behalf of a subcontractor or lower tier subcontractor. A subcontractor may request in writing, either on his or her own behalf or on behalf of a lower tier subcontractor, that Contractor present a Claim for work which was performed by the subcontractor or by a lower tier subcontractor on behalf of the

subcontractor. The subcontractor requesting that the Claim be presented to the District shall furnish reasonable documentation to support the Claim.

25.6.2 Within 45 days of receipt of this written request from a subcontractor, Contractor shall notify the subcontractor in writing as to whether the Contractor presented the Claim to the District and, if Contractor did not present the Claim, provide the subcontractor with a statement of the reasons for not having done so.

25.6.3 The Contractor shall bind all its Subcontractors to the provisions of this section and will hold the District harmless against Claims by Subcontractors.

25.7 Government Code Claim Act Claim

25.7.1 If a claim, or any portion thereof, remains in dispute upon satisfaction of all applicable Claim Resolution requirements the Contractor shall comply with all claims presentation requirements as provided in Chapter 1 (commencing with section 900) and Chapter 2 (commencing with section 910) of Part 3 of Division 3.6 of Title 1 of Government Code as a condition precedent to the Contractor's right to bring a civil action against the District.

25.7.2 Contractor shall bear all costs incurred in the preparation, submission and administration of a Claim. Any claims presented in accordance with the Government Code must affirmatively indicate Contractor's prior compliance with the claims procedure herein of the claims asserted.

25.7.3 For purposes of those provisions, the running of the time within which a claim pursuant to Public Contract Code section 20104.2 only must be presented to the District shall be tolled from the time the claimant submits his or her written claim pursuant to subdivision (a) until the time that claim is denied as a result of the meet and confer process, including any period of time utilized by the meet and confer process.

25.8 Claim Resolution pursuant to Public Contract Code section 20104 et seq.

25.8.1 In the event of a disagreement between the parties as to performance of the Work, the interpretation of this Contract, or payment or nonpayment for Work performed or not performed, the parties shall attempt to resolve all claims of three hundred seventy-five thousand dollars (\$375,000) or less which arise between Contractor and District by those procedures set forth in Public Contract Code section 20104, et seq., to the extent applicable.

25.8.1.1 Contractor shall file with the District any written Claim, including the documents necessary to substantiate it, upon the application for final payment.

25.8.1.2 For claims of less than fifty thousand dollars (\$50,000), the District shall respond in writing within forty-five (45) days of receipt of the Claim or may request in writing within thirty (30) days of receipt of the Claim any additional documentation supporting the Claim or relating to defenses or claims the District may have against the Contractor.

25.8.1.2.1 If additional information is required, it shall be requested and provided by mutual agreement of the parties.

25.8.1.2.2 District's written response to the documented Claim shall be submitted to the Contractor within fifteen (15) days after receipt of the further documentation or within a period of time no greater than that taken by the Contractor to produce the additional information, whichever is greater.

25.8.1.3 For claims of over fifty thousand dollars (\$50,000) and less than or equal to three hundred seventy-five thousand dollars (\$375,000), the District shall respond in writing to all written Claims within sixty (60) days of receipt of the claim, or may request, in writing, within thirty (30) days of receipt of the Claim any additional documentation supporting the Claim or relating to defenses or claims the District may have against the Contractor.

25.8.1.3.1 If additional information is required, it shall be requested and provided upon mutual agreement of the District and the Contractor.

25.8.1.3.2 The District's written response to the Claim, as further documented, shall be submitted to the Contractor within thirty (30) days after receipt of the further documentation, or within a period of time no greater than that taken by the Contractor to produce the additional information or requested documentation, whichever is greater.

25.8.1.4 If Contractor disputes the District's written response, or the District fails to respond within the time prescribed, Contractor may so notify the District, in writing, either within fifteen (15) days of receipt of the District's response or within fifteen (15) days of the District's failure to respond within the time prescribed, respectively, and demand an informal conference to meet and confer for settlement of the issues in dispute. Upon a demand, the District shall schedule a meet and confer conference within thirty (30) days for settlement of the dispute.

25.8.1.5 Following the meet and confer conference, if the Claim or any portion of it remains in dispute, the Contractor may file a claim as provided in Chapter 1 (commencing with Section 900) and Chapter 2 (commencing with Section 910) of Part 3 of Division 3.6 of Title 1 of the Government Code. For purposes of those provisions the running of the time within which a claim must be filed shall be tolled from the time the Contractor submits its written Claim until the time the Claim is denied, including any period of time utilized by the meet and confer process.

25.8.1.6 For any civil action filed to resolve claims filed pursuant to this section, within sixty (60) days, but no earlier than thirty (30) days, following the filing of responsive pleadings, the court shall submit the matter to nonbinding mediation unless waived by mutual stipulation of both parties. The mediation process shall provide for the selection within fifteen (15) days by both parties of a disinterested third person as mediator, shall be commenced within thirty (30) days of the submittal, and shall be concluded within fifteen (15) days from the commencement of the mediation unless a time requirement is extended upon a good cause showing to the court or by stipulation of both parties. If the parties fail to select a mediator within the 15-day period, any party may petition the court to appoint the mediator.

25.8.1.7 If the matter remains in dispute, the case shall be submitted to judicial arbitration pursuant to Chapter 2.5 (commencing with Section 1141.10) of the Title 3 of Part 3 of the Code of Civil Procedure, notwithstanding Section 1141.11 of that code. The Civil Discovery Act of 1986, (Article 3 (commencing with Section 2016) of Chapter 3 of Title 3 of part 4 of the Code of Civil Procedure) shall apply to any

proceeding brought under this subdivision consistent with the rules pertaining to judicial arbitration.

25.8.1.8 The District shall not fail to pay money as to any portion of a Claim which is undisputed except as otherwise provided in the Contract Documents. In any suit filed pursuant to this section, the District shall pay interest due at the legal rate on any arbitration award or judgment. Interest shall begin to accrue on the date the suit is filed in a court of law.

25.8.2 Contractor shall bind its Subcontractors to the provisions of this Section and will hold the District harmless against disputes by Subcontractors.

25.9 Claim Procedure Compliance

25.9.1 Failure to submit and administer claims as required in Article 25 shall waive Contractor's right to claim on any specific issues not included in a timely submitted claim. Claim(s) not raised in a timely protest and timely claim submitted under this Article 25 may not be asserted in any subsequent litigation, Government Code Claim, or legal action.

25.9.2 District shall not be deemed to waive any provision under this Article 25, if at District's sole discretion, a claim is administered in a manner not in accord with this Article 25. Waivers or modifications of this Article 25 may only be made by a signed change order approved as to form by legal counsel for both District and Contractor; oral or implied modifications shall be ineffective.

25.10 Claim Resolution Non-Applicability

25.10.1 The procedures for dispute and claim resolutions set forth in this Article shall not apply to the following:

25.10.1.1 Personal injury, wrongful death or property damage claims;

25.10.1.2 Latent defect or breach of warranty or guarantee to repair;

25.10.1.3 Stop payment notices;

25.10.1.4 District's rights set forth in the Article on Suspension and Termination;

25.10.1.5 Disputes arising out of labor compliance enforcement by the Department of Industrial Relations; or

25.10.1.6 District rights and obligations as a public entity set forth in applicable statutes; provided, however, that penalties imposed against a public entity by statutes, including, but not limited to, Public Contract Code sections 20104.50 and 7107, shall be subject to the Claim Resolution requirements provided in this Article.

25.11 Attorney's Fees

25.11.1 Should litigation be necessary to enforce any terms or provisions of this Agreement, then each party shall bear its own litigation and collection expenses, witness fees, court costs, and attorney's fees.

26. STATE LABOR, WAGE & HOUR, APPRENTICE, AND RELATED PROVISIONS

26.1 Labor Compliance and Enforcement

Since this Project is subject to labor compliance and enforcement by the Department of Industrial Relations ("DIR"), Contractor specifically acknowledges and understands that it shall perform the Work of this Agreement while complying with all the applicable provisions of Division 2, Part 7, Chapter 1, of the Labor Code and Title 8 of the California Code of Regulations, including, without limitation, the requirement that the Contractor and all Subcontractors shall timely furnish complete and accurate electronic certified payroll records directly to the DIR. The District may not issue payment if this requirement is not met.

26.2 Wage Rates, Travel, and Subsistence

26.2.1 Pursuant to the provisions of Article 2 (commencing at section 1770), Chapter 1, Part 7, Division 2, of the Labor Code, the general prevailing rate of per diem wages and the general prevailing rate for holiday and overtime work in the locality in which this public work is to be performed for each craft, classification, or type of worker needed to execute this Contract are on file at the District's principal office and copies will be made available to any interested party on request. Contractor shall obtain and post a copy of these wage rates at the job site.

26.2.2 Holiday and overtime work, when permitted by law, shall be paid for at the general prevailing rate of per diem wages for holiday and overtime work on file with the Director of the Department of Industrial Relations, unless otherwise specified. The holidays upon which those rates shall be paid need not be specified by the District, but shall be all holidays recognized in the applicable collective bargaining agreement. If the prevailing rate is not based on a collectively bargained rate, the holidays upon which the prevailing rate shall be paid shall be as provided in Section 6700 of the Government Code.

26.2.3 Contractor shall pay and shall cause to be paid each worker engaged in Work on the Project the general prevailing rate of per diem wages determined by the Director of the Department of Industrial Relations, regardless of any contractual relationship which may be alleged to exist between Contractor or any Subcontractor and such workers.

26.2.4 If during the period this bid is required to remain open, the Director of the Department of Industrial Relations determines that there has been a change in any prevailing rate of per diem wages in the locality in which the Work under the Contract is to be performed, such change shall not alter the wage rates in the Notice to Bidders or the Contract subsequently awarded.

26.2.5 Pursuant to Labor Code section 1775, Contractor shall, as a penalty to District, forfeit the statutory amount (believed by the District to be currently up to two hundred dollars (\$200) for each calendar day, or portion thereof, for each worker paid less than the prevailing rates, determined by the District and/or the Director, for the work or craft in which that worker is employed for any public work done under Contract by Contractor or by any Subcontractor under it. The difference between such prevailing wage rates and the amount paid to each worker for each calendar day or portion thereof for which each worker was paid less than the prevailing wage rate shall be paid to each worker by Contractor.

26.2.6 Any worker employed to perform Work on the Project, which Work is not covered by any classification listed in the general prevailing wage rate of per diem wages determined by the Director, shall be paid not less than the minimum rate of wages specified therein for the classification which most nearly corresponds to Work to be performed by him, and such minimum wage rate shall be retroactive to time of initial employment of such person in such classification.

26.2.7 Pursuant to Labor Code section 1773.1, per diem wages are deemed to include employer payments for health and welfare, pension, vacation, travel time, subsistence pay, and apprenticeship or other training programs authorized by Labor Code section 3093, and similar purposes.

26.2.8 Contractor shall post at appropriate conspicuous points on the Site of Project, a schedule showing all determined minimum wage rates and all authorized deductions, if any, from unpaid wages actually earned. In addition, Contractor shall post a sign-in log for all workers and visitors to the Site, a list of all subcontractors of any tier on the Site, and the required Equal Employment Opportunity poster(s).

26.3 Hours of Work

26.3.1 As provided in article 3 (commencing at section 1810), chapter 1, part 7, division 2, of the Labor Code, eight (8) hours of labor shall constitute a legal day's work. The time of service of any worker employed at any time by Contractor or by any Subcontractor on any subcontract under this Contract upon the Work or upon any part of the Work contemplated by this Contract shall be limited and restricted by Contractor to eight (8) hours per day, and forty (40) hours during any one week, except as hereinafter provided. Notwithstanding the provisions hereinabove set forth, Work performed by employees of Contractor in excess of eight (8) hours per day and forty (40) hours during any one week, shall be permitted upon this public work upon compensation for all hours worked in excess of eight (8) hours per day at not less than one and one-half times the basic rate of pay.

26.3.2 Contractor shall keep and shall cause each Subcontractor to keep an accurate record showing the name of and actual hours worked each calendar day and each calendar week by each worker employed by Contractor in connection with the Work or any part of the Work contemplated by this Contract. The record shall be kept open at all reasonable hours to the inspection of District and to the Division of Labor Standards Enforcement of the DIR.

26.3.3 Pursuant to Labor Code section 1813, Contractor shall as a penalty to the District forfeit the statutory amount (believed by the District to be currently twenty-five dollars (\$25)) for each worker employed in the execution of this Contract by Contractor or by any Subcontractor for each calendar day during which such worker is required or permitted to work more than eight (8) hours in any one calendar day and forty (40) hours in any one calendar week in violation of the provisions of article 3 (commencing at section 1810), chapter 1, part 7, division 2, of the Labor Code.

26.3.4 Any Work necessary to be performed after regular working hours, or on Sundays or other holidays shall be performed without additional expense to the District.

26.4 Payroll Records

26.4.1 Contractor shall upload, and shall cause each Subcontractor performing any portion of the Work under this Contract to upload, an accurate and complete certified payroll record ("CPR") electronically using DIR's eCPR System by uploading the CPRs by electronic XML file or entering each record manually using the DIR's iform (or current form) online on no less than every 30 days while Work is being performed and within 30 days after the final day of Work performed on the Project and within ten (10) days of any request by the District or Labor Commissioner at <http://www.dir.ca.gov/Public-Works/Certified-Payroll-Reporting.html> or current application and URL, showing the name, address, social security number, work classification, straight-time, and overtime hours worked each day and week, and the actual per diem wages paid to each journeyman, apprentice, worker, or other employee employed by the Contractor and/or each Subcontractor in connection with the Work.

26.4.1.1 The CPRs enumerated hereunder shall be filed directly with the DIR on a weekly basis or to the requesting party, whether the District or DIR, within ten (10) days after receipt of each written request. The CPRs from the Contractor and each Subcontractor for each week shall be provided on or before Wednesday of the week following the week covered by the CPRs. District may not make any payment to Contractor until:

26.4.1.1.1 Contractor and/or its Subcontractor(s) provide CPRs acceptable to the DIR; and

26.4.1.1.2 Any delay in Contractor and/or its Subcontractor(s) providing CPRs to the DIR in a timely manner may directly delay Contractor's payment.

26.4.2 All CPRs shall be available for inspection at all reasonable hours at the principal office of Contractor on the following basis:

26.4.2.1 A certified copy of an employee's CPR shall be made available for inspection or furnished to the employee or his/her authorized representative on request.

26.4.2.2 CPRs shall be made available for inspection or furnished upon request to a representative of District, Division of Labor Standards Enforcement, Division of Apprenticeship Standards, and/or the DIR.

26.4.2.3 CPRs shall be made available upon request by the public for inspection or copies thereof made; provided, however, that a request by the public shall be made through the District, Division of Apprenticeship Standards, or the Division of Labor Standards Enforcement. If the requested CPRs have not been provided pursuant to the provisions herein, the requesting party shall, prior to being provided the records, reimburse the costs of preparation by Contractor, Subcontractors, and the entity through which the request was made. The public shall not be given access to the records at the principal office of Contractor.

26.4.3 Any copy of records made available for inspection as copies and furnished upon request to the public or any public agency by District, Division of Apprenticeship Standards, or Division of Labor Standards Enforcement shall be marked or obliterated in such a manner as to prevent disclosure of an individual's name, address, and social

security number. The name and address of Contractor awarded Contract or performing Contract shall not be marked or obliterated.

26.4.4 Contractor shall inform District of the location of the records enumerated hereunder, including the street address, city, and county, and shall, within five (5) working days, provide a notice of change of location and address.

26.4.5 In the event of noncompliance with the requirements of this section, Contractor shall have ten (10) days in which to comply subsequent to receipt of written notice specifying in what respects Contractor must comply with this section. Should noncompliance still be evident after the ten (10) day period, Contractor shall, as a penalty to District, forfeit up to one hundred dollars (\$100) for each calendar day, or portion thereof, for each worker, until strict compliance is effectuated. Upon the request of the Labor Commissioner, these penalties shall be withheld from progress payments then due.

26.4.6 **[RESERVED]**

26.5 **[RESERVED]**

26.6 **Apprentices**

26.6.1 Contractor acknowledges and agrees that, if this Contract involves a dollar amount greater than, or a number of working days greater than that specified in Labor Code section 1777.5, then this Contract is governed by the provisions of Labor Code Section 1777.5. It shall be the responsibility of Contractor to ensure compliance with this Article and with Labor Code section 1777.5 for all apprenticeship occupations.

26.6.2 Apprentices of any crafts or trades may be employed and, when required by Labor Code section 1777.5, shall be employed provided they are properly registered in full compliance with the provisions of the Labor Code.

26.6.3 Every such apprentice shall be paid the standard wage paid to apprentices under the regulations of the craft or trade at which he/she is employed, and shall be employed only at the work of the craft or trade to which she/he is registered.

26.6.4 Only apprentices, as defined in section 3077 of the Labor Code, who are in training under apprenticeship standards and written apprentice agreements under chapter 4 (commencing at section 3070), division 3, of the Labor Code, are eligible to be employed. The employment and training of each apprentice shall be in accordance with the provisions of the apprenticeship standards and apprentice agreements under which he/she is training.

26.6.5 Pursuant to Labor Code section 1777.5, if that section applies to this Contract as indicated above, Contractor and any Subcontractors employing workers in any apprenticeable craft or trade in performing any Work under this Contract shall apply to the applicable joint apprenticeship committee for a certificate approving the Contractor or Subcontractor under the applicable apprenticeship standards and fixing the ratio of apprentices to journeymen employed in performing the Work.

26.6.6 Pursuant to Labor Code section 1777.5, if that section applies to this Contract as indicated above, Contractor and any Subcontractor may be required to make contributions to the apprenticeship program.

26.6.7 If Contractor or Subcontractor willfully fails to comply with Labor Code section 1777.5, then, upon a determination of noncompliance by the Administrator of Apprenticeship, it shall:

26.6.7.1 Be denied the right to bid on any subsequent project for one (1) year from the date of such determination;

26.6.7.2 Forfeit as a penalty to District the full amount as stated in Labor Code section 1777.7. Interpretation and enforcement of these provisions shall be in accordance with the rules and procedures of the California Apprenticeship Council and under the authority of the Chief of the Division of Apprenticeship Standards.

26.6.8 Contractor and all Subcontractors shall comply with Labor Code section 1777.6, which section forbids certain discriminatory practices in the employment of apprentices.

26.6.9 Contractor shall become fully acquainted with the law regarding apprentices prior to commencement of the Work. Special attention is directed to sections 1777.5, 1777.6, and 1777.7 of the Labor Code, and title 8, California Code of Regulations, section 200 et seq. Questions may be directed to the State Division of Apprenticeship Standards, 455 Golden Gate Avenue, 9th floor, San Francisco, California 94102.

26.7 Non-Discrimination

26.7.1 Contractor herein agrees to comply with the provisions of the California Fair Employment and Housing Act as set forth in part 2.8 of division 3 of the California Government Code, commencing at section 12900; the Federal Civil Rights Act of 1964, as set forth in Public Law 88-352, and all amendments thereto; Executive Order 11246; and all administrative rules and regulations found to be applicable to Contractor and Subcontractor.

26.7.2 Special requirements for Federally Assisted Construction Contracts: During the performance of this Contract, Contractor agrees to incorporate in all subcontracts the provisions set forth in Chapter 60-1.4(b) of Title 41 published in Volume 33 No. 104 of the Federal Register dated May 28, 1968.

26.8 Labor First Aid

Contractor shall maintain emergency first aid treatment for Contractor's workers on the Project which complies with the Federal Occupational Safety and Health Act of 1970 (29 U.S.C. § 651 et seq.) and the California Occupational Safety and Health Act of 1973 (Lab. Code, § 6300 et seq.; 8 Cal. Code of Regs., § 330 et seq.).

27. [RESERVED]

28. MISCELLANEOUS

28.1 Assignment of Antitrust Actions

28.1.1 Section 7103.5(b) of the Public Contract Code states:

In entering into a public works contract or subcontract to supply goods, services, or materials pursuant to a public works contract, the Contractor or subcontractor offers

and agrees to assign to the awarding body all rights, title, and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C. Sec. 15) or under the Cartwright Act (Chapter 2 (commencing with Section 16700) of Part 2 of Division 7 of the Business and Professions Code), arising from purchases of goods, which assignment shall be made and become effective at the time the awarding body tenders final payment to the Contractor, without further acknowledgment by the parties.

28.1.2 Section 4552 of the Government Code states:

In submitting a bid to a public purchasing body, the bidder offers and agrees that if the bid is accepted, it will assign to the purchasing body all rights, title, and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C. Sec. 15) or under the Cartwright Act (Chapter 2 (commencing with Section 16700) of Part 2 of Division 7 of the Business and Professions Code), arising from purchases of goods, materials, or services by the bidder for sale to the purchasing body pursuant to the bid. Such assignment shall be made and become effective at the time the purchasing body tenders final payment to the bidder.

28.1.3 Section 4553 of the Government Code states:

If an awarding body or public purchasing body receives, either through judgment or settlement, a monetary recovery for a cause of action assigned under this chapter, the assignor shall be entitled to receive reimbursement for actual legal costs incurred and may, upon demand, recover from the public body any portion of the recovery, including treble damages, attributable to overcharges that were paid by the assignor but were not paid by the public body as part of the bid price, less the expenses incurred in obtaining that portion of the recovery.

28.1.4 Section 4554 of the Government Code states:

Upon demand in writing by the assignor, the assignee shall, within one year from such demand, reassign the cause of action assigned under this part if the assignor has been or may have been injured by the violation of law for which the cause of action arose and (a) the assignee has not been injured thereby, or (b) the assignee declines to file a court action for the cause of action.

28.1.5 Under this Article, "public purchasing body" is District and "bidder" is Contractor.

28.2 **Excise Taxes**

If, under Federal Excise Tax Law, any transaction hereunder constitutes a sale on which a Federal Excise Tax is imposed and the sale is exempt from such Federal Excise Tax because it is a sale to a State or Local Government for its exclusive use, District, upon request, will execute documents necessary to show (1) that District is a political subdivision of the State for the purposes of such exemption, and (2) that the sale is for the exclusive use of District. No Federal Excise Tax for such materials shall be included in any Contract Price.

28.3 Taxes

Contract Price is to include any and all applicable sales taxes or other taxes that may be due in accordance with section 7051 et seq. of the Revenue and Taxation Code, Regulation 1521 of the State Board of Equalization or any other tax code that may be applicable.

28.4 Shipments

Contractor is responsible for any or all damage or loss to shipments until delivered and accepted on Site, as indicated in the Contract Documents. There must be no charge for containers, packing, unpacking, drayage, or insurance. The total Contract Price shall be all inclusive (including sales tax) and no additional costs of any type will be considered.

28.5 Compliance with Government Reporting Requirements

If this Contract is subject to federal or other governmental reporting requirements because of federal or other governmental financing in whole or in part for the Project of which it is part, or for any other reason, Contactor shall comply with those reporting requirements at the request of the District at no additional cost.

END OF DOCUMENT

HAZARDOUS MATERIALS
PROCEDURES & REQUIREMENTS

1. Summary

This document includes information applicable to hazardous materials and hazardous waste abatement.

2. Notice of Hazardous Waste or Materials

- a. Contractor shall give notice in writing to the District, the Construction Manager, and the Architect promptly, before any of the following materials are disturbed, and in no event later than twenty-four (24) hours after first observance, of any:
 - (1) Material that Contractor believes may be a material that is hazardous waste or hazardous material, as defined in section 25117 of the Health and Safety Code, that is required to be removed to a Class I, Class II, or Class III disposal site in accordance with provisions of existing law;
 - (2) Other material that may present a substantial danger to persons or property exposed thereto in connection with Work at the site.
- b. Contractor's written notice shall indicate whether the hazardous waste or material was shown or indicated in the Contract Documents to be within the scope of Work, and whether the materials were brought to the site by Contractor, its Subcontractors, suppliers, or anyone else for whom Contractor is responsible. As used in this section the term "hazardous materials" shall include, without limitation, asbestos, lead, Polychlorinated biphenyl (PCB), petroleum and related hydrocarbons, and radioactive material.
- c. In response to Contractor's written notice, the District shall investigate the identified conditions.
- d. If the District determines that conditions do not involve hazardous materials or that no change in terms of Contract is justified, the District shall so notify Contractor in writing, stating reasons. If the District and Contractor cannot agree on whether conditions justify an adjustment in Contract Price or Contract Time, or on the extent of any adjustment, Contractor shall proceed with the Work as directed by the District.
- e. If after receipt of notice from the District, Contractor does not agree to resume Work based on a reasonable belief it is unsafe, or does not agree to resume Work under special conditions, then District may order such portion of Work that is in connection with such hazardous condition or such affected area to be deleted from the Work, or performed by others, or District may invoke its rights to terminate the Contract in whole or in part. District will determine entitlement to or the amount or extent of an adjustment, if any, in Contract Price or Contract Time as a result of deleting such portion of Work, or performing the Work by others.

- f. If Contractor stops Work in connection with any hazardous condition and in any area affected thereby, Contractor shall immediately redeploy its workers, equipment, and materials, as necessary, to other portions of the Work to minimize delay and disruption.

3. Additional Warranties and Representations

- a. Contractor represents and warrants that it, its employees, and its subcontractors and their employees, shall at all times have the required levels of familiarity with the Site and the Work, training, and ability to comply fully with all applicable laws and contractual requirements for safe and expeditious performance of the Work, including whatever training is or may be required regarding the activities to be performed (including, but not limited to, all training required to address adequately the actual or potential dangers of Contract performance).
- b. Contractor represents and warrants that it, its employees, and its subcontractors and their employees, shall at all times have and maintain in good standing any and all certifications and licenses required by applicable federal, state, and other governmental and quasi-governmental requirements applicable to the Work.
- c. Contractor represents and warrants that it has studied carefully all requirements of the Specifications regarding procedures for demolition, hazardous waste abatement, or safety practices, specified in the Contract, and prior to submitting its bid, has either (a) verified to its satisfaction that the specified procedures are adequate and sufficient to achieve the results intended by the Contract Documents, or (b) by way of approved "or equal" request or request for clarification and written Addenda, secured changes to the specified procedures sufficient to achieve the results intended by the Contract Documents. Contractor accepts the risk that any specified procedure will result in a completed Project in full compliance with the Contract Documents.

4. Monitoring and Testing

- a. District reserves the right, in its sole discretion, to conduct air monitoring, earth monitoring, Work monitoring, and any other tests (in addition to testing required under the agreement or applicable law), to monitor Contract requirements of safe and statutorily compliant work methods and (where applicable) safe re-entry level air standards under state and federal law upon completion of the job, and compliance of the work with periodic and final inspection by public and quasi-public entities having jurisdiction.
- b. Contractor acknowledges that District has the right to perform, or cause to be performed, various activities and tests including, but not limited to, pre-abatement, during abatement, and post-abatement air monitoring, that District shall have no obligation to perform said activities and tests, and that a portion of said activities and tests may take place prior to the completion of the Work by Contractor. In the event District elects to perform these activities and tests, Contractor shall afford District ample access to the Site and all areas of the Work as may be necessary for the performance of these activities and tests. Contractor will include the potential impact of these activities or tests by District in the Contract Price and the Scheduled Completion Date.

- c. Notwithstanding District's rights granted by this paragraph, Contractor may retain its own industrial hygiene consultant at Contractor's own expense and may collect samples and may perform tests including, but not limited to, pre-abatement, during abatement, and post-abatement personal air monitoring, and District reserves the right to request documentation of all such activities and tests performed by Contractor relating to the Work and Contractor shall immediately provide that documentation upon request.

5. Compliance with Laws

- a. Contractor shall perform safe, expeditious, and orderly work in accordance with the best practices and the highest standards in the hazardous waste abatement, removal, and disposal industry, the applicable law, and the Contract Documents, including, but not limited to, all responsibilities relating to the preparation and return of waste shipment records, all requirements of the law, delivering of all requisite notices, and obtaining all necessary governmental and quasi-governmental approvals.
- b. Contractor represents that it is familiar with and shall comply with all laws applicable to the Work or completed Work including, but not limited to, all federal, state, and local laws, statutes, standards, rules, regulations, and ordinances applicable to the Work relating to:
 - (1) The protection of the public health, welfare and environment;
 - (2) Storage, handling, or use of asbestos, PCB, lead, petroleum based products, radioactive material, or other hazardous materials;
 - (3) The generation, processing, treatment, storage, transport, disposal, destruction, or other management of asbestos, PCB, lead, petroleum, radioactive material, or hazardous waste materials or other waste materials of any kind; and
 - (4) The protection of environmentally sensitive areas such as wetlands and coastal areas.

6. Disposal

- a. Contractor has the sole responsibility for determining current waste storage, handling, transportation, and disposal regulations for the job Site and for each waste disposal facility. Contractor must comply fully at its sole cost and expense with these regulations and any applicable law. District may, but is not obligated to, require submittals with this information for it to review consistent with the Contract Documents.
- b. Contractor shall develop and implement a system acceptable to District to track hazardous waste from the Site to disposal, including appropriate "Hazardous Waste Manifests" on the EPA form, so that District may track the volume of waste it put in each landfill and receive from each landfill a certificate of receipt.
- c. Contractor shall provide District with the name and address of each waste disposal facility prior to any disposal, and District shall have the express right to reject any proposed disposal facility. Contractor shall not use any disposal

facility to which District has objected. Contractor shall document actual disposal or destruction of waste at a designated facility by completing a disposal certificate or certificate of destruction forwarding the original to the District.

7. Permits

- a. Before performing any of the Work, and at such other times as may be required by applicable law, Contractor shall deliver all requisite notices and obtain the approval of all governmental and quasi-governmental authorities having jurisdiction over the Work. Contractor shall submit evidence satisfactory to District that it and any disposal facility:
 - (1) have obtained all required permits, approvals, and the like in a timely manner both prior to commencement of the Work and thereafter as and when required by applicable law; and
 - (2) are in compliance with all such permits, approvals and the regulations.

For example, before commencing any work in connection with the Work involving asbestos-containing materials, or PCBs, or other hazardous materials subject to regulation, Contractor agrees to provide the required notice of intent to renovate or demolish to the appropriate state or federal agency having jurisdiction, by certified mail, return receipt requested, or by some other method of transmittal for which a return receipt is obtained, and to send a copy of that notice to District. Contractor shall not conduct any Work involving asbestos-containing materials or PCBs unless Contractor has first confirmed that the appropriate agency having jurisdiction is in receipt of the required notification. All permits, licenses, and bonds that are required by governmental or quasi-governmental authorities, and all fees, deposits, tap fees, offsite easements, and asbestos and PCB disposal facilities expenses necessary for the prosecution of the Work, shall be procured and paid for by Contractor. Contractor shall give all notices and comply with the all applicable laws bearing on the conduct of the Work as drawn and specified. If Contractor observes or reasonably should have observed that Plans and Specifications and other Contract Documents are at variance therewith, it shall be responsible for promptly notifying District in writing of such fact. If Contractor performs any Work contrary to applicable laws, it shall bear all costs arising therefrom.

- b. In the case of any permits or notices held in District's name or of necessity to be made in District's name, District shall cooperate with Contractor in securing the permit or giving the notice, but the Contractor shall prepare for District review and execution upon approval, all necessary applications, notices, and other materials.

8. Indemnification

To the fullest extent permitted by law, the indemnities and limitations of liability expressed throughout the Contract Documents apply with equal force and effect to any claims or liabilities imposed or existing by virtue of the removal, abatement, and disposal of hazardous waste. This includes, but is not limited to, liabilities connected to the selection and use of a waste disposal facility, a waste transporter, personal

injury, property damage, loss of use of property, damage to the environment or natural resources, or "disposal" and "release" of materials associated with the Work (as defined in 42 U.S.C. § 9601 *et seq.*).

9. Termination

District shall have an absolute right to terminate for default immediately without notice and without an opportunity to cure should Contractor knowingly or recklessly commit a material breach of the terms of the Contract Documents, or any applicable law, on any matter involving the exposure of persons or property to hazardous waste. However, if the breach of contract exposing persons or property to hazardous waste is due solely to an ordinary, unintentional, and non-reckless failure to exercise reasonable care, then the procedures for termination for cause shall apply without modification.

END OF DOCUMENT



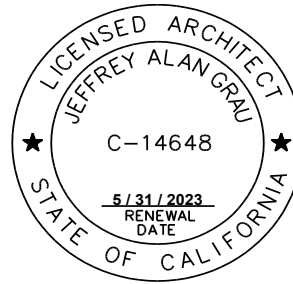
Project Manual

Villalovoz Elementary School Increment 2

Tracy Joint Unified School District
Tracy, California
RGA Job Number 22-1515
December 21, 2022

Architect

Rainforth Grau Architects
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SUMMARY OF WORK

PART 1 - GENERAL

1.01 RELATED DOCUMENTS AND PROVISIONS

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

- A. General Conditions, including, without limitation, Site Access Conditions and Requirements;
- B. Special Conditions.

1.02 SUMMARY OF WORK COVERED BY CONTRACT DOCUMENTS

- A. The Work of this Contract consists of the following:
 - (1) Upgrades to the existing low voltage system - entire campus, including the fire alarm, signal, data, and intrusion alarm systems.
 - (2) Front office remodel for a forced entry:
 - a) The installation of new front desk.
 - b) The installation of new office cubicles.
 - (3) ADA upgrades to existing boys, girls and staff restrooms.
 - (4) Roofing:
 - a) Removal of the existing clay tiles at the mansard roofs and replacing with new metal roofing.
 - b) Re-coating of the existing single play and metal roofs
 - (5) Installation of new learning walls (casework), all classrooms all buildings.
 - (6) Exterior and interior painting, all rooms all buildings.
 - (7) Removal and replacement of the (E) marquee with a (N) electronic message signage.
 - (8) Complete site signage package.
 - (9) New horizontal louver blinds.

1.03 CONTRACTS

- A. Perform the Work under a single, fixed-price Contract.

1.04 WORK BY OTHERS

- A. None

1.05 CODES, REGULATIONS, AND STANDARDS

- A. The codes, regulations, and standards adopted by the state and federal agencies having jurisdiction shall govern minimum requirements for this Project. Where codes, regulations, and standards conflict with the Contract Documents, these conflicts shall be brought to the immediate attention of the District and the Architect.
- B. Codes, regulations, and standards shall be as published effective as of date of bid opening, unless otherwise specified or indicated.

1.06 PROJECT RECORD DOCUMENTS

- A. Contractor shall maintain on Site one set of the following record documents; Contractor shall record actual revisions to the Work:
 - (1) Contract Drawings.
 - (2) Specifications.
 - (3) Addenda.
 - (4) Change Orders and other modifications to the Contract.
 - (5) Reviewed shop drawings, product data, and samples.
 - (6) Field test records.
 - (7) Inspection certificates.
 - (8) Manufacturer's certificates.
- B. Contractor shall store Record Documents separate from documents used for construction. Provide files, racks, and secure storage for Record Documents and samples.
- C. Contractor shall record information concurrent with construction progress.
- D. Specifications: Contractor shall legibly mark and record at each product section of the Specifications the description of the actual product(s) installed, including the following:
 - (1) Manufacturer's name and product model and number.
 - (2) Product substitutions or alternates utilized.

- (3) Changes made by Addenda and Change Orders and written directives.

1.07 EXAMINATION OF EXISTING CONDITIONS

- A. Contractor shall be held to have examined the Project Site and acquainted itself with the conditions of the Site and of the streets or roads approaching the Site.
- B. Prior to commencement of Work, Contractor shall survey the Site and existing buildings and improvements to observe existing damage and defects such as cracks, sags, broken, missing or damaged glazing, other building elements and Site improvements, and other damage.
- C. Should Contractor observe cracks, sags, and other damage to and defects of the Site and adjacent buildings, paving, and other items not indicated in the Contract Documents, Contractor shall immediately report same to the District and the Architect.

1.08 CONTRACTOR'S USE OF PREMISES

- A. If unoccupied and only with District's prior written approval, Contractor may use the building(s) at the Project Site without limitation for its operations, storage, and office facilities for the performance of the Work. If the District chooses to beneficially occupy any building(s), Contractor must obtain the District's written approval for Contractor's use of spaces and types of operations to be performed within the building(s) while so occupied. Contractor's access to the building(s) shall be limited to the areas indicated.
- B. If the space at the Project Site is not sufficient for Contractor's operations, storage, office facilities and/or parking, Contractor shall arrange and pay for any additional facilities needed by Contractor.
- C. Contractor shall not interfere with use of or access to occupied portions of the building(s) or adjacent property.
- D. Contractor shall maintain corridors, stairs, halls, and other exit-ways of building clear and free of debris and obstructions at all times.
- E. No one other than those directly involved in the demolition and construction, or specifically designated by the District or the Architect shall be permitted in the areas of work during demolition and construction activities.
- F. The Contractor shall install the construction fence and maintain that it will be locked when not in use. Keys to this fencing will be provided to the District.

1.09 PROTECTION OF EXISTING STRUCTURES AND UTILITIES

- A. The Drawings show above-grade and below-grade structures, utility lines, and other installations that are known or believed to exist in the area of the Work. Contractor shall locate these existing installations before proceeding with excavation and other operations that could damage same; maintain them in service, where appropriate; and repair damage to them caused by the performance of the Work. Should damage occur to these existing

installations, the costs of repair shall be at the Contractor's expense and made to the District's satisfaction.

- B. Contractor shall be alert to the possibility of the existence of additional structures and utilities. If Contractor encounters additional structures and utilities, Contractor will immediately report to the District for disposition of same as indicated in the General Conditions.

1.10 UTILITY SHUTDOWNS AND INTERRUPTIONS

- A. Contractor shall give the District a minimum of three (3) days written notice in advance of any need to shut off existing utility services or to effect equipment interruptions. The District will set exact time and duration for shutdown, and will assist Contractor with shutdown. Work required to re-establish utility services shall be performed by the Contractor.
- B. Contractor shall obtain District's written approval as indicated in the General Conditions in advance of deliveries of material or equipment or other activities that may conflict with District's use of the building(s) or adjacent facilities.

1.11 STRUCTURAL INTEGRITY

- A. Contractor shall be responsible for and supervise each operation and work that could affect structural integrity of various building elements, both permanent and temporary.
- B. Contractor shall include structural connections and fastenings as indicated or required for complete performance of the Work.

PART 2 – PRODUCTS Not Used.

PART 3 – EXECUTION Not Used.

END OF DOCUMENT

PRODUCT OPTIONS AND SUBSTITUTIONS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS AND PROVISIONS

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

- A. Instructions to Bidders;
- B. General Conditions, including, without limitation, Substitutions For Specified Items; and
- C. Special Conditions.

1.02 SUBSTITUTIONS OF MATERIALS AND EQUIPMENT

- A. Catalog numbers and specific brands or trade names followed by the designation "or equal" are used in conjunction with material and equipment required by the Specifications to establish the standards of quality, utility, and appearance required. Substitutions which are equal in quality, utility, and appearance to those specified may be reviewed subject to the provisions of the General Conditions.
- B. Wherever more than one manufacturer's product is specified, the first-named product is the basis for the design used in the work and the use of alternative-named manufacturers' products or substitutes may require modifications in that design. If such alternatives are proposed by Contractor and are approved by the District and/or the Architect, Contractor shall assume all costs required to make necessary revisions and modifications of the design resulting from the substitutions requested by the Contractor.
- C. When materials and equipment are specified by first manufacturer's name and product number, second manufacturer's name and "or approved equal," supporting data for the second product, if proposed by Contractor, shall be submitted in accordance with the requirements for substitutions. The District's Board has found and determined that certain item(s) shall be used on this Project based on the purpose(s) indicated pursuant to Public Contract Code section 3400(c). These findings, as well as the products and brand or trade names, have been identified in the Notice to Bidders.
- D. The Contractor will not be allowed to substitute specified items unless the request for substitution is submitted as follows:
 - (1) District must receive any notice of request for substitution of a specified item a minimum of ten (10) calendar days prior to bid opening.

- (2) Within 35 days after the date of the Notice of Award, the Contractor shall submit data substantiating the request(s) for all substitution(s) containing sufficient information to assess acceptability of product or system and impact on Project, including, without limitation, the requirements specified in the Special Conditions and the technical Specifications. Insufficient information shall be grounds for rejection of substitution.
- E. If the District and/or Architect, in reviewing proposed substitute materials and equipment, require revisions or corrections to be made to previously accepted Shop Drawings and supplemental supporting data to be resubmitted, Contractor shall promptly do so. If any proposed substitution is judged by the District and/or Architect to be unacceptable, the specified material or equipment shall be provided.
- F. Samples may be required. Tests required by the District and/or Architect for the determination of quality and utility shall be made at the expense of Contractor, with acceptance of the test procedure first given by the District.
- G. In reviewing the supporting data submitted for substitutions, the District and/or Architect will use for purposes of comparison all the characteristics of the specified material or equipment as they appear in the manufacturer's published data even though all the characteristics may not have been particularly mentioned in the Contract Documents. If more than two (2) submissions of supporting data are required, the cost of reviewing the additional supporting data shall be borne by Contractor, and the District will deduct the costs from the Contract Price. The Contractor shall be responsible for any re-design costs occasioned by District's acceptance and/or approval of any substitute.
- H. The Contractor shall, in the event that a substitute is less costly than that specified, credit the District with one hundred percent (100%) of the net difference between the substitute and the originally specified material. In this event, the Contractor agrees to execute a deductive Change Order to reflect that credit. In the event Contractor furnishes a material, process, or article more expensive than that specified, the difference in the cost of that material, process, or article so furnished shall be borne by Contractor.
- I. In no event shall the District be liable for any increase in Contract Price or Contract Time due to any claimed delay in the evaluation of any proposed substitute or in the acceptance or rejection of any proposed substitute.

PART 2 – PRODUCTS Not Used.

PART 3 – EXECUTION Not Used.

END OF DOCUMENT

DOCUMENT 01 26 00

CHANGES IN THE WORK

CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE PROVISIONS IN THE AGREEMENT, GENERAL CONDITIONS, AND SPECIAL CONDITIONS, IF USED, RELATED TO CHANGES AND/OR REQUESTS FOR CHANGES.

END OF DOCUMENT

DOCUMENT 01 29 00

**APPLICATION FOR PAYMENT AND
CONDITIONAL AND UNCONDITIONAL WAIVER AND RELEASE FORMS**

**CONTRACTOR SHALL COMPLY WITH ALL PROVISIONS IN THE GENERAL
CONDITIONS RELATED TO APPLICATIONS FOR PAYMENT AND/OR PAYMENTS.**

**CONDITIONAL WAIVER AND RELEASE
ON PROGRESS PAYMENT
(CIVIL CODE SECTION 8132)**

NOTICE: THIS DOCUMENT WAIVES THE CLAIMANT'S LIEN, STOP PAYMENT NOTICE, AND PAYMENT BOND RIGHTS EFFECTIVE ON RECEIPT OF PAYMENT. A PERSON SHOULD NOT RELY ON THIS DOCUMENT UNLESS SATISFIED THAT THE CLAIMANT HAS RECEIVED PAYMENT.

Name of Claimant: _____

Name of Customer: _____

Job Location: _____

Owner: _____

Through Date: _____

Conditional Waiver and Release

This document waives and releases lien, stop payment notice, and payment bond rights the claimant has for labor and service provided, and equipment and material delivered, to the customer on this job through the Through Date of this document. Rights based upon labor or service provided, or equipment or material delivered, pursuant to a written change order that has been fully executed by the parties prior to the date that this document is signed by the claimant, are waived and released by this document, unless listed as an Exception below. This document is effective only on the claimant's receipt of payment from the financial institution on which the following check is drawn:

Maker of Check: _____

Amount of Check: \$_____

Check Payable to: _____

Exceptions

This document does not affect any of the following:

- (1) Retentions.
- (2) Extras for which the claimant has not received payment.
- (3) The following progress payments for which the claimant has previously given a conditional waiver and release but has not received payment:

Date(s) of waiver and release: _____

Amount(s) of unpaid progress payment(s): \$_____

TRACY UNIFIED SCHOOL DISTRICT

**APPLICATION FOR PAYMENT AND
CONDITIONAL AND UNCONDITIONAL
WAIVER AND RELEASE FORMS
DOCUMENT 01 29 00-2**

- (4) Contract rights, including (A) a right based on rescission, abandonment, or breach of contract, and (B) the right to recover compensation for work not compensated by the payment.

Claimant's Signature: _____

Claimant's Title: _____

Date of Signature: _____

**UNCONDITIONAL WAIVER AND RELEASE
ON PROGRESS PAYMENT
(CIVIL CODE SECTION 8134)**

NOTICE TO CLAIMANT: THIS DOCUMENT WAIVES AND RELEASES LIEN, STOP PAYMENT NOTICE, AND PAYMENT BOND RIGHTS UNCONDITIONALLY AND STATES THAT YOU HAVE BEEN PAID FOR GIVING UP THOSE RIGHTS. THIS DOCUMENT IS ENFORCEABLE AGAINST YOU IF YOU SIGN IT, EVEN IF YOU HAVE NOT BEEN PAID. IF YOU HAVE NOT BEEN PAID, USE A CONDITIONAL WAIVER AND RELEASE FORM.

Name of Claimant: _____

Name of Customer: _____

Job Location: _____

Owner: _____

Through Date: _____

Unconditional Waiver and Release

This document waives and releases lien, stop payment notice, and payment bond rights the claimant has for labor and service provided, and equipment and material delivered, to the customer on this job through the Through Date of this document. Rights based upon labor or service provided, or equipment or material delivered, pursuant to a written change order that has been fully executed by the parties prior to the date that this document is signed by the claimant, are waived and released by this document, unless listed as an Exception below. The claimant has received the following progress payment: \$_____

Exceptions

This document does not affect any of the following:

- (1) Retentions.
- (2) Extras for which the claimant has not received payment.
- (3) Contract rights, including (A) a right based on rescission, abandonment, or breach of contract, and (B) the right to recover compensation for work not compensated by the payment.

Claimant's Signature: _____

Claimant's Title: _____

Date of Signature: _____

**CONDITIONAL WAIVER AND RELEASE
ON FINAL PAYMENT
(CIVIL CODE SECTION 8136)**

NOTICE: THIS DOCUMENT WAIVES THE CLAIMANT'S LIEN, STOP PAYMENT NOTICE, AND PAYMENT BOND RIGHTS EFFECTIVE ON RECEIPT OF PAYMENT. A PERSON SHOULD NOT RELY ON THIS DOCUMENT UNLESS SATISFIED THAT THE CLAIMANT HAS RECEIVED PAYMENT.

Name of Claimant: _____

Name of Customer: _____

Job Location: _____

Owner: _____

Conditional Waiver and Release

This document waives and releases lien, stop payment notice, and payment bond rights the claimant has for labor and service provided, and equipment and material delivered, to the customer on this job. Rights based upon labor or service provided, or equipment or material delivered, pursuant to a written change order that has been fully executed by the parties prior to the date that this document is signed by the claimant, are waived and released by this document, unless listed as an Exception below. This document is effective only on the claimant's receipt of payment from the financial institution on which the following check is drawn:

Maker of Check:

Amount of Check: \$_____

Check Payable to: _____

Exceptions

This document does not affect any of the following: _____

Disputed claims for extras in the amount of: \$_____

Claimant's Signature: _____

Claimant's Title: _____

Date of Signature: _____

**UNCONDITIONAL WAIVER AND RELEASE
ON FINAL PAYMENT**
(CIVIL CODE SECTION 8138)

NOTICE TO CLAIMANT: THIS DOCUMENT WAIVES AND RELEASES LIEN, STOP PAYMENT NOTICE, AND PAYMENT BOND RIGHTS UNCONDITIONALLY AND STATES THAT YOU HAVE BEEN PAID FOR GIVING UP THOSE RIGHTS. THIS DOCUMENT IS ENFORCEABLE AGAINST YOU IF YOU SIGN IT, EVEN IF YOU HAVE NOT BEEN PAID. IF YOU HAVE NOT BEEN PAID, USE A CONDITIONAL WAIVER AND RELEASE FORM.

Name of Claimant: _____

Name of Customer: _____

Job Location: _____

Owner: _____

Unconditional Waiver and Release

This document waives and releases lien, stop payment notice, and payment bond rights the claimant has for all labor and service provided, and equipment and material delivered, to the customer on this job. Rights based upon labor or service provided, or equipment or material delivered, pursuant to a written change order that has been fully executed by the parties prior to the date that this document is signed by the claimant, are waived and released by this document, unless listed as an Exception below. The claimant has been paid in full.

Exceptions

This document does not affect any of the following: _____

Disputed claims for extras in the amount of: \$_____

Claimant's Signature: _____

Claimant's Title: _____

Date of Signature: _____

PROJECT MEETINGS

PART 1 – GENERAL

1.01 RELATED DOCUMENTS AND PROVISIONS:

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

- A. General Conditions; and
- B. Special Conditions.

1.02 PROGRESS MEETINGS:

- A. Contractor shall schedule and hold regular weekly progress meetings after a minimum of one week's prior written notice of the meeting date and time to all Invitees as indicated below.
- B. Location: Contractor's field office.
- C. The Contractor shall notify and invite the following entities ("Invitees"):
 - (1) District Representative.
 - (2) Contractor.
 - (3) Contractor's Project Manager.
 - (4) Contractor's Superintendent.
 - (5) Subcontractors, as appropriate to the agenda of the meeting.
 - (6) Suppliers, as appropriate to the agenda of the meeting.
 - (7) Construction Manager, if any.
 - (8) Architect
 - (9) Engineer(s), if any and as appropriate to the agenda of the meeting.
 - (10) Others, as appropriate to the agenda of the meeting.
- D. The District's and/or the Architect's Consultants will attend at their discretion, in response to the agenda.
- E. The District representative, the Construction Manager, and/or another District Agent shall take and distribute meeting notes to attendees and other concerned parties. If exceptions are taken to anything in the meeting notes,

those exceptions shall be stated in writing to the District within five (5) working days following District's distribution of the meeting notes.

1.03 PRE-INSTALLATION/PERFORMANCE MEETING:

- A. Contractor shall schedule a meeting prior to the start of each of the demolition work phases. Contractor shall invite all Invitees to this meeting, and others whose work may affect or be affected by the quality of the demolition work.
- B. Contractor shall review in detail prior to this meeting, the manufacturer's requirements and specifications, applicable portions of the Contract Documents, Shop Drawings, and other submittals, and other related work. At this meeting, invitees shall review and resolve conflicts, incompatibilities, or inadequacies discovered or anticipated.
- C. Contractor shall review in detail Project conditions, schedule, requirements for performance, application, installation, and quality of completed Work, and protection of adjacent Work and property.
- D. Contractor shall review in detail means of protecting the completed Work during the remainder of the construction period.

PART 2 - PRODUCTS Not Used.

PART 3 - EXECUTION Not Used.

END OF DOCUMENT

SCHEDULING OF WORK

PART 1 – GENERAL

1.01 RELATED DOCUMENTS AND PROVISIONS

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

- A. General Conditions;
- B. Special Conditions;
- C. Summary of Work; and
- D. Submittals.

1.02 SECTION INCLUDES

- A. Scheduling of Work under this Contract shall be performed by Contractor in accordance with requirements of this Section.
 - (1) Development of schedule, cost and resource loading of the schedule, monthly payment requests, and project status reporting requirements of the Contract shall employ computerized Critical Path Method ("CPM") scheduling ("CPM Schedule").
 - (2) CPM Schedule shall be cost loaded based on Schedule of Values as approved by District.
 - (3) Submit schedules and reports as specified in the General Conditions.
- B. Upon Award of Contract, Contractor shall immediately commence development of Initial and Original CPM Schedules to ensure compliance with CPM Schedule submittal requirements.

1.03 CONSTRUCTION SCHEDULE

- A. Within ten (10) days of issuance of the issuance Notice to Proceed and before request for first progress payment, the Contractor shall prepare and submit to the Project Manager a construction progress schedule conforming to the Milestone Schedule below.
- B. The Construction Schedule shall be continuously updated, and an updated schedule shall be submitted with each application for progress payment. Each revised schedule shall indicate the work actually accomplished during the previous period and the schedule for completion of the remaining work.

C. Milestone Schedule:

ACTIVITY DESCRIPTION	REQUIRED COMPLETION
CONSTRUCTION STARTS	5/29/23
FINAL PROJECT COMPLETION	7/31/23

1.04 QUALIFICATIONS

- A. Contractor shall employ experienced scheduling personnel qualified to use the latest version of [i.e., Primavera Project Planner]. Experience level required is set forth below. Contractor may employ such personnel directly or may employ a consultant for this purpose.
- (1) The written statement shall identify the individual who will perform CPM scheduling.
 - (2) Capability and experience shall be verified by description of construction projects on which individual has successfully applied computerized CPM.
 - (3) Required level of experience shall include at least two (2) projects of similar nature and scope with value not less than three fourths ($\frac{3}{4}$) of the Total Bid Price of this Project. The written statement shall provide contact persons for referenced projects with current telephone and address information.
- B. District reserves the right to approve or reject Contractor's scheduler or consultant at any time. District reserves the right to refuse replacing of Contractor's scheduler or consultant, if District believes replacement will negatively affect the scheduling of Work under this Contract.

1.05 GENERAL

- A. Progress Schedule shall be based on and incorporate milestone and completion dates specified in Contract Documents.
- B. Overall time of completion and time of completion for each milestone shown on Progress Schedule shall adhere to times in the Contract, unless an earlier (advanced) time of completion is requested by Contractor and agreed to by District. Any such agreement shall be formalized by a Change Order.
- (1) District is not required to accept an early completion schedule, i.e., one that shows an earlier completion date than the Contract Time.
 - (2) Contractor shall not be entitled to extra compensation in event agreement is reached on an earlier completion schedule and Contractor completes its Work, for whatever reason, beyond completion date shown in its early completion schedule but within the Contract Time.

- (3) A schedule showing the work completed in less than the Contract Time, and that has been accepted by District, shall be considered to have Project Float. The Project Float is the time between the scheduled completion of the work and the Completion Date. Project Float is a resource available to both District and the Contractor.
- C. Ownership Project Float: Neither the District nor Contractor owns Project Float. The Project owns the Project Float. As such, liability for delay of the Completion Date rests with the party whose actions, last in time, actually cause delay to the Completion Date.
 - (1) For example, if Party A uses some, but not all of the Project Float and Party B later uses remainder of the Project Float as well as additional time beyond the Project Float, Party B shall be liable for the time that represents a delay to the Completion Date.
 - (2) Party A would not be responsible for the time since it did not consume the entire Project Float and additional Project Float remained; therefore, the Completion Date was unaffected by Party A.
- D. Progress Schedule shall be the basis for evaluating job progress, payment requests, and time extension requests. Responsibility for developing Contract CPM Schedule and monitoring actual progress as compared to Progress Schedule rests with Contractor.
- E. Failure of Progress Schedule to include any element of the Work, or any inaccuracy in Progress Schedule, will not relieve Contractor from responsibility for accomplishing the Work in accordance with the Contract. District's acceptance of schedule shall be for its use in monitoring and evaluating job progress, payment requests, and time extension requests and shall not, in any manner, impose a duty of care upon District, or act to relieve Contractor of its responsibility for means and methods of construction.
- F. Software: Use [i.e, District Project Planner for Windows, latest version]. Such software shall be compatible with Windows operating system. Contractor shall transmit contract file to District on compact disk at times requested by District.
- G. Transmit each item under the form approved by District.
 - (1) Identify Project with District Contract number and name of Contractor.
 - (2) Provide space for Contractor's approval stamp and District's review stamps.
 - (3) Submittals received from sources other than Contractor will be returned to the Contractor without District's review.

1.06 INITIAL CPM SCHEDULE

- A. Initial CPM Schedule submitted for review at the pre-construction conference shall serve as Contractor's schedule for up to ninety (90) calendar days after the Notice to Proceed.

- B. Indicate detailed plan for the Work to be completed in first ninety (90) days of the Contract; details of planned mobilization of plant and equipment; sequence of early operations; procurement of materials and equipment. Show Work beyond ninety (90) calendar days in summary form.
- C. Initial CPM Schedule shall be time scaled.
- D. Initial CPM Schedule shall be cost and resource loaded. Accepted cost and resource loaded schedule will be used as basis for monthly progress payments until acceptance of the Original CPM Schedule. Use of Initial CPM Schedule for progress payments shall not exceed ninety (90) calendar days.
- E. District and Contractor shall meet to review and discuss the Initial CPM Schedule within seven (7) calendar days after it has been submitted to District.
 - (1) District's review and comment on the schedule shall be limited to Contract conformance (with sequencing, coordination, and milestone requirements).
 - (2) Contractor shall make corrections to schedule necessary to comply with Contract requirements and shall adjust schedule to incorporate any missing information requested by District. Contractor shall resubmit Initial CPM Schedule if requested by District.
- F. If, during the first ninety (90) days after Notice to Proceed, the Contractor is of the opinion that any of the Work included on its Initial CPM Schedule has been impacted, the Contractor shall submit to District a written Time Impact Evaluation ("TIE") in accordance with Article 1.12 of this Section. The TIE shall be based on the most current update of the Initial CPM Schedule.

1.07 ORIGINAL CPM SCHEDULE

- A. Submit a detailed proposed Original CPM Schedule presenting an orderly and realistic plan for completion of the Work in conformance with requirements as specified herein.
- B. Progress Schedule shall include or comply with following requirements:
 - (1) Time scaled, cost and resource (labor and major equipment) loaded CPM schedule.
 - (2) No activity on schedule shall have duration longer than fifteen (15) work days, with exception of submittal, approval, fabrication and procurement activities, unless otherwise approved by District.
 - (a) Activity durations shall be total number of actual work days required to perform that activity.
 - (3) The start and completion dates of all items of Work, their major components, and milestone completion dates, if any.

- (4) District furnished materials and equipment, if any, identified as separate activities.
- (5) Activities for maintaining Project Record Documents.
- (6) Dependencies (or relationships) between activities.
- (7) Processing/approval of submittals and shop drawings for all material and equipment required per the Contract. Activities that are dependent on submittal acceptance or material delivery shall not be scheduled to start earlier than expected acceptance or delivery dates.
 - (a) Include time for submittals, re-submittals and reviews by District. Coordinate with accepted schedule for submission of Shop Drawings, samples, and other submittals.
 - (b) Contractor shall be responsible for all impacts resulting from re-submittal of Shop Drawings and submittals.
- (8) Procurement of major equipment, through receipt and inspection at jobsite, identified as separate activity.
 - (a) Include time for fabrication and delivery of manufactured products for the Work.
 - (b) Show dependencies between procurement and construction.
- (9) Activity description; what Work is to be accomplished and where.
- (10) The total cost of performing each activity shall be total of labor, material, and equipment, excluding overhead and profit of Contractor. Overhead and profit of the General Contractor shall be shown as a separate activity in the schedule. Sum of cost for all activities shall equal total Contract value.
- (11) Resources required (labor and major equipment) to perform each activity.
- (12) Responsibility code for each activity corresponding to Contractor or Subcontractor responsible for performing the Work.
- (13) Identify the activities which constitute the controlling operations or critical path. No more than twenty-five (25%) of the activities shall be critical or near critical. Near critical is defined as float in the range of one (1) to (10) days.
- (14) Twenty (20) workdays for developing punch list(s), completion of punch-list items, and final clean up for the Work or any designated portion thereof. No other activities shall be scheduled during this period.
- (15) Interface with the work of other contractors, District, and agencies such as, but not limited to, utility companies.

- (16) Show detailed Subcontractor Work activities. In addition, furnish copies of Subcontractor schedules upon which CPM was built.
 - (a) Also furnish for each Subcontractor, as determined by District, submitted on Subcontractor letterhead, a statement certifying that Subcontractor concurs with Contractor's Original CPM Schedule and that Subcontractor's related schedules have been incorporated, including activity duration, cost and resource loading.
 - (b) Subcontractor schedules shall be independently derived and not a copy of Contractor's schedule.
 - (c) In addition to Contractor's schedule and resource loading, obtain from electrical, mechanical, and plumbing Subcontractors, and other Subcontractors as required by District, productivity calculations common to their trades, such as units per person day, feet of pipe per day per person, feet of wiring per day per person, and similar information.
 - (d) Furnish schedule for Contractor/Subcontractor CPM schedule meetings which shall be held prior to submission of Original CPM schedule to District. District shall be permitted to attend scheduled meetings as an observer.
- (17) Activity durations shall be in Work days.
- (18) Submit with the schedule a list of anticipated non-Work days, such as weekends and holidays. The Progress Schedule shall exclude in its Work day calendar all non-Work days on which Contractor anticipates critical Work will not be performed.
- C. Original CPM Schedule Review Meeting: Contractor shall, within sixty (60) days from the Notice to Proceed date, meet with District to review the Original CPM Schedule submittal.
 - (1) Contractor shall have its Project Manager, Project Superintendent, Project Scheduler, and key Subcontractor representatives, as required by District, in attendance. The meeting will take place over a continuous one (1) day period.
 - (2) District's review will be limited to submittal's conformance to Contract requirements including, but not limited to, coordination requirements. However, review may also include:
 - (a) Clarifications of Contract Requirements.
 - (b) Directions to include activities and information missing from submittal.
 - (c) Requests to Contractor to clarify its schedule.

- (3) Within five (5) days of the Schedule Review Meeting, Contractor shall respond in writing to all questions and comments expressed by District at the Meeting.

1.08 ADJUSTMENTS TO CPM SCHEDULE

- A. Adjustments to Original CPM Schedule: Contractor shall have adjusted the Original CPM Schedule submittal to address all review comments from original CPM Schedule review meeting and resubmit network diagrams and reports for District's review.
 - (1) District, within ten (10) days from date that Contractor submitted the revised schedule, will either:
 - (a) Accept schedule and cost and resource loaded activities as submitted, or
 - (b) Advise Contractor in writing to review any part or parts of schedule which either do not meet Contract requirements or are unsatisfactory for District to monitor Project's progress, resources, and status or evaluate monthly payment request by Contractor.
 - (2) District may accept schedule with conditions that the first monthly CPM Schedule update be revised to correct deficiencies identified.
 - (3) When schedule is accepted, it shall be considered the "Original CPM Schedule" which will then be immediately updated to reflect the current status of the work.
 - (4) District reserves right to require Contractor to adjust, add to, or clarify any portion of schedule which may later be discovered to be insufficient for monitoring of Work or approval of partial payment requests. No additional compensation will be provided for such adjustments, additions, or clarifications.
- B. Acceptance of Contractor's schedule by District will be based solely upon schedule's compliance with Contract requirements.
 - (1) By way of Contractor assigning activity durations and proposing sequence of Work, Contractor agrees to utilize sufficient and necessary management and other resources to perform work in accordance with the schedule.
 - (2) Upon submittal of schedule update, updated schedule shall be considered "current" CPM Schedule.
 - (3) Submission of Contractor's schedule to District shall not relieve Contractor of total responsibility for scheduling, sequencing, and pursuing Work to comply with requirements of Contract Documents, including adverse effects such as delays resulting from ill-timed Work.

- C. Submittal of Original CPM Schedule, and subsequent schedule updates, shall be understood to be Contractor's representation that the Schedule meets requirements of Contract Documents and that Work shall be executed in sequence indicated on the schedule.
- D. Contractor shall distribute Original CPM Schedule to Subcontractors for review and written acceptance, which shall be noted on Subcontractors' letterheads to Contractor and transmitted to District for the record.

1.09 MONTHLY CPM SCHEDULE UPDATE SUBMITTALS

- A. Following acceptance of Contractor's Original CPM Schedule, Contractor shall monitor progress of Work and adjust schedule each month to reflect actual progress and any anticipated changes to planned activities.
 - (1) Each schedule update submitted shall be complete, including all information requested for the Original CPM Schedule submittal.
 - (2) Each update shall continue to show all Work activities including those already completed. These completed activities shall accurately reflect "as built" information by indicating when activities were actually started and completed.
- B. A meeting will be held on approximately the twenty-fifth (25th) of each month to review the schedule update submittal and progress payment application.
 - (1) At this meeting, at a minimum, the following items will be reviewed: Percent (%) complete of each activity; Time Impact Evaluations for Change Orders and Time Extension Request; actual and anticipated activity sequence changes; actual and anticipated duration changes; and actual and anticipated Contractor delays.
 - (2) These meetings are considered a critical component of overall monthly schedule update submittal and Contractor shall have appropriate personnel attend. At a minimum, these meetings shall be attended by Contractor's General Superintendent and Scheduler.
 - (3) Contractor shall plan on the meeting taking no less than four (4) hours.
- C. Within five (5) working days after monthly schedule update meeting, Contractor shall submit the updated CPM Schedule update.
- D. Within five (5) work days of receipt of above noted revised submittals, District will either accept or reject monthly schedule update submittal.
 - (1) If accepted, percent (%) complete shown in monthly update will be basis for Application for Payment by the Contractor. The schedule update shall be submitted as part of the Contractor's Application for Payment.

- (2) If rejected, update shall be corrected and resubmitted by Contractor before the Application for Payment is submitted.
- E. Neither updating, changing or revising of any report, curve, schedule, or narrative submitted to District by Contractor under this Contract, nor District's review or acceptance of any such report, curve, schedule or narrative shall have the effect of amending or modifying in any way the Completion Date or milestone dates or of modifying or limiting in any way Contractor's obligations under this Contract.

1.10 SCHEDULE REVISIONS

- A. Updating the Schedule to reflect actual progress shall not be considered revisions to the Schedule. Since scheduling is a dynamic process, revisions to activity durations and sequences are expected on a monthly basis.
- B. To reflect revisions to the Schedule, the Contractor shall provide District with a written narrative with a full description and reasons for each Work activity revised. For revisions affecting the sequence of work, the Contractor shall provide a schedule diagram which compares the original sequence to the revised sequence of work. The Contractor shall provide the written narrative and schedule diagram for revisions two (2) working days in advance of the monthly schedule update meeting.
- C. Schedule revisions shall not be incorporated into any schedule update until the revisions have been reviewed by District. District may request further information and justification for schedule revisions and Contractor shall, within three (3) days, provide District with a complete written narrative response to District's request.
- D. If the Contractor's revision is still not accepted by District, and the Contractor disagrees with District's position, the Contractor has seven (7) calendar days from receipt of District's letter rejecting the revision to provide a written narrative providing full justification and explanation for the revision. The Contractor's failure to respond in writing within seven (7) calendar days of District's written rejection of a schedule revision shall be contractually interpreted as acceptance of District's position, and the Contractor waives its rights to subsequently dispute or file a claim regarding District's position.
- E. At District's discretion, the Contractor can be required to provide Subcontractor certifications of performance regarding proposed schedule revisions affecting said Subcontractors.

1.11 RECOVERY SCHEDULE

- A. If the Schedule Update shows a completion date twenty-one (21) calendar days beyond the Contract Completion Date, or individual milestone completion dates, the Contractor shall submit to District the proposed revisions to recover the lost time within seven (7) calendar days. As part of this submittal, the Contractor shall provide a written narrative for each revision made to recapture the lost time. If the revisions include sequence changes, the Contractor shall provide a schedule diagram comparing the original sequence to the revised sequence of work.

- B. The revisions shall not be incorporated into any schedule update until the revisions have been reviewed by District.
- C. If the Contractor's revisions are not accepted by District, District and the Contractor shall follow the procedures in paragraph 1.09.C, 1.09.D and 1.09.E above.
- D. At District's discretion, the Contractor can be required to provide Subcontractor certifications for revisions affecting said Subcontractors.

1.12 TIME IMPACT EVALUATION ("TIE") FOR CHANGE ORDERS, AND OTHER DELAYS

- A. When Contractor is directed to proceed with changed Work, the Contractor shall prepare and submit within fourteen (14) calendar days from the Notice to Proceed a TIE which includes both a written narrative and a schedule diagram depicting how the changed Work affects other schedule activities. The schedule diagram shall show how the Contractor proposes to incorporate the changed Work in the schedule and how it impacts the current schedule-update critical path. The Contractor is also responsible for requesting time extensions based on the TIE's impact on the critical path. The diagram must be tied to the main sequence of schedule activities to enable District to evaluate the impact of changed Work to the scheduled critical path.
- B. Contractor shall be required to comply with the requirements of Paragraph 1.09.A for all types of delays such as, but not limited to, Contractor/Subcontractor delays, adverse weather delays, strikes, procurement delays, fabrication delays, etc.
- C. Contractor shall be responsible for all costs associated with the preparation of TIEs, and the process of incorporating them into the current schedule update. The Contractor shall provide District with four (4) copies of each TIE.
- D. Once agreement has been reached on a TIE, the Contract Time will be adjusted accordingly. If agreement is not reached on a TIE, the Contract Time may be extended in an amount District allows, and the Contractor may submit a claim for additional time claimed by contractor.

1.13 TIME EXTENSIONS

- A. The Contractor is responsible for requesting time extensions for time impacts that, in the opinion of the Contractor, impact the critical path of the current schedule update. Notice of time impacts shall be given in accord with the General Conditions.
- B. Where an event for which District is responsible impacts the projected Completion Date, the Contractor shall provide a written mitigation plan, including a schedule diagram, which explains how (e.g., increase crew size, overtime, etc.) the impact can be mitigated. The Contractor shall also include a detailed cost breakdown of the labor, equipment, and material the Contractor would expend to mitigate District-caused time impact. The Contractor shall submit its mitigation plan to District within fourteen (14)

calendar days from the date of discovery of the impact. The Contractor is responsible for the cost to prepare the mitigation plan.

- C. Failure to request time, provide TIE, or provide the required mitigation plan will result in Contractor waiving its right to a time extension and cost to mitigate the delay.
- D. No time will be granted under this Contract for cumulative effect of changes.
- E. District will not be obligated to consider any time extension request unless the Contractor complies with the requirements of Contract Documents.
- F. Failure of the Contractor to perform in accordance with the current schedule update shall not be excused by submittal of time extension requests.
- G. If the Contractor does not submit a TIE within the required fourteen (14) calendar days for any issue, it is mutually agreed that the Contractor does not require a time extension for said issue.

1.14 SCHEDULE REPORTS

- A. Submit four (4) copies of the following reports with the Initial CPM Schedule, the Original CPM Schedule, and each monthly update.
- B. Required Reports:
 - (1) Two activity listing reports: one sorted by activity number and one by total Project Float. These reports shall also include each activity's early/late and actual start and finish dates, original and remaining duration, Project Float, responsibility code, and the logic relationship of activities.
 - (2) Cost report sorted by activity number including each activity's associated cost, percentage of Work accomplished, earned value- to date, previous payments, and amount earned for current update period.
 - (3) Schedule plots presenting time-scaled network diagram showing activities and their relationships with the controlling operations or critical path clearly highlighted.
 - (4) Cash flow report calculated by early start, late start, and indicating actual progress. Provide an exhibit depicting this information in graphic form.
 - (5) Planned versus actual resource (i.e., labor) histogram calculated by early start and late start.
- C. Other Reports:

In addition to above reports, District may request, from month to month, any two of the following reports. Submit four (4) copies of all reports.

- (1) Activities by early start.
 - (2) Activities by late start.
 - (3) Activities grouped by Subcontractors or selected trades.
 - (4) Activities with scheduled early start dates in a given time frame, such as fifteen (15) or thirty (30) day outlook.
- D. Furnish District with report files on compact disks containing all schedule files for each report generated.

1.15 PROJECT STATUS REPORTING

- A. In addition to submittal requirements for CPM scheduling identified in this Section, Contractor shall provide a monthly project status report (i.e., written narrative report) to be submitted in conjunction with each CPM Schedule as specified herein. Status reporting shall be in form specified below.
- B. Contractor shall prepare monthly written narrative reports of status of Project for submission to District. Written status reports shall include:
- (1) Status of major Project components (percent (%) complete, amount of time ahead or behind schedule) and an explanation of how Project will be brought back on schedule if delays have occurred.
 - (2) Progress made on critical activities indicated on CPM Schedule.
 - (3) Explanations for any lack of work on critical path activities planned to be performed during last month.
 - (4) Explanations for any schedule changes, including changes to logic or to activity durations.
 - (5) List of critical activities scheduled to be performed next month.
 - (6) Status of major material and equipment procurement.
 - (7) Any delays encountered during reporting period.
 - (8) Contractor shall provide printed report indicating actual versus planned resource loading for each trade and each activity. This report shall be provided on weekly and monthly basis.
 - (a) Actual resource shall be accumulated in field by Contractor, and shall be as noted on Contractor's daily reports. These reports will be basis for information provided in computer-generated monthly and weekly printed reports.
 - (b) Contractor shall explain all variances and mitigation measures.

- (9) Contractor may include any other information pertinent to status of Project. Contractor shall include additional status information requested by District at no additional cost.
- (10) Status reports, and the information contained therein, shall not be construed as claims, notice of claims, notice of delay, or requests for changes or compensation.

1.16 WEEKLY SCHEDULE REPORT

At the Weekly Progress Meeting, the Contractor shall provide and present a time-scaled three (3) week look-ahead schedule that is based and correlated by activity number to the current schedule (i.e., Initial, Original CPM, or Schedule Update).

1.17 DAILY CONSTRUCTION REPORTS

On a daily basis, Contractor shall submit a daily activity report to District for each workday, including weekends and holidays when worked. Contractor shall develop the daily construction reports on a computer-generated database capable of sorting daily Work, manpower, and man-hours by Contractor, Subcontractor, area, sub-area, and Change Order Work. Upon request of District, furnish computer disk of this data base. Obtain District's written approval of daily construction report data base format prior to implementation. Include in report:

- A. Project name and Project number.
- B. Contractor's name and address.
- C. Weather, temperature, and any unusual site conditions.
- D. Brief description and location of the day's scheduled activities and any special problems and accidents, including Work of Subcontractors. Descriptions shall be referenced to CPM scheduled activities.
- E. Worker quantities for its own Work force and for Subcontractors of any tier.
- F. Equipment, other than hand tools, utilized by Contractor and Subcontractors.

1.18 PERIODIC VERIFIED REPORTS

Contractor shall complete and verify construction reports on a form prescribed by the Division of the State Architect and file reports on the first day of February, May, August, and November during the preceding quarter year; at the completion of the Contract; at the completion of the Work; at the suspension of Work for a period of more than one (1) month; whenever the services of Contractor or any of Contractor's Subcontractors are terminated for any reason; and at any time a special verified report is required by the Division of the State Architect. Refer to section 4-336 and section 4-343 of Part 1, Title 24 of the California Code of Regulations.

PART 2 – PRODUCTS Not Used.

PART 3 - EXECUTION Not Used.

END OF DOCUMENT

SUBMITTALS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS AND PROVISIONS:

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

- A. General Conditions, including, without limitation, Contractor's Submittals and Schedules, Drawings and Specifications;
- B. Special Conditions.

1.02 SECTION INCLUDES:

- A. Definitions:
 - (1) Shop Drawings and Product Data are as indicated in the General Conditions and include, but are not limited to, fabrication, erection, layout and setting drawings, formwork and falsework drawings, manufacturers' standard drawings, descriptive literature, catalogues, brochures, performance and test data, wiring and control diagrams. In addition, there are other drawings and descriptive data pertaining to materials, equipment, piping, duct and conduit systems, and methods of construction as may be required to show that the materials, equipment or systems and all positions conform to the requirement of the Contract Documents, including, without limitation, the Drawings.
 - (2) "Manufactured" applies to standard units usually mass-produced; "fabricated" means specifically assembled or made out of selected materials to meet design requirements. Shop Drawings shall establish the actual detail of manufactured or fabricated items, indicated proper relation to adjoining work and amplify design details of mechanical and electrical equipment in proper relation to physical spaces in the structure.
 - (3) Manufacturer's Instructions: Where any item of Work is required by the Contract Documents to be furnished, installed, or performed, at a minimum, in accordance with a specified product manufacturer's instructions, the Contractor shall procure and distribute copies of these to the District, the Architect, and all other concerned parties and shall furnish, install, or perform the work, at a minimum, in accordance with those instructions.
- B. Samples, Shop Drawings, Product Data, and other items as specified, in accordance with the following requirements:
 - (1) Contractor shall submit all Shop Drawings, Product Data, and Samples to the District, the Architect, the Project Inspector, and the Construction Manager.

Contractor to review section
01 3300 as well as this
document

- (2) Contractor shall comply with all time frames herein and in the General Conditions and, in any case, shall submit required information in sufficient time to permit proper consideration and action before ordering any materials or items represented by such Shop Drawings, Product Data, and/or Samples.
- (3) Contractor shall allow sufficient time so that no delay occurs due to required lead time in ordering or delivery of any item to the Site. Contractor shall be responsible for any delay in progress of Work due to its failure to observe these requirements.
- (4) Time for completion of Work shall not be extended on account of Contractor's failure to promptly submit Shop Drawings, Product Data, and/or Samples.
- (5) Reference numbers on Shop Drawings shall have Architectural and/or Engineering Contract Drawings reference numbers for details, sections, and "cuts" shown on Shop Drawings. These reference numbers shall be in addition to any numbering system that Contractor chooses to use or has adopted as standard.
- (6) When the magnitude or complexity of submittal material prevents a complete review within the stated time frame, Contractor shall make this submittal in increments to avoid extended delays.
- (7) Contractor shall certify on submittals for review that submittals conform to Contract requirements. Also certify that Contractor-furnished equipment can be installed in allocated space. In event of any variance, Contractor shall specifically state in transmittal and on Shop Drawings, portions vary and require approval of a substitute. Submittals shall not be used as a means of requesting a substitution.
- (8) Unless specified otherwise, sampling, preparation of samples, and tests shall be in accordance with the latest standard of the American Society for Testing and Materials.
- (9) Upon demand by Architect or District, Contractor shall submit samples of materials and/or articles for tests or examinations and consideration before Contractor incorporates same in Work. Contractor shall be solely responsible for delays due to sample(s) not being submitted in time to allow for tests. Acceptance or rejection will be expressed in writing. Work shall be equal to approved samples in every respect. Samples that are of value after testing will remain the property of Contractor.

C. Submittal Schedule:

- (1) Contractor shall prepare its proposed submittal schedule that is coordinated with the proposed construction schedule and submit both to the District within ten (10) days after the date of the Notice to Proceed. Contractor's proposed schedules shall become the Project Construction Schedule and the Project Submittal Schedule after each is approved by the District.

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- (2) Contractor is responsible for all lost time should the initial submittal be rejected, marked "revise and resubmit", etc.
- (3) All Submittals shall be forwarded to the District by the date indicated on the approved Submittal Schedule, unless an earlier date is necessary to maintain the Construction Schedule, in which case those Submittals shall be forwarded to the District so as not to delay the Construction Schedule.
- (4) Contractor may be assessed \$100 a day for each day it is late in submitting a shop drawing or sample. No extensions of time will be granted to Trade Contractor or any Subcontractor because of its failure to have shop drawings and samples submitted in accordance with the Schedule.

1.03 SHOP DRAWINGS:

- A. Contractor shall submit one reproducible transparency and six (6) opaque reproductions. The District will review and return the reproducible copy and one (1) opaque reproduction to Contractor.
- B. Before commencing installation of any Work, the Contractor shall submit and receive approval of all drawings, descriptive data, and material list(s) as required to accomplish Work.
- C. Review of Shop Drawings is regarded as a service to assist Contractor and in all cases original Contract Documents shall take precedence as outlined under General Conditions.
- D. No claim for extra time or payment shall be based on work shown on Shop Drawings unless the claim is (1) noted on Contractor's transmittal letter accompanying Shop Drawings and (2) Contractor has complied with all applicable provisions of the General Conditions, including, without limitation, provisions regarding changes and payment, and all required written approvals.
- E. District shall not review Shop Drawings for quantities of materials or number of items supplied.
- F. District's and/or Architect's review of Shop Drawing will be general. District and/or Architect review does not relieve Contractor of responsibility for dimensions, accuracy, proper fitting, construction of Work, furnishing of materials, or Work required by Contract Documents and not indicated on Shop Drawings. The District's and/or Architect's review of Shop Drawings is not to be construed as approving departures from Contract Documents.
- G. Review of Shop Drawings and Schedules does not relieve Contractor from responsibility for any aspect of those Drawings or Schedules that is a violation of local, County, State, or Federal laws, rules, ordinances, or rules and regulations of commissions, boards, or other authorities or utilities having jurisdiction.
- H. Before submitting Shop Drawings for review, Contractor shall check Shop Drawings of its subcontractors for accuracy, and confirm that all Work

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contiguous with and having bearing on other work shown on Shop Drawings is accurately drawn and in conformance with Contract Documents.

- I. Submitted drawings and details must bear stamp of approval of Contractor:
 - (1) Stamp and signature shall clearly certify that Contractor has checked Shop Drawings for compliance with Drawings.
 - (2) If Contractor submits a Shop Drawing without an executed stamp of approval, or whenever it is evident (despite stamp) that Drawings have not been checked, the District and/or Architect will not consider them and will return them to the Contractor for revision and resubmission. In that event, it will be deemed that Contractor has not complied with this provision and Contractor shall bear risk of all delays to same extent as if it had not submitted any Shop Drawings or details.
- J. Submission of Shop Drawings (in either original submission or when resubmitted with correction) constitutes evidence that Contractor has checked all information thereon and that it accepts and is willing to perform Work as shown.
- K. Contractor shall pay for cost of any changes in construction due to improper checking and coordination. Contractor shall be responsible for all additional costs, including coordination. Contractor shall be responsible for costs incurred by itself, the District, the Architect, the Project Inspector, the Construction Manager, any other Subcontractor or contractor, etc., due to improperly checked and/or coordination of submittals.
- L. Shop Drawings must clearly delineate the following information:
 - (1) Project name and address.
 - (2) Specification number and description.
 - (3) Architect's name and project number.
 - (4) Shop Drawing title, number, date, and scale.
 - (5) Names of Contractor, Subcontractor(s) and fabricator.
 - (6) Working and erection dimensions.
 - (7) Arrangements and sectional views.
 - (8) Necessary details, including complete information for making connections with other Work.
 - (9) Kinds of materials and finishes.
 - (10) Descriptive names of materials and equipment, classified item numbers, and locations at which materials or equipment are to be installed in the Work. Contractor shall use same reference identification(s) as shown on Contract Drawings.

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- M. Contractor shall prepare composite drawings and installation layouts when required to solve tight field conditions.
 - (1) Shop Drawings shall consist of dimensioned plans and elevations and must give complete information, particularly as to size and location of sleeves, inserts, attachments, openings, conduits, ducts, boxes, structural interferences, etc.
 - (2) Contractor shall coordinate these composite Shop Drawings and installation layouts in the field between itself and its Subcontractor(s) for proper relationship to the Work, the work of other trades, and the field conditions. The Contractor shall check and approve all submittal(s) before submitting them for final review.

1.04 PRODUCT DATA OR NON REPRODUCIBLE SUBMITTALS:

- A. Contractor shall submit manufacturer's printed literature in original form. Any fading type of reproduction will not be accepted. Contractor must submit a minimum of six (6) each, to the District. District shall return one (1) to the Contractor, who shall reproduce whatever additional copies it requires for distribution.
- B. Contractor shall submit six (6) copies of a complete list of all major items of mechanical, plumbing, and electrical equipment and materials in accordance with the approved Submittal Schedule, except as required earlier to comply with the approved Construction Schedule. Other items specified are to be submitted prior to commencing Work. Contractor shall submit items of like kind at one time in a neat and orderly manner. Partial lists will not be acceptable.
- C. Submittals shall include manufacturer's specifications, physical dimensions, and ratings of all equipment. Contractor shall furnish performance curves for all pumps and fans. Where printed literature describes items in addition to that item being submitted, submitted item shall be clearly marked on sheet and superfluous information shall be crossed out. If highlighting is used, Contractor shall mark all copies.
- D. Equipment submittals shall be complete and include space requirements, weight, electrical and mechanical requirements, performance data, and supplemental information that may be requested.
- E. Imported Materials Certification must be submitted at least ten (10) days before material is delivered.

1.05 SAMPLES:

- A. Contractor shall submit for approval Samples as required and within the time frame in the Contract Documents. Materials such as concrete, mortar, etc., which require on-site testing will be obtained from Project Site.
- B. Contractor shall submit four (4) samples except where greater or lesser number is specifically required by Contract Documents including, without limitation, the Specifications.

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- (1) Samples must be of sufficient size and quality to clearly illustrate functional characteristics, with integrally related parts and attachment devices.
 - (2) Samples must show full range of texture, color, and pattern.
- C. Contractor shall make all Submittals, unless it has authorized Subcontractor(s) to submit and Contractor has notified the District in writing to this effect.
- D. Samples to be shipped prepaid or hand-delivered to the District.
- E. Contractor shall mark samples to show name of Project, name of Contractor submitting, Contract number and segment of Work where representative Sample will be used, all applicable Specifications Sections and documents, Contract Drawing Number and detail, and ASTM or FS reference, if applicable.
- F. Contractor shall not deliver any material to Site prior to receipt of District's and/or Architect's completed written review and approval. Contractor shall furnish materials equal in every respect to approved Samples and execute Work in conformance therewith.
- G. District's and/or Architect's review, acceptance, and/or approval of Sample(s) will not preclude rejections of any material upon discovery of defects in same prior to final acceptance of completed Work.
- H. After a material has been approved, no change in brand or make will be permitted.
- I. Contractor shall prepare its Submittal Schedule and submit Samples of materials requiring laboratory tests to specified laboratory for testing not less than ninety (90) days before such materials are required to be used in Work.
- J. Samples which are rejected must be resubmitted promptly after notification of rejection and be marked "Resubmitted Sample" in addition to other information required.
- K. Field Samples and Mock-Ups are to be removed by Contractor at District's direction:
 - (1) Size: As Specified.
 - (2) Furnish catalog numbers and similar data, as requested.

1.06 REVIEW AND RESUBMISSION REQUIREMENTS:

- A. The District will arrange for review of Sample(s), Shop Drawing(s), Product Data, and other submittal(s) by appropriate reviewer and return to Contractor as provided below within twenty-one (21) days after receipt or within twenty-one (21) days after receipt of all related information necessary for such review, whichever is later.
- B. One (1) copy of product or materials data will be returned to Contractor with the review status.

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- C. Samples to be incorporated into the Work will be returned to Contractor, together with a written notice designating the Sample with the appropriate review status and indicating errors discovered on review, if any. Other Samples will not be returned, but the same notice will be given with respect thereto, and that notice shall be considered a return of the Sample.
- D. Contractor shall revise and resubmit any Sample(s), Shop Drawing(s), Product Data, and other submittal(s) as required by the reviewer. Such resubmittals will be reviewed and returned in the same manner as original Sample(s), Shop Drawing(s), Product Data, and other submittal(s), within fourteen (14) days after receipt thereof or within fourteen (14) days after receipt of all related information necessary for such review. Such resubmittal shall not delay the Work.
- E. Contractor may proceed with any of the Work covered by Sample(s), Shop Drawing(s), Product Data, and other submittal(s) upon its return if designated as no exception taken, or revise as noted, provided the Contractor proceeds in accordance with the District and/or the Architect's notes and comments.
- F. Contractor shall not begin any of the work covered by a Sample(s), Shop Drawing(s), Product Data, and other submittal(s), designated as revise and resubmit or rejected, until a revision or correction thereof has been reviewed and returned to Contractor.
- G. Sample(s), Shop Drawing(s), Product Data, and other submittal(s) designated as revise and resubmit or rejected and requiring resubmittal, shall be revised or corrected and resubmitted to the District no later than fourteen (14) days or a shorter period as required to comply with the approved Construction Schedule, after its return to Contractor.
- H. Neither the review nor the lack of review of any Sample(s), Shop Drawing(s), Product Data, and other submittal(s) shall waive any of the requirements of the Contract Documents, or relieve Contractor of any obligation thereunder.
- I. District's and/or Architect's review of Shop Drawings does not relieve the Contractor of responsibility for any errors that may exist. Contractor is responsible for the dimensions and design of adequate connections and details and for satisfactory construction of all the Work.

PART 2 – PRODUCTS Not Used.

PART 3 - EXECUTION Not Used.

END OF DOCUMENT

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Requirements for the following:
 - a. Electronic Data Transfer.
 - b. Substitutions: Specific procedures for submission and approval of products other than those specified or noted on the Drawings.
 - c. Procedures for processing of Contractors "Requests for Interpretation" (RFI) questions.
 - 2. Procedures to be followed in preparing and submitting the following:
 - a. Subcontractor List.
 - b. Progress Schedule.
 - c. Schedule of Values.
 - d. Shop Drawings.
 - e. Product Data/Material Lists.
 - f. Samples.
 - g. Requests for Information (RFI).
 - h. Record Drawings.
 - i. Certifications including those required for material VOC content.
 - j. Maintenance/Operating Manuals.
 - k. Warranties and Extended Guarantees.
 - l. Extra Stock.
 - 3. Substitution Procedures: Specific requirements for submission and approval of products other than those specified or noted on the Drawings.
 - 4. Procedures for processing of Contractors "Requests for Interpretation" (RFI) questions.
 - 5. Electronic Data Transfer.

1.2 RELATED REQUIREMENTS

- A. Section 01 6116, Volatile Organic Compound (VOC) Restrictions; "Accessory Material VOC Content Certification Form."
- B. Document 01 7700, Contract Closeout and final cleaning.
- C. Document 01 7836, Warranties; guarantee/warranty forms.
- D. Section 01 8113, Sustainable Design Requirements, for CAL-Green general requirements and procedures.
- E. Test reports: Pertinent Specification Sections (by testing lab).

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- F. Individual requirements for submittals also are described in other Sections of these Specifications.

1.3 DEFINITIONS

- A. Action Submittals: Written and graphic information and physical samples that require Architect's responsive action. Action submittals are those submittals indicated in individual Specification Sections as action submittals.
- B. Informational Submittals: Written and graphic information and physical samples indicated in individual Specification Sections as informational submittals that do not require Architect's responsive action.
- C. Portable Document Format (PDF): An open standard file format licensed by Adobe Systems used for representing documents in a device-independent and display resolution-independent fixed-layout document format.

1.4 ADMINISTRATIVE REQUIREMENTS

- A. General;
 - 1. Shop drawings, product data, and samples are in no case to be considered Contract Documents but are to be treated only as instruments of convenience and facility to further the progress of the Work.
 - 2. Miscellaneous systems not specifically specified but installed to meet code requirements or for other reasons are subject to Architect's review prior to installation.
- B. Shop drawings, product data, samples and supporting data shall be prepared by Contractor or its suppliers but shall be submitted to Architect by Contractor as the instruments of the Contractor.
- C. Coordination of Submittals:
 - 1. Before submitting a shop drawing or any related material to Architect, Contractor shall: review each such submission for conformance with the means, methods, techniques, sequences, and operations of construction, and safety precautions and programs incidental thereto, which are the sole responsibility of the Contractor; approve each such submission before submitting it; and so stamp each such submission before submitting it. By affixing the Contractor's signature to each submittal, the Contractor certifies that this coordination has been performed.
 - 2. Architect shall assume that no shop drawing or related submittal comprises a variation unless the Contractor advises the Architect otherwise via a written instrument which is acknowledged by the Architect in writing.
- D. Grouping of Submittals:
 - 1. Unless otherwise specified, make submittals in groups containing all associated items to assure that information is available for checking each item when it is received.

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2. Partial submittals may be rejected as not complying with the provisions of the Contract. The Contractor may be held liable for delays so occasioned.
- E. Architect will check submittals for conformance with design concepts of project. Approval by Architect covers only such conformance. Effort will be made by Architect to discover any errors, but responsibility for accuracy and correctness of submittals shall be with the Contractor.
- F. Approval of submittals will be on a general basis only and shall not relieve the Contractor from their responsibility for proper fitting and construction of the Work, nor from furnishing materials and labor required by the Contract which may not be indicated on the submittals when approved.
- G. No portion of the work requiring submittals shall be commenced until the submittal for that portion of the work has been approved by Architect. All such portions of work shall be in accordance with the approved submittals. Any work performed without approved submittals will be done so at the Contractor's own risk. Work found not to be in compliance with the approved submittals shall be removed and corrected at the Contractor's own expense.
- H. The Contractor shall make corrections required by Architect and shall resubmit as required by Architect the required number of corrected copies of shop drawings, product data, or new samples until approved. Contractor shall direct specific attention in writing or on resubmittals to revisions other than the corrections required by the Architect on previous submissions. Professional services required for more than two (2) re-reviews of required submittals of shop drawings, product data, or samples are subject to charge to the Contractor.

1.5 ELECTRONIC DATA TRANSFER

- A. Requests for Electronic Data will be considered upon receipt of written request by the Contractor accompanied by a signed copy of the Electronic Data Request Form (included with this section). Request should clearly outline specific Drawings desired and the intent of the request.
 1. Submit Electronic Data Request Form on standard form.
 2. Allow 72 hours minimum for review and consideration by Architect.
- B. Electronic data files are not a part of the contract documents, but rather a convenience for the Contractor in preparation of his required submittals and layout efforts. Electronic files do not alter the content or meaning of the hard copy documents which may be a part of the Contract Documents.
- C. The electronic data files will remain the property of the Architect, shall not be used for any other purpose than that purpose stated in the Electronic Data Request Form, and shall not be released by the Contractor or any subcontractor to any other party without written consent from the Architect.
- D. The electronic data files are distributed for reference only. Transferring such files can alter, delete or change original information. Accuracy of the data cannot be guaranteed

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as correct or complete and the Contractor accepts full responsibility for inaccuracies, regardless of cause.

- E. The hard copy documents, including addenda and subsequent written changes to the documents, represent the complete work of the Contract. Electronic files should be cross-referenced to the Contract Documents by the user and verified from that the information included contains the necessary Contract information. It is the Contractor's responsibility to make any changes or revisions to the electronic data files as necessary.
- F. Architect may, at his complete discretion and without explanation, approve or deny requests for electronic data.

1.6 SUBSTITUTIONS

- A. Architect's Approval Required:
 - 1. Contract is based on materials, equipment and methods described in Contract Documents. Substitutions will not be reviewed and approved prior to the award of the contract.
 - 2. Architect will consider proposals during the submittal process for substitution of materials, equipment and methods only when such proposals are accompanied by full and complete technical data and other information required by Architect to evaluate proposed substitution. Substitution shall be submitted with completed Substitution Request Form, included with this section.
 - 3. Do not substitute materials, equipment or methods unless such substitution has been specifically approved for this work by Architect.
- B. "Or Equal": Whenever, in Contract Documents, any material, process or specified patent or proprietary name and/or by name of manufacturer is indicated, such name shall be deemed to be used for purpose of facilitating description of material and/or process desired, and shall be deemed to be followed by the words "or equal" and Contractor may offer any material or process which shall be equal in every respect to that so indicated or specified; provided, however, that if material, process or article offered by Contractor is not, in opinion of Architect, equal in every respect to that specified, then Contractor shall furnish material, process or article specified or one that in opinion of Architect is equal thereof in every respect.
- C. "No Substitutions": Items indicated as "No Substitutions" shall be provided as specified and no alternates will be allowed. These items are required either due to standards implemented by the Owner or to match materials recently installed by others.
- D. Coordination: Approval of substitution shall not relieve Contractor from responsibility for compliance with requirements of Drawings and Project Manual, and Contractor shall be responsible at his own expense for any changes in other parts of its own work or work of others which may be caused by approved substitution.
- E. DSA Approval: Substitutions of certain items may cause such items to require a Deferred Approval by DSA. Should a DSA Deferred Approval be required, the Contractor shall provide information and documents necessary to complete the Deferred Approval

process without any additional costs to the Owner, including engineering, calculation and modification of substitute products.

PART 2 - SUBMITTALS

2.1 SUBCONTRACTOR LIST

- A. Provide a typed list of Subcontractors within 5 days of notice of the award of contract. Include Subcontractor name, address, phone number, license number and trade.

2.2 PROGRESS SCHEDULE

- A. Prepare and submit estimated progress schedule for work within 10 calendar days after issuance of Notice to Proceed. Submit up-dated schedules:
 - 1. At mid-point of construction.
 - 2. When time extensions of more than two weeks are necessary.
- B. Relate progress Schedule to entire Project. Indicate following:
 - 1. Dates for starting and completion of various sub-contracts.
 - 2. Dates for submission of required submittals.

2.3 SCHEDULE OF VALUES

- A. Before first Application for Payment, submit for Architect's approval a Schedule of Values of various portions of work, aggregating total Contract sum, divided so as to facilitate payment to subcontractors, prepared in such form as Architect and Contractor may agree upon, and supported by such data to substantiate its correctness as Architect may require.
 - 1. Breakdown shall include separation of sitework from building work for main categories including electrical, plumbing, concrete, etc. Separations shall also be provided for each building of a multiple building contract. Include proper share of overhead and profit with each item in Schedule of Values.
 - 2. This Schedule, when approved by Architect, shall be used as basis for Contractor's applications for payment. Payment will not be released until a Schedule of Values is accepted.
- B. Schedule of Values shall appear similar to the following list and generally following the Table of Contents of this Project Manual as the format for listing component items. It shall be detailed at least as shown and portions shall not be more largely grouped so as to reduce its length unless appropriate to the scope of the Work. Mobilization/Start-up is limited to 2 percent on contracts greater than \$1,000,000 and 4 percent on contracts less than \$1,000,000. Contract closeout to be a minimum of **10 percent**.
 - 1. Mobilization/Start-up.
 - 2. Temporary Facilities.

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3. Metals.
4. Painting.
5. Site Concrete.
6. Electrical
7. Plumbing
8. Labor/Supervision.
9. Cleanup.
10. Record Survey.
11. Contract Closeout.

2.4 SUBMITTAL SCHEDULE

- A. Contractor shall prepare and submit to Architect a "Submittal Schedule" when required by the General Conditions showing scheduled dates of submittals and date required for return of submittals to Contractor.
- B. Contractor shall provide in Schedule the minimum specified working days for Architect to review and check submittals provided it is not a deferred approval item. Based on the number and complexity of submittals at any one time, Architect's review period may be longer than the days specified.
- C. Dates on "Submittal Schedule" shall be agreed upon by both Architect and Contractor.

2.5 PROJECT DIRECTORY

- A. After execution of the Contract but prior to commencement of Work, Contractor shall submit to Architect a Project Directory listing subcontractors and vendors on the Project and giving a brief description of their scope of work, firm name, contact person, address, phone number, e-mail address, and fax number if used.

2.6 SHOP DRAWINGS

- A. Submit shop drawings as a copy of the original set maintained by the Contractor. Shop drawings are to include the name of the project, the name of Contractor and are to be numbered consecutively. Provide legible and complete copies in every respect. Provide quantity as described below. Do not reproduce the Contract Drawings in lieu of Contractor or subcontractor produced shop drawings.
- B. If shop drawings show variations from Contract requirements because of standard shop practice or other reason, make specific mention of such variations in letter of transmittal, as well as on Drawings, in order that (if acceptable) suitable action may be taken for proper adjustment of the Contract Documents. Unless specific changes have been noted and approved, no deviations from Contract Documents will be accepted.

2.7 PRODUCT DATA / MATERIAL LISTS

- A. Manufacturer's Standard Schematic Drawings:

1. Modify Manufacturer's drawings to delete information which is not applicable to the Project.
 2. Supplement standard information to provide additional information which is applicable to the Project.
- B. Manufacturer's catalog sheets, brochures, diagrams, schedules, performance charts, illustrations and other standard descriptive data.
1. Clearly mark each copy to identify pertinent materials, products or models. Mark out or remove extraneous information.
 2. Show dimensions and clearances required.
 3. Show performance characteristics and capacities.
 4. Show wiring diagrams and controls.

2.8 SAMPLES

- A. Samples: Physical examples to illustrate materials, and to establish standards by which completed work is judged.
1. Include identification on samples including product and material and location of proposed work.
- B. Samples shall be of sufficient size and quantity to clearly illustrate:
1. Functional characteristics of product or material, with integrally related parts and attachment devices.

2.9 REQUESTS FOR INFORMATION (RFI)

- A. Requests for additional information (RFI's) beyond that set-forth in the Contract Documents will be considered when the request is in writing and fully documented. Requests shall state the source and reason for the request; identify specific references within the Contract Documents pertinent to the request; and supply supporting information to assist the Architect in his/her response. Verbal responses to such requests are to be considered informational; official response will only be given in writing.
1. Submit RFI's on standard form, included with this Section, and numbered consecutively.
 2. Allow a minimum of 72-hours for review by Architect. Additional time may be required for more complex issues.
 3. Provide suggested solution on standard RFI form where indicated.
 4. Provide detailed cost estimate for RFI's that are anticipated to exceed \$500 in extra costs to the Owner.
- B. Because RFI's are used for clarification or Construction Document interpretation purposes, the response will be issued back to the Contractor in the space provided on the standard RFI form. More complex issues requiring Contract Document revisions and/or which may result in a change in cost to the Contract will be handled using a Construction Change Document (CCD). RFI's and CCD's will not be used to address

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simple or minor coordination or construction issues which can normally be addressed quickly and easily by the Contractor or in conjunction with the Contractor and Architect. RFI's deemed unnecessary or frivolous by the Architect will be returned to the Contractor for reconsideration or will be rejected. RFI's so returned shall be removed from the RFI log and noted as unnecessary.

2.10 CERTIFICATIONS

- A. Where specifically indicated by pertinent Specification Sections, submit proper certification of recognized producer or association in lieu of or in addition to testing. Certification shall attest to product's compliance with requirements of Contract Documents.
 - 1. Certificate of Compliance for Building Materials:
 - a. Submit completed Certification of Compliance for Building Materials (included with this section).

2.11 MAINTENANCE / OPERATION MANUALS

- A. General: Contractor shall incorporate in Maintenance/Operation Manual(s) brochures, manufacturer's catalogs and written instructions for equipment and materials needing regular care or maintenance. These items include carpets, resilient flooring, architectural finishes, mechanical and electrical equipment and other items as required elsewhere in Contract Documents. Prepare manuals in durable plastic loose leaf binders sized to accommodate 8-1/2 x 11 sheets with following minimum information:
 - 1. Identification on or readable through, front cover stating general nature of manual.
 - 2. Neatly typewritten index of contents.
 - 3. Site plan and building plans indicating location of equipment referenced (reduced scale).
 - 4. Complete instructions regarding operation and maintenance of equipment involved.
 - 5. Complete nomenclature of replaceable parts, their part numbers, current cost and name and address of nearest vendor of parts.
 - 6. Copy of warranties issued, in a separate binder as specified in this Section.
 - 7. Copy of approved shop drawings (reduced scale) with data concerning changes made during construction.
- B. Extraneous Data:
 - 1. Where contents of manuals include manufacturer's catalog pages, clearly indicate precise items included in the Project installation and delete, or otherwise clearly indicate, manufacturer's data with which the Project installation is not concerned.
- C. Materials shall be organized in a logical and consistent manner, by Specification Section number, with separating tabs clearly marked.

- D. When submitting electronic file via Newforma, materials shall be organized in order ascending by Specification Section number and including clear separation within one pdf file, following format prescribed in paragraphs A and B of this Article.

2.12 WARRANTIES AND GUARANTEES

1. Furnish Owner with its Standard Guarantee for work executed under this Contract, including approved extra work, to be absolutely free of defects of workmanship and materials for a period of **two (2) years from the date of filing of the Notice of Completion.**
 2. Under the terms of its warranty, Contractor shall guarantee to repair and make good defects and repair damage to other work caused thereby which may occur during the Warranty period at no cost to the Owner.
 3. Guarantees and warranties between Contractor and manufacturers and between Contractor and suppliers shall not affect the Guarantee and Warranty between Contractor and Owner.
 4. Contractor's Standard Guarantee shall be submitted on the Guarantee/Warranty form included in Section 01 7836, Warranties.
- B. Subcontractor Standard Guarantee:
1. Contractor shall countersign and furnish Owner with a Subcontractor Standard Guarantee from each Subcontractor for their work executed under this Contract, and approved extra work, to be free of defects of workmanship and materials for a period equal to the Contactor Standard Guarantee.
 2. Under the terms of its warranty, Subcontractor shall guarantee to repair and make good defects and repair damage to other work caused thereby which may occur during the Warranty period at no cost to the Owner.
 3. Subcontractors individual Standard Guarantee shall be submitted on Guarantee/Warranty form included in Section 01 7836, Warranties.
- C. Special or Extended Guarantee/Warranty:
1. In addition to the Contractor's and Subcontractor's Standard Guarantees, furnish Owner with special or extended warranties in excess of the Standard Warranty term of the Contract where specified in the respective Sections of the Specifications.
 2. Where special or extended guarantees are related to work of a Subcontractor, the written Guarantee/Warranty form prepared by the Contractor shall be co-signed by the respective responsible subcontractor and a separate and addition Guarantee/Warranty form shall be prepared by the Subcontractor and co-signed by the Contractor.
 3. Each Special or Extended Guarantee/Warranty shall be submitted on the forms included in Section 01 7836, Warranties.
- D. Provide a binder with the executed Guarantee/Warranty forms placed in the order in which they occur in the Project Manual. Include an Index listing each Specification Section, specific items covered and length of warranty for each item.

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- E. When submitting electronic file via Newforma, materials shall be organized in order ascending by Specification Section number and including clear separation within one pdf file.

2.13 RECORD DRAWINGS AND SPECIFICATIONS

- A. The Contractor shall prepare and maintain on a current basis an accurate and complete set of Record Drawings and Annotated Specifications showing clearly the following:
 - 1. Changes, revisions, and substitutions during construction, including, without limitation, field changes.
 - 2. Addenda, Construction Change Documents and Clarifications issued by the Architect.
 - 3. Installed locations of underground work and utilities, including storm drain piping, plumbing, electrical and stubs for future connections. Note both vertical and horizontal locations of underground facilities from permanent monuments such as building corners or other permanent structures, and finish grades.
 - 4. In the event of a specification that allows Contractor to elect one of several brands, makes, or types of material or equipment, the annotations shall show which of the allowable items the Contractor has furnished.
- B. The Contractor shall update the Record Drawings and Specifications as often as necessary to keep them current but no less often than weekly, and up-dated monthly, prior to and pursuant to approval of the progress payment application.
 - 1. Record drawings and specifications are to remain on site and available for inspection by the District Representative, Project Inspector and the Architect.
 - 2. Changes shall be made in an accurate and legible manner by a qualified draftsman acceptable to Architect.
 - 3. Symbols and designations used in preparing Record Drawings shall match those used in the Contract Drawings.
- C. At project completion, the Record Drawings and Annotated Specifications shall be submitted by the Contractor for Owner's Project Inspector and Architect review and comment.
 - 1. These will be returned to the Contractor for revisions. Once corrections have been completed the Inspector shall sign and date the record set coversheet noting it as acceptance of the completed Record Drawings and Specifications.
 - 2. Prior to Application for Final Payment, the original Record Drawings and Specifications are to be resubmitted to the Architect along with a scanned electronic file set in PDF format with each drawing bookmarked, matching the Drawing titles.
 - 3. When submitting electronic file via Newforma, materials shall be organized in order ascending by Sheet Number as shown on the Drawing Sheet Index within one pdf file.
- D. Conditions of Payments:

1. At the end of each month the Project Inspector will review the record drawings and specifications. If the records are incomplete, or incorrect, an appropriate amount of dollars, equivalent to the cost of uncovering the work to determine the locations of piping and the like, may be deducted from the next progress payment. The deducted sum will be withheld until the record drawings are updated and/or corrected.
2. Written confirmation from the District Representative that the record drawings and specifications have been properly updated weekly shall be submitted with each pay application request, and the existence of such properly updated records shall be a condition precedent to payment.
3. On completion of the Contractor's portion of the Work and prior to Application for Final Payment, the Contractor shall provide one complete set of approved Record Drawings and Specifications to the Owner, in format as specified, certifying them to be a complete and accurate reflection of the actual construction conditions of the Work. Delays in the submission of complete record documents may subject the Contractor to liquidated damages.

2.14 EXTRA STOCK

- A. Provide extra stock and materials, as described in the individual Specification Sections, to the Owner at time of final acceptance.
- B. Materials shall be inventoried in writing, neatly packaged, with labels clearly identifying contents and quantities.
- C. Contractor shall obtain written acceptance of delivery from Owner.

PART 3 - EXECUTION

3.1 GENERAL SUBMISSION REQUIREMENTS

- A. This project is using Newforma Info Exchange for transmission and processing of project documentation. The Contractor is responsible for making contract submissions through this web accessed system. No supplementary software is required for use. User names and passwords will be granted at the beginning of the project.
- B. Contractor is responsible for the scheduling of submittals in order to avoid detrimental impact to the construction schedule and to support the timely sequence of the Work.
 1. Allow a minimum of 15-working days for submittal review by the Architect. Complex submittals or submittals which are not provided as complete packages may take longer than 15-working days for review.
 2. Contractor shall allow time for potential rejection and re-submittal of submittals which are being offered as substitution to the specified products.
- C. Contractor shall review submittals for completeness, coordination and conflicts between subcontractors and other Work in the Contract Documents.
 1. Subcontractors shall make submittals to Contractor.

SUBMITTAL PROCEDURES

SECTION 01 3300

22-1515

Increment 2

2. Submittals made by subcontractors which are not thoroughly reviewed by the Contractor will be returned. Submittals which vary significantly from the Contract Documents and are not so identified prior to submission, will be returned to the Contractor without review.
- D. Electrical submittals, excluding underground work, shall each be packaged together so that products/components for these two major disciplines are transmitted to the Architect as a single submittal package for review.
- E. Submittals shall be accompanied by Submittal Transmittal, included at the end of this Section, addressed to the Architect. Each submittal transmittal shall:
 1. Be consecutively numbered.
 2. Re-submittals to have same submittal number as the original submittal with an alphanumeric suffix.
 3. Indicate Specification Section number. Separate submittals are required for each Specification Section involved.
 4. Include proper number of copies, as required in "Number of Copies Required" below.
 5. Contain index of items submitted, properly identified with Drawing numbers, etc.
 6. Substitutions shall be accompanied by a completed Substitution Request Form (included with the Project Manual).
- F. Electronic Submittals.
 1. Product data submitted electronically shall be submitted in .pdf format. Submittals shall be organized in a logical format grouping items and subsections together. The first page of each item or subsection must be bookmarked and properly labeled. If multiple fixtures or products are included in a single submittal, each item and corresponding information shall be separately grouped and bookmarked as noted above. This formatting and bookmarking shall also apply to other data submitted electronically like warranties/guarantees, maintenance & operations manuals and certifications.
 2. Shop drawings submitted electronically shall be submitted in .pdf format. Shop drawings shall be organized in a logical format grouping sections together (plans, elevations, details, schedules, etc.). Each sheet of the shop drawings shall be bookmarked and properly labeled. Plan references and detail callouts shall be hyperlinked to properly jump to the referenced page or detail.
- G. Number of Copies Required - Contractor shall submit following number of copies:
 1. Subcontractor List: 1-copy.
 2. Progress Schedule: 3-copies, plus 1-electronic copy in PDF.
 3. Schedule of Values: 3-copies.
 4. Shop Drawings: 1-electronic copy in PDF format.
 5. Product Data/Material Lists: 1-electronic copy in PDF format.

SUBMITTAL PROCEDURES
SECTION 01 3300
22-1515
Increment 2

6. Samples: As specifically indicated in the respective Specification Section or, if not indicated, two more than the Contractor requires to be returned.
 7. Samples for Color Selection: One set of manufacturer's complete range for initial selection; and 4 samples as requested of selected color for inclusion in final color boards.
 - a. As color selection is dependent on multiple submittals, it is critical that items requiring color decisions be submitted as early as possible and at the same time.
 - b. Selections will not be finalized until color dependent/selection submittals are received.
 8. Substitution Request: 1-copy.
 9. Request for Information: 1-copy.
 10. Electronic Transfer: 1-copy.
 11. Deferred Approvals: 3-copies.
 12. Record Survey: As specified.
 13. Certifications: 3-copies.
 14. Maintenance/Operations Manuals: After approved via Newforma submittal, 1-hard copy plus 1-electronic copy in format acceptable to the Owner.
 15. Guarantees/Warranties: After approved via Newforma submittal, 1-hard copy, plus 1-electronic copy in format acceptable to the Owner. Refer to Section 01 7836, Warranties, for forms and additional requirements for assembly of guarantees/warranties.
 16. Record Drawings: After approved via Newforma submittal, 1-hard copy plus 1-electronic copy in format acceptable to the Owner.
- H. Submittals shall include the following, as applicable:
1. Date and revision dates.
 2. Project title and number.
 3. The names of Architect, Contractor, Subcontractor and supplier or manufacturer.
 4. Identification of product or material.
 5. Field dimensions, clearly identified as such.
 6. Specification section number.
 7. A blank space for Architect's stamp.
 8. Contractor's stamp on each, initialed or signed, certifying that submittal was reviewed, field measurements have been verified and submittal is in compliance with the applicable Specification Section and the overall Contract Documents.
- I. Incomplete, inaccurate or non-complying submittals requiring revisions, re-submittal and additional review time, shall not be considered as a basis for Contract time extension.

3.2 PROCEDURES FOR ACTION SUBMITTALS

- A. Action Submittals are identified in the respective Specification Section and shall be submitted in accordance with the specified web based access system.

SUBMITTAL PROCEDURES
SECTION 01 3300
22-1515
Increment 2

- B. Number of Copies: As specified under Article "General Submission Requirements."
- C. Architect's Review:
 - 1. General:
 - a. Except for finish, color, and other aesthetic matters left to Architect's decision by Contract Documents, Architect's review is only for Contractor's convenience in following work and does not relieve Contractor from responsibility for deviations from requirements of Contract Documents.
 - b. Do not construe Architect's review as a complete check or relief from responsibility for errors or omissions of any sort in shop drawings or schedules or from necessity of furnishing work required by Contract Documents that may not have been shown on shop drawings.
 - c. Architect's review of a separate item does not indicate review of complete assembly in which it functions.
 - d. Review comments of the Architect (or its consultants) will be shown when it is returned to the Contractor. The Contractor shall make and distribute such copies as are required for its purposes.
- D. Processing:
 - 1. Architect will review Action Submittals in accordance with agreed upon "Submittal Schedule" and will return them to Contractor with Architect's stamp.
 - 2. Notations by Architect which increase Contract cost or time of completion shall be brought to Architect's attention before proceeding with work. Failure to do so will result in the increased costs being borne by the Contractor.
 - 3. Each submittal will be stamped indicating appropriate action to be taken by the Contractor.
 - 4. If for any reason the Contractor cannot comply with the notations, Contractor shall re-submit submittal. In the transmittal letter accompanying the re-submittal, clearly describe the reason(s) for not being able to comply with the notations.
- E. Action and Distribution:
 - 1. Architect will stamp submittals and Contractor shall comply with action noted on the Architect's "Submittal Review" stamp.
 - 2. Unless otherwise directed for mutually agreed or required by the Architect's stamp, Architect will return submittals to the Contractor via the specified web access system.
 - 3. If corrections are required, the Contractor is responsible for making the necessary corrections and re-submitting the shop drawings in a timely fashion as to not affect the project schedule.
 - 4. The Contractor shall secure final acceptance prior to commencing work involved.
- F. Consultants' Review:
 - 1. Submittals requiring review by Architect's or Owner's consultants shall be uploaded to the specified web access system for distribution by the Architect.

2. Processing shall be in accordance with consultants stamp.
 - a. If action required by consultants stamp is not clear, Contractor shall immediately notify the Architect for a clarification.
 - b. If returned submittal also includes the Architect's stamp, processing shall be in accordance with the Architect's stamp.
- G. Revisions:
 1. If revisions are required, the Contractor is responsible for making the necessary changes pertinent to by comments noted on the submittal and re-submitting the shop drawings in a timely fashion as to not affect the project schedule.
 2. If the Contractor considers any required revision to be a change, they shall so notify the Architect.
 3. Show each revision by number, date, and subject in a revision block on the submittal.
 4. If for any reason Contractor cannot comply with the notations, Contractor shall resubmit submittal.
- H. Revisions after Review: When a submittal has been reviewed by the Architect, resubmittal for substitution of materials or equipment will not be considered unless accompanied by an acceptable explanation as to why the substitution is necessary.

3.3 PROCEDURES FOR INFORMATIONAL SUBMITTALS

- A. Informational Submittals are identified in the respective Specification Section and shall be submitted in accordance with the specified web based access system.
- B. Number of Copies: As specified under Article "General Submission Requirements."
- C. Certificates and Certifications: Provide a notarized statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
- D. Test and Inspection Reports: Comply with requirements specified in Section 01 4523, Testing and Inspection Services.

3.4 PROCEDURES FOR CLOSEOUT AND MAINTENANCE MATERIAL SUBMITTALS

- A. Closeout and maintenance material submittals are identified in the respective Specification Section and shall be submitted as specified or, if not specified, in accordance instructions provided by the Architect.
- B. Comply with the additional requirements specified in Section 01 7700, Closeout Procedures.

3.5 FORMS

- A. The following submittal forms are included as part of this Section.

SUBMITTAL PROCEDURES

SECTION 01 3300

22-1515

Increment 2

1. Submittal Transmittal.
2. Substitution Request.
3. Request for Information.

4. Electronic Data Request.
5. Certification of Compliance for Building Materials.

END OF SECTION

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Last Updated: June 17, 2020

SUBMITTAL NO.:

Architect's Project # _____

DATE: _____

DSA File/Apl. # _____

Re-Submittal of Original No.: _____

1. SUBMITTAL TRANSMITTAL

Attention:



Contractor: _____

Contact: _____

Sub Contractor: _____

Contact: _____

Please submit only one trade per submittal! Description of submitted materials:

Quantity submitted	Specification Section		Description of contents (e.g. product data, shop drawings, samples)
	Section #	Section Title	

Contractor Statement: (read and acknowledge)

This submittal has been reviewed and approved with respect to the means, methods, techniques, and procedures of construction, safety precautions, and program incidentals thereto. This submittal complies with the contract documents and comprises no variations thereto, unless accompanied by a substitution request.

By: _____
Name

Date: _____

2. RE-TRANSMITTAL TO CONTRACTOR:

Distribution: Contractor, Owner, Project Inspector, RGA, Other

NO EXCEPTIONS TAKEN
SUBMIT SPECIFIED ITEM

REJECTED
REVISE AND RESUBMIT

FURNISH AS CORRECTED
NO ACTION REQUIRED

Corrections or comments made on the shop drawings during this review do not relieve the Contractor from compliance with requirements of the Drawings and Specifications. This general check is only for the review of conformance with the design concept of the project and general compliance with the information given in the Contract Documents. The Contractor is responsible for confirming and correlating all quantities and dimensions, selecting fabrication processes and techniques of construction, coordinating his work with that of all the other trades, and performing his work in a safe and satisfactory manner.

Rainforth Grau Architects

By: _____

Date: _____

Additional Comments:

See Specification Section 01 3300 for use of this form

**SUBSTITUTION
REQUEST NO.:**

Architect's Project #
DSA File/Appl. #

Date: _____

1. SUBSTITUTION REQUEST

Attention:

Contractor: _____

Contact: _____



Please submit only one product per request!

Sub Contractor: _____

Include with a specified product Submittal

Contact: _____

2. PROPOSED SUBSTITUTIONS: The undersigned requests consideration of the following substitution:

Specified Item: _____ Page No.: _____ Paragraph No.: _____

Proposed Item: _____

3. REASON FOR REQUEST:**4. REQUIREMENTS FOR SUBSTITUTIONS:**

Attached data includes product description, specifications, drawings, photographs, performance and test data adequate for evaluation of request; applicable portions of data are clearly identified. Attached data also includes a description of changes to Contract Documents, which proposed substitution will require for its proper installation.

The undersigned certifies that the following paragraphs, unless modified by attachments, are correct:

1. The proposed substitution does not affect dimensions shown on drawings and does not require design changes in the Contract Documents.
2. The undersigned will pay for changes to the building design, including engineering design, detailing and construction costs caused by the requested substitution.
3. The proposed substitution will have no adverse effect on the work, the schedule or specified warranty requirements.
4. Maintenance and service parts will be readily available for the proposed substitution.

The undersigned further states that the function, appearance and quality of the proposed substitution are equivalent or superior to the specified item.

Signature - Contractor/Subcontractor

Date

5. TRANSMITTAL TO CONTRACTOR:

Distribution: Contractor, Owner, Project Inspector, RGA, Other

ACCEPTED

ACCEPTED AS NOTED

REJECTED

Rainforth Grau Architects

By: _____

Date: _____

Comments:

RFI NO.:

Architect's Project # _____ Date: _____
DSA File/Apl. # _____

1. REQUEST FOR INFORMATION

Attention: _____ From: Contractor: _____
Contact: _____
Sub Contractor: _____
Contact: _____



Identify related specific references within the Contract Documents and supporting information:

Dwg./Document No.: _____
Building/Site Location: _____

2. Existing Condition (source / reason for the request):

3. Recommended Contractor Action(s) for resolution:

4. Project Inspector Acknowledgment: _____ Date Reviewed: _____

5. Owner / A/E Resolution(s):

Date of Response: _____ By: _____

Attachments: _____

Extra Work Involved in the Above Described Change? Yes No

Distribution: Contractor, Owner, Project Inspector, RGA, Other
See Specification Section 01300 for use of this form

**E-DATA
REQUEST NO.:**

Architect's Project #
DSA File/Apl. #

Date: _____

1. ELECTRONIC DATA REQUEST

Attention:



From: Contractor: _____

Contact: _____

Sub Contractor: _____

Contact: _____

2. DATA REQUESTED - Provide list of specific drawings requested (include sheet numbers):

3. REASON FOR REQUEST - Provide clear explanation of why information is desired and for what purpose it will be utilized:

4. ACKNOWLEDGEMENT OF RESPONSIBILITY:

The electronic data files requested are distributed for reference only. Transferring such files can alter, delete or change original information. Accuracy of the data cannot be guaranteed as correct or complete and the Contractor accepts full responsibility for any and all inaccuracies, regardless of cause.

The hard copy documents, including addenda and subsequent written changes to the documents, represent the complete work of the contract and all electronic files should be cross-referenced and verified from that information as electronic files may not contain all contract information. It is the Contractor's responsibility to make any changes or revisions necessary.

This electronic data is furnished without guarantee of compatibility with your hardware or software. It is the Contractor's responsibility to notify the Architect in the event a compatibility problem or disk defect is encountered and a replacement disk is necessary.

This electronic data, in its present form, remains the property of Rainforth Grau Architects and shall not be used for any other purpose than to provide background information for the project noted above. It is not to be released to any other party without the written consent of Rainforth Grau Architects.

Accepted by: _____
Signature - Contractor/Subcontractor

Representing: _____
Contractor/Subcontractor Company Name

CERTIFICATION OF COMPLIANCE FOR BUILDING MATERIALS

This is to certify, in accordance with the Environmental Protection Agency requirements, that the materials and equipment used in the construction of the Villalovoz Elementary School Inc. for the Tracy Joint Unified School District of San Joaquin County, California, are asbestos free and are, therefore, not subject to monitoring for asbestos contamination.

Project Name: _____

Address: _____

Contractor: _____

Address: _____

Signature: _____

Title: _____

Date: _____

SEPARATE CERTIFICATE IS REQUIRED FOR EACH SITE

SITE STANDARDS

PART 1 – GENERAL

1.01 RELATED DOCUMENTS AND PROVISIONS:

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

- A. General Conditions, including without limitation, Site Access, Conditions, and Regulations;
- B. Special Conditions;
- C. Drug-Free Workplace Certification;
- D. Tobacco-Free Environment Certification;
- E. Criminal Background Investigation/Fingerprinting Certification;
- F. Temporary Facilities and Controls.

1.02 REQUIREMENTS OF THE DISTRICT:

- A. Drug-Free Schools and Safety Requirements:
 - (1) All school sites and other District Facilities have been declared "Drug-Free Zones." No drugs, alcohol and/or smoking are allowed at any time in any buildings and/or grounds on District property. No students, staff, visitors, or contractors are to use drugs on these sites.
 - (2) Smoking and the use of tobacco products by all persons is prohibited on or in District property. District property includes school buildings, school grounds, school-owned vehicles and vehicles owned by others while on District property. Contractor shall post: "Non-Smoking Area" in a highly visible location in each work area, staging area, and parking area. Contractor may designate a smoking area outside of District property within the public right-of-way, provided that this area remains quiet and unobtrusive to adjacent neighbors. This smoking area is to be kept clean at all times.
 - (3) Contractor shall ensure that no alcohol, firearms, weapons, or controlled substances enter or are used at the Site. Contractor shall immediately remove from the Site and terminate the employment of any employee(s) found in violation of this provision.
- B. Language: Profanity or other unacceptable and/or loud language will not be tolerated, "Cat calls" or other derogatory language toward students, staff, volunteers, parents or public will not be allowed.

C. Disturbing the Peace (Noise and Lighting):

- (1) Contractor shall observe the noise ordinance of the Site at all times including, without limitation, all applicable local, city, and/or state laws, ordinances, and/or regulations regarding noise and allowable noise levels.
- (2) The use of radios, etc., shall be controlled to keep all sound at a level that cannot be heard beyond the immediate area of use. District reserves the right to prohibit the use of radios at the Site, except for mobile phones or other handheld communication radios.
- (3) If portable lights are used after dark, all light must be located so as not to direct light into neighboring property.

D. Traffic:

- (1) Driving on the Premises shall be limited to periods when students and public are not present. If driving or deliveries must be made during the school hours, two (2) or more ground guides shall lead the vehicle across the area of travel. In no case shall driving take place across playgrounds or other pedestrian paths during recess, lunch, and/or class period changes. The speed limit on-the Premises shall be five (5) miles per hour (maximum) or less if conditions require.
- (2) All paths of travel for deliveries, including without limitation, material, equipment, and supply deliveries, shall be reviewed and approved by District in advance. Any damage will be repaired to the pre-damaged condition by the Contractor.
- (3) District shall designate a construction entry to the Site. If Contractor requests, District determines it is required, and to the extent possible, District shall designate a staging area so as not to interfere with the normal functioning of school facilities. Location of gates and fencing shall be approved in advance with District and at Contractor's expense.
- (4) Parking areas shall be reviewed and approved by District in advance. No parking is to occur under the drip line of trees or in softscape areas that could otherwise be damaged.

- E. All of the above shall be observed and complied with by the Contractor and all workers on the Site. Failure to follow these directives could result in individual(s) being suspended or removed from the work force at the discretion of the District. The same rules and regulations shall apply equally to delivery personnel, inspectors, consultants, and other visitors to the Site.

PART 2 - PRODUCTS Not Used.

PART 3 - EXECUTION Not Used.

END OF DOCUMENT

REGULATORY REQUIREMENTS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS AND PROVISIONS:

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

- A. General Conditions, including, without limitation, Obtaining of Permits, Licenses and Registrations and Work to Comply with All Applicable Laws and Regulations;
- B. Special Conditions; and
- C. Quality Control.

1.02 DESCRIPTION:

This section covers the general requirements for regulatory requirements pertaining to the Work and is supplementary to all other regulatory requirements mentioned or referenced elsewhere in the Contract Documents.

1.03 REQUIREMENTS OF REGULATORY AGENCIES:

- A. All statutes, ordinances, laws, rules, codes, regulations, standards, and the lawful orders of all public authorities having jurisdiction over the Work, are hereby incorporated into these Contract Documents as if repeated in full herein and are intended to be included in any reference to Code or Building Code, unless otherwise specified, including, without limitation, the references in the list below. Contractor shall make available at the Site copies of all the listed documents applicable to the Work as the District and/or Architect may request, including, without limitation, applicable portions of the California Code of Regulations ("CCR").
 - (1) California Building Standards Administrative Code, Part 1, Title 24, CCR.
 - (2) California Building Code (CBC), Part 2, Title 24, CCR; (International Building Code volumes 1-2 and California Amendments).
 - (3) California Electrical Code (CEC), Part 3, Title 24, CCR; (National Electrical Code and California Amendments).
 - (4) California Mechanical Code (CMC), Part 4, Title 24, CCR; (Uniform Mechanical Code and California Amendments).
 - (5) California Plumbing Code (CPC), Part 5, Title 24, CCR; (Uniform Plumbing Code and California Amendments).

- (6) California Fire Code (CFC), Part 9, Title 24, CCR; (International Fire Code and California Amendments).
- (7) California Green Building Standards Code (CALGreen), Part 11, Title 24, CCR.
- (8) California Referenced Standards Code, Part 12, Title 24, CCR.
- (9) State Fire Marshal Regulations, Public Safety, Title 19, CCR.
- (10) Partial List of Applicable National Fire Protection Association (NFPA) Standards:
 - (a) NFPA 13 - Automatic Sprinkler System.
 - (b) NFPA 14 - Standpipes Systems.
 - (c) NFPA 17A - Wet Chemical System
 - (d) NFPA 24 - Private Fire Mains.
 - (e) (California Amended) NFPA 72 - National Fire Alarm Codes.
 - (f) NFPA 253 - Critical Radiant Flux of Floor Covering System.
 - (g) NFPA 2001 - Clean Agent Fire Extinguishing Systems.
- (11) California Division of the State Architect interpretation of Regulations ("DSA IR"), including, without limitation:
 - (a) DSA IR A-6 — Construction Change Document Submittal and Approval Processes.
 - (b) DSA IR A-7 — Project Inspector Certification and Approval.
 - (c) DSA IR A-8 — Project Inspector and Assistant Inspector Duties and Performance.
 - (d) DSA IR A-12 — Assistant Inspector Approval.
- (12) DSA Procedures ("DSA PR")
 - (a) DSA PR 13-01 – Construction Oversight Process
 - (b) DSA PR 13-02 – Project Certification Process

B. This Project shall be governed by applicable regulations, including, without limitation, the State of California's Administrative Regulations for the Division of the State Architect-Structural Safety (DSA/SS), Chapter 4, Part 1, Title 24, CCR, and the most current version on the date the bids are opened and as it pertains to school construction including, without limitation:

- (1) Test and testing laboratory per Section 4-335. District shall pay for the testing laboratory.
- (2) Special inspections per Section 4-333(c).
- (3) Deferred Approvals per section 4-317(g).
- (4) Verified reports per Sections 4-336 & 4-343(c).
- (5) Duties of the Architect & Engineers shall be per Sections 4-333(a) and 4-341.
- (6) Duties of the Contractor shall be per Section 4-343.
- (7) Duties of Project Inspector shall be per Section 4-334.
- (8) Addenda and Construction Change Documents per Section 4-338.

Contractor shall keep and make available all applicable parts of the most current version of Title 24 referred to in the plans and specifications at the Site during construction.

C. Items of deferred approval shall be clearly marked on the first sheet of the Architect's and/or Engineer's approved Drawings. All items later submitted for approval shall be per Title 24 requirements to the DSA.

- (1) Contractor shall submit the following to Architect for review and endorsement:
 - (a) Product information on proposed material/system supplier.
 - (b) Drawings, specifications, and calculations prepared, signed, and stamped by an architect or engineer licensed in the State of California for that portion of the Work.
 - (c) All other requirements as may be required by DSA.
- (2) Cost of preparing and submitting documentation per DSA Deferred Approval requirements including required modifications to Drawings and Specifications, whether or not indicated in the Contract Documents, shall be borne by Contractor.
- (3) Contractor shall not begin fabrication and installation of deferred approval items without first obtaining DSA approval of Drawings and Specifications.
- (4) Schedule of Work Subject to DSA Deferred Approval: Window wall systems exceeding 10 feet in span.

PART 2 – PRODUCTS Not Used.

PART 3 – EXECUTION Not Used.

END OF DOCUMENT

ABBREVIATIONS AND ACRONYMS

PART 1 – GENERAL

1.01 RELATED DOCUMENTS AND PROVISIONS:

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

- A. General Conditions including without limitation, Definitions;
- B. Special Conditions.

1.02 DOCUMENT INCLUDES:

- A. Abbreviations used throughout the Contract Documents.
- B. Reference to a technical society, organization, or body is by abbreviation, as follows:

1.	AA	The Aluminum Association
2.	AASHTO	American Association of State Highway and Transportation Officials
3.	ABPA	Acoustical and Board Products Association
4.	ACI	American Concrete Institute
5.	AGA	American Gas Association
6.	AGC	Associated General Contractors of America
7.	AHC	Architectural Hardware Consultant
8.	AHRI	Air Conditioning, Heating, Refrigeration Institute
9.	AI	Asphalt Institute
10.	AIA	American Institute of Architects
11.	AISC	American Institute of Steel Construction
12.	AISI	American Iron and Steel Institute
13.	AMCA	Air Movement and Control Association
14.	ANSI	American National Standards Institute
15.	APA	APA – The Engineered Wood Association
16.	ASCE	American Society of Civil Engineers
17.	ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers
18.	ASME	American Society of Mechanical Engineers
19.	ASTM	American Society of Testing and Materials International
20.	AWPA	American Wood Protection Association
21.	AWPI	American Wood Preservers Institute
22.	AWS	American Welding Society
23.	AWSC	American Welding Society Code
24.	AWI	Architectural Woodwork Institute
25.	AWWA	American Water Works Association
26.	BIA	The Brick Industry Association

27.	CCR	California Code of Regulations
28.	CLFMI	Chain Link Fence Manufacturers Institute
29.	CRA	California Redwood Association
30.	CRSI	Concrete Reinforcing Steel Institute
31.	CS	Commercial Standards
32.	CSI	Construction Specifications Institute
33.	CTI	Cooling Technology Institute
34.	FGIA	Fenestration and Glazing Industry Alliance
35.	FGMA	Flat Glass Manufacturers' Association
36.	FIA	Factory Insurance Association
37.	FM	Factory Mutual Global
38.	FS/FED SPEC	Federal Specification
39.	FTI	Facing Title Institute
40.	GA	Gypsum Association
41.	IAPMO	International Association of Plumbing and Mechanical Officials
42.	ICC	International Code Council
43.	IEEE	Institute of Electrical and Electronics Engineers
44.	IES	Illuminating Engineering Society
45.	MCAC	Mason Contractors Association of California
46.	MIMA	Mineral Wool Insulation Manufacturers Association
47.	MLMA	Metal Lath Manufacturers Association
48.	MS/MIL SPEC	Military Specifications
49.	NAAMM	National Association of Architectural Metal Manufacturers
50.	NBHA	National Builders Hardware Association
51.	NCMA	National Concrete Masonry Association
52.	NCSEA	National Council of Structural Engineers Associations
53.	NEC	National Electrical Code
54.	NEMA	National Electrical Manufacturers Association
55.	NIST	National Institute of Standards and Technology
56.	NSI	Natural Stone Institute
57.	NTMA	National Terrazzo and Mosaic Association, Inc.
58.	ORS	Office of Regulatory Services (California)
59.	OSHA	Occupational Safety and Health Act
60.	PCI	Precast/Prestressed Concrete Institute
61.	PCA	Portland Cement Association
62.	PCA	Painting Contractors Association
63.	PDI	Plumbing Drainage Institute
64.	PEI	Porcelain Enamel Institute, Inc.
65.	PG&E	Pacific Gas & Electric Company
66.	PS	Product Standards
67.	SDI	Steel Door Institute; Steel Deck Institute
68.	SJI	Steel Joist Institute
69.	SSPC	Society for Protective Coatings
70.	TCNA	Tile Council of North America, Inc.
71.	TPI	Truss Plate Institute
72.	UBC	Uniform Building Code
73.	UL	Underwriters Laboratories Code

74.	UMC	Uniform Mechanical Code
75.	USDA	United States Department of Agriculture
76.	VI	Vermiculite Institute
77.	WCLIB	West Coast Lumber Inspection Bureau
78.	WDMA	Window and Door Manufacturers Association
79.	WEUSER	Western Electric Utilities Service Engineering Requirements
80.	WIC	Woodwork Institute of California

PART 2 - PRODUCTS Not Used.

PART 3 - EXECUTION Not Used.

END OF DOCUMENT

DEFINITIONS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS AND PROVISIONS

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

- A. General Conditions including without limitation, Definitions;
- B. Special Conditions.

1.02 QUALITY ASSURANCE

- A. For products or workmanship specified by association, trade, or Federal Standards, Contractor shall comply with requirements of the standard, except when more rigid requirements are specified in the Contract Documents, or are required by applicable codes.
- B. Contractor shall conform to current reference standard publication date in effect on the date of bid opening.
- C. Contractor shall obtain copies of standards unless specifically required not to by the Contract Documents.
- D. Contractor shall maintain a copy of all standards at jobsite during submittals, planning, and progress of the specific Work, until final completion, unless specifically required not to by the Contract Documents.
- E. Should specified reference standards conflict with Contract Documents, Contractor shall request clarification from the District and/or the Architect before proceeding.
- F. The contractual relationship of the parties to the Contract shall not be altered from the contractual relationship as indicated in the Contract Documents by mention or inference otherwise in any referenced document.
- G. Governing Codes shall be as shown in the Contract Documents including, without limitation, the Specifications.

END OF DOCUMENT

REFERENCES**PART 1 - GENERAL****1.01 SCHEDULE OF REFERENCES:**

The following information is intended only for the general assistance of the Contractor, and the District does not represent that all of the information is current. It is the Contractor's responsibility to verify the correct information for each of the entities listed.

AA	The Aluminum Association 1400 Crystal Drive, Suite 430 Arlington, VA 22202 www.aluminum.org	703/358-2960
AABC	Associated Air Balance Council 2401 Pennsylvania Avenue NW, Suite 330 Washington, DC 20037 www.aabc.com	202/737-0202
AASHTO	American Association of State Highway and Transportation Officials 555 12th St. NW - Suite 1000 Washington, DC 20004 www.transportation.org	202/624-5800
AATCC	American Association of Textile Chemists and Colorists P.O. Box 12215 Research Triangle Park, NC 27709-2215 www.aatcc.org	919/549-8141
ACA	American Coatings Association 901 New York Ave., NW, Suite 300 West Washington, DC 20001 www.paint.org	202/462-6272
ACI	American Concrete Institute 38800 Country Club Dr. Farmington Hills, MI 48331-3439 www.concrete.org	248/848-3800
ACPA	American Concrete Pipe Association 5605 N. MacArthur Blvd., Suite 340 Irving, TX 75038 www.concrete-pipe.org	972/506-7216

ADC	Air Duct Council 1901 N. Roselle Road, Suite 800 Schaumburg, IL 60195 www.flexibleduct.org	847/706-6750
AF&PA	American Forest and Paper Association 1101 K Street, NW, Suite 700 Washington, DC 20005 www.afandpa.org	202/463-2700
AGA	American Gas Association 400 North Capitol Street, NW, Suite 450 Washington, DC 20001 www.aga.org	202/824-7000
AGC	Associate General Contractors of America 2300 Wilson Blvd., Suite 300 Arlington, VA 22201 www.agc.org	703/548-3118
AHA	American Hardboard Association 1210 West Northwest Highway Palatine, IL 60067 http://domensino.com/AHA/default.htm	847/934-8800
AI	Asphalt Institute 2696 Research Park Drive Lexington, KY 40511-8480 www.asphaltinstitute.org	859/288-4960
AIA	The American Institute of Architects 1735 New York Ave., NW Washington, DC 20006-5292 www.aia.org	202/626-7300
AISC	American Institute of Steel Construction 130 East Randolph Street, Suite 2000 Chicago, IL 60601 www.aisc.org	312.670.2400
AISI	American Iron and Steel Institute 25 Massachusetts Ave., NW, Suite 800 Washington, DC 20001 www.steel.org	202/452-7100
AITC	American Institute of Timber Construction 1010 South 336th Street, #210 Federal Way, WA 98003-7394 https://www.plib.org/aitc/	253/835-3344

ALI	Associated Laboratories, Inc. P.O. Box 152837 Dallas, TX 75315 www.assoc-labs.com	214/565-0593
ALSC	American Lumber Standards Committee, Inc. 7470 New Technology Way, Suite F Frederick, MD 21703 www.alsc.org	301/972-1700
AMCA	Air Movement and Control Association International, Inc. 30 W. University Drive Arlington Heights, IL 60004 www.amca.org	847/394-0150
AMPP (formerly SSPC)	Association for Materials Protection and Performance (merger of Society for Protective Coatings and National Association of Corrosion Engineers International) (formerly Steel Structures Painting Council) 800 Trumbull Drive Pittsburgh, PA 15205 www.sspc.org	412/281-2331 877/281-7772
ANLA	AmericanHort (merger of American Nursery & Landscape Association and OFA – The Association of Horticultural Professionals) 2130 Stella Court Columbus, OH 43215 www.americanhort.org	614/487-1117
ANSI	American National Standards Institute 1899 L Street, NW, 11th Floor Washington, DC 20036 www.ansi.org	202/293-8020
APA	APA-The Engineered Wood Association 7011 S. 19th Street Tacoma, WA 98466-5333 www.apawood.org	253/565-6600

APA	Architectural Precast Association 325 John Knox Rd, Suite L-103 Tallahassee, FL 32303 www.archprecast.org	850/205-5637
APCIA	American Property Casualty Insurance Association (merger of American Insurance Association (formerly the National Board of Fire Underwriters) with the Property Casualty Insurers Association of America) 555 12th St, NW, Suite 550 Washington DC 20004 www.apci.org	202/828-7100
AHRI	Air Conditioning and Refrigeration Institute (now Air-Conditioning, Heating, & Refrigeration Institute) 2311 Wilson Blvd, Suite 400 Arlington, VA 22201 www.ahrinet.org	703/524-8800
ARMA	Asphalt Roofing Manufacturers Association 2331 Rock Spring Road Forest Hill, MD 21050 www.asphaltroofing.org	443/640-1075
ASA	The Acoustical Society of America Suite 300 1305 Walt Whitman Road Melville, NY 11747-4300 https://acousticalsociety.org/	516/576-2360
ASCE	American Society of Civil Engineers 1801 Alexander Bell Drive Reston, VA 20191 www.asce.org	800/548-2723 703/295-6300
ASHRAE	American Society of Heating, Refrigerating and Air Conditioning Engineers 180 Technology Parkway Peachtree Corners, GA 30092 www.ashrae.org	800/527-4723 404/636-8400
ASLA	American Society of Landscape Architects 636 Eye Street, NW Washington, DC 20001-3736 www.asla.org	202/898-2444
ASME	American Society of Mechanical Engineers Two Park Avenue New York, NY 10016-5990 www.asme.org	800/834-2763

ASPE	American Society of Plumbing Engineers 6400 Shafer Court, Suite 350 Rosemont, IL 60018 http://aspe.org	847/296-0002
ASQ	American Society for Quality P.O. Box 3005 Milwaukee, WI 53201-3005 or 600 North Plankinton Avenue Milwaukee, WI 53203 http://asq.org	800/248-1946 414/272-8575
ASSE	American Society of Sanitary Engineering 18927 Hickory Creek Dr., Suite 220 Mokena, IL 60448 www.asse-plumbing.org	708/995-3019
ASTM	ASTM International 100 Barr Harbor Drive PO Box C700 West Conshohocken, PA, 19428-2959 www.astm.org	610/832-9500
AWCI	Association of the Wall and Ceiling Industry 513 West Broad Street, Suite 210 Falls Church, VA 22046 www.awci.org	703/538-1600
AWPA	American Wood Protection Association (formerly American Wood Preservers Institute) P.O. Box 361784 Birmingham, AL 35236-1784 www.awpa.com	205/733-4077
AWS	American Welding Society 8669 NW 36 Street, Suite 130 Miami, FL 33166 www.aws.org	800/443-9353 305/443-9353
AWI	Architectural Woodwork Institute 46179 Westlake Drive, Suite 120 Potomac Falls, VA 20165-5874 www.awinet.org	571/323-3636
AWWA	American Water Works Association 6666 West Quincy Avenue Denver, CO 80235 www.awwa.org	800/926-7337 303/794-7711

BHMA	Builders Hardware Manufacturers Association 355 Lexington Avenue, 15th Floor New York, NY 10017 www.buildershardware.com	212/297-2122
BIA	The Brick Industry Association 12007 Sunrise Valley Drive, Suite 430 Reston, VA 20191 www.gobrick.com	703/620-0010
CGA	Compressed Gas Association 8484 Westpark Drive, Suite 220 McLean, VA 22102 www.cganet.com	703/788-2700
CISCA	Ceilings & Interior Systems Construction Association 1010 Jorie Blvd, Suite 30 Oak Brook, IL 60523 www.cisca.org	630/584-1919
CISPI	Cast Iron Soil Pipe Institute 2401 Fieldcrest Dr. Mundelein, IL 60060 www.cispi.org	224/864-2910
CLFMI	Chain Link Fence Manufacturers Institute 10015 Old Columbia Road, Suite B-215 Columbia, MD 21046 chainlinkinfo.org	301/596-2583
CPA	Composite Panel Association 19465 Deerfield Avenue, Suite 306 Leesburg, VA 20176 www.compositepanel.org	703/724-1128
CPSC	Consumer Product Safety Commission 4330 East-West Highway Bethesda, MD 20814 www.cpsc.gov	800/638-2772
CRA	California Redwood Association 818 Grayson Road, Suite 201 Pleasant Hill, CA 94523 www.calredwood.org	925/935-1499

CRI	Carpet and Rug Institute 100 S. Hamilton Street Dalton, GA 30722-2048 www.carpet-rug.org	706/278-3176
CRSI	Concrete Reinforcing Steel Institute 933 N. Plum Grove Road Schaumburg, IL 60173-4758 www.crsi.org	847/517-1200
CSI	The Construction Specifications Institute 123 North Pitt St, Suite 450 Alexandria, VA 22314 www.csinet.org	800/689-2900
CTIOA	Ceramic Tile Institute of America 12061 Jefferson Blvd. Culver City, CA 90230-6219 www.ctioa.org	310/574-7800
DHA	Decorative Hardwoods Association (formerly Hardwood Plywood & Veneer Association) 42777 Trade West Dr. Sterling, VA 20166 https://www.decorativehardwoods.org/	703/435-2900
DHI	Door and Hardware Institute (formerly National Builders Hardware Association) 2001 K Street NW, 3rd Floor North Washington, DC 20006 www.dhi.org	202/367-1134
DIPRA	Ductile Iron Pipe Research Association P.O. Box 190306 Birmingham, AL 35219 www.dipra.org	205/402-8700
DOC	U.S. Department of Commerce 1401 Constitution Ave., NW Washington, DC 20230 www.commerce.gov	202/482-2000
DOT	U.S. Department of Transportation 1200 New Jersey Avenue, SE Washington, DC 20590 www.dot.gov	855/368-4200
EJMA	Expansion Joint Manufacturers Association, Inc. 25 North Broadway Tarrytown, NY 10591 www.ejma.org	914/332-0040

EPA	Environmental Protection Agency Ariel Rios Building 1200 Pennsylvania Avenue, N.W. Washington, DC 20460 www.epa.gov	202/272-0167
FCICA	Floor Covering Installation Contractors Association 800 Roosevelt Rd., Bldg. C, Suite 312 Glen Ellyn, IL 60137 www.fcica.com	630/672-3702
FGIA	Fenestration and Glazing Industry Alliance 1900 E Golf Rd, Suite 1250 Schaumburg, IL 60173 https://fgiaonline.org/	847/303-5664
FM Global	Factory Mutual Insurance Company Amy Daley Global Practice Leader – Education, Public Entities, Health Care FM Global 270 Central Avenue Johnston, RI 02919-4949 www.fmglobal.com	401/275-3000 401/275-3029
FS	General Services Administration (GSA) Index of Federal Specifications, Standards and Commercial Item Descriptions 470 East L'Enfant Plaza, SW, Suite 8100 Washington, DC 20407 www.gsa.gov	202/619-8925
GA	The Gypsum Association 962 Wayne Ave., Suite 620 Silver Spring, MD 20910 www.gypsum.org	301/277-8686
HMA	Hardwood Manufacturers Association One Williamsburg Place, Suite 108 Warrendale, PA 15086 http://hmamembers.org	412/244-0440

IAPMO	International Association of Plumbing and Mechanical Officials (formerly the Western Plumbing Officials Association) 4755 E. Philadelphia St. Ontario, CA 91761 www.iapmo.org	909/472-4100
ICC	International Code Council 500 New Jersey Avenue, NW, 6th Floor Washington, DC 20001 www.iccsafe.org	888/422-7233
IEEE	Institute of Electrical and Electronics Engineers 3 Park Avenue, 17th Floor New York, NY 10016-5997 www.ieee.org	212/419-7900
IES	Illuminating Engineering Society 120 Wall Street, Floor 17 New York, NY 10005-4001 www.ies.org	212/248-5000
ITRK	Intertek Testing Services 3933 US Route 11 Cortland, NY 13045 www.intertek.com	607/753-6711
MCAA	Mechanical Contractors Association of America 1385 Piccard Drive Rockville, MD 20850 www.mcaa.org	301/869-5800
MMPA (formerly WMMPA)	Moulding & Millwork Producers Association (formerly Wood Moulding & Millwork Producers Association) 507 First Street Woodland, CA 95695 www.wmmpa.com	530/661-9591 800/550-7889
MSS	Manufacturers Standardization Society (MSS) of the Valve and Fittings Industry, Inc. 127 Park Street, NE Vienna, VA 22180-4602 http://mss-hq.org	703/281-6613
NAAMM	National Association of Architectural Metal Manufacturers 800 Roosevelt Rd. Bldg. C, Suite 312 Glen Ellyn, IL 60137 www.naamm.org	630/942-6591

NAIMA	North American Insulation Manufacturers Association P.O. Box 1906 Alexandria, VA 22313 https://insulationinstitute.org/	703/684-0084
NALP	National Association of Landscape Professionals (formerly Professional Landcare Network) 12500 Fair Lakes Circle, Suite 200 Fairfax, VA 22033 https://www.landscapeprofessionals.org/	703/736-9666
NAPA	National Asphalt Pavement Association 6406 Ivy Lane, Suite 350 Greenbelt, MD 20770-1441 www.asphaltpavement.org	888/468-6499 301/731-4748
NCSPA	National Corrugated Steel Pipe Association 14070 Proton Road, Suite 100 Dallas, TX 75244 www.ncspa.org	972/850-1907
NCMA	National Concrete Masonry Association 13750 Sunrise Valley Drive Herndon, VA 20171-4662 www.ncma.org	703/713-1900
NEBB	National Environmental Balancing Bureau 8575 Grovemont Circle Gaithersburg, MD 20877 www.nebb.org	301/977-3698
NECA	National Electrical Contractors Association 1201 Pennsylvania Ave. NW Washington, D.C., 20004 www.necanet.org	202/991-6300
NEMA	National Electrical Manufacturers Association 1300 North 17th Street N, Suite 900 Rosslyn, VA 22209 www.nema.org	703/841-3200
NEII	National Elevator Industry, Inc. 5537 SW Urish Road Topeka, KS 66610 https://nationalelevatorindustry.org/	703/589-9985
NFPA	National Fire Protection Association 1 Batterymarch Park Quincy, MA 02169-7471 www.nfpa.org	800/344-3555 855/274-8525

NGA (formerly GANA)	National Glass Association (merged with Glass Association of North America) 1945 Old Gallows Road Suite 750 Vienna, VA 22182 www.glass.org	866/342-5642 Ext 127
NHLA	National Hardwood Lumber Association PO Box 34518 Memphis, TN 38184 www.nhla.com	901/377-1818
NIA	National Insulation Association 516 Herndon Pkwy., Ste. D Herndon, VA 20170 www.insulation.org	703/464-6422
NRCA	National Roofing Contractors Association 10255 W. Higgins Road, Suite 600 Rosemont, IL 60018-5607 www.nrca.net	847/299-9070
NSF	NSF International 789 N. Dixboro Road Ann Arbor, MI 48113-0140 www.nsf.org	800/673-6275 734/769-8010
NSI	Natural Stone Institute (formerly Marble Institute of America) 380 E. Lorain St. Oberlin, OH 44074 https://www.naturalstoneinstitute.org/	440/250-9222
NTMA	National Terrazzo and Mosaic Association 209 N. Crockett Street, Suite 2 PO Box 2605 Fredericksburg, TX 78624 www.ntma.com	800/323-9736
OSHA	Occupational Safety and Health Act U.S. Department of Labor Occupational Safety & Health Administration 200 Constitution Ave., NW Washington, DC 20210 www.osha.gov	800/321-OSHA (6742)

PCA	Portland Cement Association 5420 Old Orchard Road Skokie, IL 60077 or 200 Massachusetts Ave NW, Suite 200 Washington, DC 20001 www.cement.org	847/966-6200 202/408-9494
PCA	Painting Contractors Association (formerly Painting and Decorating Contractors of America) 2316 Millpark Drive Maryland Heights, MO 63043 https://www.pcapainted.org/	800/322-7322
PCI	Precast/Prestressed Concrete Institute 8770 W. Bryn Mawr Ave., Suite 1150 Chicago, IL 60631 www.pci.org	312/786-0300
PDI	Plumbing & Drainage Institute 800 Turnpike Street, Suite 300 North Andover, MA 01845 http://pdionline.org	978/557-0720 800/589-8956
PEI	Porcelain Enamel Institute, Inc. P.O. Box 920220 Norcross, GA 30010 www.porcelainenamel.com	770/676-9366
PG&E	Pacific Gas & Electric Company P.O. Box 997300 Sacramento, CA 95899-7300 www.pge.com	800/743-5000
PLIB	Pacific Lumber Inspection Bureau (formerly West Coast Lumber Inspection Bureau) 1010 South 336th Street, Suite 210 Federal Way, WA 98003-7394 https://www.plib.org/	253/835-3344
RFCI	Resilient Floor Covering Institute 115 Broad Street, Suite 201 La Grange, GA 30240 www.rfci.com	706/882-3833
SDI	Steel Deck Institute P.O. Box 426 Glenshaw, PA 15116 www.sdi.org	412/487-3325

SDI	Steel Door Institute 30200 Detroit Road Westlake, OH 44145 www.steeldoor.org	440/899-0010
SJI	Steel Joist Institute 140 West Evans Street, Suite 203 Florence, SC 29501 http://steeljoist.org	843/407-4091
SMA	Stucco Manufacturers Association 5753 E Santa Ana Cyn Rd, #G-156 Anaheim, CA 92807 www.stuccomfgassoc.com	714/473-9579
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association 4201 Lafayette Center Drive Chantilly, VA 20151-1219 www.smacna.org	703/803-2980
SPI	SPI: The Plastics Industry Trade Association, Inc. 1425 K St. NW, Suite 500 Washington, DC 20005 www.plasticsindustry.org	202/974-5200
TCA	The Tile Council of North America 100 Clemson Research Blvd. Anderson, SC 29625 www.tcnatile.com	864/646-8453
TPI	Truss Plate Institute 2670 Crain Highway, Suite 203 Waldorf, MD 20601 www.tpinst.org	240/587-5582
TPI	Turfgrass Producers International 444 E. Roosevelt Road #346 Lombard, IL 60148 www.turfgrasssod.org	800/405-8873 847/649-5555
TCIA	Tree Care Industry Association (formerly the National Arborist Association) 670 N Commercial Street, Suite 201 Manchester, NH 03101 www.tcia.org	603/314-5380 800/733-2622

TVI	The Vermiculite Institute c/o The Schundler Company 10 Central Street Nahant, MA 01908 www.vermiculiteinstitute.org	732/287-2244
UL	Underwriters Laboratories Inc. 333 Pfingsten Road Northbrook, IL 60062-2096 www.ul.com	847/272-8800 877/854-3577
UNI	Uni-Bell PVC Pipe Association 201 E. John Carpenter Freeway, Suite 750 Irving, TX 75062 www.uni-bell.org	972/243-3902
USDA	U.S. Department of Agriculture 1400 Independence Ave., S.W. Washington, DC 20250 www.usda.gov	202/720-2791
WA	Wallcoverings Association 35 E Wacker Dr., Suite 850 Chicago, IL 60601 www.wallcoverings.org	312/224-2574
WCMA	Window Covering Manufacturers Association 355 Lexington Avenue 15th Floor New York, NY 10017 www.wcmanet.org	212/297-2122
WDMA	Window & Door Manufacturers Association 2001 K Street NW, 3rd Floor North Washington, D.C. 20006 www.wdma.com	202/367-1157
WI	Woodwork Institute 1455 Response Road, Suite 110 Sacramento, CA 95815 www.wicnet.org	916/372-9943
WRI	Wire Reinforcement Institute 942 Main Street, Suite 300 Hartford, CT 06103 www.wirereinforcementinstitute.org	860/240-9545
WWCA	Western Wall & Ceiling Contractors Association 1910 N. Lime St. Orange, CA 92865 www.wwcca.org	714/221-5520

WWPA	Western Wood Products Association (formerly Redwood Inspection Service) 1500 SW First Ave., Suite 870 Portland, OR 97201 www.wwpa.org	503/224-3930
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PART 2 - PRODUCTS Not Used.

PART 3 - EXECUTION Not Used.

END OF DOCUMENT

MATERIALS AND EQUIPMENT

PART 1 - GENERAL

1.01 RELATED DOCUMENTS AND PROVISIONS

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

- A. General Conditions, including, without limitation, Purchase of Materials and Equipment;
- B. Special Conditions;
- C. Imported Materials Certification.

1.02 MATERIAL AND EQUIPMENT

- A. Only items approved by the District and/or Design Professional shall be used.
- B. Contractor shall submit lists of products and other product information in accordance with the Contract Documents, including, without limitation, the provisions regarding the submittals.

1.03 MATERIAL AND EQUIPMENT COLORS

- A. The District and/or Architect will provide a schedule of colors.
- B. No individual color selections will be made until after approval of all pertinent materials and equipment and after receipt of appropriate samples in accordance with the Contract Documents, including, without limitation, the provisions regarding the submittals.
- C. Contractor shall request priority in writing for any item requiring advance ordering to maintain the approved Construction Schedule.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Contractor shall deliver manufactured materials in original packages, containers, or bundles (with seals unbroken), bearing name or identification mark of manufacturer.
- B. Contractor shall deliver fabrications in as large assemblies as practicable; where specified as shop-primed or shop-finished, package or crate as required to preserve such priming or finish intact and free from abrasion.
- C. Contractor shall store materials in such a manner as necessary to properly protect them from damage. Materials or equipment damaged by handling, weather, dirt, or from any other cause will not be accepted.

- D. Materials are not acceptable that have been warehoused for long periods of time, stored or transported in improper environment, improperly packaged, inadequately labeled, poorly protected, excessively shipped, deviated from normal distribution pattern, or reassembled.
- E. Contractor shall store material so as to cause no obstructions of sidewalks, roadways, access to the Site or buildings, and underground services. Contractor shall protect material and equipment furnished under Contract.
- F. Contractor may store materials on Site with prior written approval by the District, all material shall remain under Contractor's control and Contractor shall remain liable for any damage to the materials. Should the Project Site not have storage area available, the Contractor shall provide for off-site storage at a bonded warehouse and with appropriate insurance coverage at no cost to District.
- G. When any room in Project is used as a shop or storeroom, the Contractor shall be responsible for any repairs, patching, or cleaning necessary due to that use. Location of storage space shall be subject to prior written approval by District.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Manufacturers listed in various sections of Contract Documents are names of those manufacturers that are believed to be capable of supplying one or more of items specified therein.
- B. The listing of a manufacturer does not imply that every product of that manufacturer is acceptable as meeting the requirements of the Contract Documents.

2.02 FACILITIES AND EQUIPMENT

Contractor shall provide, install, maintain, and operate a complete and adequate facility for handling, the execution, disposal, and distribution of material and equipment as required for proper and timely performance of Work connected with Contract.

2.03 MATERIAL REFERENCE STANDARDS

Where material is specified solely by reference to "standard specifications" and if requested by District, Contractor shall submit for review data on actual material proposed to be incorporated into Work of Contract listing name and address of vendor, manufacturer, or producer, and trade or brand names of those materials, and data substantiating compliance with standard specifications.

PART 3 - EXECUTION

3.01 WORKMANSHIP

- A. Where not more specifically described in any other Contract Documents, workmanship shall conform to methods and operations of best standards and accepted practices of trade or trades involved and shall include items of fabrication, construction, or installation regularly furnished or required for completion (including finish and for successful operation, as intended).
- B. Work shall be executed by tradespersons skilled in their respective lines of Work. When completed, parts shall have been durably and substantially built and present a neat appearance.

3.02 COORDINATION

- A. Contractor shall coordinate installation of Work so as to not interfere with installation of others. Adjustment or rework because of Contractor's failure to coordinate will be at no additional cost to District.
- B. Contractor shall examine in-place work for readiness, completeness, fitness to be concealed or to receive other work, and in compliance with Contract Documents. Concealing or covering Work constitutes acceptance of additional cost which will result should in-place Work be found unsuitable for receiving other Work or otherwise deviating from the requirements of the Contract Documents.

3.03 COMPLETENESS

Contractor shall provide all portions of the Work, unless clearly stated otherwise, installed complete and operational with all elements, accessories, anchorages, utility connections, etc., in manner to assure well-balanced performance, in accordance with manufacturer's recommendations and by Contract Documents. Terms such as "installed complete," "operable condition," "for use intended," "connected to all utilities," "terminate with proper cap," "adequately anchored," "patch and refinish," "to match similar," should be assumed to apply in all cases, except where completeness of functional or operable condition is specifically stated as not required.

3.04 APPROVED INSTALLER OR APPLICATOR

Installation by a manufacturer's approved installer or applicator is an understood part of Specifications and only approved installer or applicator is to provide on-site Work where specified manufacturer has on-going program of approving (i.e. certifying, bonding, re-warranting) installers or applicators. Newly established relationships between a manufacturer and an installer or applicator who does not have other approved applicator work in progress or completed is not approved for this Project.

3.05 MANUFACTURER'S RECOMMENDATIONS

All installations shall be in accordance with manufacturer's published recommendations and specific written directions of manufacturer's representative.

Should Contract Documents differ from recommendations of manufacturer or directions of his representative, Contractor shall analyze differences, make recommendations to the District and the Architect in writing, and shall not proceed until interpretation or clarification has been issued by the District and/or the Architect.

END OF DOCUMENT

QUALITY CONTROL

PART 1 - GENERAL

1.01 RELATED DOCUMENTS AND PROVISIONS:

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

- A. General Conditions, including, without limitation, Inspector, Inspections and Tests, Uncovering of Work and Non-conforming of Work and Correction of Work;
- B. Special Conditions.

1.02 RELATED CODES:

- A. The Work is governed by requirements of Title 24, California Code of Regulations ("CCR"), and the Contractor shall keep a copy of these available at the job Site for ready reference during construction.
- B. The Division of the State Architect ("DSA") shall be notified at or before the start of construction.

1.03 OBSERVATION AND SUPERVISION:

- A. The District and Architect or their appointed representatives will review the Work and the Contractor shall provide facilities and access to the Work at all times as required to facilitate this review. Administration by the Architect and any consulting Structural Engineer will be in accordance with applicable regulations, including, without limitation, CCR, Part 1, Title 24, Section 4-341.
- B. One or more Project Inspector(s) approved by DSA and employed by or in contract with the District, referred to hereinafter as the "Project Inspector", will observe the work in accordance with CCR, Part 1, Title 24, Sections 4-333(b) and 4-342:
 - (1) The Project Inspector and Special Inspector(s) shall have access to the Work wherever it is in preparation or progress for ascertaining that the Work is in accordance with the Contract Documents and all applicable code sections. The Contractor shall provide facilities and operation of equipment as needed, and access as required and shall provide assistance for sampling or measuring materials.
 - (2) The Project Inspector will notify the District and Architect and call the attention of the Contractor to any observed failure of Work or material to conform to Contract Documents.

The Contractor shall conform with all applicable laws as indicated in the Contract Documents, including, without limitation, to CCR, Part 1, Title 24, Section 4-343.

The Contractor shall supervise and direct the Work and maintain a competent superintendent on the job who is authorized to act in all matters pertaining to the Work. The Contractor's superintendent shall also inspect all materials, as they arrive, for compliance with the Contract Documents. Contractor shall reject defective Work or materials immediately upon delivery or failure of the Work or material to comply with the Contract Documents. The Contractor shall submit verified reports as indicated in the Contract Documents, including, without limitation, the Specifications and as required by Part 1, Title 24, Section 4-336.

1.04 TESTING AGENCIES:

- A. Testing agencies and tests shall be in conformance with the General Documents and the requirements of Part 1, Title 24, Section 4- 335.
- B. Testing and inspection in connection with earthwork shall be under the direction of the District's consulting soils engineer, if any, referred to hereinafter as the "Soils Engineer."
- C. Testing and inspection of construction materials and workmanship shall be performed by a qualified laboratory, referred to hereinafter as the "Testing Laboratory." The Testing Laboratory shall be under direction of an engineer registered in the State of California, shall conform to requirements of ASTM E329, and shall be employed by or in contract with the District.
- D. Testing laboratory shall be approved by the Architect and the Division of the State Architect.
- E. Owner will employ and pay for services of an independent testing labatory to perform specified inspection and testing. Retesting cost for failed test will be Contractors responsibilityand will be back-charged against the contract.

1.05 TESTS AND INSPECTIONS:

- A. The Contractor shall be responsible for notifying the District and Project Inspector of all required tests and inspections. Contractor shall notify the District and Project Inspector at least seventy-two hours (72) hours in advance of performing any Work requiring testing or inspection.
- B. The Contractor shall provide access to Work to be tested and furnish incidental labor, equipment, and facilities to facilitate all inspections and tests.
- C. The District will pay for first inspections and tests required by the "CCR", and other inspections or tests that the District and/or the Architect may direct to have made, including the following principal items:
 - (1) Tests and observations for earthwork and paving.
 - (2) Tests for concrete mix designs, including tests of trial batches.
 - (3) Tests and inspections for structural steel work.
 - (4) Field tests for framing lumber moisture content.

- (5) Additional tests directed by the District that establish that materials and installation comply with the Contract Documents.
 - (6) Tests and observations of welding and expansion anchors.
- D. The District may at its discretion, pay and then back charge the Contractor for:
 - (1) Retests or reinspections, if required, and tests or inspections required due to Contractor error or lack of required identifications of material.
 - (2) Uncovering of work in accordance with Contract Documents.
 - (3) Testing done on weekends, holidays, and overtime will be chargeable to the Contractor for the overtime portion.
 - (4) Testing done off Site.
- E. Testing and inspection reports and certifications:
 - (1) If initially received by Contractor, Contractor shall provide to each of the following a copy of the agency or laboratory report of each test or inspection or certification.
 - (a) The District;
 - (b) The Construction Manager, if any;
 - (c) The Architect;
 - (d) The Consulting Engineer, if any;
 - (e) Other engineers on the Project, as appropriate;
 - (f) The Project Inspector; and
 - (g) The Contractor.
 - (2) When the test or inspection is one required by the CCR, a copy of the report shall also be provided to the DSA.

1.06 LABORATORY REPORTS

- A. After each inspection and test, promptly submit two copies of laboratory report to Owner, Architect, Contractor and DSA.
- B. Include:
 - (1) Date of issue,
 - (2) DSA Application and File numbers,
 - (3) Project title and number,

- (4) Name of inspector,
- (5) Date and time of sampling or inspection,
- (6) Identification of product and Specification Section,
- (7) Location in the Project,
- (8) Type of inspection or test,
- (9) Date of test,
- (10) Results of test,
- (11) Conformance with Contract Documents.

C. When requested by Architect, provide interpretation of test results.

1.07 LIMITS ON TESTING LABORATORY AUTHORITY

- A. Laboratory may not release, revoke, alter or enlarge on requirements of Contract Documents.
- B. Laboratory may not approve or accept any portion of the work.
- C. Laboratory may not assume any duties of Contractor.
- D. Laboratory has no authority to stop the work.

PART 2 - PRODUCTS

2.01 TYPE OF TEST AND INSPECTIONS

- A. Testing and inspection shall be in accordance with DSA Form 103 (or current version)
- B. Slump Test
ASTM C 143
- C. Concrete Tests

Testing agency shall test concrete used in the work per the following paragraphs:

- (1) Compressive Strength:
 - (a) Minimum number of tests required: One (1) set of three (3) cylinders for each 100 cubic yards (Sec. 2604(h) 01) of concrete or major fraction thereof, placed in one (1) day. See Title 24, Section 2605(g).

- (b) Two cylinders of each set shall be tested at twenty-eight (28) days. One (1) cylinder shall be held in reserve and tested only when directed by the Architect or District.
- (c) Concrete shall test the minimum ultimate compressive strength in twenty-eight 28 days, as specified on the structural drawings.
- (d) In the event that the twenty-eight (28) day test falls below the minimum specified strength, the effective concrete in place shall be tested by taking cores in accordance with UBC Standard No. 26-13 and tested as required for cylinders.
- (e) In the event that the test on core specimens falls below the minimum specified strength, the concrete will be deemed defective and shall be removed and replaced upon such direction of the Architect, and in a manner acceptable to the Division of the State Architect.

D. Reinforcing, Steel

PART 3 - EXECUTION Not Used.

END OF DOCUMENT

TEMPORARY FACILITIES AND CONTROLS

PART 1 – GENERAL

1.01 RELATED DOCUMENTS AND PROVISIONS:

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

- A. General Conditions;
- B. Special Conditions;
- C. Site Standards; and
- D. Construction Waste Management and Disposal.

1.02 TEMPORARY UTILITIES:

- A. Electric Power and Lighting:
 - (1) Contractor will pay for power during the course of the Work. To the extent power is available in the building(s) or on the Site, Contractor may use the District's existing utilities by making prearranged payments to the District for the utilities used by Contractor and all Subcontractors. Contractor shall be responsible for providing temporary facilities required to deliver that power service from its existing location in the building(s) or on the Site to point of intended use.
 - (2) Contractor shall verify characteristics of power available in building(s) or on the Site. Contractor shall take all actions required to make modifications where power of higher voltage or different phases of current are required. Contractor shall be fully responsible for providing that service and shall pay all costs required therefor.
 - (3) Contractor shall furnish, wire for, install, and maintain temporary electrical lights wherever it is necessary to provide illumination for the proper performance and/or observation of the Work: a minimum of 20 foot-candles for rough work and 50 foot-candles for finish work.
 - (4) Contractor shall be responsible for maintaining existing lighting levels in the project vicinity should temporary outages or service interruptions occur.
- B. Water:
 - (1) Contractor shall pay for water used during the course of the Work. Contractor shall coordinate and pay for installation or use of water meter in compliance with local water agency requirements. To the

extent water is then available in the building(s) or on the Site, Contractor may use the District's existing utilities by making prearranged payments to the District for the utilities used by Contractor and all Subcontractors. Contractor shall be responsible for providing temporary facilities required to deliver such utility service from its existing location in the building(s), on the Site, or other location approved by the local water agency, to point of intended use.

- (2) Contractor shall use backflow preventers on water lines at point of connection to District's water supply. Backflow preventers shall comply with requirements of Uniform Plumbing Code.
- (3) Contractor shall make potable water available for human consumption.

C. Sanitary Facilities:

- (1) Contractor shall provide sanitary temporary facilities in no fewer numbers than required by law and such additional facilities as may be directed by the Inspector for the use of all workers. The facilities shall be maintained in a sanitary condition at all times and shall be left at the Site until removal is directed by the Inspector or Contractor completes all other work at the Site.
- (2) Use of toilet facilities in the Work under construction shall not be permitted except by consent of the Inspector and the District.

D. Fire Protection:

- (1) Contractor shall provide and maintain fire extinguishers and other equipment for fire protection. Such equipment shall be designated for use for fire protection only and shall comply with all requirements of the California Fire, State Fire Marshall and/or its designee.
- (2) Where on-site welding and burning of steel is unavoidable, Contractor shall provide protection for adjacent surfaces.

E. Trash Removal:

- (1) Contractor shall provide trash removal on a timely basis. Under no circumstance shall Contractor use District trash service.

F. Field Office:

- (1) If Contractor chooses to provide a field office, it shall be an acceptable construction trailer that is well-lit and ventilated. The construction trailer shall be equipped with shelves, desks, filing cabinet, chairs, and such other items of equipment needed. Trailer and equipment are the property of the Contractor and must be removed from the Site upon completion of the Work.
- (2) Contractor shall provide any additional electric lighting and power required for the trailer. Contractor shall make adequate provisions for heating and cooling as required.

1.03 CONSTRUCTION AIDS:

- A. Plant and Equipment:
 - (1) Contractor shall furnish, operate, and maintain a complete plant for fabricating, handling, conveying, installing, and erecting materials and equipment; and for conveyances for transporting workers. Include elevators, hoists, debris chutes, and other equipment, tools, and appliances necessary for performance of the Work.
 - (2) Contractor shall maintain plant and equipment in safe and efficient operating condition. Damages due to defective plant and equipment, and uses made thereof, shall be repaired by Contractor at no expense to the District.
- B. None of the District's tools and equipment shall be used by Contractor for the performance of the Work.

1.04 BARRIERS AND ENCLOSURES:

- A. Contractor shall obtain the District's written permission for locations and types of temporary barriers and enclosures, including fire-rated materials proposed for use, prior to their installation.
- B. Contractor shall provide and maintain temporary enclosures to prevent public entry and to protect persons using other buildings and portions of the Site and/or Premises, the public, and workers. Contractor shall also protect the Work and existing facilities from the elements, and adjacent construction and improvements, persons, and trees and plants from damage and injury from demolition and construction operations.
- C. Contractor shall provide site access to existing facilities for persons using other buildings and portions of the Site, the public, and for deliveries and other services and activities.
- D. Tree and Plant Protection:
 - (1) Contractor shall preserve and protect existing trees and plants on the Premises that are not designated or required to be removed, and those adjacent to the Premises.
 - (2) Contractor shall provide barriers to a minimum height of 4'-0" around drip line of each tree and plant, around each group of trees and plants, as applicable, in the proximity of demolition and construction operations, or as denoted on the Plans.
 - (3) Contractor shall not park trucks, store materials, perform Work or cross over landscaped areas. Contractor shall not dispose of paint thinners, water from cleaning, plastering or concrete operations, or other deleterious materials in landscaped areas, storm drain systems, or sewers. Plant materials damaged as a result of the performance of the Work shall, at the option of the District and at Contractor's expense, either be replaced with new plant materials equal in size to

those damaged or by payment of an amount representing the value of the damaged materials as determined by the District.

- (4) Contractor shall remove soil that has been contaminated during the performance of the Work by oil, solvents, and other materials which could be harmful to trees and plants, and replace with good soil, at Contractor's expense.
- (5) Excavation around Trees:
 - (a) Excavation within drip lines of trees shall be done only where absolutely necessary and with written permission from the District.
 - (b) Where trenching for utilities is required within drip lines, tunneling under and around roots shall be by hand digging and shall be approved by the District. Main lateral roots and taproots shall not be cut. All roots 2 inches in diameter and larger shall be tunneled under and heavily wrapped with wet burlap so as to prevent scarring or excessive drying. Smaller roots that interfere with installation of new work may be cut with prior approval by the District. Roots must first be cut with a Vermeer, or equivalent, root cutter prior to any trenching.
 - (c) Where excavation for new construction is required within drip line of trees, hand excavation shall be employed to minimize damage to root system. Roots shall be relocated in backfill areas wherever possible. If encountered immediately adjacent to location of new construction, roots shall be cut approximately 6 inches back from new construction.
 - (d) Approved excavations shall be carefully backfilled with the excavated materials approved for backfilling. Backfill shall conform to adjacent grades without dips, sunken areas, humps, or other surface irregularities. Do not use mechanical equipment to compact backfill. Tamp carefully using hand tools, refilling and tamping until Final Acceptance as necessary to offset settlement.
 - (e) Exposed roots shall not be allowed to dry out before permanent backfill is placed. Temporary earth cover shall be provided, or roots shall be wrapped with four layers of wet, untreated burlap and temporarily supported and protected from damage until permanently relocated and covered with backfill.
 - (f) Accidentally broken roots should be sawed cleanly 3 inches behind ragged end.

1.05 SECURITY:

The Contractor shall be responsible for project security for materials, tools, equipment, supplies, and completed and partially completed Work.

1.06 TEMPORARY CONTROLS:

A. Noise Control:

- (1) Contractor acknowledges that adjacent facilities may remain in operation during all or a portion of the Work period, and it shall take all reasonable precautions to minimize noise as required by applicable laws and the Contract Documents.
- (2) Notice of proposed noisy operations, including without limitation, operation of pneumatic demolition tools, concrete saws, and other equipment, shall be submitted to the District a minimum of forty-eight (48) hours in advance of their performance.

B. Noise and Vibration:

- (1) Equipment and impact tools shall have intake and exhaust mufflers.
- (2) Contractor shall cooperate with District to minimize and/or cease the use of noisy and vibratory equipment if that equipment becomes objectionable by its longevity.

C. Dust and Dirt:

- (1) Contractor shall conduct demolition and construction operations to minimize the generation of dust and dirt, and prevent dust and dirt from interfering with the progress of the Work and from accumulating in the Work and adjacent areas including, without limitation, occupied facilities.
- (2) Contractor shall periodically water exterior demolition and construction areas to minimize the generation of dust and dirt.
- (3) Contractor shall ensure that all hauling equipment and trucks carrying loads of soil and debris shall have their loads sprayed with water or covered with tarpaulins, and as otherwise required by local and state ordinance.
- (4) Contractor shall prevent dust and dirt from accumulating on walks, roadways, parking areas, and planting, and from washing into sewer and storm drain lines.

D. Water:

- (1) Contractor shall not permit surface and subsurface water, and other liquids, to accumulate in or about the vicinity of the Premises. Should accumulation develop, Contractor shall control the water or other liquid, and suitably dispose of it by means of temporary pumps, piping, drainage lines, troughs, ditches, dams, or other methods.

E. Pollution:

- (1) No burning of refuse, debris, or other materials shall be permitted on or in the vicinity of the Premises.
- (2) Contractor shall comply with applicable regulatory requirements and anti-pollution ordinances during the conduct of the Work including, without limitation, demolition, construction, and disposal operations.

F. Lighting:

- (1) If portable lights are used after dark, all light must be located so as not to direct light into neighboring property.

1.07 PUBLICITY RELEASES:

- A. Contractor shall not release any information, story, photograph, plan, or drawing relating information about the Project to anyone, including press and other public communications medium, including, without limitation, on website(s) without the written permission of the District.

PART 2 – PRODUCTS Not used.

PART 3 – EXECUTION Not used.

END OF DOCUMENT

CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 - GENERAL

1.01 RELATED DOCUMENTS AND PROVISIONS:

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

- A. General Conditions;
- B. Special Conditions; and
- C. Temporary Facilities and Controls.

1.02 SECTION INCLUDES:

- A. Administrative and procedural requirements for the following:
 - (1) Salvaging non-hazardous construction waste.
 - (2) Recycling non-hazardous construction waste.
 - (3) Disposing of non-hazardous construction waste.

1.03 DEFINITIONS:

- A. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.
- B. Demolition Waste: Building and site improvement materials resulting from demolition or selective demolition operations.
- C. Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.
- D. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.
- E. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.
- F. Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work.

1.04 PERFORMANCE REQUIREMENTS:

- A. General: Develop waste management plan that results in end-of Project rates for salvage/recycling of sixty-five percent (65%) by weight (or by volume, but not a combination) of total waste generated by the Work.

1.05 SUBMITTALS:

- A. Waste Management Plan: Submit waste management plan within 30 days of date established for commencement of the Work.
- B. Waste Reduction Progress Reports: Concurrent with each Application for Payment, submit copies of report. Include the following information:
 - (1) Material category.
 - (2) Generation point of waste.
 - (3) Total quantity of waste in tons or cubic yards.
 - (4) Quantity of waste salvaged, both estimated and actual in tons or cubic yards.
 - (5) Quantity of waste recycled, both estimated and actual in tons or cubic yards.
 - (6) Total quantity of waste recovered (salvaged plus recycled) in tons or cubic yards.
 - (7) Total quantity of waste recovered (salvaged plus recycled) as a percentage of total waste.
- C. Waste Reduction Calculations: Before request for final payment, submit copies of calculated end-of-Project rates for salvage, recycling, and disposal as a percentage of total waste generated by the Work.
- D. Records of Donations: Indicate receipt and acceptance of salvageable waste donated to individuals and organizations. Indicate whether organization is tax exempt.
- E. Records of Sales: Indicate receipt and acceptance of salvageable waste sold to individuals and organizations. Indicate whether organization is tax exempt.
- F. Recycling and Processing Facility Records: Indicate receipt and acceptance of recyclable waste by recycling and processing facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.
- G. Landfill and Incinerator Disposal Records: Indicate receipt and acceptance of waste by landfills and incinerator facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.

- H. Qualification Data: For Waste Management Coordinator.
- I. Submittal procedures and quantities are specified in Document 01 33 00.

1.06 QUALITY ASSURANCE:

- A. Waste Management Coordinator Qualifications: LEED Accredited Professional by U.S. Green Building Council.
- B. Regulatory Requirements: Comply with hauling and disposal regulations of authorities having jurisdiction.
- C. Waste Management Conference: Conduct conference at Project site to comply with requirements. Review methods and procedures related to waste management including, but not limited to, the following:
 - (1) Review and discuss waste management plan including responsibilities of Waste Management Coordinator.
 - (2) Review requirements for documenting quantities of each type of waste and its disposition.
 - (3) Review and finalize procedures for materials separation and verify availability of containers and bins needed to avoid delays.
 - (4) Review procedures for periodic waste collection and transportation to recycling and disposal facilities.
 - (5) Review waste management requirements for each trade.

1.07 WASTE MANAGEMENT PLAN:

- A. General: Develop plan consisting of waste identification, waste reduction work plan, and cost/revenue analysis. Indicate quantities by weight or volume, but use same units of measurement throughout waste management plan.
- B. Waste Identification: Indicate anticipated types and quantities of site-clearing and construction waste generated by the Work. Include estimated quantities and assumptions for estimates.
- C. Waste Reduction Work Plan: List each type of waste and whether it will be salvaged, recycled, or disposed of in landfill or incinerator. Include points of waste generation, total quantity of each type of waste, quantity for each means of recovery, and handling and transportation procedures.
 - (1) Salvaged Materials for Reuse: For materials that will be salvaged and reused in this Project, describe methods for preparing salvaged materials before incorporation into the Work.

- (2) Salvaged Materials for Sale: For materials that will be sold to individuals and organizations, include list of their names, addresses, and telephone numbers.
- (3) Salvaged Materials for Donation: For materials that will be donated to individuals and organizations, include list of their names, addresses, and telephone numbers.
- (4) Recycled Materials: Include list of local receivers and processors and type of recycled materials each will accept. Include names, addresses, and telephone numbers.
- (5) Disposed Materials: Indicate how and where materials will be disposed of. Include name, address, and telephone number of each landfill and incinerator facility.
- (6) Handling and Transportation Procedures: Include method that will be used for separating recyclable waste including sizes of containers, container labeling, and designated location on Project site where materials separation will be located.

PART 2 - PRODUCTS Not Used.

PART 3 - EXECUTION

3.01 PLAN IMPLEMENTATION:

- A. General: Implement approved waste management plan. Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract.
 - (1) Comply with Document 01 50 00 for operation, termination, and removal requirements.
- B. Training: Train workers, subcontractors, and suppliers on proper waste management procedures, as appropriate for the Work occurring at Project site.
 - (1) Distribute waste management plan to everyone concerned within 3 days of submittal return.
 - (2) Distribute waste management plan to entities when they first begin work on site. Review plan procedures and locations established for salvage, recycling, and disposal.
- C. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

- (1) Designate and label specific areas of Project site necessary for separating materials that are to be salvaged, recycled, reused, donated, and sold.
- (2) Comply with Document 01 50 00 for controlling dust and dirt, environmental protection, and noise control.

3.02 RECYCLING CONSTRUCTION WASTE:

- A. General: Recycle paper and beverage containers used by on-site workers.
- B. Recycling Incentives: Revenues, savings, rebates, tax credits, and other incentives received for recycling waste materials shall accrue to the Contractor.
- C. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical.
 - (1) Provide appropriately marked containers or bins for controlling recyclable waste until they are removed from Project Site. Include list of acceptable and unacceptable materials at each container and bin.
 - (a) Inspect containers and bins for contamination and remove contaminated materials if found.
 - (2) Stockpile processed materials on site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
 - (3) Stockpile materials away from construction area. Do not store within drip line of remaining trees.
 - (4) Store components off the ground and protect from the weather.
 - (5) Remove recyclable waste off District property and transport to recycling receiver or processor.
- D. Packaging:
 - (1) Cardboard and Boxes: Break down packaging into flat sheets. Bundle and store in a dry location.
 - (2) Polystyrene Packaging: Separate and bag material.
 - (3) Pallets: As much as possible, require deliveries using pallets to remove pallets from Project Site. For pallets that remain on Site, break down pallets into component wood pieces and comply with requirements for recycling wood.
 - (4) Crates: Break down crates into component wood pieces and comply with requirements for recycling wood.

- E. Site-Clearing Wastes: Chip brush, branches, and trees on site.
- F. Wood Materials:
 - (1) Clean Cut-Offs of Lumber: Grind or chip into small pieces.
 - (2) Clean Sawdust: Bag sawdust that does not contain painted or treated wood.

3.03 DISPOSAL OF WASTE:

- A. General: Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project Site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.
 - (1) Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on site.
 - (2) Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
- B. Burning: Do not burn waste materials.
- C. Disposal: Transport waste materials off District property and legally dispose of them.

END OF DOCUMENT

FIELD OFFICES

PART 1 – GENERAL

1.01 RELATED DOCUMENTS AND PROVISIONS:

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

- A. General Conditions;
- B. Special Conditions; and
- C. Temporary Facilities and Controls.

1.02 SECTION INCLUDES:

- A. Requirements for Field Offices and Field Office Trailers.

1.03 SUMMARY:

- A. General: Contractor shall provide District's Field Office Trailer and contents, for District's use exclusively, during the term of the Contract.
- B. Property: Trailer, furniture, furnishings, equipment, and the like, supplied by the Contractor with the Office Trailer shall remain the property of the Contractor; District property items installed, delivered, and the like by District within the Office Trailer will remain District's property.
- C. Modifications: District reserves the right to modify the trailer or contents, or both, as may be deemed proper by District.
- D. Condition: Trailer and contents shall be clean, neat, substantially finished, in good, proper, and safe condition for use, operation, and the like; the trailer and contents shall not be required to be new.
- E. Installation Timing: Provide safe, fully furnished, functional, proper, complete, and finished trailer properly ready for entire use, within fourteen (14) calendar days of District's notification of the issuance of Notice to Proceed.

1.04 SUBMITTALS:

- A. General: Submit submittals to District in quantity, format, type, and the like, as specified herein.
- B. Office Trailer Data: One (1) copy of manufacturer's descriptive data, technical descriptions, regulatory compliance, industry standards, installation, removal, and maintenance instructions.

- C. Equipment Data: Two (2) copies of manufacturer data for each type of equipment, if directed by District.
- D. Furniture and Furnishings Data: Two (2) copies of manufacturer data for each type of equipment, if directed by District.
- E. Plans: One (1) reproducible copy of appropriately scaled plans of trailer layout. Plans shall include, but not be limited to: lighting; furniture; equipment; telephone and electrical outlets; and the like.
- F. Product Samples: One (1) complete and entire unit of each type, if directed by District.

1.05 QUALITY ASSURANCE

- A. Standards: In the event that provisions of codes, regulations, safety orders, Contract Documents, referenced manufacturer's specifications, manufacturer's instructions, industry standards, and the like, are in conflict, the more restrictive and higher quality shall govern.
- B. Installer: Installer or Installers engaged by Contractor must have a minimum of five (5) years of documented and properly authenticated successful experience of specialization in the installation of the items or systems, or both, specified herein.
- C. Manufacturer: Contractor shall obtain products from nationally and industry recognized Manufacturer with five (5) years minimum, of immediately recent, continuous, documented and properly authenticated successful experience of specialization in the manufacture of the product specified herein.
- D. State Personnel Training: Provide proper training for maintenance and operations, including emergency procedures, and the like, as directed by District.
- E. Units: Shall be sound and free of defects, and shall not include any damage or defect that will impair the safety, installation, performance, or the durability of the entire Office Trailer and appurtenant systems.

1.06 REGULATORY REQUIREMENTS

- A. General: Work shall be executed in accordance with applicable Codes, Regulations, Statutes, Enactments, Rulings, Laws, each authority having jurisdiction, and including, but not limited to, Regulatory Requirements specified herein.
- B. California Building Standards Code ("CBSC").
- C. California Code of Regulations, Title 25, Chapter 3, Sub Chapter 2, Article 3 ("CCR").
- D. Coach Insignia: Trailer shall display California Commercial Coach Insignia; such insignia shall be deemed to show that the trailer is in accordance with the Construction and Fire Safety requirements of CCR.

PART 2 – PRODUCTS

2.01 FIELD OFFICE TRAILER

- A. General: Provide entire Field Office Trailer of type, function, operation, capacity, size, complete with controls, safety devices, accessories, and the like, for proper and durable installation. Partitions, walls, ceiling, and other interior and exterior surfaces shall be appropriately finished, including, but not limited to, trim, painting, wall base, floor covering, suspended or similar ceiling, and the like; provide systems, components, units, nuts, bolts, screws, anchoring devices, fastening devices, washers, accessories, adhesives, sealants, and other items of type, grade, and class required for the particular use, not identified but required for a complete, weather-tight, appropriately operating, and finished installation.
- B. Manufacturers: General Electric Capital Modular Space; The Space Place, Inc.; or equal.
- C. Program: Provide a wheel-mounted trailer with stairs, landings, platforms, ramps, and the like, in good, proper, safe, clean, and properly finished condition; with proper heavy duty locks, and other proper and effective security at all doors, windows, and the like. Trailer shall be maintained in good, proper, safe, clean, and properly finished condition during the Contract.
 - (1) Nominal Trailer Size: Four hundred eighty (480) square feet, minimum.
 - (2) Stairs, Platform: Properly finished stairs, platforms, and ramps.
 - (3) Doors: Two (2), three (3) foot wide exterior doors with locksets; finished ramp, steps, and entry platform at each exterior door.
 - (4) Keys: Submit five (5) keys for each door, window, furniture unit, and the like. There shall be no other key copies or originals available; each key shall be identified for District; and shall be labeled, or tagged
 - (5) Lighting: Sixty-five (65) foot-candles illumination minimum at any point, at thirty (30) inches above finished floor throughout from fluorescent light source, exclusively, or as directed by District.
 - (6) Electrical Outlets: One (1) duplex outlet evenly spaced every twelve (12) linear horizontal feet of wall face, and electrical service ready for use.

2.02 FIELD OFFICE TRAILER ITEMS

- A. General: Provide the Field Office Trailer with the following arranged into two (2) workstations:
 - (1) Desks: Two (2) desks: thirty-six (36) inches by sixty (60) inches; steel, laminated plastic top; locking, one (1) or two (2) file drawers single pedestal; steel; provide five (5) keys to District.

- (2) Tables: Two (2) tables; thirty-six (36) inches by sixty (60) inches; twenty-nine (29) inches high; steel, laminated plastic top tables; one (1) at each desk.
 - (3) Chairs: Two (2) chairs: swivel; steel; with seat cushion and arms; one (1) at each desk.
 - (4) Waste Baskets: Two (2) waste baskets, one at each desk.
- B. Furniture and Equipment: Provide in the space located to effect efficient and logical use.
- (1) File cabinet: One (1); four (4) drawer; lateral; steel locking.
 - (2) Plan Table: One (1) plan table: thirty-six (36) inches deep by seventy-two (72) inches wide by forty-two (42) inches high; adjustable; wood or steel; with lockable plan and pencil drawers.
 - (3) Drafting Stool: One (1) drafting stool; swiveling; steel; padded; adjustable; with footrest and casters.
 - (4) Bookshelf: One (1) bookshelf: thirty-six (36) inches deep by seventy-two (72) inches wide by forty-two (42) inches high; adjustable; wood or steel; with lockable plan and pencil drawer.
 - (5) Plan Rack: One (1) wheel mounted plan rack.
 - (6) Waste Baskets: One (1) large waste basket.
 - (7) Coat/Hat Hanger: Wall mounted with minimum capacity for four (4) garments and ten (10) hats.
 - (8) Document Management System: Shall include an integrated high-volume printer, copier, and facsimile machine, including stand, base, and storage cabinet; and shall include the following features:
 - (a) Type: Laser, dry electrostatic transfer, plain paper, digital, multi-function imaging system.
 - (b) Network: Ethernet or Token Ring network ready, Plug-and-Play.
 - (c) Print, send/receive facsimile from any connected workstation.
 - (d) Resolution: Six hundred (600) dots per inch by six hundred (600) dots per inch, minimum.
 - (e) Print Speed: Twenty (20) pages per minute, minimum.
 - (f) Copies: Twenty (20) copies per minute, minimum.
 - (g) Document Handler: Forty (40) sheet, minimum

- (h) Collator: Forty (40) bin, minimum, with stapling.
- (i) Duplexing: Capable.
- (j) Paper Size: Capable of handling paper sizes to eleven (11) inches by seventeen (17) inches.
- (k) Paper Cassettes: One (1) each for eight and one half (8.5) inches by eleven (11) inches, eight and one half (8.5) inches by fourteen (14) inches, and eleven (11) inches by seventeen (17) inches paper sizes; minimum two hundred fifty (250) sheets per cassette.
- (l) Reduction/Enlargement: Capable of reduction to twenty-five percent (25%) and enlargement to two hundred percent (200%).
- (m) Facsimile Electronic Storage: Capable of storing minimum of fifty (50) speed dial numbers, group faxing and broadcast faxing.
- (n) Facsimile Scanning: Capable of scanning into memory a minimum of one hundred (100) pages with maximum scan time of three (3) seconds per page.
- (o) Halftone: Sixty-four (64) levels.
- (p) Redial: Automatic and Manual.
- (9) Maintenance: Contractor shall purchase service agreements for each unit of equipment for the duration of the project plus two (2) months, and shall maintain all equipment in proper working condition. Service agreements shall include provision for replacement of toner cartridges and other items required to effect proper unit use. Service agreements shall also provide for:
 - (a) Unlimited Service Calls.
 - (b) Same Day Response.
 - (c) All parts, labor, preventative maintenance and mileage.
 - (d) All chemicals, such as toner, fixing agent, and the like.
 - (e) System training and setup.
- (10) Portable Toilets: Two (2); each shall include a urinal; each unit shall be a properly enclosed chemical unit conforming to ANSI Z4.3.
 - (a) Location: As directed by District.
 - (b) Maintenance: Maintain each unit and surrounding areas in a clean, hygienic and orderly manner, at all time. Empty, clean,

and sanitize each unit each day at a location and time as directed by District.

- (c) Removal: Relocate, or remove from the site, each Portable Toilet. Upon such directive by District, the Contractor shall forthwith relocate or remove each Portable Toilet and submit the affected areas to a condition which existed prior to the installation of each Portable Toilet, within three (3) calendar days, or as directed by District in writing, at no cost to District.

2.03 UTILITY AND SERVICES

- A. Telephone Service: Contractor shall provide and interface the entire telephone service, and shall properly and timely pay for telephone service for District's non-long-distance use.
- B. Electrical Service: Provide all proper connections and continuously pay for service for the duration of the Work.

2.04 FINISHES

- A. General: Manufacturer standard finish system over surfaces properly cleaned, pretreated, and prepared to obtain proper bond; all visible surfaces shall be coated.
- B. Finish: Color as selected by District from manufacturer standard palette.

PART 3 – EXECUTION

3.01 INSTALLATION

- A. General: Properly prepare area and affected items to receive the Work. Set Work accurately in location, alignment, and elevation; rigidly, securely, and firmly anchor to appropriate structure; install plumb, straight, square, level, true, without racking, rigidly anchored to proper solid blocking, substrate, and the like; provide appropriate type and quantity of reinforcements, fasteners, adhesives, self-adhesive and other tapes; lubricants, coatings, accessories, and the like, as required for a complete, structurally rigid, stable, sound, and appropriately finished installation, in accordance with manufacturer's published instructions, and as indicated. The more restrictive and higher quality requirement shall govern. Moving parts shall be properly secured, without binding, looseness, noise, and the like.
- B. Installation: Install in accordance with 25 CCR 3.2.3 and as directed by District; jack up trailer and level both ways; mount on proper concrete piers with all load off wheels; provide required tie down and accessories per Section 4368 of referenced CCR, and as directed by District.
- C. Rejected Work: Work, materials, unit, items, systems, and the like, not accepted by District shall be deemed rejected, and shall forthwith be removed and replaced with proper and new Work, materials, unit, items, systems, and the like at no cost to District.

- D. Standard: Comply with manufacturer's published instructions, or with instructions as shown or indicated; the more restrictive and higher quality requirement shall govern.
- E. Location: As directed by District.
- F. Fire Resistance: Construct and install in accordance with UL requirements.
- G. Maintenance: Contractor shall maintain trailer and adjacent areas in a safe, clean and hygienic condition throughout the duration of the Work, and as directed by District. Properly repair or replace furniture or other items, as directed by District. Properly remove unsafe, damaged, or broken furniture, or similar items, and replace with safe and proper items. Contractor shall pay cost of all services, repair, and maintenance, or replacement of each item.
- H. Janitorial Service: Provide professional janitorial services, including, but not limited to, trash, waste paper baskets, fill paper dispensers; clean and dust all furniture, files, and the like; sweep and mop resilient and similar flooring; and vacuum carpeting and similar flooring.
 - (1) Frequency: Two (2) times per week, minimum.
- I. Removal: Properly remove the Office Trailer and contents from the Site upon completion of the Contract, or as directed by District in writing. Forthwith properly patch and repair affected areas; replace damaged items with new items. Carefully and properly inventory, clean, pack, store, and protect District property; submit District property to District at a date, time and location as directed by District.

END OF DOCUMENT

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: VOC restrictions for product categories listed below under Article "DEFINITIONS" and in compliance with the following.
 - 1. California Code of Regulations, Title 24, Part 11 California Green Building Standards Code.
 - 2. Local Agency.
 - 3. No Rating System is applicable.
- B. Products of each category that are installed in the project must comply; applicable laws and ordinances do not allow for partial compliance.
- C. Listing of a product in these Specifications shall not be construed as a solicitation or requirement to use any product or combination of products in violation of the requirements of South Coast Air Quality Management District Rule No.1168, as described in Rule 1168(g).
 - 1. If a listed product does not meet the requirements of this rule, request approval for use of an alternate product by the same or another manufacturer meeting the requirements of this rule.
 - 2. Do not use products which do not meet the requirements of this rule.

1.2 RELATED REQUIREMENTS

- A. Divisions 01 through 33 contain related requirements specific to the work of each of these Sections. Requirements may or may not include reference to this Section.
- B. Section 01 8113, Sustainable Design Requirements, for CAL-Green general requirements and procedures.

1.3 REFERENCES

- A. California Green Building Standards Code (CALGreen), edition as noted on the Drawings, as adopted by the California Division of the State Architect (DSA).
- B. Low-Emitting Materials Product List; California Collaborative for High Performance Schools (CHPS); current edition at www.chps.net/.
- C. CRI (GLCC) - Green Label Testing Program - Approved Product Categories for Carpet Cushion; Carpet and Rug Institute; current edition.
- D. CRI (GLP) - Green Label Plus Carpet Testing Program - Approved Products; Carpet and Rug Institute; current edition.

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- E. GEI (SCH) - GREENGUARD "Children and Schools" Certified Products; GREENGUARD Environmental Institute; current listings at www.greenguard.org.
- F. GreenSeal GS-36 - Commercial Adhesives; Green Seal, Inc.
- G. SCAQMD 1168 - South Coast Air Quality Management District Rule No.1168; current edition; www.aqmd.gov.
- H. SCS (CPD) - SCS Certified Products; Scientific Certification Systems; current listings at www.scscertified.com.

1.4 DEFINITIONS

- A. VOC-Restricted Products: Products of each of the following categories when installed or applied on-site:
 - 1. Adhesives, sealants, and sealer coatings, regardless of specification Section or Division.
 - 2. Paints and coatings.
 - 3. Carpet and resilient flooring.
 - 4. Composite wood products; plywood, particleboard, wood fiberboard.
- B. Adhesives: Gunnable, trowelable, liquid-applied, and aerosol adhesives, whether specified or not; including flooring adhesives, resilient base adhesives, and pipe jointing adhesives.
- C. Sealants: Gunnable, trowelable, and liquid-applied joint sealants and sealant primers, whether specified or not; including firestopping sealants and duct joint sealers.

1.5 SUBMITTAL REQUIREMENTS

- A. Product Data: For each VOC-restricted product used in the project, submit product data showing compliance, except when another type of evidence of compliance is required.
- B. Verification of Compliance: Submit for each different product in each applicable category.
 - 1. Identify evidence submittals with the words "CALGreen VOC Compliance Report".
- C. Installer Certifications for Accessory Materials:
 - 1. Require each installer of any type of product, not just the products for which VOC restrictions are specified, to certify that either 1) no adhesives, joint sealants, paints, coatings, or composite wood or agrifiber products have been used in the installation of their products, or 2) that such products used comply with these requirements.
 - 2. Use the form following at the end of Part 3 in this Section for Installer certifications.

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1.6 QUALITY ASSURANCE

- A. Manufacturer's Testing Agency Qualifications: Independent firm specializing in performing testing and inspections of the type specified in this Section.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General:
1. Provide products conforming to local, State and Federal government requirements limiting the amount of volatile organic compounds contained in the product, for its intended application. If specified product exceeds current requirement, provide conforming product at no additional cost.
 2. Provide only products having volatile organic compound (VOC) content not greater than required by South Coast Air Quality Management District Rule No.1168 and less where required by code.
 3. Products are specified in multiple Sections throughout these Specifications.
- B. Joint Sealants: Comply with CALGreen Section 5.504 and Table 5.504.4.2.
1. Verification of Compliance: Acceptable types are:
 - a. Report of laboratory testing performed in accordance with requirements.
 - b. Published product data showing compliance with requirements.
 - c. Certification by manufacturer that product complies with requirements.
 2. Products used shall comply with the following limits.

Table 5.504.4.2 SEALANT VOC LIMIT	
Less Water and Less Exempt Compounds in Grams per Liter	
Sealant	Current VOC Limit
Architectural	250
Marine Deck	760
Non-Membrane Roof	300
Roadway	250
Single-Ply Roof Membrane	450
Other	420
Sealant Primers	Current VOC Limit
Architectural	250 775
Non-Porous	
Porous	500
Modified Bituminous	760
Marine Deck	750
Other	

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Table 5.504.4.2 SEALANT VOC LIMIT
Less Water and Less Exempt Compounds in Grams per Liter
For low-solid adhesives or sealants the VOC limit is expressed in grams per liter of material; for all other adhesives and sealants, VOC limits are expressed as grams of VOC per liter of adhesive or sealant less water and less exempt compounds.

- C. Paints and Coatings: Comply with CALGreen Section 5.504 and Table 5.504.4.3 based on the California Air Resources Board, Architectural Coatings Suggested Control Measure.
1. Determination of VOC Content: Testing and calculation in accordance with 40 CFR 59, Subpart D (EPA Method 24), exclusive of colorants added to a tint base and water added at Project site; or other method acceptable to authorities having jurisdiction.
 - a. Verification of Compliance: Acceptable types are:
 - 1) Report of laboratory testing performed in accordance with requirements.
 - 2) Published product data showing compliance with requirements.
 - 3) Certification by manufacturer that product complies with requirements.
 2. Provide coatings that comply with the most stringent requirements specified in the following:
 - a. 40 CFR 59, Subpart D--National Volatile Organic Compound Emission Standards for Architectural Coatings.
 - b. South Coast Air Quality Management District Rule No.1168.
 3. Products used shall comply with the following limits.

Table 5.504.4.3 VOC CONTENT LIMITS FOR ARCHITECTURAL COATINGS (See Notes 2 & 3 below)	
Grams of VOC per Liter of Coating, less water and less exempt compounds	
Coating Category	Current VOC Limit 1/1/2012
Flat Coatings	50
Non-Flat Coatings	100
Non-Flat High Gloss Coatings	150
Specialty Coatings	
Aluminum Roof Coatings	400
Basement Specialty Coatings	400
Bituminous Roof Coatings	50
Bituminous Roof Primers	350
Bond Breakers	350
Concrete Curing Compounds	350
Concrete / Masonry Sealers	100
Driveway Sealers	50

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Table 5.504.4.3 VOC CONTENT LIMITS FOR ARCHITECTURAL COATINGS (See Notes 2 & 3 below)	
Grams of VOC per Liter of Coating, less water and less exempt compounds	
Coating Category	Current VOC Limit 1/1/2012
Dry Fog Coatings	150
Faux Finishing Coatings	350
Fire Resistive Coatings	350
Floor Coatings	100
Form-Release Compounds	250
Graphic Arts Coatings (Sign Paints)	500
High-Temperature Coatings	420
Industrial Maintenance Coatings	250
Low Solids Coatings (See Note 1 below)	120
Magnesite Cement Coatings	450
Mastic Texture Coatings	100
Metallic Pigmented Coatings	500
Multicolor Coatings	250
Pretreatment Wash Primers	420
Primers, Sealers and Undercoaters	100
Reactive Penetrating Sealers	350
Recycled Coatings	250
Roof Coatings	50
Rust Preventative Coatings	250
Shellacs:	
Clear	730
Opaque	550
Specialty Primers, Sealers and Undercoaters	100
Stains	250
Stone Consolidants	450
Swimming Pool Coatings	340
Traffic Marking Coatings	100
Waterproofing Membranes	250
Wood Coatings	275
Wood Preservatives	350
Zinc Rich Primers	340
Note 1: Grams of VOC per liter of coating including water and including exempt compounds	
Note 2: Not Applicable	
Note 3: Values in this table are derived from those specified by the California Air Resources Board, Architectural Coatings Suggested Control Measure, February 1, 2008. More information is available from the Air Resources Board.	

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4. Restricted Components: In addition to the specified VOC limits, paints and coatings shall not contain any of the following:
 - a. Acrolein.
 - b. Acrylonitrile.
 - c. Antimony.
 - d. Benzene.
 - e. Butyl benzyl phthalate.
 - f. Cadmium.
 - g. Di (2-ethylhexyl) phthalate.
 - h. Di-n-butyl phthalate.
 - i. Di-n-octyl phthalate.
 - j. 1,2-dichlorobenzene.
 - k. Diethyl phthalate.
 - l. Dimethyl phthalate.
 - m. Ethylbenzene.
 - n. Formaldehyde.
 - o. Hexavalent chromium.
 - p. Isophorone.
 - q. Lead.
 - r. Mercury.
 - s. Methyl ethyl ketone.
 - t. Methyl isobutyl ketone.
 - u. Methylene chloride.
 - v. Naphthalene.
 - w. Toluene (methylbenzene).
 - x. 1,1,1-trichloroethane.
 - y. Vinyl chloride.

PART 3 - EXECUTION

3.1 FIELD QUALITY CONTROL

- A. Owner reserves the right to reject non-compliant products, whether installed or not, and require their removal and replacement with compliant products at no extra cost to Owner.
- B. Additional costs to restore indoor air quality, including fines by authorities, due to installation of non-compliant products shall be borne by Contractor.

3.2 CERTIFICATION FORM

- A. Use of this Form:

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1. Because installers are allowed and directed to choose accessory materials suitable for the applicable installation, there is a possibility that such accessory materials might contain VOC content in excess of that permitted, especially where such materials have not been explicitly specified.
2. Contractor is required to obtain and submit this Form from each installer of work on this project.
3. For each product category listed, circle the correct words in brackets: either [HAS] or [HAS NOT].
4. If these accessory materials have been used, attach to this form product data and MSDS sheet for each such product.

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ACCESSORY MATERIAL VOC CONTENT CERTIFICATION FORM

IDENTIFICATION:

Project Name: _____

Project No.: _____

Architect: _____

PRODUCT CERTIFICATION: I certify that the installation work of my firm on this project:

1. [HAS] [HAS NOT] required the use of any ADHESIVES.
2. [HAS] [HAS NOT] required the use of any JOINT SEALANTS.
3. [HAS] [HAS NOT] required the use of any PAINTS OR COATINGS.
4. [HAS] [HAS NOT] required the use of any COMPOSITE WOOD or AGRIFIBER PRODUCTS.

Product data and MSDS sheets are attached.

CERTIFIED BY (Installer/Manufacturer/Supplier Firm):

Firm Name: _____

Print Name: _____

Signature: _____

Title: _____ (officer of company)

Date: _____

END OF SECTION

SECTION 01 66 00

PRODUCT DELIVERY, STORAGE AND HANDLING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS AND PROVISIONS

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

- A. General Conditions, including, without limitation, Site Access, Conditions and Requirements;
- B. Special Conditions.

1.02 PRODUCTS

- A. Products are as defined in the General Conditions.
- B. Contractor shall not use and/or reuse materials and/or equipment removed from existing Premises, except as specifically permitted by the Contract Documents.
- C. Contractor shall provide interchangeable components of the same manufacturer, for similar components.

1.03 TRANSPORTATION AND HANDLING

- A. Contractor shall transport and handle Products in accordance with manufacturer's instructions.
- B. Contractor shall promptly inspect shipments to confirm that Products comply with requirements, quantities are correct, and products are undamaged.
- C. Contractor shall provide equipment and personnel to handle Products by methods to prevent soiling, disfigurement, or damage.

1.04 STORAGE AND PROTECTION

- A. Contractor shall store and protect Products in accordance with manufacturer's instructions, with seals and labels intact and legible. Contractor shall store sensitive products in weather-tight, climate controlled enclosures.
- B. For exterior storage of fabricated Products, Contractor shall place on sloped supports, above ground.
- C. Contractor shall provide off-site storage and protection when Site does not permit on-site storage or protection.

- D. Contractor shall cover products subject to deterioration with impervious sheet covering and provide ventilation to avoid condensation.
- E. Contractor shall store loose granular materials on solid flat surfaces in a well-drained area and prevent mixing with foreign matter.
- F. Contractor shall provide equipment and personnel to store Products by methods to prevent soiling, disfigurement, or damage.
- G. Contractor shall arrange storage of Products to permit access for inspection and periodically inspect to assure Products are undamaged and are maintained under specified conditions.

PART 2 – PRODUCTS Not Used.

PART 3 - EXECUTION Not Used.

END OF DOCUMENT

CUTTING AND PATCHING

PART 1 – GENERAL

1.01 RELATED DOCUMENTS AND PROVISIONS:

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

- A. General Conditions, including, without limitation, Inspector, Inspections, and Tests, Integration of Work, Nonconforming Work, and Correction of Work, and Uncovering Work;
- B. Special Conditions;
- C. Imported Materials Certification.

1.02 CUTTING AND PATCHING:

- A. Contractor shall be responsible for all cutting, fitting, and patching, including associated excavation and backfill, required to complete the Work or to:
 - (1) Make several parts fit together properly.
 - (2) Uncover portions of Work to provide for installation of ill-timed Work.
 - (3) Remove and replace defective Work.
 - (4) Remove and replace Work not conforming to requirements of Contract Documents.
 - (5) Remove Samples of installed Work as specified for testing.
 - (6) Provide routine penetrations of non-structural surfaces for installation of piping and electrical conduit.
 - (7) Attaching new materials to existing remodeling areas – including painting (or other finishes) to match existing conditions.
- B. In addition to Contract requirements, upon written instructions from the District, Contractor shall uncover Work to provide for observations of covered Work in accordance with the Contract Documents; remove samples of installed materials for testing as directed by District; and remove Work to provide for alteration of existing Work.
- C. Contractor shall not cut or alter Work, or any part of it, in such a way that endangers or compromises the integrity of the Work, the Project, or work of others.

1.03 SUBMITTALS:

- A. Prior to any cutting or alterations that may affect the structural safety of Project, or work of others, and well in advance of executing such cutting or alterations, Contractor shall submit written notice to District pursuant to the applicable notice provisions of the Contract Documents, requesting consent to proceed with the cutting or alteration, including the following:
 - (1) The work of the District or other trades.
 - (2) Structural value or integrity of any element of Project.
 - (3) Integrity or effectiveness of weather-exposed or weather-resistant elements or systems.
 - (4) Efficiency, operational life, maintenance or safety of operational elements.
 - (5) Visual qualities of sight-exposed elements.
- B. Contractor's Request shall also include:
 - (1) Identification of Project.
 - (2) Description of affected Work.
 - (3) Necessity for cutting, alteration, or excavations.
 - (4) Effects of Work on District, other trades, or structural or weatherproof integrity of Project.
 - (5) Description of proposed Work:
 - (a) Scope of cutting, patching, alteration, or excavation.
 - (b) Trades that will execute Work.
 - (c) Products proposed to be used.
 - (d) Extent of refinishing to be done.
 - (6) Alternates to cutting and patching.
 - (7) Cost proposal, when applicable.
 - (8) The scheduled date the Contractor intends to perform the Work and the duration of time to complete the Work.
 - (9) Written permission of District or other District contractor(s) whose work will be affected.

1.04 QUALITY ASSURANCE:

- A. Contractor shall ensure that cutting, fitting, and patching shall achieve security, strength, weather protection, appearance for aesthetic match, efficiency, operational life, maintenance, safety of operational elements, and the continuity of existing fire ratings.
- B. Contractor shall ensure that cutting, fitting, and patching shall successfully duplicate undisturbed adjacent profiles, materials, textures, finishes, colors, and that materials shall match existing construction. Where there is dispute as to whether duplication is successful or has been achieved to a reasonable degree, the District's decision shall be final.

1.05 PAYMENT FOR COSTS:

- A. Cost caused by ill-timed or defective Work or Work not conforming to Contract Documents, including costs for additional services of the District, its consultants, including but not limited to the Construction Manager, the Architect, the Project Inspector(s), Engineers, and Agents, will be paid by Contractor and/or deducted from the Contract by the District.
- B. District shall only pay for cost of Work if it is part of the original Contract Price or if a change has been made to the contract in compliance with the provisions of the General Conditions. Cost of Work performed upon instructions from the District, other than defective or nonconforming Work, will be paid by District on approval of written Change Order. Contractor shall provide written cost proposals prior to proceeding with cutting and patching.

PART 2 - PRODUCTS

2.01 MATERIALS:

- A. Contractor shall provide for replacement and restoration of Work removed. Contractor shall comply with the Contract Documents and with the Industry Standard(s), for the type of Work, and the Specification requirements for each specific product involved. If not specified, Contractor shall first recommend a product of a manufacturer or appropriate trade association for approval by the District.
- B. Materials to be cut and patched include those damaged by the performance of the Work.

PART 3 – EXECUTION

3.01 INSPECTION:

- A. Contractor shall inspect existing conditions of the Site and the Work, including elements subject to movement or damage during cutting and patching, excavating and backfilling. After uncovering Work, Contractor shall inspect conditions affecting installation of new products.

- B. Contractor shall report unsatisfactory or questionable conditions in writing to District as indicated in the General Conditions and shall proceed with Work as indicated in the General Conditions by District.

3.02 PREPARATION:

- A. Contractor shall provide shoring, bracing and supports as required to maintain structural integrity for all portions of the Project, including all requirements of the Project.
- B. Contractor shall provide devices and methods to protect other portions of Project from damage.
- C. Contractor shall, provide all necessary protection from weather and extremes of temperature and humidity for the Project, including without limitation, any work that may be exposed by cutting and patching Work. Contractor shall keep excavations free from water.

3.03 ERECTION, INSTALLATION AND APPLICATION:

- A. With respect to performance, Contractor shall:
 - (1) Execute fitting and adjustment of products to provide finished installation to comply with and match specified tolerances and finishes.
 - (2) Execute cutting and demolition by methods that will prevent damage to other Work, and provide proper surfaces to receive installation of repairs and new Work.
 - (3) Execute cutting, demolition excavating, and backfilling by methods that will prevent damage to other Work and damage from settlement.
- B. Contractor shall employ original installer or fabricator to perform cutting and patching for:
 - (1) Sight-exposed finished surfaces.
- C. Contractor shall execute fitting and adjustment of products to provide a finished installation to comply with specified products, functions, tolerances, and finishes as shown or specified in the Contract Documents including, without limitation, the Drawings and Specifications.
- D. Contractor shall fit Work airtight to pipes, sleeves, conduit, and other penetrations through surfaces. Contractor shall conform to all Code requirements for penetrations or the Drawings and Specifications, whichever calls for a higher quality or more thorough requirement. Contractor shall maintain integrity of both rated and non-rated fire walls, ceilings, floors, etc.
- E. Contractor shall restore Work which has been cut or removed. Contractor shall install new products to provide completed Work in accordance with requirements of the Contract Documents and as required to match surrounding areas and surfaces.

- F. Contractor shall refinish all continuous surfaces to nearest intersection as necessary to match the existing finish to any new finish.

END OF DOCUMENT

ALTERATION PROJECT PROCEDURES

PART 1 – GENERAL

1.01 RELATED DOCUMENTS AND PROVISIONS:

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

- A. General Conditions, including, without limitation, Integration of Work, Purchase of Materials and Equipment, Uncovering of Work and Non-conforming Work and Correction of Work and Trenches;
- B. Special Conditions.

PART 2 - PRODUCTS

2.01 PRODUCTS FOR PATCHING AND EXTENDING WORK:

- A. New Materials: As specified in the Contract Documents including, without limitation, in the Specifications, Contractor shall match existing products, conditions, and work for patching and extending work.
- B. Type and Quality of Existing Products: Contractor shall determine by inspection, by testing products where necessary, by referring to existing conditions and to the Work as a standard.

PART 3 - EXECUTION

3.01 EXAMINATION:

- A. Contractor shall verify that demolition is complete and that areas are ready for installation of new Work.
- B. By beginning restoration Work, Contractor acknowledges and accepts the existing conditions.

3.02 PREPARATION:

- A. Contractor shall cut, move, or remove items as necessary for access to alterations and renovation Work. Contractor shall replace and restore these at completion.
- B. Contractor shall remove unsuitable material not as salvage unless otherwise indicated in the Contract Documents. Unsuitable material may include, without limitation, rotted wood, corroded metals, and deteriorated masonry and concrete. Contractor shall replace materials as specified for finished Work.

- C. Contractor shall remove debris and abandoned items from all areas of the Site and from concealed spaces.
- D. Contractor shall prepare surface and remove surface finishes to provide for proper installation of new Work and finishes.

3.03 INSTALLATION:

- A. Contractor shall coordinate Work of all alternations and renovations to expedite completion and to accommodate District occupancy.
- B. Designated Areas and Finishes: Contractor shall complete all installations in all respects, including operational, and electrical work.
- C. Contractor shall remove, cut, and patch Work in a manner to minimize damage and to provide a means of restoring Products and finishes to original or specified condition.
- D. Contractor shall refinish visible existing surfaces to remain to specified condition for each material, with a neat and square or straight transition to adjacent finishes.
- E. Contractor shall install products as specified in the Contract Documents, including without limitation, the Specifications.

3.04 TRANSITIONS:

- A. Where new Work abuts or aligns with existing, Contractor shall perform a smooth and even transition. Patched Work must match existing adjacent work in texture and appearance.
- B. When finished surfaces are cut so that a smooth transition with new Work is not possible, Contractor shall terminate existing surface along a straight line at a natural line of division and make a recommendation for resolution to the District and the Architect for review and approval.

3.05 ADJUSTMENTS:

- A. Where a change of plane of 1/4 inch or more occurs, Contractor shall submit a recommendation for providing a smooth transition to the District and the Architect for review and approval.
- B. Contractor shall fit Work at penetrations of surfaces.

3.06 REPAIR OF DAMAGED SURFACES:

- A. Contractor shall patch or replace portions of existing surfaces, which are damaged, lifted, discolored, or showing other imperfections, in the area where the Work is performed.
- B. Contractor shall repair substrate prior to patching finish.

3.07 CULTIVATED AREAS AND OTHER SURFACE IMPROVEMENTS:

- A. Cultivated or planted areas and other surface improvements which are damaged by actions of the Contractor shall be restored by Contractor to their original condition or better, where indicated.
- B. Contractor shall protect and replace, if damaged, all existing guard posts, barricades, and fences.
- C. Contractor shall give special attention to avoid damaging or killing trees, bushes and/or shrubs on the Premises and/or identified in the Contract Documents, including without limitation, the Drawings.

3.08 FINISHES:

- A. Contractor shall finish surfaces as specified in the Contract Documents, including without limitations, the provisions of all Divisions of the Specifications.
- B. Contractor shall finish patches to produce uniform finish and texture over entire area. When finish cannot be matched, Contractor shall refinish entire surface to nearest intersections.

3.09 CLEANING:

- A. Contractor shall continually clean the Site and the Premises as indicated in the Contract Documents, including without limitation, the provisions in the General Conditions and the Specifications regarding cleaning.

END OF DOCUMENT

CONTRACT CLOSEOUT AND FINAL CLEANING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS AND PROVISIONS

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

- A. General Conditions, including, without limitation, Completion of Work;
- B. Special Conditions;
- C. Temporary Facilities and Controls.

1.02 CLOSEOUT PROCEDURES

Contractor shall comply with all closeout provisions as indicated in the General Conditions.

1.03 FINAL CLEANING

- A. Contractor shall execute final cleaning prior to final inspection.
- B. Contractor shall clean interior and exterior glass and all surfaces exposed to view; remove temporary labels, tape, stains, and foreign substances, polish transparent and glossy surfaces, wax and polish new vinyl floor surfaces, vacuum carpeted and soft surfaces.
- C. Contractor shall clean equipment and fixtures to a sanitary condition.
- D. Contractor shall replace filters of operating equipment.
- E. Contractor shall clean debris from roofs, gutters, down spouts, and drainage systems.
- F. Contractor shall clean Site, sweep paved areas, and rake clean landscaped surfaces.
- G. Contractor shall remove waste and surplus materials, rubbish, and construction facilities from the Site and surrounding areas.

1.04 ADJUSTING

Contractor shall adjust operating products and equipment to ensure smooth and unhindered operation.

1.05 RECORD DOCUMENTS AND SHOP DRAWINGS

- A. Contractor shall legibly mark each item to record actual construction, including:
 - (1) Measured depths of foundation in relation to finish floor datum.
 - (2) Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permit surface improvements.
 - (3) Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
 - (4) Field changes of dimension and detail.
 - (5) Details not on original Contract Drawings
 - (6) Changes made by modification(s).
 - (7) References to related Shop Drawings and modifications.
- B. Contractor will provide one set of Record Drawings to District.
- C. Contractor shall submit all required documents to District and/or Architect prior to or with its final Application for Payment.

1.06 INSTRUCTION OF DISTRICT PERSONNEL

- A. Before final inspection, at agreed upon times, Contractor shall instruct District's designated personnel in operation, adjustment, and maintenance of products, equipment, and systems.
- B. For equipment requiring seasonal operation, Contractor shall perform instructions for other seasons within six months or by the change of season.
- C. Contractor shall use operation and maintenance manuals as basis for instruction. Contractor shall review contents of manual with personnel in detail to explain all aspects of operation and maintenance.
- D. Contractor shall prepare and insert additional data in Operation and Maintenance Manual when the need for such data becomes apparent during instruction.
- E. Contractor shall review contents of manual with personnel in detail to explain all aspects of operation and maintenance.

1.07 SPARE PARTS AND MAINTENANCE MATERIALS

- A. Contractor shall provide products, spare parts, maintenance, and extra materials in quantities specified in the Specifications and in Manufacturer's recommendations.

- B. Contractor shall provide District with all required Operation and Maintenance Data at one time. Partial or piecemeal submissions of Operation and Maintenance Data will not be accepted.

PART 2 – PRODUCTS Not Used.

PART 3 – EXECUTION Not Used.

END OF DOCUMENT

OPERATION AND MAINTENANCE DATA

PART 1 – GENERAL

1.01 RELATED DOCUMENTS AND PROVISIONS:

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

- A. General Conditions, including, without limitation, Completion of the Work;
- B. Special Conditions.

1.02 QUALITY ASSURANCE:

Contractor shall prepare instructions and data by personnel experienced in maintenance and operation of described products.

1.03 FORMAT:

- A. Contractor shall prepare data in the form of an instructional manual entitled "OPERATIONS AND MAINTENANCE MANUAL & INSTRUCTIONS" ("Manual").
- B. Binders: Contractor shall use commercial quality, 8-1/2 by 11 inch, three-side rings, with durable plastic covers; two inch maximum ring size. When multiple binders are used, Contractor shall correlate data into related consistent groupings.
- C. Cover: Contractor shall identify each binder with typed or printed title "OPERATION AND MAINTENANCE MANUAL & INSTRUCTIONS"; and shall list title of Project and identify subject matter of contents.
- D. Contractor shall arrange content by systems process flow under section numbers and sequence of Table of Contents of the Contract Documents.
- E. Contractor shall provide tabbed fly leaf for each separate product and system, with typed description of product and major component parts of equipment.
- F. Text: The content shall include Manufacturer's printed data, or typewritten data on 24 pound paper.
- G. Drawings: Contractor shall provide with reinforced punched binder tab and shall bind in with text; folding larger drawings to size of text pages.

1.04 CONTENTS, EACH VOLUME:

- A. Table of Contents: Contractor shall provide title of Project; names, addresses, and telephone numbers of the Architect, any engineers, subconsultants, Subcontractor(s), and Contractor with name of responsible parties; and schedule of products and systems, indexed to content of the volume.

- B. For Each Product or System: Contractor shall list names, addresses, and telephone numbers of Subcontractor(s) and suppliers, including local source of supplies and replacement parts.
- C. Product Data: Contractor shall mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.
- D. Drawings: Contractor shall supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams. Contractor shall not use Project Record Documents as maintenance drawings.
- E. Text: Contractor shall include any and all information as required to supplement product data. Contractor shall provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.
- F. Warranties and Bonds: Contractor shall bind in one copy of each.

1.05 MANUAL FOR MATERIALS AND FINISHES:

- A. Building Products, Applied Materials, and Finishes: Contractor shall include product data, with catalog number, size, composition, and color and texture designations. Contractor shall provide information for re-ordering custom manufactured products.
- B. Instructions for Care and Maintenance: Contractor shall include Manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
- C. Moisture Protection and Weather Exposed Products: Contractor shall include product data listing applicable reference standards, chemical composition, and details of installation. Contractor shall provide recommendations for inspections, maintenance, and repair.
- D. Additional Requirements: Contractor shall include all additional requirements as specified in the Specifications.
- E. Contractor shall provide a listing in Table of Contents for design data, with tabbed fly sheet and space for insertion of data.

1.06 MANUAL FOR EQUIPMENT AND SYSTEMS:

- A. Each Item of Equipment and Each System: Contractor shall include description of unit or system, and component parts and identify function, normal operating characteristics, and limiting conditions. Contractor shall include performance curves, with engineering data and tests, and complete nomenclature, and commercial number of replaceable parts.
- B. Panelboard Circuit Directories: Contractor shall provide electrical service characteristics, controls, and communications.

- C. Contractor shall include color coded wiring diagrams as installed.
- D. Operating Procedures: Contractor shall include start-up, break-in, and routine normal operating instructions and sequences. Contractor shall include regulation, control, stopping, shut-down, and emergency instructions. Contractor shall include summer, winter, and any special operating instructions.
- E. Maintenance Requirements: Contractor shall include routine procedures and guide for trouble-shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
- F. Contractor shall provide servicing and lubrication schedule, and list of lubricants required.
- G. Contractor shall include manufacturer's printed operation and maintenance instructions.
- H. Contractor shall include sequence of operation by controls manufacturer.
- I. Contractor shall provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
- J. Contractor shall provide control diagrams by controls manufacturer as installed.
- K. Contractor shall provide Contractor's coordination drawings, with color coded piping diagrams as installed.
- L. Contractor shall provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
- M. Contractor shall provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.
- N. Additional Requirements: Contractor shall include all additional requirements as specified in Specification(s).
- O. Contractor shall provide a listing in Table of Contents for design data, with tabbed fly sheet and space for insertion of data.

1.07 SUBMITTAL:

- A. Contractor shall submit to the District for review two (2) copies of preliminary draft or proposed formats and outlines of the contents of the Manual within thirty (30) days of Contractor's start of Work.
- B. For equipment, or component parts of equipment put into service during construction and to be operated by District, Contractor shall submit draft content for that portion of the Manual within ten (10) days after acceptance of that equipment or component.

- C. Contractor shall submit two (2) copies of a complete Manual in final form prior to final Application for Payment. Copy will be returned with Architect/Engineer comments. Contractor must revise the content of the Manual as required by District prior to District's approval of Contractor's final Application for Payment.
- D. Contractor must submit two (2) copies of revised Manual in final form within ten (10) days after final inspection.

PART 2 – PRODUCTS Not Used.

PART 3 – EXECUTION Not Used.

END OF DOCUMENT

WARRANTIES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS AND PROVISIONS

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

- A. General Conditions, including, without limitation, Warranty/Guarantee Information;
- B. Special Conditions.

1.02 FORMAT

- A. Binders: Contractor shall use commercial quality, 8-1/2 by 11 inch, three-side rings, with durable plastic covers; two inch maximum ring size.
- B. Cover: Contractor shall identify each binder with typed or printed title "WARRANTIES" and shall list title of Project.
- C. Table of Contents: Contractor shall provide title of Project; name, address, and telephone number of Contractor and equipment supplier; and name of responsible principal. Contractor shall identify each item with the number and title of the specific Specification, document, provision, or section in which the name of the product or work item is specified.
- D. Contractor shall separate each warranty with index tab sheets keyed to the Table of Contents listing, providing full information and using separate typed sheets as necessary. Contractor shall list each applicable and/or responsible Subcontractor(s), supplier(s), and/or manufacturer(s), with name, address, and telephone number of each responsible principal(s).

1.03 PREPARATION:

- A. Contractor shall obtain warranties, executed in duplicate by each applicable and/or responsible subcontractor(s), supplier(s), and manufacturer(s), within ten (10) days after completion of the applicable item or work. Except for items put into use with District's permission, Contractor shall leave date of beginning of time of warranty blank until the date of completion is determined.
- B. Contractor shall verify that documents are in proper form, contain full information, and are notarized, when required.
- C. Contractor shall co-execute submittals when required.
- D. Contractor shall retain warranties until time specified for submittal.

1.04 TIME OF SUBMITTALS:

- A. For equipment or component parts of equipment put into service during construction with District's permission, Contractor shall submit a draft warranty for that equipment or component within ten (10) days after acceptance of that equipment or component.
- B. Contractor shall submit for District approval all warranties and related documents within ten (10) days after date of completion. Contractor must revise the warranties as required by the District prior to District's approval of Contractor's final Application for Payment.
- C. For items of work delayed beyond date of completion, Contractor shall provide an updated submittal within ten (10) days after acceptance, listing the date of acceptance as start of warranty period.

PART 2 - PRODUCTS Not Used.

PART 3 – EXECUTION Not Used.

END OF DOCUMENT

(Letterhead of Contractor)

STANDARD GUARANTEE / WARRANTY

for

Project Name

Contract No.

We hereby warrant that the Work we have provided under the above reference Contract has been completed in accordance with the Drawings, Specifications, and other Contract Documents.

Under the terms of this warranty, we agree to repair or replace any or all of our work, together with any other adjacent work which may be displaced or damaged by so doing, which may prove to be either patently defective in its workmanship or latently defective in its workmanship or materials within the period of 24 months from the date of filing of the Notice of Completion of the above named Project by the Board of Trustees of the School District, and we also agree to repair any and all damages resulting from such defects, without any expense whatsoever to said Board of Trustees, ordinary wear and tear and unusual abuse or neglect excepted.

In the event of our failure to comply with above-mentioned guarantee conditions within ten (10) day after being notified in writing by the Owner, we collectively and separately do hereby authorize the Owner to have said defective work and damages repaired or replaced and made good at our expense and will honor and pay the costs and charges therefore upon demand.

SIGNED (Contractor) _____

(Address)

(Printed Name of Authorized Representative)

Signature

(License Number)

(Date of Signing)

COUNTERSIGNED (Owner) _____

(Printed Name of Authorized Representative)

Signature

Date of Filing or Notice of Completion: _____

(Letterhead of Company)

SUBCONTRACTOR STANDARD GUARANTEE / WARRANTY

We hereby warrant that

which we have provided in _____

Name of Project

for

District

has been completed in accordance with Specification Section _____ and requirements of the Contract Documents.

Under the terms of this warranty, we agree to repair or replace any or all of our work, together with any other adjacent work which may be displaced or damaged by so doing, which may prove to be either patently defective in its workmanship or latently defective in its workmanship or materials within a period of 24 months from date of filing the Notice of Completion of the above-named Project by the Board of Trustees of the School District without any expense whatsoever to said Board of Trustees, ordinary wear and tear and unusual abuse or neglect excepted.

In the event of our failure to comply with above-mentioned guarantee conditions within ten (10) day after being notified in writing by the Owner, we collectively and separately do hereby authorize the Owner to have said defective work and damages repaired or replaced and made good at our expense and will honor and pay the costs and charges therefore upon demand.

SIGNED (Subcontractor)

(Name)

(Address)

(License Number) (Date of Signing)

(License Number) (Date of Signing)

COUNTERSIGNED (General Contractor)

(Name)

(Address)

(License Number) (Date of Signing)

(License Number) (Date of Signing)

(Letterhead of Company)

SPECIAL EXTENDED WRITTEN GUARANTEE / WARRANTY

We hereby warrant that

which we have provided in _____
Name of Project

for _____ District

has been completed in accordance with Specification Section _____ and requirements of the Contract Documents.

Under the terms of this warranty, we agree to repair or replace any or all of our work, together with any other adjacent work which may be displaced or damaged by so doing, which may prove to be either patently defective in its workmanship or latently defective in its workmanship or materials within a period of _____ year(s) from date of filing the Notice of Completion of the above-named Project by the Board of Trustees of the School District without any expense whatsoever to said Board of Trustees, ordinary wear and tear and unusual abuse or neglect excepted. We also agree to repair any and all damages resulting from such defects.

In the event of our failure to comply with above-mentioned conditions within a reasonable time but in no case longer than ten (10) calendar days after being notified in writing by the Owner, we collectively and separately do hereby authorize the Owner to have said defective work and damages repaired or replaced and made good at our expense and will honor and pay the costs and charges therefore upon demand.

SIGNED (Subcontractor)	
------------------------	--

(Name)

(Address)

 (License Number) (Date of Signing)

(License Number) (Date of Signing)

COUNTERSIGNED (General Contractor)

(Name)

(Address)

(License Number) (Date of Signing)

(License Number) (Date of Signing)

RECORD DOCUMENTS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS AND PROVISIONS:

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

- A. General Conditions, including, without limitation, Documents on Work;
- B. Special Conditions.

PART 2 - RECORD DRAWINGS

2.01 GENERAL:

- A. As indicated in the Contract Documents, the District will provide Contractor with one set of reproducible, full size original Contract Drawings (mylars).
- B. Contractor shall maintain at each Project Site one set of marked-up plans and shall transfer all changes and information to those marked-up plans, as often as required in the Contract Documents, but in no case less than once each month. Contractor shall submit to the Project Inspector one set of reproducible vellums of the Project Record Drawings ("As-Built") showing all changes incorporated into the Work since the preceding monthly submittal. The As-Built shall be available at the Project Site. The Contractor shall submit reproducible vellums at the conclusion of the Project following review of the blue line prints.
- C. Label and date each Record Drawing "RECORD DOCUMENT" in legibly printed letters.
- D. All deviations in construction, including but not limited to pipe and conduit locations and deviations caused by without limitation Change Orders, Construction Claim Directives, RFI's, and Addenda, shall be accurately and legibly recorded by Contractor.
- E. Locations and changes shall be done by Contractor in a neat and legible manner and, where applicable, indicated by drawing a "cloud" around the changed or additional information.

2.02 RECORD DRAWING INFORMATION:

- A. Contractor shall record the following information:
 - (1) Locations of Work buried under or outside each building, including, without limitation, all utilities, plumbing and electrical lines, and conduits.

- (2) Actual numbering of each electrical circuit to match panel schedule.
- (3) Locations of significant Work concealed inside each building whose general locations are changed from those shown on the Contract Drawings.
- (4) Locations of all items, not necessarily concealed, which vary from the Contract Documents.
- (5) Installed location of all cathodic protection anodes.
- (6) Deviations from the sizes, locations, and other features of installations shown in the Contract Documents.
- (7) Locations of underground work, points of connection with existing utilities, changes in direction, valves, manholes, catch basins, capped stubouts, invert elevations, etc.
- (8) Sufficient information to locate Work concealed in each building with reasonable ease and accuracy.

In some instances, this information may be recorded by dimension. In other instances, it may be recorded in relation to the spaces in the building near which it was installed.

- B. Contractor shall provide additional drawings as necessary for clarification.
- C. Contractor shall provide reproducible record drawings, made from final Shop Drawings marked "No Exceptions Taken" or "Approved as Noted."
- D. After review and approval of the marked-up specifications by the Project Inspector, Contractor shall provide electronic copies of the drawings (in PDF format) with one file with all of the sheets and one set of individual sheet files at the conclusion of the Project.

PART 3 - RECORD SPECIFICATIONS

3.01 GENERAL:

- A. Contractor shall mark each section legibly to record manufacturer, trade name, catalog number, and supplier of each Product and item of equipment actually installed.
- B. After review and approval of the marked-up specifications by the Project Inspector, Contractor shall provide one electronic copy of the specifications (in PDF format) at the conclusion of the Project.

PART 4 - MAINTENANCE OF RECORD DOCUMENTS

4.01 GENERAL

- A. Contractor shall store Record Documents apart from documents used for construction as follows:

- (1) Provide files and racks for storage of Record Documents.
- (2) Maintain Record Documents in a clean, dry, legible condition and in good order.

B. Contractor shall not use Record Documents for construction purposes.

PART 5 – PRODUCTS Not Used.

END OF DOCUMENT

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes general requirements and procedures for compliance with California Code of Regulations, Title 24, Part 11 California Green Building Standards Code, "CAL-Green".
 - 1. Chapter 5- Non-Residential Mandatory Measures.

1.2 RELATED REQUIREMENTS

- A. Pertinent sections specifying erosion control.
- B. Section 01 6116, Volatile Organic Compound (VOC) Restrictions.
- C. Document 01 5013, Construction Waste Management and Disposal.
- D. Document 01 7700, Contract Closeout and Final Cleaning..

1.3 DEFINITIONS

- A. CAL-Green Definitions: Certain terms are defined by CAL-Green in Chapter 5 of the code. Words and terms used in this section shall have the meanings shown therein.

1.4 ADMINISTRATIVE REQUIREMENTS

- A. Respond to questions and requests from Architect and the jurisdiction having authority regarding CAL-Green credits that are the responsibility of the Contractor, that depend on product selection or product qualities, or that depend on Contractor's procedures. Document responses as informational submittals.

1.5 SUBMITTALS

- A. CAL-GREEN Submittals: Submit CAL-GREEN submittals required by code and in other Specification Sections.
 - 1. CAL-GREEN submittals are in addition to other submittals. If submitted item is identical to that submitted to comply with other requirements, submit duplicate copies as a separate submittal to verify compliance with indicated CAL-GREEN requirements.
 - 2. Acceptable verification submittals are specified in the related sections.

SUSTAINABLE DESIGN REQUIREMENTS
SECTION 01 8113
22-1515
Increment 2

PART 2 - PRODUCTS

2.1 REQUIREMENTS - GENERAL

- A. Provide products and procedures necessary to confirm CAL-GREEN compliance required in this Section. Although other Sections may specify some CAL-GREEN requirements, the Contractor shall determine additional materials, techniques, means, methods and procedures necessary to comply with CAL-GREEN requirements.

2.2 STORM WATER POLLUTION PREVENTION PLAN

- A. Section 5.106.1: Comply with requirements of this code section, local ordinances, General Conditions, Special Provisions, and related sections specifying erosion control.

2.3 OUTDOOR WATER USE

- A. Section 5.304.3.1: Irrigation Controllers: Comply with requirements of this code section, local ordinances and Section 32 8000.

2.4 CONSTRUCTION WASTE REDUCTION

- A. Section 5.408 Construction Waste Management, Diversion and Recycling: Comply with requirements of this code section, local ordinances and Section 01 7419.

2.5 BUILDING MAINTENANCE AND OPERATION

- A. Section 5.410.2.3, 4. Commissioning and Functional Performance Testing: Participate in Commissioning and provide functional performance testing as required by these code sections and as specified in Section 01 9113.
- B. Section 5.410.2.5. Documentation and Training: Provide Operations Training as required by these code sections and as specified in Section 01 7700 and Systems Manual as specified in Section 01 7700.

2.6 POLLUTANT CONTROL

- A. Section 5.504.3 Indoor Air Quality: Comply with requirements of this code section, local ordinances.
- B. Section 5.504.4 Finish Material Pollutant Control: All Finish materials shall comply with requirements of this code section, local ordinances and Section 01 6116.

PART 3 - EXECUTION

3.1 GENERAL

- A. Comply with Document 01 5013, Construction Waste Management and Disposal.

SUSTAINABLE DESIGN REQUIREMENTS
SECTION 01 8113
22-1515
Increment 2

- B. Comply with execution requirements of related sections and applicable local codes and ordinances.

END OF SECTION

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Last Updated: April 8, 2019

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Demolition of existing improvements indicated on the Drawings and required for completion of the work.
2. Disconnecting, capping or sealing, and removing of utilities.

1.2 RELATED REQUIREMENTS

- A. Section 01 6116, Volatile Organic Compound (VOC) Restrictions; for VOC limits pertaining to adhesives, sealants, fillers, primers, and coatings.
- B. Section 01 7329, Cutting and Patching.
- C. Section 01 7419, Construction Waste Management and Disposal.
- D. Section 01 8113, Sustainable Design Requirements, for CAL-Green general requirements and

1.3 REFERENCES AND STANDARDS

- A. California Building Code (CBC), edition as noted on the Drawings, as adopted by the California Division of the State Architect (DSA).
- B. California Green Building Standards Code (CALGreen), edition as noted on the Drawings, as adopted by the California Division of the State Architect (DSA).
- C. California Fire Code (CFC), edition as noted on the Drawings, as adopted by the California Division of the State Architect (DSA).
- D. American National Standards Institute (ANSI):
 1. ANSI A10.6: Safety and Health Program Requirements for Demolition Operations.
- E. National Fire Protection Association (NFPA):
 1. NFPA 241: Standard for Safeguarding Construction, Alteration, and Demolition Operations.

1.4 DEFINITIONS

- A. Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and salvaged or recycled.
- B. Remove and Salvage: Detach items from existing construction and deliver them to Owner as directed.

SELECTIVE DEMOLITION
SECTION 02 4119
22-1515
Increment 2

- C. Remove and Reinstall: Detach items from existing construction, prepare them for reuse, and reinstall them where indicated.
- D. Salvage Elements: Element to be removed from the existing construction and to be retained for reinstallation or potential reuse.
- E. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or recycled.

1.5 ADMINISTRATIVE REQUIREMENTS

- A. Submittal Procedures:
 - 1. Action Submittals and Informational Submittals shall be submitted in accordance with Section 01 3300, Submittal Procedures.
 - 2. Sustainable Design Submittals shall comply with the additional requirements of Section 01 8113, Sustainable Design Requirements.
- B. Pre-demolition Meeting: Prior to start of demolition operations, the Contractor shall meet with Architect and Owner's Project Inspector at Project site to review methods and procedures related to demolition including, but not limited to, the following:
 - 1. Inspect and discuss condition of existing improvements to be demolished.
 - 2. Protection requirements.
 - 3. Structural load limitations of existing structure.

1.6 SCHEDULING

- A. Schedule work to coincide with new construction and Owners use of affected and unaffected facilities.
- B. No demolition shall occur when the site is occupied by students or staff without proper protection measures and written consent of Owner.

1.7 MATERIALS OWNERSHIP

- A. Items of interest or value to Owner that may be encountered during building demolition and not identified on the Drawings, remain Owner's property. Carefully remove and salvage each item or object in a manner to prevent damage, unless otherwise instructed.

1.8 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For demolition firm if a separate subcontractor will be used.
- B. Pre-demolition photographs.
- C. Record of Pre-demolition Meeting.
- D. Sustainable Design:

1. General:
 - a. Submit information necessary to establish and document compliance with the California Green Building Standards Code.
 - b. Sustainable design submittals are in addition to other submittals.
2. The following information shall be provided:
 - a. Demolition Debris: Verification of compliance with waste reduction requirements specified in Section 01 8113, Sustainable Design Requirements.

1.9 QUALITY ASSURANCE

- A. Qualifications:
 1. Demolition Firm: Company specializing in performing the Work of this Section with minimum of five years' experience.
- B. Obtain required permits from authorities and agencies.
- C. Comply with governing EPA notification regulations before beginning demolition.
- D. Comply with hauling and disposal regulations of authorities having jurisdiction.
- E. Comply with ANSI A10.6 and NFPA 241.
- F. Fire protection during demolition shall be in accordance with California Fire Code, Chapter 33.
- G. The Owner's Project Inspector will be present at the site when removal operations are in progress. Should an unplanned event occur, the Contractor shall immediately provide the Project Inspector with the procedure of operation to correct or remedy the occurrence. The Project Inspector will report details of the event and the procedures employed by the Contractor for correction. The Contractor shall provide the Project Inspector with its proposed procedures to eliminate similar events in the future.

1.10 STORAGE FACILITY REQUIREMENTS FOR SALVAGED ITEMS

- A. Furnish facility of sufficient size and capacity to store and retrieve items identified for salvage. A contiguous, isolated, centralized area shall be furnished to the greatest extent possible.
- B. Physical Requirements: Facility shall comply with the following unless applicable to the items being salvaged and approved by the Owner.
 1. Covered loading and unloading area to allow for transport of elements without exposure to inclement weather conditions.
 2. Configuration of space shall allow for adequate ventilation of stored elements; provision of mechanical devices to circulate air will be required if ventilation is inadequate.
 3. Ambient Conditions:

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- a. Maintain ambient temperature of a minimum of 45 degrees F to a maximum of 100 degrees F.
 - b. Maintain a relative humidity between 20-80 percent.
 - c. Climate control is not required if these conditions can be met.
 - 4. Adequate artificial light to allow for proper handling of elements and for potential examination of salvage elements at the facility.
 - 5. Adequate protection from degradation due to ultraviolet (direct) sunlight.
 - 6. Protection from exposure to water. No exposure of salvage elements and/or packing materials to moisture will be permitted.
 - 7. Protection from vermin and pests is required. Vermin and pests include, but are not limited to, rats, mice, insects, birds, bats, and squirrels.
 - 8. Functioning smoke alarm, fire detection/notification, and sprinkler system.
- C. Security: An off-site facility shall comply with the following.
- 1. Facility must be a bonded facility of sufficient bonding capacity to suitably replicate and replace all stored salvage elements.
 - 2. Facility must provide an inventory and receiver control to adequately monitor and document storage activities.

1.11 FIELD CONDITIONS

- A. Do not close or obstruct egress width to exits.
- B. Do not disable or disrupt building fire or life safety systems without 3 day prior written notice to the Owner. Portions of the building and other buildings on-site not a part of the Contract shall not be left unprotected during non-work hours.
- C. Conform to procedures applicable when discovering hazardous or contaminated materials.

1.12 REMOVED MATERIALS

- A. Materials or equipment noted to be removed is at the discretion of the Contractor. Storage or sale of removed items will not be permitted on Project Site. Transport salvaged items from Project Site as they are removed.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Perform an engineering survey of condition of building to determine whether removing element designated to be demolished might result in structural deficiency during building demolition operations.

- B. Inventory and record the condition of items to be removed and salvaged.
- C. When unanticipated mechanical, electrical, or structural elements are encountered, investigate and measure the nature and extent of the element. Promptly submit a written report to Architect.
- D. Verify that hazardous materials have been remediated before proceeding with building demolition operations.

3.2 PREPARATION

- A. Provide, erect, and maintain temporary barriers and partitions at locations indicated or as needed to safeguard occupants and pedestrians.
- B. Erect and maintain weatherproof closures for exterior openings.
- C. Erect and maintain temporary partitions to prevent spread of dust, odors and noise to permit continued Owner occupancy.
- D. Clearly mark and protect existing materials and equipment which are not to be demolished.
- E. Prevent movement of structure; provide required bracing and shoring.
- F. Existing Utilities: Mark location of all utilities and seal or cap off indicated utilities in work area prior to start of demolition.

3.3 DEMOLITION

- A. Conduct demolition to minimize interference with adjacent and occupied building areas.
- B. Maintain and protect egress and access at all times.
- C. Demolish in an orderly and careful manner. Protect existing supporting structural members.
- D. Cease operations immediately if structure appears to be in danger. Notify Architect. Do not resume operations until resumption is approved by Architect.
- E. Removed and Salvaged Items: Comply with the following.
 - 1. Clean salvaged items of dirt and demolition debris.
 - 2. Pack or crate items after cleaning. Identify contents of containers.
 - 3. Store items until re-installation or delivery to Owner.
 - a. If required on-site facilities are not available, store off-site.
 - b. Both on-site and off-site storage facility shall be acceptable to the Owner and shall comply with the specified requirements.
 - 4. Items not scheduled to be re-installed shall be transported to Owner as directed.
 - 5. Protect items from damage during transport and storage.

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- F. Except where noted otherwise, remove demolished materials from site. Do not burn or bury materials on site.
- G. Remove and legally dispose and recycle demolished materials from site as work progresses. Documentation of legal dumping and recycling shall be obtained and submitted in accordance with requirements of Section 01 7419, Construction Waste Management and Disposal.
- H. Remove temporary work.

3.4 REPAIR

- A. Where fasteners are removed from existing surfaces or when temporary penetrations are necessary patch and repair holes and openings to match adjacent surface.
- B. Restore exposed finishes of patched areas and extend restoration into adjoining construction in a manner that eliminates evidence of patching and refinishing in accordance with Section 01 7329, Cutting and Patching.

3.5 SALVAGE AND PROTECTION

- A. Remove and salvage the following materials and equipment to be reinstalled:
 - 1. Items as indicated on the Drawings.
- B. Remove and salvage the following equipment to be retained by the Owner.
 - 1. Items as indicated on the Drawings.
- C. Owner will remove and keep the following material and equipment:
 - 1. Furnishings not built in or connected to the structure and in the way of construction.
- D. Protect the following materials and equipment:
 - 1. Existing mechanical systems.
 - 2. Under floor plumbing lines.
 - 3. Systems, equipment and finishes which are to remain, inside and outside.

3.6 CLEAN UP

- A. Return adjacent areas outside of the work area to condition existing before demolition operations began.
- B. After materials have been removed from the site, broom clean all affected areas.

END OF SECTION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Exterior building millwork including, but not necessarily limited to, the following:
 - a. Fascia boards and trim.
 - b. Plywood panels.
 - 2. Installation hardware and other items specified under other Sections where not installed by manufacturer or supplier.
 - 3. Finish hardware items integral with exterior finish carpentry.

1.2 RELATED REQUIREMENTS

- A. Section 07 4246, Fiber-Reinforced Cement Siding.
- B. Section 07 6200, Sheet Metal Flashing and Trim.
- C. Section 09 9100, Painting.
- D. Structural Drawings; additional requirements for soffit decking and rafter tails.

1.3 REFERENCES AND STANDARDS

- A. California Building Code (CBC), edition as noted on the Drawings, as adopted by the California Division of the State Architect (DSA).
- B. California Green Building Standards Code (CAL Green), edition as noted on the Drawings, as adopted by the California Division of the State Architect (DSA).
- C. ASTM International (ASTM):
 - 1. A123/A123M: Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
 - 2. A153/A153M: Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
 - 3. A653/A653M: Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- D. APA - The Engineered Wood Association (APA):
 - 1. US Product Standard PS 1: For Construction & Industrial Plywood with Typical APA Trademarks.
- E. Western Red Cedar Lumber Association (WRCLA): "How to Finish Western Red Cedar."

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- F. Woodwork Institute (WI): "North American Architectural Woodwork Standards" (NAAWS) published jointly by WI and the Architectural Woodwork Manufacturers of Canada (AWMAC).

1.4 ADMINISTRATIVE REQUIREMENTS

- A. Submittal Procedures:
 - 1. Action Submittals and Informational Submittals shall be submitted in accordance with Section 01 3300, Submittal Procedures.
 - 2. Closeout Submittals shall be submitted in accordance with Section 01 7700, Closeout Procedures.

1.5 ACTION SUBMITTALS

- A. Shop Drawings:
 - 1. Submit for custom-fabricated items and as required for coordination to show locations and types of blocking and other anchors to be built into substrates.
 - 2. Include "to-scale" dimensioned plans and elevations and large-scale details identifying components used, materials, finish, full-size profiles, and indicating method of attachment.
 - 3. Cross reference to details numbering used on the Drawings.
- B. Product Data:
 - 1. Manufacturer's descriptive literature and standard drawings for stock products and materials to be used including:
 - a. Paints and stains applied under this Section.
 - b. Preservative-treated wood process.
 - 2. Include manufacturer's specifications, published warranty or guarantee, installation instructions, and maintenance instructions.
- C. Samples:
 - 1. Graded wood samples for Architect's review and approval for each category of work.
 - a. Selected typical profiles as requested by Architect.
 - b. Submit for acceptance prior to wood purchase and millwork fabrication.
 - c. Provide specified paint or stain finish applied in step fashion to samples showing unfinished wood and each applied coating.
 - 2. Exposed hardware.
 - 3. Additional Samples: As requested by Architect.

1.6 INFORMATIONAL SUBMITTALS

- A. Compliance Certificates:

1. Woodwork Institute Certified Compliance Certificate as specified.
2. For lumber that is not marked with grade stamp.

1.7 QUALITY ASSURANCE

- A. Use only new materials and products, unless existing materials or products are specifically shown otherwise on the Drawings to be salvaged and re-used.
- B. Use materials and products of one manufacturer whenever possible.
- C. Materials, components, assemblies, workmanship and installation are to be observed by the Owner's Project Inspector. Work not so inspected is subject to uncovering and replacement.
- D. Work shall be done under direction of a capable foreman experienced in installation of finish carpentry work.
- E. Before delivery to the job site, the woodwork supplier shall provide a Woodwork Institute Certified Compliance Certificate indicating the millwork products being supplied and Certifying that these products fully meet the requirements of the Grade or Grades specified.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Deliver undamaged products to job in manufacturer's sealed containers and/or original bundles with tags and labels intact.
- B. Store materials in protected, dry conditions off of ground and in areas so as to not interfere with the progress of the work.
- C. Transport, store and handle in strict accord with the manufacturer's written recommendations.

1.9 FIELD CONDITIONS

- A. Products shall be available at project when required for installation so as not to delay job progress. Installer for these products shall cooperate with installers performing work under other Sections involved to effect proper installation.
- B. Materials shall be protected continuously after grading, during storage, transportation and handling, in such a manner as to avoid exposure to moisture conditions that could increase their moisture content.
- C. Protect exterior work from rain and other moisture until it can be finished.

1.10 FIELD MEASUREMENTS

- A. Make and be responsible for all field dimensions necessary for proper fitting and completion of work. Report discrepancies to Architect before proceeding.

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PART 2 - PRODUCTS

2.1 DESIGN AND PERFORMANCE CRITERIA

- A. Exterior finish carpentry shall comply with the applicable requirements of the "North American Architectural Woodwork Standards (NAAWS)" published jointly by WI and AWMAC (hereinafter also referred to as the "woodworking standard") including Section 6, "Millwork," and applicable requirements of Appendix A. Where Contract Documents indicate requirements that conflict with or augment the woodworking standard, comply with the conflicting or augmenting requirements.

2.2 WOOD MATERIALS AND COMPONENTS

A. Lumber - General:

1. Use only lumber conforming to grades and dress sizes permitted within the applicable grading rules.
2. Lumber shall be new, uniformly sized and S4S unless otherwise specified or noted on the Drawings.
3. Mark each piece of lumber for use in structural framing with the grade and trade mark of a lumber grading organization.
4. Do not mark or color lumber, except where such marking will be concealed in finish work.
5. Sizes indicated are nominal, unless otherwise indicated.
6. Intended Finishes: As specified.
7. See Drawings for required species at each location.
8. Kerf unexposed side of exterior millwork where "cupping" may occur.
9. **[No fingerjointed, twisted, warped, bowed, or otherwise defective lumber wood will be allowed.]**

B. Redwood:

1. General:
 - a. Moisture Content: Kiln-dried to maximum 15 percent.
 - b. Finish lumber shall have eased edges.
2. Grade: B Grade or Better in accordance with "Standard Specification for Grades of California Redwood Lumber" maintained by the Western Wood Products Association (WWPA).
3. Moisture Content: Kiln-dried to maximum 15 percent.
4. Texture: Smooth, unless otherwise noted.
5. Intended Finish: Opaque. Provide updated information on type of exposed plywood used by RGA on its projects. The following is a place holder. No information in existing Finish Carpentry master.

C. Plywood: APA Rated Exterior Siding conforming to PS 1; Roseburg, or equal.

1. Grade: Premium.

2. Face Veneer:
 - a. General:
 - 1) Veneers shall be selected for dimensional stability and without visual appearance between sapwood and heartwood.
 - 2) Veneer shall be free from patches and shall have a uniform grain and texture.
 - b. Species: Douglas Fir.
 3. Siding:
 - a. Surface Pattern: Plain, no grooves.
 - b. Thickness: 11/32 inch.
 4. Dropped Soffits:
 - a. Surface Pattern: Plain, no grooves.
 - b. Thickness: 11/32 inch.
 5. Soffits at Exposed Rafters:
 - a. Surface Pattern: Plain, no grooves.
 - b. Thickness: 11/32 inch.
 6. Plies:
 - a. 11/32, 3 plies.
 - b. [19/32, 5 plies.]
 7. Inner Plies and Back Veneer: C Grade or Better, species as standard with manufacturer.
 8. Intended Finish: Opaque. [Provide siding with factory-applied primer.]
- D. Additional Materials and Components: As noted on the Drawings and specified in Section 06 1000, Rough Carpentry.

2.3 ACCESSORIES

- A. General:
 1. Fabricate and/or supply accessories to the details shown on the Drawings and as accepted. Size and type to suit application as accepted.
 2. Use stainless steel fasteners and connectors in lieu of hot-dip galvanized where finish carpentry wood is secured to pressure-treated as the treated wood may have excess surface chemicals making it potentially more corrosive.
- B. Rough Hardware:
 1. Provide as required for installation.
 2. Except as otherwise specified, metal fastenings and accessories shall hot-dip galvanized in accordance with ASTM A123, A153, or A653 as applicable.
 3. Fastenings in contact with above ground use pressure-treated wood shall be hot-dip galvanized to G90 coating standard.

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2.4 FABRICATION

- A. Fabricate to profiles and designs shown on the Drawings, reviewed submittals, and Section 6 of the NAAWS.
- B. Coordinate with structural work where trim interfaces with exposed wood members provided under Section 06 1000, Rough Carpentry.
- C. Provide wood members in maximum possible lengths to minimize joints.

2.5 FINISHING

- A. General:
 - 1. Prepare for finishing and shop or field finish in accordance with NAAWS factory finishing requirements as specified in Section 5 of the NAAWS.
 - 2. Field-applied coatings shall conform to Section 09 9100, Painting.
- B. **[Cedar shall be shop finished prior to delivery to project to greatest extent possible following the finishing recommendations of the WRCLA.]**
- C. Finished wood shall be sealed by priming on all cut edges, backs and other areas concealed in final work. Assure field-finished wood complies with this requirement prior to installation.
- D. Finished wood shall be sealed by priming on all cut edges, backs and other areas concealed in final work prior to installation.
- E. Coordinate application of sealing and priming concealed surfaces with Section 09 9100, Painting.
 - 1. Field Applied Finish Coat: Semi-transparent stain as specified in Section 09 9100, Painting.
 - a. Second coat to be much darker than solid-body first coat.
 - b. Spray-apply and then wipe with rags or squeegee to obtain stained wood grain effect.
 - c. All colors to be selected by Architect.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine finish carpentry materials before installation. Reject materials that are wet, moisture damaged, and mold damaged.
- B. Examine substrates, with installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work including adequacy of backing and support framing.

1. In the event of discrepancy, immediately notify the Architect.
2. Do not proceed in discrepant areas until discrepancies have been fully resolved.

3.2 PREPARATION

- A. Clean substrates of projections and substances detrimental to application.
- B. Prime lumber and moldings to be painted, including both faces and edges, unless factory primed.
 1. Cut to required lengths and prime ends.
- C. Complete work specified in this Section to whatever extent not completed at factory or prior to installation.

3.3 INSTALLATION - GENERAL

- A. Do not install millwork until operations that may impact installed work is complete; concrete, masonry and plaster work has thoroughly dried, and the millwork has been primed or sealed in an approved manner.
- B. Install exterior millwork plumb, true, and in accordance with the Drawings and Custom Grade requirements of the NAAWS Standard.
- C. Accurately cut and frame all lumber and timber to a close fit, with even bearing over all contact surfaces.
- D. Form all joints square and tight unless otherwise shown. Do not use shims when making joints.
- E. Install matching trim at joints, corners, and other exposed edges.
- F. Install items specified in this Section, and items specified under other Sections which are not to be installed by manufacturer or supplier.
 1. Install in accordance with the Drawings, manufacturer's printed instructions, and any additional requirements included in the respective Specification Section.
 2. Wall-mounted items shall be securely fastened to solid backing or blocking.
- G. Exposed surfaces shall be free from tool marks, torn grain, cross sanding, or workmanship defects that cannot be concealed by specified painter's finish.

3.4 FASTENING

- A. General:
 1. Use specified non-corroding fasteners for installation of exterior work.
 2. Countersink and fill all finish nail heads.
 3. Where other anchorage is indicated, use appropriate rough hardware.

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4. Hammer, tool marks, and marred surfaces and edges are not acceptable on exposed surfaces.
5. Exposed fasteners shall be carefully aligned in both directions and uniformly spaced.
6. Turn up and make tight all nuts, bolts, and lag screws at time of installation and again at the completion of the work, to insure that shrinkage has been overcome and fastenings are tight.

B. Nails, Screws and Bolts:

1. Nails: Seat flush. Countersink all finishing nails to 1/16 inch below finish surface.
2. Screws:
 - a. Drill holes for screws and lag screws same diameter as inner shank (bolt size minus depth of thread).
 - b. Unless noted otherwise, countersink screws until heads are flush with finish surface.
3. Bolts:
 - a. Pre-drill holes for countersunk bolts with a bit 1/16 inch larger than the accompanying washer, and to a depth which allows bolt head to be secured flush with finish surface.
 - b. Where bolts are not countersunk, bore hole to accept bolt only. Tighten bolt and washer flush to finish surface without compressing wood.

3.5 FIELD FINISHING

- A. Prime and Finish Coats: As specified in Section 09 9100, Painting. Primer may be shop applied where applicable.

3.6 ADJUSTING AND CLEANING

- A. After installation, clean exposed and semi-exposed surfaces to remove marks of handling and leave in clean condition.
- B. After completion of installation, clean exposed surfaces, touch up finish as required, remove and refinish damaged or soiled areas of finish, and adjust and repair damaged or defective work as determined by the Architect.
- C. Touch up factory-applied finishes to restore damaged or soiled areas.
- D. Repaired or refinished work shall show no evidence of repair or refinishing.

END OF SECTION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. The following wood millwork items:
 - a. Plywood wainscot paneling.
 - b. Windows sills and aprons.
 - c. Base.
 - d. Standing and running trim.
 - 2. Finish hardware for interior millwork.
 - 3. Other miscellaneous millwork items as shown and required.

1.2 RELATED REQUIREMENTS

- A. Section 01 6116, Volatile Organic Compound (VOC) Restrictions; for VOC limits pertaining to adhesives, sealants, fillers, primers, and coatings.
- B. Section 01 8113, Sustainable Design Requirements, for CAL-Green general requirements and procedures.
- C. Section 06 2013, Exterior Finish Carpentry.
- D. Section 06 6401, Fiber Reinforced Laminate Paneling.
- E. Section 07 9200, Joint Sealants.
- F. Section 09 9100, Painting.
- G. Section 12 3216, Manufactured Plastic-Laminate-Clad Casework.

1.3 REFERENCES AND STANDARDS

- A. California Building Code (CBC), edition as noted on the drawings, as adopted by the California Division of the State Architect (DSA).
- B. California Green Building Standards Code (CAL Green), edition as noted on the drawings, as adopted by the California Division of the State Architect (DSA).
- C. American National Standards Institute (ANSI):
 - 1. ANSI A208.2: Medium Density Fiberboard (MDF) for Interior Applications.
- D. APA - The Engineered Wood Association:
 - 1. Voluntary Product Standard PS 1-09, Structural Plywood

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- E. Woodwork Institute (WI): "North American Architectural Woodwork Standards" (NAAWS) published jointly by WI and the Architectural Woodwork Manufacturers of Canada (AWMAC).

1.4 ADMINISTRATIVE REQUIREMENTS

- A. Submittal Procedures:
 - 1. Action Submittals and Informational Submittals shall be submitted in accordance with Section 01 3300, Submittal Procedures.
 - 2. Closeout Submittals shall be submitted in accordance with Section 01 7700, Closeout Procedures.
 - 3. Sustainable Design Submittals shall comply with the additional requirement of Section 01 8113, Sustainable Design Requirements.

1.5 ACTION SUBMITTALS

- A. Shop Drawings: Submit showing all parts, connections and anchorages, adjacent materials, fully dimensioned and noted.
- B. Product Data: Manufacturer's literature for the following to be incorporated into the work:
 - 1. Panel products.
 - 2. Hardware.
 - 3. Shop applied coatings including stains where required to unify appearance.
- C. Samples
 - 1. 12-inch lengths of each profile for each required wood species, Grade and finish.
 - 2. 12-inch square for each panel product.
 - 3. Apply specified finish to samples applied in step fashion showing unfinished surface and each applied coating. Samples shall be used to verify uniformity of appearance between manufactured veneer panels and solid stock.

1.6 INFORMATIONAL SUBMITTALS

- A. Statement of fabricator qualifications.
- B. Sustainable Design:
 - 1. General:
 - a. Submit information necessary to establish and document compliance with the California Green Building Standards Code.
 - b. Sustainable design submittals are in addition to other submittals.
 - 2. The following information shall be provided:
 - a. Adhesives and Sealants: Evidence of compliance that products meet maximum VOC content limits specified in Section 01 6116.

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- b. Composite Wood: Evidence of compliance that products meet formaldehyde limits of current CARB Airborne Toxic Control Measure (ATCM) as specified in Section 01 6116.

1.7 QUALITY ASSURANCE

- A. Use only new materials and products, unless existing materials or products are specifically shown otherwise on the Drawings to be salvaged and re-used.
- B. Use materials and products of one manufacturer whenever possible.
- C. Materials, components, assemblies, workmanship and installation are to be observed by the Owner's Project Inspector. Work not so inspected is subject to uncovering and replacement.
- D. Work shall be done under direction of a capable foreman experienced in installation of finish carpentry work.
- E. Carefully plan and lay out all finish work; cooperate with other trades.
- F. Materials that are marred or otherwise damaged during installation shall be immediately replaced at no additional cost to the Owner.

1.8 DELIVERY, STORAGE AND HANDLING

- A. Do not deliver products until ambient conditions required can be and are maintained.
- B. Do not deliver millwork until wet work, painting, grinding, and similar operations in storage and installation areas that could damage, soil, or deteriorate millwork have been completed.
- C. Store products only in areas where ambient conditions required can be and are maintained.
- D. Transport, store and handle in strict accord with the manufacturer's written recommendations.

1.9 FIELD CONDITIONS

- A. Ambient Conditions: During and after installation, maintain the same temperature and humidity conditions in building spaces as will occur after occupancy.

1.10 FIELD MEASUREMENTS

- A. Make and be responsible for all field dimensions necessary for proper fitting and completion of work. Report discrepancies to Architect before proceeding.

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PART 2 - PRODUCTS

2.1 DESIGN AND PERFORMANCE CRITERIA

- A. Standard for Materials and Workmanship: Comply with applicable requirements of the NAAWS (referred to as the "woodworking standard"). Where Contract Documents Show requirements that conflict with or augment the woodworking standard, comply with the most stringent requirements.
- B. Materials that are marred or otherwise damaged during installation shall be immediately replaced at no additional cost to the Owner.
- C. Exposed surfaces shall be free from tool marks, torn grain, cross sanding, and other visual defects that cannot be concealed by specified painter's finish.
- D. Sustainable Design:
 - 1. Composite wood products must meet current formaldehyde emission limits of CARB Airborne Toxic Control Measure (ATCM) as specified in Section 01 6116.
 - 2. VOC emissions for field-applied adhesives, sealants, and sealant primers must comply with limits specified in Section 01 6116.

2.2 WOOD MATERIALS

- A. General:
 - 1. Moisture Content at Time of Fabrication: As specified Section 3 of the woodworking standard.
 - 2. Provide wood dressed on all exposed faces.
 - 3. Do not use twisted, warped, bowed, or otherwise defective wood.
 - 4. Sizes indicated on Drawings are net actual size, unless otherwise indicated.
 - 5. Do not mark or color material, except where such marking will be concealed in finish work.
 - 6. Wood veneer is not required to be fire-retardant treated.
 - 7. Lumber shall be free of sapwood, knots, pitch, or resin.
- B. Lumber / Wood Trim for Transparent Finish (Stain or Clear):
 - 1. Species: White Birch.
 - 2. Grade: Select and Better.
 - 3. Cut: As selected by Architect.
- C. Softwood Lumber / Wood Trim for Opaque Finish (Painted):
 - 1. Species: Douglas Fir or Western Larch.
 - 2. Cut: Vertical grain.
 - 3. Grade: NAAWS Custom.

- 4. Finger Jointing: Allowed.
- 5. Face Surface: Surfaced (smooth).
- D. Wood Veneers at Transparent Finish, Stain or Clear:
 - 1. Species: To match transparent finish solid stock.
 - 2. Cut: Rotary.
 - 3. Face Surface: Surfaced (smooth).
 - 4. Matching: Selected for compatible grain and color.

2.3 PANEL MATERIALS

- A. Hardwood Veneer Plywood: Non-toxic, urea formaldehyde free, hardwood plywood using soy-based adhesive; "PureBond" by Columbia Forest Products, Inc., "SkyPly" Harwood Plywood by Roseburg, Springfield, OR, or equal.
 - 1. Face Veneer: As specified.
 - 2. Edge: "Self-edge" where exposed, sliced from the same veneer flitch as exposed faces.
- A. Softwood Plywood: Sanded plywood complying with DOC PS 1 and the woodworking standard.
 - 1. Grade: APA A-D, Group 1, Exposure 1.
 - 2. Face Veneer: Douglas Fir, with A side exposed.
 - 3. Surface Texture: Pre-sanded and paintable.
 - 4. Thickness: Performance Category 1/2, unless otherwise noted.

2.4 ACCESSORIES

- A. Adhesives: As recommended by the manufacturer for the intended use and materials required.
- B. Fasteners: Provide all fasteners as indicated on Drawings or shop drawings or as necessary for proper installation of products installed herein, in sizes, quantities sufficient to draw and hold products rigidly and permanently in place. Fasteners shall be selected for concealed appearances.
- C. Miscellaneous Items: Provide all miscellaneous fasteners, brackets, supports, connectors and accessory items as indicated on the Drawings or as required by the product manufacturer for a complete and proper installation of the materials, products or systems specified in this Section.

2.5 FABRICATION - GENERAL

- A. Mill to dimensions and profiles shown, and match existing where indicated.

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- B. Except where exact length can be determined, material shall be provided long for cutting and fitting in field.
- C. When necessary to cut and fit on site, provide materials with ample allowance for cutting.
- D. "Back out" reverse side of trim when 5/8 inch or more thick or 1-5/8 inches or more wide.

2.6 FINISHING

- A. General:
 - 1. Do not apply finishes until sample submittals are reviewed and approved by the Architect.
 - 2. Prepare for finishing and apply coatings in accordance with NAAWS Custom Grade requirements of NAAWS Section 5 and to conform to appearance and finish of Architect's control samples and accepted mockups.
 - 3. Field application of coatings shall be VOC compliant and conform to Section 09 9100, Painting.
- B. Back Painting:
 - 1. Surfaces which are not exposed to view at any time shall be primed.
 - 2. Prime end grain edges at both exposed and butt joints prior to installation.
- C. Opaque and field-applied coatings and their application shall conform to requirement specified in Section 09 9100, Painting.
- D. **Shop-Applied Transparent Coatings:**
 - 1. **General:**
 - a. **Follow manufacturers' guidelines, directions, and application requirements including surface preparation, catalyzation, mixing, reducing, application procedures, mill thickness build, drying and curing times, shelf life and storage, and cautions to achieve optimal results for the work.**
 - b. **Sand between all coats of finish to form a flat and uniform surface free of dust, dents, sanding scratches showing through final finish, and flaws and to provide "tooth" for additional coats of finish to achieve optimal adhesion between coats of finish.**
 - c. **Provide ample time for finish to dry and cure prior to packaging and shipping shop-finished woodwork to site.**
 - 2. **Transparent Finish: Equivalent to System INT 6.3G-5 as specified in Section 09 9100, Painting, with gloss level to match accepted samples.**

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Prior to installation of the work of this Section, carefully inspect and verify that the installed work of all other trades is complete to the point where this installation may properly commence.
- B. Verify that specified items may be installed in accordance with the approved design.
- C. Verify adequacy of backing and support framing.
- D. In the event of discrepancy, immediately notify the Architect. Do not proceed in discrepant areas until discrepancies have been fully resolved.

3.2 PREPARATION

- A. Condition millwork to humidity and temperature in installation area prior to installing.
- B. Allow plywood panels to acclimatize in the Room where they will be installed for not less than 48 hours by standing them on edge and separating them to allow air circulation.
- C. Complete work specified in this Section to whatever extent not completed at factory or prior to installation.

3.3 INSTALLATION

- A. Do not install millwork until wet operations are completed, are thoroughly dried, and the millwork has been primed or sealed in an approved manner.
- B. Install work plumb, true, and in accordance with the Drawings and referenced NAAWS Standard.
- C. Accurately scribe work abutting other components with maximum gaps of 1/16 inch.
- D. Install trim in single lengths, running trim in as long a length as practical for species specified. Butt joints to be back-beveled, exterior and interior angles mitered.
- E. Fastening: Nails or screws shall have required penetration into holding member in accordance with Title 24, Table 2304.10.1.
 - 1. Set nails or appropriate screw fasteners 1/16 inch below face, with putty. No putty where finish will be clear.
 - 2. Plywood: Install with grain texture vertical, with edges and ends occurring only over bearings.
 - 3. Hammer, tool marks, and marred surfaces and edges are not acceptable on exposed surfaces.
- F. Plywood Wainscot:

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1. All joints to bear on studs or blocking.
 2. Attach with 2-1/2 inch x 1/4 inch flat head screws, counter sunk at 8 inches on center at edges and at studs in field.
 3. Caulk joints.
- G. Wall panels and moldings are to be mechanically fastened through gypsum board backing and into wood or metal studs with anchors in accordance with manufacturer's recommendation.
1. Provide in addition to anchors, construction adhesive per manufacturers recommendation.
 2. Moldings shall be detailed so as not to cause damage to adjacent moldings or panels if vandalized or removed.
- H. Exposed surfaces shall be free from tool marks, torn grain, cross sanding, or workmanship defects that cannot be concealed by specified painter's finish.
- I. Field Finishing: Apply in accordance with Section 09 9100, Painting.

3.4 ADJUSTING AND CLEANING

- A. After installation, wipe finished surfaces to remove marks of handling, and leave in clean condition.
- B. Damaged, stained, scratched, or otherwise disfigured portions of the work shall be touched up, refinished, or replaced to satisfaction of the Architect.

END OF SECTION

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PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Fiberglass reinforced laminate (FRL) wall paneling.
 - 2. Installation accessories.

1.2 RELATED REQUIREMENTS

- A. Section 01 6116, Volatile Organic Compound (VOC) Restrictions; for VOC limits pertaining to adhesives, sealants, fillers, primers, and coatings.
- B. Section 01 8113, Sustainable Design Requirements, for CAL-Green general requirements and procedures.
- C. Section 06 1000, Rough Carpentry.
- D. Section 09 2900, Gypsum Board.

1.3 REFERENCES AND STANDARDS

- A. California Building Code (CBC), edition as noted on the drawings, as adopted by the California Division of the State Architect (DSA).
- B. California Green Building Standards Code (CAL Green), edition as noted on the drawings, as adopted by the California Division of the State Architect (DSA).
- C. ASTM International (ASTM):
 - 1. E 84: Standard Test Method for Surface Burning Characteristics of Building Materials.
 - 2. D 790: Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.
- D. National Electrical Manufacturer's Association NEMA:
 - 1. NEMA LD3: High Pressure Decorative Laminates.

1.4 ADMINISTRATIVE REQUIREMENTS

- A. Submittal Procedures:
 - 1. Action Submittals and Informational Submittals shall be submitted in accordance with Section 01 3300, Submittal Procedures.
 - 2. Closeout Submittals shall be submitted in accordance with Section 01 7700, Closeout Procedures.

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3. Sustainable Design Submittals shall comply with the additional requirement of Section 01 8113, Sustainable Design Requirements.

1.5 ACTION SUBMITTALS

- A. Shop Drawings: Submit showing all components, panel joint and end conditions, adjacent materials, and including the following.
 1. Dimensioned plans and elevations, drawn to scale.
 2. Large-scale details identifying components used and indicating method of attachment.
- B. Product Data: Submit list and complete descriptive data of all products proposed for use. Include manufacturer's specifications, published warranty, installation instructions, and maintenance instructions.
- C. Samples: The following samples are required.
 1. FRL panel, 8 inches square.
 2. Trim pieces, 6-inch lengths, for each type.
 3. Manufacturer's full range of plastic laminate colors for Architect's selection.

1.6 INFORMATIONAL SUBMITTALS

- A. Sustainable Design:
 1. General:
 - a. Submit information necessary to establish and document compliance with the California Green Building Standards Code.
 - b. Sustainable design submittals are in addition to other submittals.
 2. The following information shall be provided:
 - a. Adhesives and Sealants: Evidence of compliance that products meet maximum VOC content limits specified in Section 01 6116.
 - b. Paints and Coatings: Evidence of compliance that products meet maximum VOC content limits specified in Section 01 6116.
- B. Sample of manufacturer's warranty.

1.7 CLOSEOUT SUBMITTALS

- A. Warranty/Guarantee: Submit executed warranty and Subcontractor's guarantee.

1.8 QUALITY ASSURANCE

- A. Use only new materials and products, unless existing materials or products are specifically shown otherwise on the Drawings to be salvaged and re-used.
- B. Use materials and products of one manufacturer whenever possible.

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- C. Materials, components, assemblies, workmanship and installation are to be observed by the Owner's Project Inspector. Work not so inspected is subject to uncovering and replacement.
- D. Work shall be done under direction of a capable foreman experienced in installation of finish carpentry work.

1.9 DELIVERY, STORAGE AND HANDLING

- A. Deliver undamaged products to job in manufacturer's sealed containers and/or original bundles with tags and labels intact.
- B. Store materials flat with a minimum of 3 support points in protected, dry conditions off of ground and in areas so as to not interfere with the progress of the work.
- C. Allow panels to acclimate with ambient conditions of installation area for not less than 48 hours.
- D. Transport, store and handle in strict accord with the manufacturer's written recommendations.

1.10 FIELD CONDITIONS

- A. Products shall be available at project when required for installation so as not to delay job progress. Installer for these products shall cooperate with installers performing work under other Sections involved to effect proper installation.
- B. Areas for storage should be dry areas, out of the weather. Recommended conditions for storage are 75 degrees F, and 45 percent Relative Humidity.
- C. Make and be responsible for all field dimensions necessary for proper fitting and completion of work. Report discrepancies to Architect before proceeding.

1.11 WARRANTY

- A. Manufacturer: In addition to the Contractor's and Subcontractor's Guarantee, furnish Owner with manufacturer's fully executed written warranty for FRL panels against defects in materials and workmanship.

PART 2 - PRODUCTS

2.1 MANUFACTURER AND SYSTEM

- A. Fiber Reinforced Laminate (FRL) Panels: Thermofused melamine overlay, decorative paper and phenolic paper with fiber reinforcing inner layers: "FRL" Panels by Panolam Industries International, Inc., 877-375-9255 as specified and the basis of design, or equal.

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1. Panel Net Size: As standard with manufacturer and selected by Contractor to minimum installation joints including wall height at vertical application 36" x, 48" x and 60" x, 96", 120" and 144".
2. Color, Pattern and Texture: As selected by Architect from manufacturer's full range of available color, patterns, and textures.
3. Physical Characteristics:
 - a. Nominal Thickness: 0.075 inch.
 - b. Flammability: Class A when tested in accordance with ASTM E 84.
 - 1) Surface Burning Characteristics: 25 or less.
 - 2) Smoke Development: 55.
 - c. Wear Resistance: 3500, tested when tested in accordance with NEMA 3, Article 3.13, "Wear Resistance."
 - d. Flexural Strength: 20,148 psi when tested in accordance with ASTM D 790.
4. Laminate: Class 1 Fire Rated.

2.2 DESIGN AND PERFORMANCE CRITERIA

- A. Flammability: Panels shall be Class A rated and meet the smoke density and flame spread requirements of CBC Chapter 8.
- B. Sustainable Design:
 1. VOC emissions for field-applied adhesives, sealants, and sealant primers must comply with limits specified in Section 01 6116.
 2. VOC emissions for field-applied paints and coatings must comply with limits specified in Section 01 6116.

2.3 ACCESSORIES ADDITIONAL MATERIALS

- A. Moldings: Extruded aluminum as manufactured by Hoskin & Muir, Inc., or equal.
 1. Provide fixed divider moldings for progressive wall installation, outside corner moldings, and cap moldings for a complete and finished wall panel system.
 2. Outside corner molding shall be minimum 1" x 1" x 1/8" with eased edges.
 3. Color: Clear anodized.
- B. Adhesive: Manufacturer's recommended adhesive for Class 1 fire-rated installation.
- C. Seam Sealer at Exposed Seams: Match panel color utilizing 100 percent silicone as manufactured by Color Rite, Inc., or equal.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Prior to installation of FRL panels, carefully inspect and verify that the installed work of all other trades is complete to the point where this installation may properly commence.
- B. Verify that specified items may be installed in accordance with the approved design.
- C. In the event of discrepancy, immediately notify the Architect. Do not proceed in discrepant areas until discrepancies have been fully resolved.

3.2 WALL PANELING INSTALLATION

- A. General:
 - 1. Install products in strict accordance with manufacturer's instructions and approved submittals.
 - 2. Install panels vertically, cut to required height, without horizontal joints.
 - 3. Where used as a wainscot 48-inches or less in height, install horizontally without vertical joints except where wall length exceeds maximum available panel length
 - 4. Panels on all walls within a space or room shall be the same orientation.
- B. Joints shall be balanced on each wall with each end panel of equal width or length and not less than one-half full size.
- C. Set panels on top of flooring base. Secure to walls with adhesive in accordance with panel manufacturer's instructions.
 - 1. Apply adhesive uniformly using adhesive manufacturers' recommended notched trowel to the entire back of panels completely to the edge.
 - 2. Lay FRL panels in place leaving approximately the following distance between panels joints:
 - a. Vertical Installation: 1/8 inch.
 - b. Horizontal Installation: 3/16 inch.
 - 3. Follow adhesive manufacturer's recommendations for set and application times.
 - 4. Apply pressure to entire panel face with laminate type roller, removing trapped air and ensure proper adhesion between surfaces
- D. Install matching trim at joints, corners, and other exposed edges.
 - 1. Moldings are to be mechanically fastened into studs per manufacturer's recommendation.
 - 2. Provide in addition to anchors, construction adhesive in accordance with manufacturers recommendation.
- E. If no trim is used, seal panel joints and top, side, and bottom edges with colored sealant to match panel color. Wipe smooth and remove excess sealant from FRL panel face.

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3.3 CLEANING AND ADJUSTING

- A. Upon completion of installation, remove manufacturer's labels and marks of identification.
- B. Thoroughly wash surfaces and remove foreign material. Leave entire work in neat, orderly, clean and acceptable condition.
- C. Replace damaged parts and surfaces, which are not free from imperfections.
- D. Replace installations out of plumb and not aligned with adjacent panels and construction.

3.4 PROTECTION

- A. Protect work and materials of this Section prior to and during installation and protect the installed work and materials of other trades.
- B. In the event of damage, make all repairs and replacements necessary to the approval of the Architect at no additional cost to the Owner.
- C. Exposed finishes shall be free from scratches, dents, permanent discolorations and other defects in workmanship or material.

END OF SECTION

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PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the contract, including the conditions of the contract and Division 1 specification sections apply to this section.

1.2 SECTION INCLUDES

- A. Work described in this section includes pre formed standing seam metal roofing system over self adhering underlayment over 1/4" dens dek prime attached to the roof deck.
- B. Includes gutters, downspouts, fascia metal, all associated flashings and closures installed over the panel manufactures self-adhering underlayment and the specified roof deck insulation system.

1.3 RELATED SECTIONS

- A. Section 07 56 30 - Fluid Applied Roofing
- B. Section 07 62 00 - Sheet Metal Flashing and Trim

1.4 REFERENCES

- A. ASTM A 653/A 653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galv.) by the Hot-Dip Process.
- B. ASTM A 792/A 792M - Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process.
- C. ASTM A 875 - Standard Specification for Steel Sheet, Zinc-5 % Aluminum Alloy-Coated by the Hot-Dip Process
- D. ASTM B 101 - Standard Specification for Lead-Coated Copper Sheet and Strip for Building Construction.
- E. ASTM B 209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
- F. ASTM D 1056 - Standard Specification for Flexible Cellular Materials - Sponge or Expanded Rubber.
- G. ASTM D 2178 - Standard Specification for Asphalt Glass Felt Used in Roofing and Waterproofing.
- H. ASTM D 3575 - Standard Test Methods for Flexible Cellular Materials made from Olefin Polymers.
- I. ASTM E 84 - Standard Test for Surface Burning Characteristics of Building Materials.

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- J. ASTM E 283 - Standard Test Method for Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.
- K. ASTM E 331 - Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
- L. ASTM E 1592 - Standard Test Method for Structural Performance of Sheet Metal Roof and Siding Systems by Uniform Static Air Pressure Difference.
- M. ASTM E 1646 - Standard Test Method for Water Penetration of Exterior Metal Roof Panel Systems by Uniform Static Air Pressure Difference.
- N. ASTM E 1680 - Standard Test Method for Rate of Air Leakage Through Exterior Metal Roof Panel Systems.
- O. ASTM E 2140 - Standard Test Method for Water Penetration of Metal Roof Panel Systems by Static Water Pressure Head.
- P. AAMA 501.1 - Standard Test Method for Water Penetration of Windows, Curtain Walls and Doors Using Dynamic Pressure.
- Q. ASCE 7 - Minimum Design Loads for Buildings and Other Structures.
- R. FM 4470 Approval Standard for Class 1 Panel Roofs.
- S. FM 4471 - Class 1 Panel Roof; Factory Mutual Research Corporation.
- T. UL 263 - Fire Tests of Building Constructions and Materials.
- U. UL 580 - Standard for Tests for Uplift Resistance of Roof Assemblies.
- V. UL 790 - Standard Test Methods for Fire Tests of Roof Coverings.
- W. UL 1897 - Uplift Test for Roof Covering Systems.
- X. ICC-ES AC166 - Test Procedure for Wind Driven Rain Resistance of Metal Roof Coverings.
- Y. SMACNA - Architectural Sheet Metal Manual.
- Z. National Coil Coating Association (NCCA)
- AA. NRCA - The NRCA Roofing and Waterproofing Manual.

1.5 DESIGN / PERFORMANCE REQUIREMENTS

- A. Standing Seam Roofing System: R-Mer Span
 - 1. Thermal Expansion and Contraction:
 - a. Completed metal roofing and flashing system shall be capable of withstanding expansion and contraction of components caused by changes

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- in temperature without buckling, producing excess stress on structure, anchors or fasteners, or reducing performance ability.
- b. Design temperature differential shall be not less than 200 degrees F.
 - c. Interface between panel and clip shall provide for unlimited thermal movement in each direction along the longitudinal direction.
 - d. Location of metal roofing rigid connector shall be at roof ridge unless otherwise approved by the Project Architect. Metal ridge connector may require design as per job conditions by specified manufacturer.
2. Uniform Wind Load Capacity:
- a. Installed roof system shall withstand negative (uplift) design wind loading pressures complying with the following criteria.
 - 1) Design Code: ASCE 7-16, Method 2 for Components and Cladding.
 - 2) All items below (3 - 11,c must be sent with the submittals for the project)
 - 3) Safety Factor: 2.00 after any load reduction or material stress increase.
 - 4) Building with an Importance Factor of ____.
 - 5) Wind Speed: ____ mph.
 - 6) Ultimate Pullout Value: ____ pounds per each of the two fasteners holding the panel anchor to the roof decking or framing system.
 - 7) Exposure Category: ____.
 - 8) Design Roof Height: ____ feet.
 - 9) Minimum Building Width: ____ feet.
 - 10) Roof Pitch: ____ inches per foot.
 - 11) Roof Area Design Uplift Pressure:
 - a) Zone 1 - Field of roof ____ psf.
 - b) Zone 2 - Eaves, ridges, hips, and rakes ____ psf.
 - c) Zone 3 - Corners ____ psf.
 - b. ASTM E 1592: Capacity shall be determined using pleated airbag method in accordance with ASTM E 1592, testing of sheet metal roof panels. Allowable safe working loads shall be determined by dividing the ultimate test load by the safety factor specified above.
 - c. Underwriters' Laboratories, Inc., (UL), wind uplift resistance classification: Roof assembly shall be classified as Class 1-90, as defined by UL 580
3. Uniform Positive Load Capacity.
- a. Installed roof system shall be capable of resisting the following positive uniform roof loads: Roof Live Load of 20 psf; Roof Snow Load of _N/A_ psf.
 - b. Dead Load: Loading of the roof structure, due to tear off of existing, and/or installation of new roofing materials shall not exceed the present loading due to weight of the existing roofing system.
 - c. Installed roof system shall carry positive uniform design loads with a maximum system deflection of L/180 as measured at the rib (web) of the panel.

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4. Underwriters' Laboratories, Inc., (UL):
 - a. Underwriters' Laboratories, Inc., (UL) fire resistance P ratings for roof assemblies: If applicable, panel system shall be approved for use in an appropriate Construction Assembly, as defined by UL 263.
 - b. Underwriters' Laboratories, Inc., (UL) Class A fire rating per UL 790.
5. ASTM E 283: Static pressure air infiltration (doors, windows, curtain walls):
 - a. Pressure Leakage Rate
 - 1) 1.57 PSF 0.0007 cfm/sq.ft.
 - 2) 6.24 PSF 0.0002 cfm/sq.ft.
 - 3) 20.0 PSF 0.0036 cfm/sq.ft.
6. ASTM E 331: Static pressure water infiltration (doors, windows, curtain walls):
 - a. Pressure Result:
 - 1) 5 Gal. /Hr. per S.F. and Static No Leakage
 - 2) Pressure of 20.0 Psf. for 15 minutes
7. ASTM E 1680: Static pressure air infiltration (roof panels):
 - a. Pressure Leakage Rate:
 - 1) 1.57 PSF 0.0012 cfm/sq.ft.
 - 2) 6.24 PSF 0.0001 cfm/sq.ft.
 - 3) 20.0 PSF 0.0011 cfm/sq.ft.
8. ASTM E 1646: Static pressure water infiltration (roof panels):
 - a. Pressure Result:
 - 1) 5 Gal. /Hr. per S.F. and Static No Leakage
 - 2) Pressure of 20.0 Psf for 15 minutes
9. Capacities for gauge, span or loading other than those tested may be determined by interpolation of test results within the range of test data. Extrapolations for conditions outside test range are not acceptable.
10. Water penetration (dynamic pressure): No water penetration, other than condensation, when exposed to dynamic rain and 70 mph wind velocities for not less than five minutes duration, when tested in accord with principles of AAMA 501.1.
11. Wind and wind driven rain resistance: No water penetration or panel movement when exposed to 110 mph wind velocities when tested in accordance with TAS 100.
12. Installed roof system assembly shall show that it can resist the calculated roof pressure in accordance with the test results of TAS 125.
13. Water penetration in low slope applications: No water penetration or panel movement when subject to 6 inch head of water for 6 hours when tested in accordance with the ASTM E 2140 and when subject to 6 inch head of water for 7 days when tested in accordance with the TAS 114 appendix G.
14. Submit third party validation of environmental claims, prepared UL Environment, for all metal roof panels containing recycled content and/or bio based content.

1.6 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Submit product data, test reports, and certifications in accordance with quality assurance and performance requirements specified herein.
- C. Design Loads: Submit manufacturer's minimum design load calculations according to ASCE 7-16, Method 2 for Components and Cladding. In no case shall the design loads be taken to be less than those specified herein.
- D. Shop Drawings: Prepared specifically for this project by the panel manufactures engineering department; showing dimensions of metal roofing and accessories, fastening details and connections and interface with other products.
- E. LEED Submittals: Provide documentation of how the requirements of Credit will be met:
 - 1. List of proposed materials with recycled content. Indicate post-consumer recycled content and pre-consumer recycled content for each product having recycled content.
 - 2. Product data and certification letter indicating percentages by weight of post-consumer and pre-consumer recycled content for products having recycled content.
- F. Selection Samples: For each finish product specified, two complete sets of samples representing manufacturer's full range of available colors and textures.
- G. Verification Samples: For each finish product specified, two samples, minimum size 6 inches (150 mm) square, representing actual product, color, and textures.
- H. Manufacturer's Certificates: Certify products meet or exceed specified requirements.
- I. Inspection Certification: Submit a letter signed by an officer of the manufacturer certifying that the manufacture will provide weekly project inspections throughout the course of construction.
- J. Any material submitted as equal to the specified material must be accompanied by a report signed and sealed by a professional engineer licensed in the state in which the installation is to take place. This report shall show that the submitted equal meets the Design and Performance criteria in this specification. Substitution requests submitted without licensed engineer approval will be rejected for non-conformance.
- K. Closeout Submittals:
 - 1. Provide manufacturer's maintenance instructions that include recommendations for periodic checking and maintenance of installed roof system.
 - 2. Provide executed copy of manufacturer's warranty.
 - 3. Provide all manufacturers inspection reports.

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1.7 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Manufacturer shall have in place a documented, standardized quality control program such as ISO-9001 approval.
- B. The Manufacturer's Field Representative to conduct required inspections of work in progress 2 days per week as described herein and shall furnish written documentation of all such inspections on a weekly basis.
- C. Alternate Manufacturers: The following manufacturer criteria must be submitted, alternate systems will not be considered for approval unless each of these items has been submitted for review at least 10 business days prior to bid opening:
- D. Submit each item listed in article 1.6 (E through O) for evaluation of the proposed system.
- E. Tests shall have been made for identical systems within the ranges of specified performance criteria.
- F. Empirical calculations for roof performance shall only be acceptable for positive loads.
- G. A list of a minimum of five (5) jobs where the proposed alternate material was used under similar conditions. The reference list shall include date of project, size of project, project address, and telephone number of architect/owner contact.
- H. A financial statement demonstrating a minimum of a 3:1 ratio of assets to liabilities.
- I. A written statement from the manufacturer stating that they will provide the building owner with a site inspection 2 days per week by an experienced, full time employee of the company.
- J. A written statement from a corporate officer of the manufacturing company stating that he or she has reviewed the specifications and confirms that the proposed system meets or exceeds all performance requirements listed as well as meets the panel size, gauge, weight, clip design, sealant design, uplift pressures and height of the vertical seam
- K. A copy of manufacturer's 35 year warranty. Warranty must include coverage for all trim, flashing, and penetrations associated with this roof.
- L. Proof that the manufacturer has been in business for a minimum number of years equal to the warranty period required for this project.
- M. Installer Qualifications: Certified and approved installer of the sheet metal roofing manufacturer.
- N. Source Limitations: Obtain all components of roof system from a single manufacturer, including roll goods materials if required. Secondary products that are required shall be recommended and approved in writing by the roofing system Manufacturer.
- O. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.

1. Finish areas designated by Architect.
2. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.
3. Refinish mock-up area as required to produce acceptable work.

1.8 PRE-INSTALLATION CONFERENCE

- A. Convene a pre-roofing conference approximately two weeks before scheduled commencement of roofing system installation and associated work.
- B. Require attendance of installers of deck or substrate construction to receive roofing, installers of rooftop units and other work in and around roofing which must precede or follow roofing work including mechanical work, Architect, Owner, roofing system manufacturer's representative.
- C. Objectives include:
 1. Review foreseeable methods and procedures related to roofing work, including set up and mobilization areas for stored material and work area.
 2. Tour representative areas of roofing substrates, inspect and discuss condition of substrate, roof drains, curbs, penetrations and other preparatory work.
 3. Review structural loading limitations of deck and inspect deck for loss of flatness and for required attachment.
 4. Review roofing system requirements, Drawings, Specifications and other Contract Documents.
 5. Review and finalize schedule related to roofing work and verify availability of materials, installer's personnel, equipment and facilities needed to make progress and avoid delays.
 6. Review required inspection, testing, certifying procedures.
 7. Review weather and forecasted weather conditions and procedures for coping with unfavorable conditions, including possibility of temporary roofing.
 8. Record conference including decisions and agreements reached. Furnish a copy of records to each party attending.

1.9 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.
- B. Unload / Load panels using a proper boom or crane with the proper lifting equipment and using multiple attachment points to avoid bending or twisting the panels.
- C. Store materials protected from exposure to harmful environmental conditions and at temperature and humidity conditions recommended by the manufacturer.
 1. Store materials above ground, on skids.
 2. Protect material with waterproof covering and allow sufficient ventilation to prevent condensation buildup or moisture entrapment on the materials.

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3. Store products to prevent twisting, bending, abrasion, and denting.

1.10 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

1.11 WARRANTY

- A. Warranty:
 1. Manufacturers 35 year NDL (No Dollar Limit), warranty including coverage for all trim, flashings, gutters, and penetrations associated with the roof area.
 2. Provide installers 3 year warranty covering roofing system installation and water-tightness.
 3. Provide warranty from a single manufacturer for all standing seam metal roof areas, low slope modified bitumen roof areas, wall panels, soffit panels, coping systems, etc. and transitions between the product types.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Garland Company, Inc. (The), which is located at: 3800 E. 91st St.; Cleveland, OH 44105; Toll Free Tel: 800-321-9336; Tel: 216-641-7500; Fax: 216-641-0633; Web: www.garlandco.com
- B. Local Contact: Rich Jones (559) 647-1196
- C. Substitutions will not be permitted.
- D. The Products specified are intended and the Standard of Quality for the products required for this project. If other products are proposed the bidder must disclose in the bid the manufacturer and the products that they intend to use on the Project. If no manufacturer and products are listed, the bid may be accepted only with the use of products specified.
 1. Bidder will not be allowed to change materials after the bid opening date.
 2. If alternate products are included in the bid, the products must be equal to or exceed the products specified. Supporting technical data shall be submitted to the Architect/ Owner for approval a minimum of ten (10) days prior to the bid date for review.
 3. In making a request for substitution, the Bidder/Roofing Contractor represents that it has:
 - a. Personally investigated the proposed product or method, and determined that it is equal or superior in all respects to that specified.

- b. Will provide the same guarantee for substitution as for the product and method specified.
 - c. Will coordinate installation of accepted substitution in work, making such changes as may be required for work to be completed in all respects.
 - d. Will waive all claims for additional cost related to substitution, which consequently become apparent.
 - e. Cost data is complete and includes all related cost under his/her contract or other contracts, which may be affected by the substitution.
 - f. Will reimburse the Owner for all redesign cost by the Architect for accommodation of the substitution.
- 4. Architect/ Owner reserves the right to be the final authority on the acceptance or rejection of any or all bids, proposed alternate roofing systems or materials that has met ALL specified requirement criteria.
 - 5. Failure to submit substitution package, or any portion thereof requested, will result in immediate disqualification and consideration for that particular contractors request for manufacturer substitution.

2.2 STANDING SEAM METAL ROOFING, FASCIA & TRIM

- A. Fascia, Trim, Gutters, Downspouts: R-Mer Flat Sheet by The Garland Company, Inc.
 - 1. Material: 24 gauge pre-finished flat sheet.
- B. Standing Seam Metal Roofing: R-Mer Span by The Garland Company, Inc.
 - 1. Width of Standing T-Seam Panel: 1 inch T-seam.
 - a. 18 inches panel width.
 - 2. Standing Seam: 2-3/8 inch tall mechanically seamed with factory installed hot melt sealant in-seam cap. Panel/Cap is configured with a total of 4 layers of metal surrounding anchor clip.
 - 3. Panel Profile: Provided with minimum 1-1/2 inches wide elevated mesa's every 2 inches on center continuous throughout panel.
 - a. Slope: Solid Decking with self adhesive underlayment; down to 1/4:12.
 - 4. Panel material:
 - a. Galvanized steel 24 gauge, G90, smooth as per ASTM A 653.
 - 5. Flashing and flat stock material: Fabricate in profiles indicated on drawings of same material, thickness, and finish as roof system, unless indicated otherwise.
 - 6. Coated Finish:
 - a. Exposed surfaces for coated panels:
 - 1) Two coat coil applied, baked-on full-strength (70% resin) fluorocarbon coating system (polyvinylidene fluoride, PVF2), applied by manufacturer's approved applicator.
 - b. Unexposed surfaces for coated panels shall be baked-on polyester coating with .20 to .30 dry film thickness (TDF).
 - c. Anchor Clips:

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- 1) Concealed Standard Anchor Clips: Clips 16 gauge galvanized steel, 1 piece clip with projecting legs for additional panel alignment and provision for unlimited thermal movement in each direction along the longitudinal dimension.
- d. Fasteners:
 - 1) Concealed fasteners: Corrosion resistant steel fasteners (zinc plated, stainless steel or equal) designed to meet structural loading requirements.
 - 2) Steel: Concealor #14-13 DP1 as specified per ASCE 7-16 calculations.
 - 3) Exposed fasteners: Series 410 stainless steel fasteners or 1/8 inch diameter stainless steel waterproof rivets. All exposed fasteners shall be factory painted to match the color of the standing seam panels.
- e. Closures: Factory precut closed cell foam meeting ASTM D 1056 or ASTM D 3575, enclosed in metal channel matching panels when used at hip, ridge, rake, and jamb.
- f. Provide all miscellaneous accessories for complete installation.

2.3 STANDING SEAM METAL ROOFING ACCESSORIES

A. Underlayment:

1. R-Mer Seal by The Garland Company, Inc.
 - a. Underlayment shall be applied over the entire roof and fascia area.
 - b. Underlayment shall be one layer of R-mer Seal self adhesive underlayment. Seams shall be lapped in accordance with manufactures instructions.

B. Insulation:

1. Type: ASTM C 1289 Polyisocyanurate Roof Board Insulation
 - a. R Value: N/A
 - b. Minimum Thickness N/A
 - c. Manufacturer:
 - 1) Hunter Panels, LLC

C. Barrier Boards:

1. Type: Dens Dek Prime
 - a. Minimum Thickness: 1/4"
 - b. Manufacturer:
 - 1) Georgia Pacific

D. Bearing Plates:

1. N/A

E. Sealant:

1. Concealed Applications: Non-Curing Butyl Sealant - Schnee-Morehead, Inc. SM5430 Acryl-R, or equal.
2. Exposed Applications: UV Resistant Tripolymer Sealant - Geocel Corporation, 2300 Tripolymer Sealant, or equal.

2.4 METAL ROOFING ACCESSORIES

- A. R-Mer SS Sheet Stock: High gloss, factory painted
 1. Material and Thickness:
 - a. 24 gauge steel
 2. Color
 - a. Standard Color

2.5 METAL ROOFING PANELS

- A. Standard Selection:
 1. Material & Thickness:
 - a. 24 gauge steel
 2. Color
 - a. Standard Color

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine surfaces to receive metal roofing. Notify the Architect in writing of any defective conditions encountered. Starting of the work shall constitute acceptance of such conditions.
- B. Structural Deck Substrate:
 1. Inspect roof deck to verify deck is clean and smooth, free of depressions, waves, or projections, and properly sloped.
 2. Verify deck is dry and joints are solidly supported and fastened.
 3. Verify wood nailers are installed and correctly located. Do not use pressure-treated wood containing salt-based preservatives or materials corrosive to steel.
- C. Structural Framing Substrate:
 1. Verify primary and secondary framing members are installed and fastened, properly aligned and sloped.
 2. Verify framing members meet the clip spacing criteria as noted in this specification for proper fastening of the panel system.
 3. Verify damaged shop coatings are repaired with touch up paint.

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- D. Verify roof openings, curbs, pipes, sleeves, ducts, or vents through roof are solidly set, reglets are in place, and nailing strips located.
- E. Correct defective conditions before beginning work.

3.2 INSTALLATION

- A. Install in conformance with the NRCA Roofing and Waterproofing Manual and Manufacturers installation requirements.
- B. Form panel shape as indicated on drawings, accurate in size, square, and free from distortion or defects.
- C. Install underlayment and eave protection sheet underlayment as recommended by the Manufacturer.
- D. Coordinate with installation of rigid board insulation as specified in Section 072200.
- E. Install all panels continuous from ridge to eave. Transverse seams are not permitted.
- F. Directly over the completed roof substrate, install one (1) piece panel anchor clips. Anchor clips will be fastened into the structural roof decking based on the following spacing pattern:
- G. Clip spacing must be 2' for Zone 1 (field)
- H. Clip spacing must be 2' for Zone 2 (eave, [ridge, hip,] and rake).
- I. Clip spacing must be 2' for Zone 3 (corners)
- J. Clip spacing for Zones 2 & 3 must extend 10' feet onto the roof area.
- K. Installation of Roof Panels: Roof panels can be installed by starting from either end and working towards the opposite end. Due to the symmetrical design of the specified panels system, it is also acceptable to start from the middle of the roof and work toward each end.
- L. A stainless steel pop rivet shall be secured through the anchor reveal of the panel leg and extend into the arm of the panel clip located at the ridge of the system. Provide at each arm of the clip along the ridge. The panel is then anchored at both sides of the clip.
- M. Capture all drilling debris during this operation with a rag or cloth placed on the panels at the drilling operation.
- N. Panels are not securely attached to the roof until fixed to the anchor clip. To avoid damage and injury, all panels shall be fixed to the anchor clip immediately as they are installed.
- O. Panel lengths that exceed maximum shipping lengths shall be field rolled on equipment owned by the panel manufacturer. Seam sealant must be factory applied.

- P. Exposed fasteners, screws and/or roof mastic are unacceptable and will be rejected. System configuration only allows for exposed fasteners at panel overlap, if required, and at trim details in accordance with the Manufacturer's requirements.
- Q. Where not otherwise indicated conform to SMACNA details including flashings and trim.
- R. Install sealants where indicated to clean dry surfaces only without skips or voids..
- S. Install metal edge treatment in accordance with the manufacturer's instructions and the approved shop drawings.
- T. Install metal roofing accessories in accordance with the manufacturer's instructions and the approved shop drawings.

3.3 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

3.4 CONSTRUCTION WASTE MANAGEMENT

- A. Remove and properly dispose of waste products generated during roofing procedures. Comply with requirements of authorities having jurisdiction

3.5 FINAL INSPECTION

- A. At completion of roofing installation and associated work, meet with Contractor, Architect, installer, installer of associated work, Owner, roofing system manufacturer's representative, and other representatives directly concerned with performance of roofing system.
- B. Inspect roofing work and flashing of roof penetrations, walls, curbs and other equipment. List all items requiring correction or completion and furnish copy of list to each party in attendance.
- C. Repair or replace deteriorated or defective work found at time above inspection as required to produce an installation which is free of damage and deterioration at time of Substantial Completion and according to warranty requirements.
- D. Notify the Contractor, Architect, & Owner upon completion of corrections.
- E. Following the final inspection, provide written notice of acceptance of the installation from the roofing system manufacturer.
- F. Immediately correct roof leakage during construction. If the Contractor does not respond within twenty four (24) hours, the Owner will exercise rights to correct the Work under the terms of the Conditions of the Contract.

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3.6 DEMONSTRATION AND TRAINING

- A. At a time and date agreed to by the Owner, instruct the Owner's facility manager, or other representative designated by the Owner, on the following procedures:
- B. Roof troubleshooting procedures.
- C. Notification procedures for reporting leaks or other apparent roofing problems.
- D. Roofing maintenance.
- E. The Owner's obligations for maintaining the roofing warranty in effect and force.
- F. The Manufacturer's obligations for maintaining the roofing warranty in effect and force.

END OF SECTION

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Last Updated: November 17, 2021

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Preparation of the existing roof membrane per manufacturer instructions for restoration.
- B. Repairs to areas designated as needing repairs due to deterioration, wet insulation, and all loose membrane at the crickets / vertical walls.
- C. Removal of all walk pads from the existing roof. Installation of new fluid applied / granulated walkway in the same configuration as existing.
- D. Installation of Uni Bond ST self adhesive tape to all laps, seams, penetrations, etc. and base coating over the applied Uni Bond ST.
- E. Installation of fluid applied membrane base coat / top coat per manufacturers instructions.
- F. Clean and reseal all coping joints, metal flashings, pipe penetrations and rooftop penetrations.

1.2 RELATED SECTIONS

- A. Section 07 6200 - Sheet Metal Flashing and Trim: Metal cap flashing and expansion joints.

1.3 REFERENCES

- A. ASTM C 920 - Standard Specification for Elastomeric Joint Sealants.
- B. ASTM C 1250 - Standard Test Method for Nonvolatile Content of Cold Liquid-Applied Elastomeric Waterproofing Membranes.
- C. SMACNA Architectural Sheet Metal Manual.
- D. ANSI/SPRI ES-1 - Testing and Certification Listing of Shop Fabricated Edge Metal
- E. SRI - Solar Reflectance Index calculated according to ASTM E 1980.
- F. National Roofing Contractors Association (NRCA) - Roofing and Waterproofing Manual.

1.4 SYSTEM DESCRIPTION

- A. Single Ply Roof Restoration Renovation: work includes:
 - 1. Surface preparation: Remove membrane chalking, dust, dirt, and debris with pressure washing. It is the contractor's responsibility to check with local authorities in regards to disposal of water generated from this process.

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2. Fascia Edges: Inspect and make repairs to membrane as directed by the manufacturer.
3. Parapets and vertical surfaces: Inspect and make repairs to any splits or membrane deterioration as directed by the manufacturer.
4. Metal Flashings: Repair/Replace metal flashings, pitch pockets, etc.
5. Roof Repairs: Repair blisters, stressed or cracked membrane. Cut back, patch with new membrane.
6. Install Uni-Bond ST tape to all seams, laps, boots, & details at field and walls.
7. Install LiquiTec base coat to all Uni Bond ST and allow proper cure time.
8. Install LiquiTec grey base coat at all flashings and entire roof surface, back roll and allow for proper cure time.
9. Install LiquiTec white top coat at all flashings and entire roof surface.
10. Install LiquiTec white top coat at all walkway paths and fully embed yellow walkway granules to create a new non skid walkway path.
11. Caulk all coping laps with Tuff Stuff Urethane Sealant.

1.5 SUBMITTALS

- A. Submit under provisions of Section 01 3300.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
 1. Preparation instructions and recommendations.
 2. Storage and handling requirements and recommendations.
 3. Installation methods.
- C. Shop Drawings: Submit shop drawings including installation details of roofing, flashing, fastening, insulation and vapor barrier, including notation of roof slopes and fastening patterns of insulation and base modified bitumen membrane, prior to job start.
- D. Verification Samples: For each product specified, two samples, minimum size 6 inches (150 mm) square, representing actual product, and color.
- E. Manufacturer's Certificates: Certify products meet or exceed specified requirements.
- F. Closeout Submittals: Provide manufacturer's maintenance instructions that include recommendations for periodic inspection and maintenance of all completed roofing work. Provide product warranty executed by the manufacturer. Assist Owner in preparation and submittal of roof installation acceptance certification as may be necessary in connection with fire and extended coverage insurance on roofing and associated work.

1.6 QUALITY ASSURANCE

- A. Perform Work in accordance with NRCA Roofing and Waterproofing Manual.
- B. Manufacturer Qualifications: Manufacturer: Company specializing in manufacturing products specified in this section with documented ISO 9001 certification and minimum twelve years and experience.

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- C. Installer Qualifications: Company specializing in performing Work of this section with minimum five years documented experience and a certified Pre-Approved Garland Contractor.
- D. Installer's Field Supervision: Maintain a full-time Supervisor/Foreman on job site during all phases of roofing work while roofing work is in progress.
- E. Product Certification: Provide manufacturer's certification that materials are manufactured in the United States and conform to requirements specified herein, are chemically and physically compatible with each other, and are suitable for inclusion within the total roof system specified herein.
- F. Source Limitations: Obtain all components of roof system from a single manufacturer. Secondary products that are required shall be recommended and approved in writing by the roofing system Manufacturer. Upon request of the Architect or Owner, submit Manufacturer's written approval of secondary components in list form, signed by an authorized agent of the Manufacturer.

1.7 PRE-INSTALLATION CONFERENCE

- A. Convene a pre-roofing conference approximately two weeks before scheduled commencement of roofing system installation and associated work.
- B. Require attendance of installers of deck or substrate construction to receive roofing, installers of rooftop units and other work in and around roofing which must precede or follow roofing work including mechanical work, Architect, Owner, roofing system manufacturer's representative.
- C. Objectives include:
 - 1. Review foreseeable methods and procedures related to roofing work, including set up and mobilization areas for stored material and work area.
 - 2. Tour representative areas of roofing substrates, inspect and discuss condition of substrate, roof drains, curbs, penetrations and other preparatory work.
 - 3. Review structural loading limitations of deck and inspect deck for loss of flatness and for required attachment.
 - 4. Review roofing system requirements, Drawings, Specifications and other Contract Documents.
 - 5. Review and finalize schedule related to roofing work and verify availability of materials, installer's personnel, equipment and facilities needed to make progress and avoid delays.
 - 6. Review required inspection, testing, certifying procedures.
 - 7. Review weather and forecasted weather conditions and procedures for coping with unfavorable conditions, including possibility of temporary roofing.
 - 8. Record conference including decisions and agreements reached. Furnish a copy of records to each party attending.

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1.8 DELIVERY, STORAGE, AND HANDLING

- A. Deliver and store products in manufacturer's unopened packaging with labels intact until ready for installation.
- B. Store all roofing materials in a dry place, on pallets or raised platforms, out of direct exposure to the elements until time of application. Store materials at least 4 inches above ground level and covered with "breathable" tarpaulins.
- C. Stored in accordance with the instructions of the manufacturer prior to their application or installation. Store roll goods on end on a clean flat surface. No wet or damaged materials will be used in the application.
- D. Avoid stockpiling of materials on roofs without first obtaining acceptance from the Architect/Engineer.
- E. Storage temperatures should be between 60°F to 80°F (15.6° to 26.7°C) and not exceed 110°F (43.3°C). Indoor ventilated storage is recommended. Ensure jobsite storage is in a shaded and ventilated area. Do not store in direct sunlight. Keep materials away from open flame or welding sparks.

1.9 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.
- B. Weather Condition Limitations: Do not apply products during inclement weather or when precipitation is expected.
- C. Proceed with roofing work only when existing and forecasted weather conditions will permit unit of work to be installed in accordance with manufacturer's recommendations and warranty requirements.
- D. Do not expose materials vulnerable to water or sun damage in quantities greater than can be weatherproofed during same day.
- E. When applying materials with spray equipment, take precautions to prevent over spray and/or solvents from damaging or defacing surrounding walls, building surfaces, vehicles or other property. Care should be taken to do the following:
 - 1. Close air intakes into the building.
 - 2. Have a dry chemical fire extinguisher available at the jobsite.
 - 3. Post and enforce "No Smoking" signs.
- F. Avoid inhaling spray mist; take precautions to ensure adequate ventilation.
- G. Protect completed roof sections from foot traffic for a period of at least 48 hours at 75 degrees F (24 degrees C) and 50 percent relative humidity or until fully cured.

- H. Take precautions to ensure that materials do not freeze.
- I. Minimum temperature for application is 50°F (10°C) and rising.

1.10 WARRANTY

- A. Upon completion of the work, provide the Manufacturer's written and signed limited labor and materials Warranty, warranting that, if a leak develops in the roof during the term of this warranty, due either to defective material or defective workmanship by the installing contractor, the manufacturer shall provide the Owner, at the Manufacturer's expense, with the labor and material necessary to return the defective area to a watertight condition.
 - 1. Warranty Period:
 - a. 15 years from the date of acceptance.
- B. Installer is to guarantee all work against defects in materials and workmanship for a period indicated following final acceptance of the Work.
 - 1. Warranty Period:
 - a. 3 years from date of acceptance.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Garland Company, Inc. (The), which is located at: 3800 E. 91st St.; Cleveland, OH 44105; Toll Free Tel: 800-321-9336; Tel: 216-641-7500; Local Representative: Rich Jones (559) 647-1196 rjones@garlandind.com
- B. Requests for substitutions will not be considered for this project.
- C. The Products specified are intended and the Standard of Quality for the products required for this project. If other products are proposed the bidder must disclose in the bid the manufacturer and the products that they intend to use on the Project. If no manufacturer and products are listed, the bid may be accepted only with the use of products specified.
 - 1. Bidder will not be allowed to change materials after the bid opening date.
 - 2. If alternate products are included in the bid, the products must be submitted a minimum of seven (7) days prior to the bid date for review and be equal to or exceed the products specified. Supporting technical data shall be submitted to the Architect/ Owner for approval prior to acceptance.
 - 3. In making a request for substitution, the Bidder/Roofing Contractor represents that it has:
 - a. Personally investigated the proposed product or method, and determined that it is equal or superior in all respects to that specified.

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- b. Will provide the same guarantee for substitution as for the product and method specified.
 - c. Will coordinate installation of accepted substitution in work, making such changes as may be required for work to be completed in all respects.
 - d. Will waive all claims for additional cost related to substitution, which consequently become apparent.
 - e. Cost data is complete and includes all related cost under his/her contract or other contracts, which may be affected by the substitution.
 - f. Will reimburse the Owner for all redesign cost by the Architect for accommodation of the substitution.
4. Architect/ Owner reserves the right to be the final authority on the acceptance or rejection of any or all bids, proposed alternate roofing systems or materials that has met ALL specified requirement criteria.
 5. Failure to submit substitution package, or any portion thereof requested, will result in immediate disqualification and consideration for that particular contractors request for manufacturer substitution.

2.2 ROOF RESTORATION SYSTEM FOR SINGLE PLY ROOFS

A. LiquiTec Liquid Membrane Roofing System:

1. Base Coating: LiquiTec, 1.5 gallons per square
2. Top Coating: LiquiTec, 1.5 gallons per square
3. Walkway Coating, 1.5 gallons per square
4. Walkway Granules, 40 lbs per square
5. Flashing: Base Coat / Top Coat
6. Reinforcement: Uni-Bond ST 6", apply to all laps, seams, details, boots, curbs, etc., apply LiquiTec base coat at 1.5 gal per sq and allow to cure prior to the base coat application.

2.3 EDGE TREATMENT AND ROOF PENETRATION FLASHINGS

- A. Flashing Boot - Rubbertite Flashing Boot:** Neoprene pipe boot for sealing single or multiple pipe penetrations adhered in approved adhesives as recommended and furnished by the membrane manufacturer.
- B. Liquid Flashing – Coating:** LiquiTec: Multi-purpose, 100% solids, two-part, fast-cure, polyurea
- C. Urethane Sealant - Tuff-Stuff:** One part, non-sag sealant as approved and furnished by the membrane manufacturer for moving joints.
1. Tensile Strength, ASTM D 412: 250 psi
 2. Elongation, ASTM D 412: 950%
 3. Hardness, Shore A ASTM C 920: 35
 4. Adhesion-in-Peel, ASTM C 92: 30 pli

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. Verify that work penetrating the roof deck, or which may otherwise affect the roofing, has been properly completed.
- C. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 ROOF PREPARATION AND REPAIR

- A. General: All necessary field and flashing repairs must be done according to good construction practices, including the removal of all wet insulation and defective materials as identified through a moisture detection survey such as an infrared scan and replacement with like-materials.
 - 1. Repair existing roof flashings at curbs and parapet walls. Repair existing flashings at roof drains and roof penetrations.
 - 2. Remove all wet, deteriorated, blistered or delaminated roofing membrane or insulation and fill in any low spots occurring as a result of removal work to create a smooth, even surface for application of new roof membranes.
 - 3. Install new wood nailers as necessary to accommodate insulation/recovery board or new nailing patterns.
 - 4. When mechanically attached, the fastening pattern for the insulation/recovery board shall be as recommended by the specific product manufacturer.
 - 5. Existing roof surfaces shall be primed as necessary and allowed to dry prior to installing the roofing system.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- C. Repair all defects such as deteriorated roof decks; replace saturated insulation board, replace loose or brittle membrane or membrane flashings. Verify that exiting conditions meet the following requirements:
 - 1. Existing membrane is either fully adhered or that the membranes mechanical fasteners are secured and functional.
 - 2. Application of roofing materials over a brittle roof membrane is not recommended.
- D. Remove all loose dirt and foreign debris from the roof surface. Do not damage roof membrane in cleaning process.
- E. Repair existing roof membrane as necessary to provide a sound substrate for the fluid-applied membrane. All surface defects (cracks, blisters, tears) must be repaired with similar materials.

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- F. Remove damaged walkway pads and make necessary repair with new walkpad.
- G. Clean and seal all parapet walls, gutters and coping caps, and repair any damaged metal where necessary. Seal watertight all fasteners, pipes, drains, vents, joints and penetrations where water could enter the building envelope.
- H. Confirm local water run-off ordinances and restrictions prior to cleaning roof. Clean the entire roof surface by removing all dirt, algae, paint, oil, talc, rust or foreign substance. Use a 10 percent solution of TSP (tri-sodium phosphate), Simple Green and warm water. Scrub heavily soiled areas with a brush. Rinse with fresh water to remove all TSP solution. Allow roof to dry thoroughly before continuing.

3.3 INSTALLATION

- A. General Installation Requirements:
 - 1. Install in accordance with manufacturer's instructions.
 - 2. Insurance/Code Compliance: Where required by code, install and test the roofing system to comply with governing regulation and specified insurance requirements.
 - 3. Protect work from spillage of roofing materials and prevent materials from entering or clogging drains and conductors. Replace or restore work damaged by installation of the roofing system.
- B. Single Ply Membrane Roof Restoration Renovation: work includes:
 - 1. Surface preparation: Remove membrane chalking, dust, dirt, and debris.
 - 2. Fascia Edges: Inspect and make repairs to membrane.
 - 3. Parapets and Vertical Surfaces: Inspect and make repairs to any splits or membrane deterioration.
 - 4. Metal Flashings: Repair/Replace metal flashings, pitch pockets, etc.
 - 5. Roof Repairs: Repair blisters, stressed or cracked membrane, wrinkles and tenting.
 - 6. Coating Mixing Procedure:
 - a. Mix Part A liquid for one minute using an electric heavy duty power drill and Jiffy mixer blade.
 - b. Slowly pour contents of Part B jug, located inside the Part A pail, into the Part A container and mix the two components together for two minutes moving the Jiffy blade from top to bottom and along the sides to ensure the product is thoroughly mixed.
 - c. Always mix entire kit contents together as packaged. Do not break down into smaller quantities.
 - 7. Field/Flashing Seams and Details:
 - a. Application of LiquiTec over the entire roof surface, flashings and around penetrations.
 - 1) Verify that the surface to be coated is properly prepared.

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- 2) Restore the surface to a suitable condition if roof surface becomes contaminated with dirt, dust or other materials that will interfere with adhesion of the coatings.
 - 3) Apply LiquiTec over the entire roof, flashings, and around penetrations at 1.5 gallons per 100 SF, back roll into place with no voids.
 - 4) Allow to dry for a minimum of 24 hours before applying finish coats.
 - 5) On vertical surfaces to achieve proper application rate cut application into two coats to avoid sagging and runs in the coating.
 - b. Application of LiquiTec and Reinforcement
 - 1) Verify that the surface to be coated is properly prepared.
 - 2) Restore the surface to a suitable condition if roof surface becomes contaminated with dirt, dust or other materials that will interfere with adhesion of the coatings.
 - 3) Apply reinforcement over all laps, seams, details, and penetrations as required.
 - 4) Allow to dry for a minimum of 24 hours.
8. Application of Base Coat
 - a. Apply a base coating of LiquiTec in a uniform manner at minimum application rate of 1.5 gal. /100 sq. ft. over the entire roof surface, including all flashings. Use a 1/4" notched squeegee to spread coating and roller apply for uniform minimum coverage. Allow to cure thoroughly, but no more than 72 hours.
9. Application of Top Coat
 - a. Apply a top coating of LiquiTec Base or LiquiTec in a perpendicular direction over the base coat at 1.5 gal./100 sq. ft.

3.4 CLEANING

- A. Clean-up and remove daily from the site all wrappings, empty containers, paper, loose particles and other debris resulting from these operations.
- B. Remove asphalt markings from finished surfaces.
- C. Repair or replace defaced or disfigured finishes caused by Work of this section.

3.5 PROTECTION

- A. Provide traffic ways, erect barriers, fences, guards, rails, enclosures, chutes and the like to protect personnel, roofs and structures, vehicles and utilities.
- B. Protect exposed surfaces of finished walls with tarps to prevent damage.
- C. Plywood for traffic ways required for material movement over existing roofs shall be not less than 5/8 inch (16 mm) thick.
- D. In addition to the plywood listed above, an underlayment of minimum 1/2 inch (13 mm) recover board is required on new roofing.

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- E. Special permission shall be obtained from the Manufacturer before any traffic shall be permitted over new roofing.

3.6 FIELD QUALITY CONTROL

- A. Require attendance of roofing materials manufacturers' representatives at site during installation of the roofing system a minimum of two days per week.
- B. Manufacturers representative is to prepare roof inspections reports and submit weekly showing the complete installation process.
- C. Correct defects or irregularities discovered during field inspection.

3.7 FINAL INSPECTION

- A. At completion of roofing installation and associated work, meet with Contractor, Architect, installer, installer of associated work, roofing system manufacturer's representative and others directly concerned with performance of roofing system.
- B. Walk roof surface areas, inspect perimeter building edges as well as flashing of roof penetrations, walls, curbs and other equipment. Identify all items requiring correction or completion and furnish copy of list to each party in attendance.
- C. If core cuts verify the presence of damp or wet materials, the installer shall be required to replace the damaged areas at his own expense.
- D. Repair or replace deteriorated or defective work found at time above inspection as required to produce an installation that is free of damage and deterioration at time of Substantial Completion and according to warranty requirements.
- E. Advise architect upon completion of corrections.
- F. Following the final inspection, provide written notice of acceptance of the installation from the roofing system manufacturer.

3.8 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

3.9 SCHEDULES

- A. Base Coating:
 - 1. LiquiTec: Multi-purpose, 100% solids, two-part, fast-cure, polyurea liquid waterproofing membrane having the following characteristics:
 - a. Elongation, ASTM D 412: 433%
 - b. Tensile Strength, ASTM D 412: 2300 psi
 - c. Tear Resistance, ASTM D 624: 449 lbs./in

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- d. Low Temperature Flexibility, ASTM D522: -60°F (-51.1°C)
- e. Hardness, ASTM D2240 (Shore A): 80
- f. Dynamic Impact Resistance (Fully Reinforced System): ASTM D5635, 37 joules
- g. Static Puncture Resistance (Fully Reinforced System): ASTM D5602, 20 kg
- h. Tensile-Tear Resistance (Fully Reinforced System): ASTM D4073, 274 lbf
- i. Tensile Load Strain (Fully Reinforced System): ASTM D4073, 150 lbf/in.
- j. Toughness: 193 ft.-lbf/ft²
- k. Dry Film Thickness (Fully Reinforced System), 80-88 mils
- l. Lap Shear Strength (MB Seam with coating): ASTM D7379, 231 lbf/in.
- m. Density @ 77° F (25° C, ASTM D 2939) 9.6 lb./gal (1.2 g/m³)
- n. Flash Point: ASTM D 93, 110°F min. (43°C)
- o. VOC: 0 g/l
- p. Microbial Resistance: ASTM G21, No Microbial Growth
- q. Initial Reflectance: 0.84
- r. Initial Emittance: 0.88
- s. Initial SRI: 105

B. Reinforcement

- 1. Uni Bond ST 6"

C. Coating:

- 1. LiquiTec: Multi-purpose, 100% solids, two-part, fast-cure, polyurea liquid waterproofing membrane having the following characteristics:
 - a. Elongation, ASTM D 412: 433%
 - b. Tensile Strength, ASTM D 412: 2300 psi
 - c. Tear Resistance, ASTM D 624: 449 lbs./in
 - d. Low Temperature Flexibility, ASTM D522: -60°F (-51.1°C)
 - e. Hardness, ASTM D2240 (Shore A): 80
 - f. Dynamic Impact Resistance (Fully Reinforced System): ASTM D5635, 37 joules
 - g. Static Puncture Resistance (Fully Reinforced System): ASTM D5602, 20 kg
 - h. Tensile-Tear Resistance (Fully Reinforced System): ASTM D4073, 274 lbf
 - i. Tensile Load Strain (Fully Reinforced System): ASTM D4073, 150 lbf/in.
 - j. Toughness: 193 ft.-lbf/ft²
 - k. Dry Film Thickness (Fully Reinforced System), 80-88 mils
 - l. Lap Shear Strength (MB Seam with coating): ASTM D7379, 231 lbf/in.
 - m. Density @ 77° F (25° C, ASTM D 2939) 9.6 lb./gal (1.2 g/m³)
 - n. Flash Point: ASTM D 93, 110°F min. (43°C)
 - o. VOC: 0 g/l

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- p. Microbial Resistance: ASTM G21, No Microbial Growth
- q. Initial Reflectance: 0.84
- r. Initial Emittance: 0.88
- s. Initial SRI: 105

END OF SECTION

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Last Updated: November 17, 2021

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Metal Surface Roof Restoration
- B. Edge Treatment and Roof Penetration Flashings

1.2 RELATED SECTIONS

- A. Section 07 6200 - Sheet Metal Flashing and Trim: Metal cap flashing and expansion joints.
- B. Section 07 6200 - Sheet Metal Flashing and Trim: Weather protection for base flashings.

1.3 REFERENCES

- A. ASTM C 78 - Standard Test Method for Flexural Strength of Concrete.
- B. ASTM C 92 - Standard Test Methods for Sieve Analysis and Water Content of Refractory Materials.
- C. ASTM C 109 - Standard Test Method for Compressive Strength of Hydraulic Cement Mortars.
- D. ASTM C 920 - Standard Specification for Elastomeric Joint Sealants.
- E. ASTM D 75 - Standard Practice for Sampling Aggregates.
- F. ASTM D 93 - Standard Test Methods for Flash Point by Pensky-Martens Closed Cup Tester.
- G. ASTM D 562 - Standard Test Method for Consistency of Paints Measuring Krebs Unit (KU) Viscosity Using a Stormer-Type Viscometer.
- H. ASTM D 624 - Standard Test Method for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomers
- I. ASTM D 1002 - Standard Test Method for Apparent Shear Strength of Single-Lap-Joint Adhesively Bonded Metal Specimens by Tension Loading (Metal-to-Metal).
- J. ASTM D 1863 - Standard Specification for Mineral Aggregate Used on Built-Up Roofs.
- K. ASTM D 2196 - Standard Test Methods for Rheological Properties of Non-Newtonian Materials by Rotational (Brookfield type) Viscometer.
- L. ASTM D 2939 - Standard Test Methods for Emulsified Bitumens Used as Protective Coatings.
- M. ASTM D 4212 - Standard Test Method for Viscosity by Dip-Type Viscosity Cups.

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- N. ASTM D 4402 - Standard Test Method for Viscosity Determination of Asphalt at Elevated Temperatures Using a Rotational Viscometer.
- O. ASTM E 1980 - Standard Practice for Calculating Solar Reflectance Index of Horizontal and Low-Sloped Opaque Surfaces
- P. SRI - Solar Reflectance Index calculated according to ASTM E 1980.
- Q. South Coast AQMD Standards.
- R. SMACNA Architectural Sheet Metal Manual.
- S. National Roofing Contractors Association (NRCA) - Roofing and Waterproofing Manual.

1.4 SYSTEM DESCRIPTION

- A. Metal Surface Roof Restoration: Renovation work includes:
 - 1. Surface preparation: Remove loose flaking rust, dust, dirt, debris, secure all gaped panels and replace all loose fasteners with next size larger.
 - 2. Metal Flashings: Repair/Replace metal flashings, pitch pockets, etc.
 - 3. Primer: Prime entire roof surface.
 - 4. Base coat: Apply base coat and fabric on seams and around penetrations/let cure/Apply base coat over the entire roof surface/let cure.
 - 5. Topcoat: Apply coating over entire roof surface.

1.5 SUBMITTALS

- A. Submit under provisions of Section 01 3300.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Preparation instructions and recommendations.
 - 2. Storage and handling requirements and recommendations.
 - 3. Installation methods.
- C. Shop Drawings: Submit shop drawings including installation details of fluid applied roofing and flashing prior to job start.
- D. Verification Samples: For each product specified, two samples, minimum size 6 inches (150 mm) square, representing actual product, and color.
- E. Manufacturer's Certificates: Certify products meet or exceed specified requirements.
- F. Closeout Submittals: Provide manufacturer's maintenance instructions that include recommendations for periodic inspection and maintenance of all completed roofing work. Provide product warranty executed by the manufacturer. Assist Owner in preparation and submittal of roof installation acceptance certification as may be necessary in connection with fire and extended coverage insurance on roofing and associated work.

1.6 QUALITY ASSURANCE

- A. Perform Work in accordance with manufacturer's current Application and Installation Guidelines and the NRCA Roofing and Waterproofing Manual.
- B. Manufacturer Qualifications: Manufacturer: Company specializing in manufacturing products specified in this section with documented ISO 9001 certification and minimum twelve years and experience.
- C. Installer Qualifications: Company specializing in performing Work of this section with minimum five years documented experience and a certified Pre-Approved Garland Contractor.
- D. Installer's Field Supervision: Maintain a full-time Supervisor/Foreman on job site during all phases of roofing work while roofing work is in progress.
- E. Product Certification: Provide manufacturer's certification that materials are manufactured in the United States and conform to requirements specified herein, are chemically and physically compatible with each other, and are suitable for inclusion within the total roof system specified herein.
- F. Source Limitations: Obtain all components of roof system from a single manufacturer. Secondary products that are required shall be recommended and approved in writing by the roofing system Manufacturer. Upon request of the Architect or Owner, submit Manufacturer's written approval of secondary components in list form, signed by an authorized agent of the Manufacturer.

1.7 PRE-INSTALLATION CONFERENCE

- A. Convene a pre-roofing conference approximately two weeks before scheduled commencement of roofing system installation and associated work.
- B. Require attendance of installers of deck or substrate construction to receive roofing, installers of rooftop units and other work in and around roofing which must precede or follow roofing work including mechanical work, Architect, Owner, roofing system manufacturer's representative.
- C. Objectives include:
 - 1. Review foreseeable methods and procedures related to roofing work, including set up and mobilization areas for stored material and work area.
 - 2. Tour representative areas of roofing substrates, inspect and discuss condition of substrate, roof drains, curbs, penetrations and other preparatory work.
 - 3. Review structural loading limitations of deck and inspect deck for loss of flatness and for required attachment.
 - 4. Review roofing system requirements, Drawings, Specifications and other Contract Documents.

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5. Review and finalize schedule related to roofing work and verify availability of materials, installer's personnel, equipment and facilities needed to make progress and avoid delays.
6. Review required inspection, testing, certifying procedures.
7. Review weather and forecasted weather conditions and procedures for coping with unfavorable conditions, including possibility of temporary roofing.
8. Record conference including decisions and agreements reached. Furnish a copy of records to each party attending.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Deliver and store products in manufacturer's unopened packaging with labels intact until ready for installation.
- B. Store all roofing materials in a dry place, on pallets or raised platforms, out of direct exposure to the elements until time of application. Store materials at least 4 inches above ground level and covered with "breathable" tarpaulins.
- C. Stored in accordance with the instructions of the manufacturer prior to their application or installation. Store roll goods on end on a clean flat surface. No wet or damaged materials will be used in the application.
- D. Storage temperatures should be between 60 degrees F to 80 degrees F (15.6 degrees to 26.7 degrees C). Indoor ventilated storage is recommended. Ensure jobsite storage is in a shaded and ventilated area. Do not store in direct sunlight Keep materials away from open flame or welding sparks.
- E. Avoid stockpiling of materials on roofs without first obtaining acceptance from the Architect/Engineer.

1.9 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.
- B. Weather Condition Limitations: Product application must not be done when rain or other conditions such as fog or heavy dew are possible within a 24 hour period. Roof surface must be at least 6 Fahrenheit degrees or 3 Celsius degrees above the dew point and rising.
- C. Proceed with roofing work only when existing and forecasted weather conditions will permit unit of work to be installed in accordance with manufacturer's recommendations and warranty requirements.
- D. Do not expose materials vulnerable to water or sun damage in quantities greater than can be weatherproofed during same day.

- E. When applying materials with spray equipment, take precautions to prevent over spray from damaging or defacing surrounding walls, building surfaces, vehicles or other property. Care should be taken to do the following:
 - 1. Close air intakes into the building.
 - 2. Have a dry chemical fire extinguisher available at the jobsite.
 - 3. Post and enforce "No Smoking" signs.
- F. Avoid inhaling spray mist; take precautions to ensure adequate ventilation.
- G. Protect completed roof sections from foot traffic for a period of at least 48 hours at 75 degrees F (24 degrees C) and 50 percent relative humidity or until fully cured.
- H. Take precautions to ensure that materials do not freeze.
- I. Minimum temperature for application of White-Knight Plus/ White-Stallion Plus, White-Knight Plus WC, LiquiTec and Cool-Sil coatings is 50 degrees F (10 degrees C) and rising.

1.10 WARRANTY

- A. Warranty Period: 10 years.
 - 1. Upon completion of the work, provide the Manufacturer's written and signed limited labor and materials Warranty, warranting that, if a leak develops in the roof during the term of this warranty, due either to defective material or defective workmanship by the installing contractor, the manufacturer shall provide the Owner, at the Manufacturer's expense, with the labor and material necessary to return the defective area to a watertight condition.
- B. Warranty Period: Installer is to guarantee all work against defects in materials and workmanship for a period indicated following final acceptance of the Work.
 - 1. Warranty Period:
 - a. 2 years from date of acceptance.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: The Garland Company, Inc. Local Representative: Rich Jones 559-647-1196 Web Site: <http://www.garlandco.com>.
- B. Requests for substitutions will not be considered.

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2.2 METAL SURFACE ROOF RESTORATION

- A. Cool Sil HB:
 - 1. Primer: Rust-Go Primer (for priming metal components only)
 - 2. Coating: Cool Sil HB:
 - 3. Flashing: Cool Sil FG.
 - 4. Reinforcement: Partial reinforcement on metal panel seams only.
 - a. UniBond ST 6"

2.3 ACCESSORIES:

- A. Roof Insulation: In accordance with Section 07220.
- B. Nails and Fasteners: Non-ferrous metal or galvanized steel, except that hard copper nails shall be used with copper; aluminum or stainless steel nails shall be used with aluminum; and stainless steel nails shall be used with stainless steel. Fasteners shall be self-clinching type or penetrating type as recommended by the deck manufacturer. Fasten nails and fasteners flush-driven through flat metal discs not less than 1 inch (25 mm) diameter. Omit metal discs when one-piece composite nails or fasteners with heads not less than 1 inch (25 mm) diameter are used.
- C. Silicone Sealant - All-Sil: One part, medium modulus, high-performance sealant intended for use in expansion and control joints, reglets, panels, tilt-up walls, metal curtain walls, copings, window and door perimeters, panel bedding, and glazing details.
 - 1. Tensile Strength, ASTM D 412: 230 psi
 - 2. Elongation, ASTM D 412: 360%
 - 3. Hardness, Shore A ASTM C 920: 24
- D. Silicone Sealer – Cool-Sil FG: One part, 100% silicone, moisture-cure sealer for sealing roof penetrations, drains, existing membrane seams and other flashing details.
 - 1. Tensile Strength, ASTM D 412: 130 psi
 - 2. Elongation, ASTM D 412: 275%
 - 3. Hardness, Shore A, ASTM C 920: 35
 - 4. Adhesion-in-Peel, ASTM C 92: 30 pli
- E. Silicone Dampproofing - Seal-A-Pore HP: Transparent and colorless solution designed to damp-proof above grade masonry surfaces as recommended and furnished by the membrane manufacturer.
 - 1. Density @77 degrees F 8.4 lb/gal min.
 - 2. Viscosity (Zahn #2 cup) Typical 14 sec.
- F. Acrylic Damp-Proofing Tuff-Coat: Damp-proofing that provides heavy body protection while bridging small hair line cracks and masonry imperfections as recommended and furnished by the membrane manufacturer.

1. Density @77 degrees F 12.25 lb/gal typical
 2. Viscosity, ASTM D 562: 95 KU
- G. Butyl Tape: 100% solids, asbestos free and compressive tape designed to seal as recommended and furnished by the membrane manufacturer.
- H. Non-Shrink Grout: GarRock all-weather fast setting chemical action concrete material to fill pitch pans.
1. Flexural Strength, ASTM C 78: (modified) 7 days 1100psi
 2. High Strength, ASTM C 109: (modified) 24 days 8400lbs (3810kg)
- I. Pitch Pocket Sealer - Universal Pitch-Pocket Sealer: Two-part, 100% solids, self-leveling, polyurethane sealant.
- J. Glass Fiber Cant - Glass Cant: Continuous triangular cross Section made of inorganic fibrous glass used as a cant strip as recommended and furnished by the membrane manufacturer.

2.4 EDGE TREATMENT AND ROOF PENETRATION FLASHINGS

- A. Flashing Boot - Rubbertite Flashing Boot: Neoprene pipe boot for sealing single or multiple pipe penetrations adhered in approved adhesives as recommended and furnished by the membrane manufacturer.
- B. Vents and Breathers: Heavy gauge aluminum and fully insulated vent that allows moisture and air to escape but not enter the roof system as recommended and furnished by the membrane manufacturer.
- C. Pitch pans, Rain Collar 24 gauge stainless or 20oz (567gram) copper. All joints should be welded/soldered watertight. See details for design.
- D. Drain Flashing should be 4lb (1.8kg) sheet lead formed and rolled.
- E. Plumbing stacks should be 4lb (1.8kg) sheet lead formed and rolled.
- F. Fabricated Flashing: Fabricated flashings and trim are specified in Section 07620.
1. Fabricated flashings and trim shall conform to the detail requirements of SMACNA "Architectural Sheet Metal Manual" and/or the CDA Copper Development Association "Copper in Architecture - Handbook" as applicable.
- G. Manufactured Roof Specialties: Manufactured copings, fascia, gravel stops, control joints, expansion joints, joint covers and related flashings and trim are specified in Section 07710.
1. Manufactured roof specialties shall conform to the detail requirements of SMACNA "Architectural Sheet Metal Manual" and/or the NRCA "Roofing and Waterproofing Manual" as applicable.

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PART 3 - EXECUTION

3.1 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. Verify that work penetrating the roof deck, or which may otherwise affect the roofing, has been properly completed.
- C. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 ROOF PREPARATION AND REPAIR

- A. General: All necessary field and flashing repairs must be done according to good construction practices, including the removal of all wet insulation and defective materials as identified through a moisture detection survey such as an infrared scan and replacement with like-materials.
 - 1. Remove damaged roof flashings from curbs and parapet walls down to the surface of the roof. Remove damaged existing flashings at roof drains and roof penetrations.
 - 2. Remove all wet, deteriorated, blistered or delaminated roofing membrane or insulation and fill in any low spots with like materials occurring as a result of removal work to create a smooth, even surface for application of new roof membranes.
 - 3. Install new wood nailers as necessary to accommodate insulation/recovery board or new nailing patterns.
 - 4. When mechanically attached, the fastening pattern for the insulation/recovery board shall be as recommended by the specific product manufacturer.
 - 5. Existing roof surfaces shall be primed as necessary and allowed to dry prior to installing the roofing system.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- C. Repair all defects such as deteriorated roof decks, saturated materials, loose or brittle membrane or membrane flashings, etc. Verify that existing conditions meet the following requirements:
 - 1. Existing membrane is either fully adhered or that the membranes mechanical fasteners are secured and functional.
 - 2. Application of roofing materials over a brittle, damaged or poor condition roof membrane is not permitted.
- D. Remove all loose dirt and foreign debris from the roof surface. Do not damage roof membrane in cleaning process.

- E. Clean and seal all parapet walls, gutters and coping caps, and repair any damaged metal where necessary. Seal watertight all fasteners, pipes, drains, vents, joints and penetrations where water could enter the building envelope.
- F. Confirm local water run-off ordinances and restrictions prior to cleaning roof. Clean the entire roof surface by removing all dirt, algae, mold, moss, paint, oil, talc, rust or other foreign substance. Use a bio-degradable cleaner like Simple Green Oxy Solve when necessary and warm water. Scrub heavily soiled areas with a brush. Power wash roof thoroughly with an industrial surface cleaner equipped with one piece balanced spray rotating jets for streak free close contact cleaning. Rinse with fresh water to completely remove all residuals. Allow roof to dry thoroughly before continuing.
- G. Repair existing roof membrane as necessary to provide a sound substrate for the liquid membrane. All surface defects must be repaired/renovated and be made watertight. Any repairs must be with be only with materials compatible with the fluid-applied roofing restoration system.
- H. Power washing of metal roof surfaces to remove all loose rust or scale is mandatory before application. Use a high volume air broom or compressed air to remove residual dust rust perforations, etc. Deteriorated metal roof decks must be repaired or replaced prior to the application of the coating system.

3.3 INSTALLATION

- A. General Installation Requirements:
 - 1. Install in accordance with manufacturer's current Application and Installation Guidelines and the NRCA Roofing and Waterproofing Manual.
 - 2. Adequate coating thickness is essential to performance. If the applicator is unfamiliar in gauging application rates, we suggest that a controllable area be measured and the specified material be applied. In all cases, all minimum specified material must be applied and proper minimum dry film thicknesses must be achieved. Care must be taken to ensure that all areas completed including all flashings, roof penetrations, etc. are coated sufficiently to ensure a watertight seal.
 - 3. Cooperate with manufacturer, inspection and test agencies engaged or required to perform services in connection with installing the roof system.
 - 4. Insurance/Code Compliance: Where required by code, install and test the roofing system to comply with governing regulation and specified insurance requirements.
 - 5. Protect work from spillage of roofing materials and prevent materials from entering or clogging drains and conductors. Replace or restore adjacent work damaged by installation of the roofing system.
 - 6. All primers must be top coated within 24 hours of application. Re-prime if more time passes after priming.
 - 7. Keep roofing materials dry during application.
 - 8. Coordinate counter flashing, cap flashings, expansion joints and similar work with work specified in other Sections under Related Work.

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9. Coordinate roof accessories and miscellaneous sheet metal accessory items, including piping vents and other devices with work specified in other Sections under Related Work.

B. Metal Surface Roof Restoration: Renovation work includes:

1. Surface Preparation: Remove loose flaking rust, dust, dirt, debris, secure all gaped panels and replace all loose fasteners with next size larger.
 - a. Remove rust by the most rigorous method suitable for the particular project and as approved by Garland.
 - b. Tighten all fasteners and verify that neoprene washers are in place.
 - c. Replace missing fasteners using oversize fasteners as necessary.
 - d. Seal all fastener heads by applying a heavy dab of compatible sealant to the tops and around of all fastener heads.
 - e. Repair gaps, holes and joints in the metal roof with appropriate patching materials.
 - f. Completely remove existing seam coatings, mastics and sealants.
 - g. Ensure skylights, scuppers, gutters, penetrations and structures are firmly secured, watertight and in good working condition.
 - h. Where necessary, install water deflecting crickets behind rooftop mechanical units.
 - i. All roof areas must promote positive drainage.
 - j. Previously coated roofs with well-adhered polyurethane or polyurea coating surfacing must be solvent-wiped with acetone after cleaning to reactivate surface for overcoating.
2. Primer:
 - a. Prime entire roof surface with Rust-Go Primer rust inhibitive primer at 1/4 gallon per 100 SF.
3. Reinforcement: Treatment of field seams and around penetrations:
 - a. Application of UniBond ST seam tape with Base Coat on metal panel end laps, flashings and around penetrations.
 - 1) Verify that the surface to be coated is properly prepared.
 - 2) Remove the clear release liner from the back in workable sections.
 - 3) Center 6 inch wide UniBond ST over the middle of the lap.
 - 4) Use care to install the tape uniformly. Do not stretch or cause air pockets, wrinkles or fishmouths.
 - 5) Apply pressure to tape starting at the center and work toward outside edge with a steel roller to activate the bonding process.
 - 6) Inspect the tape to ensure that it is properly installed. Verify edges are tightly fixed to surface. If any discrepancies are present, repair before the coating is applied.
 - 7) Saturate the tape with coating or baser as specified.
 - b. Application of Base Coat on uncrimped metal panel side laps:
 - 1) Verify that the surface to be coated is properly prepared.

- 2) Restore the surface to a suitable condition if roof surface becomes contaminated with dirt, dust or other materials that will interfere with adhesion of the coatings.
 - 3) Apply materials at specified dry film thickness.
 - 4) Apply Base Coat at minimum 6 inch wide stripes over all seams, flashings and around penetrations at 2.0 gallons per 100 SF.
 - 5) Use fabric reinforcement when panels are gapped and cannot be drawn tightly together.
 - 6) Allow to dry for a minimum of 24 hours before applying finish coats.
 - 7) On vertical surfaces to achieve proper application rate cut your application into two coats to avoid sagging.
4. Coating: Ensure the fluid-applied coverage rates are obtained throughout the entire roof surface.
- a. Material: Apply base coat in a uniform manner at 1.5 gallons per 100 SF over the entire roof surface. Allow to cure thoroughly, but no more than 72 hours. Apply a top coating over base coat at 1.5 gallons per 100 SF.
 - b. Use special attention to coating flashings and other critical areas to build adequate membrane thickness.
 - c. Use multiple coats on verticals or steep slopes to prevent sagging and to obtain the required total coverage rate.
 - d. Apply to Garland's minimum membrane thickness over the entire roof surface

3.4 INSTALLATION EDGE TREATMENT AND ROOF PENETRATION FLASHING

- A. Fabricated Flashings: Fabricated flashings and trim are provided as specified in Section 07620.
1. Fabricated flashings and trim shall conform to the detail requirements of SMACNA "Architectural Sheet Metal Manual" and/or the Copper Development Association "Copper in Architecture - Handbook" as applicable.
- B. Manufactured Roof Specialties: Manufactured copings, fascia, gravel stops, control joints, expansion joints, joint covers and related flashings and trim are provided as specified in Section 07710.
1. Manufactured roof specialties shall conform to the detail requirements of SMACNA "Architectural Sheet Metal Manual" and/or the National Roofing Contractor's Association "Roofing and Waterproofing Manual" as applicable.
- C. Liquid Flashing:
1. Mask target area on roof membrane with tape.
 2. Clean all non-porous areas with isopropyl alcohol.
 3. Apply 32 wet mil base coat of liquid flashing over masked area.
 4. Embed polyester reinforcement fabric into the base coat of the liquid flashing.

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5. Apply 32 wet mil top coat of the liquid flashing material over the fabric extending 2 inches (51 mm) past the scrim in all directions.

3.5 CLEANING

- A. Clean-up and remove daily from the site all wrappings, empty containers, paper, loose particles and other debris resulting from these operations.
- B. Remove coating markings from finished surfaces.
- C. Repair or replace defaced or disfigured finishes caused by Work of this section.

3.6 PROTECTION

- A. Provide traffic ways, erect barriers, fences, guards, rails, enclosures, chutes and the like to protect personnel, roofs and structures, vehicles and utilities.
- B. Protect exposed surfaces of finished walls with tarps to prevent damage.
- C. Plywood for traffic ways required for material movement over existing roofs shall be not less than 5/8 inch (16 mm) thick.
- D. In addition to the plywood listed above, an underlayment of minimum 1/2 inch (13 mm) recover board is required on new roofing.
- E. Special permission shall be obtained from the Manufacturer before any traffic shall be permitted over new roofing.

3.7 FIELD QUALITY CONTROL

- A. Require attendance of roofing materials manufacturers' representatives at site during installation of the roofing system.
- B. Perform field inspection and [and testing] as required under provisions of Section 01410.
- C. Correct defects or irregularities discovered during field inspection.

3.8 FINAL INSPECTION

- A. At completion of roofing installation and associated work, meet with Contractor, Architect, installer, installer of associated work, roofing system manufacturer's representative and others directly concerned with performance of roofing system.
- B. Walk roof surface areas, inspect perimeter building edges as well as flashing of roof penetrations, walls, curbs and other equipment. Identify all items requiring correction or completion and furnish copy of list to each party in attendance.
- C. If core cuts verify the presence of damp or wet materials, the installer shall be required to replace the damaged areas at his own expense.

- D. Repair or replace deteriorated or defective work found at time above inspection as required to produce an installation that is free of damage and deterioration at time of Substantial Completion and according to warranty requirements.
- E. Notify Architect upon completion of corrections.
- F. Following the final inspection, provide written notice of acceptance of the installation from the roofing system manufacturer.

3.9 SCHEDULES

A. Primers:

- 1. Rust-Go Metal Primer:
 - a. Flash Point: 40 degrees F (4.4 degrees C) min
 - b. Solids by Weight: 69.9% plus/minus 2.0%
 - c. Solids by Volume: 52.5% plus/minus 2.0%
 - d. Viscosity @ 77 degrees F (25 degrees C): 70 plus/minus 5 KU

B. Base:

- 1. Base Coating: Coating: Cool-Sil HB Gray Silicone Coating (Roller Grade): Single-component 100% silicone, liquid waterproofing membrane.
 - a. Tensile Strength: ASTM D 412, 350 psi
 - b. Elongation: ASTM D 412, 174%
 - c. Flash Point: ASTM D 93, 141 degrees F min. (60.6 degrees C)
 - d. Solids Content: ASTM D 2369, Typical 95%
 - e. VOC: <50 g/l Non-Volatile: ASTM D 75, Typical 83%
- 2. Base Coating: Cool-Sil HB White Silicone Coating (Roller Grade): Highly reflective, multi-purpose, single-component 100% silicone, liquid waterproofing membrane
 - a. Tensile Strength: ASTM D 412, 350 psi
 - b. Elongation: ASTM D 412, 174%
 - c. Flash Point: ASTM D 93, 141 degrees F min. (60.6 degrees C)
 - d. Solids Content: ASTM D 2369, Typical 95%
 - e. VOC: <50 g/l
 - f. Reflectance: 0.89
 - g. Emittance: 0.90
 - h. SRI: 113 @ 2 gal./100 sq. ft. (0.82 l/m²)
 - i. VOC: 50 g/l

C. Reinforcement:

- 1. UniBond ST: Fatigue resistant, polyester-faced adhesive tape.
 - a. Tensile Strength 4500 psi.
 - b. Elongation, 500%

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- c. Low Temperature Flexibility, -70 degrees F (-56.6 degrees C).
 - d. Service Temperature, -30 to 200 degrees F (-34.4 to 93.3 degrees C).
 - e. Permeance ASTM 96b, .001 perms.
 - f. Adhesion Greater than 20 lbs./in.
 - 2. Grip Polyester Soft: Soft polyester reinforcing fabric.
 - a. Tensile Strength ASTM D 3766, 57.1 lbs (25.9 kg).
 - b. Tear Strength, 16.1 lbs (7.30 kg).
 - c. Elongation ASTM D 3786, 61.65%
 - d. Weight per Area, 3 oz./sq yd. (102 g/m2)
 - e. Mullen Burst, ASTM D 3786: 176 lbs. (80.2 kg)
- D. Sealant
- 1. Sealant: All-Sil: Low modulus, high extension/compression and excellent adhesion to most building materials
 - a. Tensile Strength: ASTM D 412, 130 psi
 - b. Elongation: ASTM D 412, 275%
 - c. Solids Content: ASTM D 2369, Typical 95%
 - d. VOC: <50 g/l
- E. Walkway Surface
- 1. Non-Skid Surface: Cool-Sil Yellow Walkway Granules: Yellow granules designed to enhance the impact resistance of the roof surface when embedded in Cool-Sil Yellow Walkway Coating,
 - a. Specific Gravity, ASTM C 128, 2.65
 - b. Bulk Density: ASTM C29, 90-100 lbs./Cu. Ft.

END OF SECTION

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Last Updated: November 17, 2021*

PART 1 - GENERAL

A. Section Includes:

1. Sheet metal for maintaining weather and water resistance of building enclosure, edge metal, flashing, and trim including the following:
 - a. Rain drainage including gutters, conductor heads, downspouts and scuppers.
 - b. Parapet coping.
 - c. Roof flashing not provided under Divisions 22 through 28 or roofing Sections.
2. Miscellaneous flexible sheet flashings not provided under other Sections and indicated for maintaining weather and water resistance of building enclosure.
3. Manufactured sheet metal accessories.
4. Sealant work related to sheet metal flashing and trim.
5. Requirements for miscellaneous sheet metal integral with products and systems included under other Sections.

1.2 RELATED REQUIREMENTS

- A. Section 01 6116, Volatile Organic Compound (VOC) Restrictions; for VOC limits pertaining to adhesives, sealants, fillers, primers, and coatings.
- B. Section 01 8113, Sustainable Design Requirements, for CAL-Green general requirements and procedures.
- C. Section 07 4100, Metal Roof Panels.
- D. Section 07 9200, Joint Sealants.
- E. Section 09 9100 Painting.
- F. Division 26, Electrical.

1.3 REFERENCES AND STANDARDS

- A. California Building Code (CBC), edition as noted on the Drawings, as adopted by the California Division of the State Architect (DSA).
- B. California Green Building Standards Code (CAL Green), edition as noted on the Drawings, as adopted by the California Division of the State Architect (DSA).
- C. American National Standards Institute (ANSI):
 1. ANSI/SPRI ES-1, Wind Design Standard for Edge Metal Systems.
- D. ASTM International (ASTM):

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1. A 240/A 240M: Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications.
 2. A 653/A 653: Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 3. A 755/A 755M: Standard Specification for Steel Sheet, Metallic Coated by the Hot-Dip Process and Prepainted by the Coil-Coating Process for Exterior Exposed Building Products.
 4. A 792/A 792M: Standard Specification for Steel Sheet, 55 % Aluminum-Zinc Alloy-Coated by the Hot-Dip Process.
 5. B 32: Specification for Solder Metal.
 6. B 209: Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
 7. D 4586: Specification for Asphalt Roof Cement, Asbestos Free.
- E. Factory Mutual Global (FMG): Loss Prevention Data Sheets, 1-49.
- F. National Roofing Contractors Association (NRCA): The NRCA Roofing and Waterproofing Manual.
- G. Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA): Architectural Sheet Metal Manual.

1.4 ADMINISTRATIVE REQUIREMENTS

- A. Submittal Procedures:
1. Action Submittals and Informational Submittals shall be submitted in accordance with Section 01 3300, Submittal Procedures.
 2. Closeout Submittals shall be submitted in accordance with Section 01 7700, Closeout Procedures.
 3. Sustainable Design Submittals shall comply with the additional requirement of Section 01 8113, Sustainable Design Requirements.
- B. Pre-installation Meeting: Prior to installation of sheet metal associated work, Contractor, Architect, and fabricator's field and office representatives responsible for work under this Section shall meet at the Project site to coordinate and discuss sheet metal practices applicable to this Project.
1. Notify participants at least 5 working days before conducting meeting.
 2. Record discussions of conference and any conflict, incompatibility, or inadequacy. Furnish a copy of record to each participant.
 3. At Contractor's option, agenda for sheet metal discussion may be included as part of pre-installation conferences required for other building assemblies and specified under other Sections.
- C. Coordinate with shop drawing, mock-ups, and warranty requirements of other Sections installed in conjunction with work of this Section.

1.5 ACTION SUBMITTALS

- A. Shop Drawings: Submit showing all parts, connections and anchorages, adjacent materials, fully dimensioned and noted. Submit shop drawings of fabricated items showing profiles and relationship to adjacent materials.
- B. Products Data: Manufacturer's literature describing [reglets] and other manufactured items.
- C. Samples: Submit sample for each color of the manufacturer's standard colors for prefinished metal parapet cap and prefinished edge metal fascia:

1.6 INFORMATIONAL SUBMITTALS

- A. Qualification of fabricator.
- B. Sustainable Design:
 - 1. General:
 - a. Submit information necessary to establish and document compliance with the California Green Building Standards Code.
 - b. Sustainable design submittals are in addition to other submittals.
 - 2. The following information shall be provided:
 - a. Adhesives and Sealants: Evidence of compliance that products meet maximum VOC content limits specified in Section 01 6116.
 - b. Paints and Coatings: Evidence of compliance that products meet maximum VOC content limits specified in Section 01 6116.
- C. Record of pre-installation meeting if not submitted under other Sections.
- D. Sample of manufacturer's warranty.

1.7 CLOSEOUT SUBMITTALS

- A. Warranty/Guaranty: Submit executed warranty and Subcontractor's guarantee.

1.8 MAINTENANCE SUBMITTALS

- A. Touch-up paint as specified.

1.9 QUALITY ASSURANCE

- A. Qualifications of Manufacturer: Products used in the work of this Section shall be produced by manufacturer's regularly engaged in manufacture of similar items and with a history of successful production acceptable to the Architect.
- B. Use only new materials and products, unless existing materials or products are specifically shown otherwise on the Drawings to be salvaged and re-used.
- C. Use materials and products of one manufacturer whenever possible.

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- D. All materials, components, assemblies, workmanship and installation are to be observed by the Owner's Project Inspector. Work not so inspected is subject to uncovering and replacement.

1.10 DELIVERY, STORAGE AND HANDLING

- A. Deliver undamaged products to job in manufacturer's sealed containers and/or original bundles with tags and labels intact.
- B. Store materials in protected, dry conditions off of ground and in areas so as to not interfere with the progress of the work.
- C. Transport, store and handle in strict accord with the manufacturer's written recommendations.

1.11 FIELD CONDITIONS

- A. Make and be responsible for all field dimensions necessary for proper fitting and completion of work. Report discrepancies to Architect before proceeding.

1.12 WARRANTY AND GUARANTEE

- A. Manufacturer: In addition to the Contractor's and Subcontractor's Guarantee, furnish Owner with manufacturer's fully executed written warranty for the following:
 - 1. Coping System: Extended 20-year, 110 mph wind warranty.
 - 2. Factory-Applied Coating: 30-year warranty for manufacture for PVDF finish covering color fade, chalk, and film integrity.
- B. Contractor: Standard guarantee shall cover damage from leaks due to defective materials and workmanship.

PART 2 - PRODUCTS

2.1 DESIGN AND PERFORMANCE CRITERIA

- A. Industry Standards:
 - 1. Conform to applicable provisions of the "Architectural Sheet Metal Manual" of the Sheet Metal and Air Conditioning Contractors' National Association Inc. (SMACNA Manual), except where more stringent requirements are specified or shown.
 - 2. Conform to applicable provisions of NRCA "Roofing and Waterproofing Manual."
- B. Installed flashing and sheet metalwork shall be weathertight. Coordinate with work of other Sections for weathertight installation at interface with other materials and systems.
- C. Sustainable Design:
 - 1. VOC emissions for field-applied adhesives, sealants, and sealant primers must comply with limits specified in Section 01 6116.

2. VOC emissions for field-applied paints and coatings must comply with limits specified in Section 01 6116.

2.2 MANUFACTURED ROOF SPECIALTIES

- A. Prefinished Metal Parapet Cap and Prefinished Edge Metal Fascia:
 1. Provide tested parapet coping cap and Edge Metal Fascia system in conformance with referenced SMACNA Manual. The coping cap and edge metal fascia system is to be tested and approved per ANSI/SPRI ES-1 to meet the California Building Code, as manufactured by The Garland Company, Inc., Metal-Era, Inc., Hickman Metals, or equal.
 2. The system is to be provided by the roof system manufacturer as part of a complete system and be installed by roofing installer.
 3. Material:
 - a. Parapet Cap: 22 gauge steel.
 - b. Edge Metal Fascia: 24 gauge steel.
 4. Finish: Manufacturers high performance 70 percent PVDF ("Kynar") coating.
 - a. Color: Color to be selected by the Architect from manufacturer's standard 16 colors.
- B. Sheet Metal Cladding: Manufacturer's recommended cladding for sheet metal at single ply roof.
- C. Reglet & Counter Flashing: 0.02-inch stainless steel Fry Reglet "Springlok," or equal. Provide appropriate reglet for given condition, unless otherwise shown.
 1. Style: Provide appropriate reglet for given condition.
 - a. Type 'STX' Stucco Reglet at plaster.
 - b. Type 'MA-4' Masonry Reglet at masonry.
 - c. Type 'SM' Surface Mounted Reglet where shown.
 - d. Type 'CO' Concrete Reglet, 26 gauge, at concrete
 2. Counter Flashing: 'Springlok' counter flashing, finish to match reglet.
 3. End Caps: Field-fabricated with manufacturer-provided foam insert. Provide where reglet and flashing system is terminated or is discontinuous, with sealant per manufacturer's requirements.
 4. Provide manufacturer's "P" Vinylok Flashing Retainer where counterflashing is not provided by manufacturer with manufactured mitered and sealed corners.

2.3 SHEET METAL

- A. General:
 1. Thickness: As required by SMACNA for specific conditions and as shown on Drawings but not less than 24-gage.
 2. Cleats: Shall be continuous, and 20-gage minimum thickness.

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3. Prepainted sheet by the coil-coating process shall comply with ASTM A 755/A 755M.
- B. Metallic-Coat Steel Sheet: Restricted flatness steel sheet, metallic coated by the hot-dip process.
1. Zinc-Coated (Galvanized) Steel Sheet: ASTM A 653/A 653M, Z275 (G90) coating designation; structural quality.
 2. Aluminum-Zinc Alloy-Coated Steel Sheet: ASTM A 792/A 792M, Class AZM150 coating designation, Grade 275 (Class AZ50 coating designation, Grade 40); structural quality; "Zincalume," "Galvalume," or "Zintro-Alum" manufactured under license from BIEC International, Inc., Vancouver, WA.
- C. Aluminum: ASTM B 209, alloy 3003, 0.032 inch thick, except as otherwise indicated.
- D. Stainless Steel Sheets: ASTM A 240, 300 Series, type best suited for purpose.

2.4 ACCESSORIES

- A. Nails: Hot-dip galvanized annular thread, "stronghold" type.
- B. Solder:
1. For Stainless Steel: ASTM B 32, Grade Sn60, with an acid flux of type recommended by stainless-steel sheet manufacturer.
 2. For Zinc-Coated (Galvanized) Steel: ASTM B 32, Grade Sn50, 50 percent tin and 50 percent lead or Grade Sn60, 60 percent tin and 40 percent lead.
- C. Flux: Muriatic acid.
- D. Asphaltic Primer: ASTM D 41, type as recommended by membrane roofing manufacturer where sheet metal work is in contact with membrane roofing materials.
- E. Flashing Cement: Asphaltic, ASTM D 4586.
- F. Sealants:
1. Non-hardening, non-sagging one part sealant per FS TT-S-230, Geocel 2000 or equal, unless otherwise indicated.
 2. At metal flashings for Traffic-Bearing Deck Surfacing: Sikaflex 1A, Sonneborn NP1, or equal.
- G. Galvanized Metal Repair Compound: single component, high zinc dust content (zinc rich) repair compound for iron, steel and galvanized metal; "ZRC Galvalite" by ZRC Worldwide or equal.
- H. Draw Bands: Type 304 stainless steel sheet with Type 304 stainless steel screw.
- I. Slip Sheet: Rosin-sized, unsaturated building paper, 4 to 6 pounds per 100 square feet; FS UU-B-790, Type I, Grade A.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Prior to installation of the work of this Section, carefully inspect and verify that installed work of all other trades is complete to the point where this installation may properly commence.
- B. Verify that specified items may be installed in accordance with the approved design.
- C. In event of discrepancy, immediately notify Architect. Do not proceed in discrepant areas until discrepancies have been fully resolved.

3.2 WORKMANSHIP, FABRICATION AND INSTALLATION

- A. Specifications herein are minimum. Provide such extra materials and workmanship as necessary to obtain required results. Install work in accord with recognized standards and best trade practices.
- B. Where work is not otherwise shown or specified, conform to details and requirements set forth in the referenced SMACNA Manual.
- C. Where materials or construction systems are specified with reference to a particular manufacturer (such as, reglets & flashing, sealants and waterproof membranes), make installations in strict accord with the approved manufacturer's installation instruction.
- D. Except where otherwise noted or specified, sheet metal work shall be galvanized sheet metal. Make cleats and edge strips of the same metal as items with which they are used and in contact.
- E. Accurately reproduce profiles and bends; make intersections even and true. Make plain surfaces free from buckles and waves with as few joints as possible. Reinforce work as required for strength and appearance.
- F. Bend metals to minimum radius as recommended by manufacturer for thickness used (in general, the radius shall be not less than the thickness of assembly) and in accordance with the referenced SMACNA Manual.
- G. Provide for proper expansion and contraction caused by thermal or building movement. Make joints tight. Conceal nails and other fastenings where possible. Face nailing through exposed surfaces is not permitted unless specifically shown. Secure exposed edges to underlying materials with clips, cleats or tabs (edge strips). Provide neoprene washers at all exposed fasteners.
- H. Make seams in direction of water flow to create a flashing and counter-flashing condition.
- I. Hem exposed edges of sheet metal work 1/2 inch or as otherwise shown.
- J. Do cutting, fitting, punching, etc., in sheet metal to accommodate work specified elsewhere and provide necessary accessory items.

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- K. Properly apply caulking and sealants to sheet metal items to permit movement between surfaces and to make entire installation watertight. Conform to requirement of Section 07 9200, Joint Sealants.
- L. Soldering: Roughen smooth surfaces with clean emery cloth or sandpaper; do not use steel wool. Use torch or well heated irons. Solder slowly, thoroughly heating seams and completely sweating solder through full width with a least 1 inch of solder evenly flowed along seams. Wherever possible, solder in a flat position. Solder seams on slopes greater than 45 degrees a second time. Solder immediately after application of flux; after soldering, immediately neutralize any corrosive flux with 5 percent soda solution and flush with clean water. Soldering of exposed surfaces shall be neatly done. Exposed solder shall be dressed and finished. Soldering shall be employed only to seal or fill seams. Where structural strength is required, do not rely on solder alone but use supplementary mechanical fasteners.
- M. Cut edges or joints and abrasions which expose base metal of galvanized sheet metal shall be coated with solder to equivalent thickness of zinc coating before assembling or installing sheet metal items.
- N. Priming Surfaces:
 - 1. Coat all metal surfaces in contact with single ply or built-up roofing with primer or sealant as recommended by the roofing manufacturer.
- O. Provide isolation of dissimilar metals from contact with each other by coating with asphalt primer.
- P. Finish all sheet metal work straight and true, with miters and joints accurately fitted. Exposed work shall be free of dents. Corners shall be reinforced, and seams soldered or otherwise made waterproof. Exposed edges shall be hemmed.
- Q. Work shall be made watertight and leak proof. Except where provision is required for expansion and contraction, joints and seams shall be locked, or otherwise made mechanically strong. Solder may be used, where appropriate, to make joints and seams watertight, but shall not be considered as providing mechanical strength.
- R. Fabricate sheet metal work from materials and of gauges indicated or specified. Where material is not indicated, fabricate from galvanized sheet metal.
 - 1. Cleats supporting bottom edges of sheet metal work shall be continuous; secure on not more than 24 inch centers. Provide cleats at all free edges of flashing and as indicated on Drawings.
- S. Flashings:
 - 1. Install flashings required to provide watertight protection.
 - 2. Assemble and install flashings at roofing and waterproofing conditions to conform to approved manufacturer's recommendations and the requirements of the respective roofing Sections.

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3. Carry flashings around and past corners 4-inches minimum. Soldered joints or otherwise joints joined directly at an inside or outside corner is not permitted. Three-way angles such as inside corners made up of two parapets and a roof deck converging shall have the corners soldered watertight.
 4. Flashings installed to be fully restrained shall be nailed at maximum 3 inch centers; otherwise use clips or cleats.
 5. Unless roofing manufacturer has more stringent requirements, make up continuous straight runs of flashings in 24 feet. maximum lengths. Provide expansion lapped expansion joints at 10 feet maximum from any external or internal corners, and in straight runs at not less than 24 feet. apart. Running joints between expansion joints shall be locked and soldered or lapped and riveted/soldered. At joints, laps shall be a minimum of 8 inches.
 6. Flashings shall conform to the appropriate plates and recommendations of the referenced SMACNA Manual.
- T. Prefinished Metal Parapet Cap and Prefinished Edge Metal:
1. Form to Details in up to 10'-0" lengths.
 2. Follow coping and edge metal system manufacturer's installation requirements to meet wind uplift requirements. Install brackets as required to properly anchor coping.
 3. Provide expansion joints every 16'-0" maximum.
- U. Fabricate gutters, expansion joints, downspouts, leader boxes, scuppers and methods of anchorage/support as shown on the Drawings and in conformance with the referenced SMACNA Manual.
1. Gutters:
 - a. Hung type gutters shall be constructed of 22 gauge galvanized sheet metal and to sizes and profiles as shown on the Drawings.
 - b. Internal type gutters shall be constructed of 22 gauge galvanized sheet metal in sizes and profiles as shown on the Drawings.
 - c. Ends of each section shall be joined by a 1 inch lap riveted 2 inches on center and soldered. Close ends of each gutter using same material as gutter; solder joints.
 - d. Unless otherwise indicated provide expansion joints midway between drain outlets and not over 40'-0" apart. Construct lap type or butt type expansion joints as indicated and in conformance with the referenced SMACNA Manual.
 - e. Unless otherwise indicated gutter brackets, strap or spacers shall be sized as recommended and in conformance with the referenced SMACNA Manual and shall be spaced at a maximum of 3'-0" on center.
 - f. At completion of gutter installation verify that gutter seams, expansion joints and end caps do not leak utilizing a garden hose or other means to water test gutters. Make repairs necessary to the satisfaction of the Architect and Owner to assure that gutters do not leak.

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2. Conductors: Construct of 16 gauge galvanized sheet metal in sizes and profiles as shown on Drawings.
3. Finish: Gutters and leader boxes shall be painted per Section 09 9100, Painting.

V. Downspouts:

1. Fabricate from 16 gauge galvanized metal in size and shape as detailed. Round downspouts where shown shall be schedule 40 galvanized pipe. Secure to wall or column with mounts as detailed.. Grind smooth, apply galvanized metal repair compound and touch up and paint all surfaces. Provide transition pieces in same gauge material as downspouts as required at top and bottom. No light-weight or light gauge material will be permitted.
2. Portable Buildings Only: Provide rectangular type 18 gauge minimum, size as indicated, in 8'-0" sections with end joints telescoped 1-1/2 inches in direction of flow and made watertight with longitudinal joints locked and fully soldered. Secure to wall with 18 gauge 1 inch wide straps spaced 36 inches on center maximum. Mechanically fastened straps to downspout. Provide quarter bend at bottom where downspouts empty. Solder downspouts to gutters. Provide 1/4 inch mesh 14 gauge galvanized wire, removable basket type strainers at all gutter-downspout connections.
3. Finish: Downspouts shall be painted per Section 09 9100, Painting.
4. At completion of downspout installation verify that downspout connections at gutter and at grade do not leak utilizing a garden hose or other means to water test downspouts. Make any repairs necessary to the satisfaction of the Architect and Owner to assure that downspouts do not leak.

W. Clad Metal Flashings: Install clad flashing wherever new flashing material attaches to single ply roofing system or where shown on the Drawings. Flashing to be as required by the roofing manufacturer for proper bonding of material.

X. Reglet and Counter Flashing: Install in accordance with manufacturer's recommendations using fasteners and sealant as required by manufacturer.

Y. Apply waterproof membrane at horizontal plaster surfaces, under horizontal sheet metal flashing at curbs, parapet caps, and similar items, and as shown on the Drawings. Install in shingle fashion in direction of water flow with 2 inches minimum, fully adhered laps.

3.3 CLEANING AND TOUCHUP

- A. Upon completion of installation, remove manufacturer's temporary labels, protection, and marks of identification. Thoroughly wash surfaces and remove foreign material. Leave entire work in neat, orderly, clean and acceptable condition.
- B. Clean and neutralize flux materials. Clean off excess solder.

3.4 PROTECTING AND ADJUSTING

- A. Protect work and materials of this Section prior to and during installation, and protect the installed work and materials of other trades.

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- B. In the event of damage, make all repairs and replacements necessary to the approval of the Architect at no additional cost to the Owner.
- C. **[Touch up field abrasions and damage to factory-painted finish. Touch-up shall be unnoticeable in completed installation.]**
- D. Exposed finishes shall be free from scratches, dents, permanent discolorations and other defects in workmanship or material.

END OF SECTION

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Last Updated: March 24, 2021

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Through-penetration firestop systems:
 - 2. Fire-rated joint systems:

1.2 RELATED REQUIREMENTS

- A. Section 01 6116, Volatile Organic Compound (VOC) Restrictions; for VOC limits pertaining to adhesives, sealants, fillers, primers, and coatings.
- B. Section 01 8113, Sustainable Design Requirements, for CAL-Green general requirements and procedures.

1.3 REFERENCES AND STANDARDS

- A. California Building Code (CBC), edition as noted on the Drawings, as adopted by the California Division of the State Architect (DSA).
- B. California Green Building Standards Code (CAL Green), edition as noted on the Drawings, as adopted by the California Division of the State Architect (DSA).
- C. ASTM International (ASTM):
 - 1. C 518: Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter.
 - 2. C 1193: Standard Guide for Use of Joint Sealants.
 - 3. E 84: Test Method for Surface Burning Characteristics of Building Materials.
 - 4. E 136: Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750 degrees C.
 - 5. E 814: Test Method of Fire Tests of Through-Penetration Firestops.
 - 6. G 21: Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi.
- D. Underwriters Laboratories (UL):
 - 1. UL 1479. Fire Tests of Through-Penetration Firestops.
 - 2. UL 2079: Tests for Resistance of Building Joint Systems.

PENETRATION FIRESTOPPING
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1.4 DEFINITIONS

- A. Firestopping: A material, or combination of materials, to retain the integrity of time-rated construction by maintaining an effective barrier against the spread of flame, smoke and gases.
- B. Other Definitions: In accordance with the CBC.

1.5 ADMINISTRATIVE REQUIREMENTS

- A. Submittal Procedures:
 - 1. Action Submittals and Informational Submittals shall be submitted in accordance with Section 01 3300, Submittal Procedures.
 - 2. Sustainable Design Submittals shall comply with the additional requirement of Section 01 8113, Sustainable Design Requirements.
- B. Coordination:
 - 1. Coordinate construction of openings and penetrating items to ensure that designated through-penetration firestop systems are installed in accordance with specified requirements.
 - 2. Scheduling: Sequence Work to permit firestopping materials to be installed after adjacent and surrounding work is complete but prior to covering or concealing of openings.

1.6 ACTION SUBMITTALS

- A. Product Schedule:
 - 1. Clearly indicate a specific product and/or system for each type of firestopping condition.
 - 2. For job conditions where no clearly defined UL-approved assembly exists, provide an engineering judgment from manufacturer. Where requested by Architect, submit drawings showing each condition to document proposed systems, materials, anchorage, methods of installation, and type of construction assembly being penetrated.
 - a. Engineering judgments shall follow requirements set forth by the International Firestop Council.
 - b. Proposed system shall be acceptable to local governing authorities.
- B. Product Data: Submit list and complete descriptive data of all products proposed for use. Include manufacturer's specifications, published warranty or guarantee, installation instructions, and maintenance instructions.
 - 1. Instruction details shall reflect actual job conditions.
 - 2. Where available, include aging data for intumescent products.

3. Where available, include L rating indicating tested air leakage for products used in through-penetration systems.

1.7 INFORMATIONAL SUBMITTALS

- A. Qualification data for installer.
- B. Manufacturer's letter of certification or certified laboratory test report stating that materials or combination of materials meet requirements specified in ASTM E 814 and classified as meeting these requirements in UL's Building Materials Directory.
- C. UL Certificates of Compliance.
- D. Sustainable Design:
 1. General:
 - a. Submit information necessary to establish and document compliance with the California Green Building Standards Code.
 - b. Sustainable design submittals are in addition to other submittals.
 2. The following information shall be provided:
 - a. Adhesives and Sealants: Evidence of compliance that products meet maximum VOC content limits specified in Section 01 6116.

1.8 CLOSEOUT SUBMITTALS

- A. Certificate from Installer indicating that penetration firestopping systems have been installed in compliance with requirements and manufacturer's written instructions.

1.9 QUALITY ASSURANCE

- A. Use only new materials and products.
- B. Use materials and products of one manufacturer whenever possible.
- C. All materials, components, assemblies, workmanship and installation are to be observed by the Owner's Project Inspector. Work not so inspected is subject to uncovering and replacement.
- D. Regulatory Requirements: UL Test 1479, "Fire Tests of Through-Penetration Firestops," or ASTM E 814 and UL 2079.
 1. Materials shall meet requirements of NFPA 101, "Life Safety Code" and NFPA 70, "National Electrical Code."
- E. Installer Qualifications: Experienced in installing through-penetration firestop systems similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful performance.

PENETRATION FIRESTOPPING

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Increment 2

1. Qualifications include having the necessary experience, staff, and training to install manufacturer's products per specified requirements. Manufacturer's willingness to sell its through-penetration firestop system products to contracted Installer does not in itself confer qualification on buyer.

- F. Work under this Section may be divided among various trades, subject to limitation that same products for each firestopping system are used throughout.

1.10 DELIVERY, STORAGE AND HANDLING

- A. Deliver undamaged products to job in manufacturer's sealed containers and/or original bundles with tags and labels intact.
- B. Store materials in protected, dry conditions off of ground and in areas so as to not interfere with the progress of the work.
- C. Transport, store and handle in strict accord with the manufacturer's written recommendations.

1.11 FIELD CONDITIONS

- A. Environmental Requirements: Do not apply materials when temperature of substrate material and ambient air is below 60 degrees F. Maintain this minimum temperature before, during, and for three days after installation of materials.

PART 2 - PRODUCTS

2.1 DESIGN AND PERFORMANCE CRITERIA

- A. Fire Ratings: As indicated on the Drawings.
- B. System Performance:
 1. General:
 - a. Provide firestopping systems that are produced and installed to resist the spread of fire, according to requirements indicated, and passage of smoke and other gases.
 - b. For firestopping exposed to view, provide products with flame-spread values of less than 25 and smoke-developed values of less than 450, as determined per ASTM E 84.
 - c. Materials shall be compatible with each other and with other specified items with which they may come in contact and shall not cause corrosion of penetrating items.
 - d. Materials shall be free of solvents, asbestos, or PCBs, and shall be nontoxic to human beings at all stages of application and during fire conditions.
 - e. Firestopping shall remain sufficiently flexible after installation to accommodate expected vibration and movement between penetrating items

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and rated building components or assemblies or between adjacent building components or assemblies at joint systems, without affecting adhesion or integrity of system.

- f. Materials shall not shrink noticeably after installation.
 - g. Caulk, foam, mortar, and putty materials shall be autobonding to permit changes to penetrating items.
 - h. Intumescent fireproofing products shall not be used in sound-rated assemblies.
 - i. Rating of firestopping materials or system shall in no case be less than rating of rated floor or wall assembly.
 - 2. F-Rated Through-Penetration Firestop Systems: Provide through-penetration firestop systems with F ratings as determined in accordance with ASTM E 814 but not less than that equaling or exceeding the fire-resistance rating of the constructions penetrated.
 - 3. T-Rated Through-Penetration Firestop Systems: Provide through-penetration firestop systems with T ratings, in addition to F ratings, as determined in accordance with ASTM E814, where systems protect penetrating items exposed to contact with adjacent materials in occupiable floor areas.
 - 4. L-Rated Systems: Where through-penetration firestop systems are indicated in smoke barriers, provide through-penetration firestop systems with L-ratings of not more than 3.0 cfm/sq. ft at both ambient temperatures and 400 degrees F.
 - 5. Fire-Resistive Joint Sealants: Provide joint sealants with fire-resistance ratings indicated, as determined in accordance with UL 2079, but not less than that equaling or exceeding the fire-resistance rating of the construction in which the joint occurs.
 - 6. Mold Resistance: Provide penetration firestopping with mold and mildew resistance rating of 0 as determined by ASTM G 21.
 - 7. For firestopping exposed to view, traffic, moisture, and physical damage, provide assemblies that do not deteriorate when exposed to these conditions.
 - a. At piping penetrations for plumbing and wet-pipe sprinkler systems, provide moisture-resistant, through-penetration, firestop systems.
 - b. At floor penetrations with annular spaces over 4 inches wide and exposed to possible loading and traffic, provide firestop systems capable of supporting floor loads, either by installing floor plates or by other means.
 - c. At penetrations involving insulated piping, provide through-penetration firestop systems not requiring removal of insulation.
 - d. At joints involving metal deck or other construction with spray-on fireproofing, provide fire-resistive joint systems not requiring removal of spray-on fireproofing.
- C. Fire-Test-Response Characteristics: Firestopping shall comply with the following requirements.
- 1. Firestopping tests are performed by a qualified testing and inspecting agency. A qualified testing and inspecting agency is UL, ITS-Warnock Hersey, or another

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agency performing testing and follow-up inspection services for firestop systems that is acceptable to authorities having jurisdiction.

2. Through-penetration firestop systems are identical to those tested in accordance with ASTM E 814 under conditions in which positive furnace pressure differential of at least 0.01 inch of water is maintained at a distance of 0.78 inch below the fill materials surrounding the penetrating items in the test assembly. Systems shall comply with the following requirements:
 - a. Through-penetration firestop system products bear classification marking of qualified testing and inspecting agency.
 - b. Through-penetration firestop systems correspond to those indicated by reference to through-penetration firestop system designations listed by UL in their "Fire Resistance Directory," by ITS-Warnock Hersey, or by another qualified testing and inspecting agency.
3. Fire-resistive joint sealant systems shall be identical to those tested for fire-response characteristics in accordance with UL 2079 under conditions in which the positive furnace pressure differential is at least 0.01 inch of water, as measured 0.78 inch from face exposed to furnace fire. Systems shall comply with the following requirements:
 - a. Fire Ratings of Joint Sealants: As indicated by reference to design designations listed by UL in their "Fire Resistance Directory" or by another qualified testing and inspecting agency.
 - b. Joint sealants, including backing materials, bear classification marking of qualified testing and inspection agency.
4. Fire and Sound-Rated Conditions: Use fire-rated acoustic sealants.

D. Sustainable Design:

1. VOC emissions for field-applied adhesives, sealants, and sealant primers must comply with limits specified in Section 01 6116.

2.2 FIRESTOPPING MATERIALS

A. General:

1. Materials listed below are not necessarily all-inclusive, nor are all materials listed necessarily required to be used on the Project.
2. Although several manufacturers may be listed for each type of firestopping, listed manufacturers vary for each Type, and products included with firestopping details and assemblies on the Drawings may use products not included in this Specification, it is the Contractor's responsibility to ensure that systems developed for firestopping on this project use approved systems from a single manufacturer unless products for required systems are not available from the selected manufacturer.

- B. Job-Mixed Vinyl Compound:** Prepackaged vinyl-based powder product for mixing with water at Project site to produce a paintable compound, passing ASTM E 136, with flame-

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spread and smoke-developed ratings of zero in accordance with ASTM E 84; "USG Firecode Compound" by United States Gypsum Co.," or equal.

- C. Firestop Mortar: Prepackaged dry mix of inorganic binders, fillers, and lightweight aggregate formulated for mixing with water at Project site to form a nonshrinking, homogenous mortar; Hilti FS 637 "Firestop Mortar," or equal.
- D. Non-intumescent Firestop Sealant: One-part silicone elastomer; "Hilti CP 601S "Elastomeric Firestop Sealant," or equal.
- E. Intumescent Firestop Sealant: Hilti "FS-One," or equal.
- F. Mastic Firestop Sealant: Single component, water based, mastic grade; Rectorseal "Metacaulk 1100" or equal.
- G. Firestop Foam: Two-component silicone elastomer; Hilti CP 620 "Fire Foam," or equal.
- H. Intumescent Fire Blocks: Hilti "FS-657" or equal.
- I. Flexible Firestop Spray Coating: Sprayable water-based coating; designed to form a flexible seal over mineral fiber firesafing; Hilti CP 672 "Speed Spray," or equal.
- J. Intumescent Putty and Putty Pads at Electric Boxes: Hilti CP 617 "Firestop Putty Pads" in required lengths and CP 618 "Firestop Putty Sticks," or equal.
- K. Intumescent Pipe Wrap: Hilti CP 645, 648E or 648S "Firestop Wrap Strip," or equal.
- L. Intumescent Sheet: Self-supporting board or panel. Hilti CP 675T "Firestop Board with Accessories," or equal.
- M. Intumescent Sleeves, Collars, and Plastic Pipe Devices: Shop or field fabricated; heavy gauge galvanized steel with intumescent liner; Hilti CP 643N and 644 "Firestop Collar," or equal.
- N. High Temperature Firestop Calk: Single component; The Carborundum Company "FyrePutty, Tremco "FYRE-Shield," or equal.
- O. Spray-Applied, Elastomeric, Firestop Joint Sealant: Non-halogenated latex-based sealant for use at perimeter fire barriers; "SpecSeal Series AS200 Elastomeric Spray" by Specified Technologies, Inc., or equal.
- P. Intumescent Pillows/Bags, if Approved: Reusable, heat-expanding pillows/bags composed of glass-fiber cloth cases filled with a combination of mineral-fiber, water-insoluble expansion agents and fire-retardant additives; Rectorseal "Firestop Pillows," or equal.

2.3 FIRESAFING, ACCESSORIES, AND OTHER MATERIALS

- A. Mineral Fiber Firesafing/Backing Material:

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1. Unfaced Mineral Fiber: 4 pcf, suitable for friction fit in voids. Ceramic or cementitious-blend fiber is also approved. Do not use glass fiber.
 2. Foil Faced Mineral Fiber: Same as unfaced mineral fiber but with aluminum foil facing on one side.
 3. Properties:
 - a. Noncombustible as defined in NFPA Standard 220 when tested in accordance with ASTM E 136.
 - b. Thermal Conductivity: 0.25 to 0.23 k-value per ASTM C 518.
 - c. Surface-Burning Characteristics:
 - 1) Flame Spread: 15 (10 to 25 with foil facing).
 - 2) Fuel Contributed: 0 (5 with foil facing).
 - 3) Smoke Developed: 0.
- B. Accessories:
1. Provide primers, cleaners, joint fillers, packing, and other accessory materials required for installation of firestop sealants, as applicable to installation conditions indicated.
 2. Provide impaling clips, cinch shields, and similar items required for installation of backing material.
 3. Provide protective covers or devices for soft firestopping and firesafing products that will be exposed in finished construction.
- C. Other Facing and Backing Materials: As recommended by firestopping manufacturer. Use fire resistive material where possible.

2.4 MIXING

- A. For those products requiring mixing prior to application, comply with firestopping manufacturer's directions for accurate proportioning of materials, type of mixing equipment, selection of mixer speeds, mixing containers, mixing time, and other procedures needed to produce firestopping products of uniform quality with optimum performance characteristics for application indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Prior to installation of the work of this Section, carefully inspect and verify that installed work of all other trades is complete to the point where this installation may properly commence. Starting of work shall imply acceptance of conditions as they exist.
- B. Verify that specified items may be installed in accordance with the approved design.
- C. In event of discrepancy, immediately notify Architect. Do not proceed in discrepant areas until discrepancies have been fully resolved.

3.2 PREPARATION

- A. Clean substrate surfaces of dirt, dust, grease, oil, loose material, or other matter which may affect bond of firestopping material.

3.3 INSTALLATION - GENERAL

- A. Installation shall be in strict conformance with referenced standards, the manufacturer's written directions, as shown on the Drawings and as specified.
- B. Comply with ASTM C 1193 for installation of elastomeric joint sealants.
- C. Install materials at all penetrations, joints, intersections and openings through fire rated assemblies including walls, floors, ceilings and partition openings as required to maintain integrity and rating of assembly.
- D. At sound-rated fire-rated construction, use only permanently resilient firestopping materials.
- E. Exposed sealant shall be trowelled smooth.

3.4 INTUMESCENT FIRESTOPPING

- A. Use intumescent materials or devices where nonmetal and insulated piping penetrates fire-rated construction.
- B. Intumescent materials are approved for use in lieu of or in addition to other firestopping products in other locations where appropriate.

3.5 ELECTRICAL BOXES AND UTILITY OUTLETS

- A. Steel electrical outlet boxes on opposite sides of walls requiring protected openings shall be separated by a horizontal distance of 24-inches.
- B. Steel electrical outlet boxes which occur in combination with outlet boxes of any size such that the aggregate area of unprotected outlet boxes exceeds 100-square inches in any 100-square feet of wall area shall be protected by an approved material or detail to decrease the aggregate area of unprotected utility boxes to less than 100-square inches in any 100-square feet of wall.
- C. Steel electrical outlet boxes which exceed 16-square inches in area shall be protected with specified electrical box treatment.
- D. Utility and electrical outlets or boxes shall be securely fastened to the stud or framing of the wall or ceiling assembly.
 - 1. The opening in the gypsum board shall be cut so that the clearance between the box and the gypsum board does not exceed 1/8-inch.
 - 2. In smoke partitions, fill the 1/8-inch gap with an approved fire-rated sealant.

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3.6 ADJUSTING AND CLEANING

- A. The premises shall be kept free from accumulation of waste and rubbish. At the completion of the work and as necessary during the progress of the work, remove from the premises all surplus materials, rubbish, and debris.
- B. Upon completion, thoroughly clean all exposed surfaces as recommended by the manufacturer, in a manner that will not affect the finish appearance.

3.7 PROTECTION

- A. Protect work and materials of this Section prior to and during installation, and protect the installed work and materials of other trades.
- B. In the event of damage, make all repairs and replacements necessary to the approval of the Architect at no additional cost to the Owner.
- C. Exposed finishes shall be free from scratches, dents, permanent discolorations and other defects in workmanship or material.

3.8 FIELD QUALITY CONTROL

- A. Verify that firestopping is properly installed before concealing or enclosing firestopped areas.
- B. Firestopping shall remain accessible until inspection and approval by governing authorities.

END OF SECTION

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PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Sealants and backing for interior and exterior joints.

1.2 RELATED REQUIREMENTS

- A. Section 01 6116, Volatile Organic Compound (VOC) Restrictions, for VOC limits pertaining to adhesives, sealants, fillers, primers, and coatings.
- B. Section 01 8113, Sustainable Design Requirements, for CAL-Green general requirements and procedures.
- C. Pertinent Sections specifying sealants or referencing this Section for sealant products and installation requirements.
- D. Section 07 8413, Penetration Firestopping, for sealing joints in fire-resistance-rated construction.

1.3 REFERENCES AND STANDARDS

- A. California Building Code (CBC), edition as noted on Drawings, as adopted by the California Division of the State Architect (DSA).
- B. California Green Building Standards Code (CAL Green), edition as noted on Drawings, as adopted by the California Division of the State Architect (DSA).
- C. American Concrete Institute (ACI) Publications and Standards:
 - 1. ACI 302.1R: Guide to Concrete Floor and Slab Construction.
 - 2. ACI 360R-10: Guide to Design of Slabs-on-Ground.
- D. ASTM International (ASTM):
 - 1. C834: Standard Specification for Latex Sealants.
 - 2. C919: Standard Practice for Use of Sealants in Acoustical Applications.
 - 3. C920: Standard Specification for Elastomeric Joint Sealants.
 - 4. C1193: Standard Guide for Use of Joint Sealants.
 - 5. C1247: Standard Test Method for Durability of Sealants Exposed to Continuous Immersion in Liquids.
 - 6. C1248: Standard Test Method for Staining of Porous Substrate by Joint Sealants.
 - 7. C1311: Standard Specification for Solvent Release Sealants.
 - 8. C1330: Standard Specification for Cylindrical Sealant Backing for Use with Cold Liquid-Applied Sealants.

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9. C1521: Standard Practice for Evaluating Adhesion of Installed Weatherproofing Sealant Joints.
 10. D1667: Standard Specification for Flexible Cellular Materials - Poly (Vinyl Chloride) Foam (Closed-Cell).
 11. E90: Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.
- E. Federal Specifications (FS):
1. FS TT-S-001657: Sealing Compound--Single Component, Butyl Rubber Based, Solvent Release Type.
- F. South Coast Air Quality Management District (SCAQMD):
1. Rule 1168: Adhesive and Sealant Applications.
- G. U.S. Food & Drug Administration (FDA):
1. Code of Federal Regulations: Title 21, 21 CFR 177.2600, Rubber Articles Intended for Repeated Use.

1.4 DEFINITIONS

- A. Sealant Terminology in accordance with ASTM C834 and ASTM C920:
1. Type C: Clear / translucent sealant.
 2. Type OP: Opaque pigmented sealant.
 3. Type S: Single component sealant.
 4. Type M: Sealant with two or more components.
 5. Grade NS: Nonsag sealant.
 6. Grade P: Pourable sealant.
 7. Grade -18°C: Sealant with low temperature flexibility tested to -18°C (0°F).
 8. Grade 0°C: Sealant with low temperature flexibility tested to 0°C (32°F).
 9. Grade NF: Sealant does not meet low temperature flexibility requirements.
 10. Class 12-1/2: Sealant capable of handling movement, either contraction or expansion, of 12.5 percent of the original joint width.
 11. Class 25: Sealant capable of handling movement, either contraction or expansion, of 25 percent of the original joint width.
 12. Class 35: Sealant capable of handling movement, either contraction or expansion, of 35 percent of the original joint width.
 13. Class 50: Sealant capable of handling movement, either contraction or expansion, of 50 percent of the original joint width.
 14. Class 100 / 50: Sealant capable of handling movement of 50 percent contraction and 100 percent expansion.
 15. Use Related to Exposure:
 - a. Use NT: Nontraffic.

- b. Use T: Traffic.
- c. Use I: Immersible.
- 16. Use Related to Material:
 - a. Use A: Sealant used in contact with aluminum.
 - b. Use G: Sealant used in contact with glass.
 - c. Use M: Sealant used in contact with mortar.
 - d. Use O: Sealants used in contact with all other materials other than those previously listed.

1.5 ADMINISTRATIVE REQUIREMENTS

- A. Submittal Procedures:
 - 1. Action Submittals and Informational Submittals shall be submitted in accordance with Section 01 3300, Submittal Procedures.
 - 2. Closeout Submittals shall be submitted in accordance with Section 01 7700, Closeout Procedures.
 - 3. Sustainable Design Submittals shall comply with the additional requirement of Section 01 8113, Sustainable Design Requirements.
- B. Pre-Installation Meeting: Conduct at Project site. Review joint application procedures, compatibility tests, adhesion tests, and warranty requirements in a meeting involving Architect, Project Inspector, installer, manufacturer or manufacturer's representative.
- C. Coordination:
 - 1. Use of different manufacturer's sealant types for application at exterior wall and glazing systems is not permitted. It is required that a single source for silicone sealants be used on this Project. The Contractor is responsible for coordinating compliance with this requirement where installation of sealants is delegated to various Subcontractors installing the exterior envelope systems for the Project.
 - 2. Contractor shall coordinate and be responsible for compatibility and performance between sealants and other materials, and related Sections using sealants which may be in direct contact with work of this Section or adjacent to the other. Isolate and prevent of incompatibility between sealants in accordance with manufacturer's specifications, recommendations and instructions.

1.6 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated, demonstrate compliance with specified attributes.
 - 1. Include color chart from manufacturers for each joint sealant product required.
 - 2. Provide certification by joint sealant manufacturer that materials provided for this Section are 100 percent asbestos-free.

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- B. Samples for initial Selection: In form of manufacturer's standard bead samples, consisting of strips of actual products showing full range of colors available, for each product exposed to view.
- C. Samples for Verification: For each kind and color of joint sealant required, provide Samples with joint sealants in 1/2 inch wide joints formed between two 6 inch long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.
- D. Joint-Sealant Schedule: Include the following information.
 - 1. Joint-sealant application, joint location, and designation.
 - 2. Joint-sealant manufacturer and product name.
 - 3. Joint-sealant formulation.
 - 4. Joint-sealant colors (multiple colors will be required).

1.7 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.
- B. Product Certificates: For each kind of joint sealant and accessory, from manufacturer.
- C. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, indicating that sealants comply with requirements.
 - 1. Preconstruction Compatibility and Adhesion Test Reports from sealant manufacturer, indicating the following:
 - a. Materials forming joint substrates and joint-sealant backings have been tested for compatibility and adhesion with joint sealants.
 - b. Interpretation of test results and written recommendations for primers and substrate preparation needed for adhesion.
 - 2. Preconstruction Field-Adhesion Test Reports: Indicate which sealants and joint preparation methods resulted in optimum adhesion to joint substrates based on testing specified in this Section.
- D. Sustainable Design:
 - 1. General:
 - a. Submit information necessary to establish and document compliance with the California Green Building Standards Code.
 - b. Sustainable design submittals are in addition to other submittals.
 - 2. The following information shall be provided:
 - a. Adhesives and Sealants: Evidence of compliance that products meet maximum VOC content limits specified in Section 01 6116.
- E. Sample of manufacturer's warranty.
- F. Record of Pre-Installation Meeting.

1.8 CLOSEOUT SUBMITTALS

- A. Warranty and Guarantee: Submit executed warranty and extended Contractor guarantee.

1.9 QUALITY ASSURANCE

- A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of sealants and backing required for this Project.
- B. Use only new materials and products, unless existing materials or products are specifically shown otherwise on the Drawings to be salvaged and re-used.
- C. Single Source Responsibility: Obtain each kind of joint sealant from single source from single manufacturer.
- D. Materials, components, assemblies, workmanship and installation are to be observed by the Project Inspector. Work not so inspected is subject to uncovering and replacement.
- E. Mockups: Install sealant in mockups of assemblies specified in other Sections that are indicated to receive joint sealants specified in this Section. Use materials and installation methods specified in this Section.

1.10 PRECONSTRUCTION TESTING

- A. Preconstruction Testing is not required if joint-sealant manufacturers submit joint preparation data that are based on previous testing, not older than 24 months, of sealant products for adhesion to, and compatibility with, joint substrates and other materials matching those submitted.
- B. Preconstruction Compatibility and Adhesion Testing: Submit to sealant manufacturers, for testing indicated below, samples of materials that will contact or affect joint sealants.
 - 1. Use manufacturer's standard test method to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrates.
 - 2. Submit not fewer than eight pieces of each kind of material, including joint substrates, shims, joint-sealant backings, secondary seals, and miscellaneous materials.
 - 3. Schedule sufficient time for testing and analyzing results to prevent delaying the Work.
 - 4. For materials failing tests, obtain joint-sealant manufacturer's written instructions for corrective measures including use of specially formulated primers.
- C. Preconstruction Field-Adhesion Testing: Before installing sealants, field test their adhesion to Project joint substrates as follows:
 - 1. Locate test joints where indicated on Project or, if not indicated, as directed by Architect.
 - 2. Conduct field tests for each kind of sealant and joint substrate indicated.

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3. Notify Architect seven days in advance of dates and times when test joints will be erected.
4. Arrange for tests to take place with joint-sealant manufacturer's technical representative present.
5. Test Method: Test joint sealants according to Method A, Field-Applied Sealant Joint Hand Pull Tab, in Appendix X1 in ASTM C 1193 or Method A, Tail Procedure, in ASTM C 1521.
 - a. For joints with dissimilar substrates, verify adhesion to each substrate separately; extend cut along one side, verifying adhesion to opposite side. Repeat procedure for opposite side.
6. Report whether sealant failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each kind of product and joint substrate. For sealants that fail adhesively, retest until satisfactory adhesion is obtained.
7. Evaluation of Preconstruction Field-Adhesion-Test Results: Sealants not evidencing adhesive failure from testing, in absence of other indications of noncompliance with requirements, will be considered satisfactory. Do not use sealants that fail to adhere to joint substrates during testing.

1.11 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials to project site in original factory wrappings and containers, labeled with identification of manufacturer, product name and designation, color, expiration period for use, pot life, curing time, and mixing instructions for multicomponent materials.
- B. Store and handle materials in compliance with manufacturer's recommendations to prevent their deterioration or damage due to moisture, high or low temperatures, contaminants, or other causes.

1.12 FIELD CONDITIONS

- A. Environmental Conditions: Do not proceed with installation of joint sealants under the following conditions:
 1. When ambient and substrate temperature conditions are outside the limits permitted by joint sealant manufacturer.
 2. When joint substrates are wet.
- B. Joint Width Conditions: Do not proceed with installation of joint sealants where joint widths are less than allowed by joint sealant manufacturer for application indicated.
- C. Joint Substrate Conditions: Do not proceed with installation of joint sealants until contaminants capable of interfering with their adhesion are removed from joint substrates.

1.13 WARRANTY AND GUARANTEE

- A. Manufacturer: In addition to the Contractor's and Subcontractor's Standard Guarantee, furnish Owner with manufacturer's fully executed written warranty for sealant against defects in materials and workmanship for a period of 5 years:

- B. Contractor: in addition to its standard Guarantee under the Contract, furnish Owner a special extended written five-year guarantee, cosigned by installer, for sealant, agreeing to replace any and all joints that leaks or otherwise fails to perform as required within guarantee period as a result of failure of materials or installation workmanship at no additional cost to the Owner.

PART 2 - PRODUCTS

2.1 DESIGN AND PERFORMANCE CRITERIA

- A. Sustainable Design:
 - 1. VOC emissions for field-applied adhesives, sealants, and sealant primers must comply with limits specified in Section 01 6116.
- B. Building Envelope: Make watertight and weatherproof.
 - 1. Exterior work that does not remain watertight and all work which does not retain all properties inherent in the product as stipulated by the manufacturer will be considered faulty.
- C. Provide elastomeric joint sealants that have been produced and installed to establish and to maintain watertight and airtight continuous seals without causing staining or deterioration of joint substrates.
- D. Provide joint sealants for interior applications that have been produced and installed to establish and maintain airtight continuous seals that are water resistant and cause no staining or deterioration of joint substrates.
- E. Design Requirements:
 - 1. Seal building joints with non-sag type sealant.
 - 2. Seal floor joints with self-leveling or slope grade self-leveling type sealant.

2.2 MATERIALS, GENERAL

- A. Compatibility: Provide joint sealants, joint fillers, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.
- B. Liquid-Applied Joint Sealants: Comply with ASTM C920 and other requirements indicated for each liquid-applied joint sealant specified, including those referencing ASTM C920 classifications for type, grade, class, and uses related to exposure and joint substrates.
 - 1. Suitability for Immersion in Liquids. Where sealants are indicated for Use I for joints that will be continuously immersed in liquids, provide products that have

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undergone testing according to ASTM C 1247. Liquid used for testing sealants is deionized water, unless otherwise indicated.

- C. Stain-Test-Response Characteristics: Where sealants are specified to be non-staining to porous substrates, provide products that have undergone testing according to ASTM C 1248 and have not stained porous joint substrates indicated for Project.
- D. Suitability for Contact with Food: Where sealants are indicated for joints that will come in repeated contact with food, provide products that comply with 21 CFR 177.2600.
- E. Colors:
 - 1. General:
 - a. Architect will provide color selections and locations for each sealant type and for Contractor's use.
 - b. Not all locations will have the same color.
 - c. Custom colors **[will]** **[may]** be required.
 - 2. Provide color of exposed joint sealants to comply with the following:
 - a. Provide colors matching selections made by Architect from manufacturer's full range of colors for products of type indicated.
 - b. Request color selection for exposed products listed without a preselected color.

2.3 SILICONE JOINT SEALANTS

- A. Single-Component, Nonsag, Neutral-Curing Silicone Joint Sealant: ASTM C920, Type S, Grade NS, Class 100 / 50, for Use NT.
 - 1. Products: The following, or equal:
 - a. The Dow Chemical Company; "DOWSIL" 790.
 - b. Sika Corporation, Construction Products Division; "Sikasil" WS-290.
- B. Single-Component, Nonsag, Neutral-Curing Silicone Joint Sealant: ASTM C920, Type S, Grade NS, Class 50, for Use NT.
 - 1. Products: The following, or equal:
 - a. Dow Corning Corporation; "DOWSIL 795 Building Sealant".
 - b. Sika Corporation, Construction Products Division; "Sikasil WS-295."
- C. Single-Component, Nonsag, Non-Bleed, Neutral-Curing Silicone Joint Sealant: ASTM C920, Type S, Grade NS, Class 50, for Use G, M, A and O.
 - 1. Products: The following, or equal:
 - a. The Dow Chemical Company; "DOWSIL 756 SMS."
 - b. Momentive Performance Materials; "SCS9000 SilPruf NB."

- D. Single-Component, Nonsag, One Part RTV Neutral-Curing Silicone Joint Sealant: ASTM C920, Type S, Grade NS, Class 25, designed for adhering to low energy surfaces common in sheet or peel and stick weather resistant barriers.
 - 1. Products: The following, or equal:
 - a. The Dow Chemical Company; "DOWSIL" 758.
 - b. Sika Corporation, Construction Products Division; "Sikasil-N Plus."
- E. Mildew-Resistant, Single-Component, Acid-Curing Silicone Joint Sealant: ASTM C920, Type S, Grade NS, Class 25, for Use NT, A and O.
 - 1. Products: The following, or equal:
 - a. The Dow Chemical Company; "DOWSIL 786 Mildew Resistant."
 - b. Momentive Performance Materials; GE Silicones "Sanitary SCS1700."

2.4 URETHANE JOINT SEALANTS

- A. Single-Component, Nonsag, Urethane Joint Sealant: ASTM C920, Type S, Grade NS, Class 35, for Use NT.
 - 1. Products: The following, or equal:
 - a. BASF Master Builders Solutions; "MasterSeal NP 1."
 - b. Sika Corporation, Construction Products Division; "Sikaflex-1a."
- B. Multicomponent, Nonsag, Urethane Joint Sealant: ASTM C920, Type M, Grade NS, Class 25, for Use NT, M, A and O.
 - 1. Products: The following, or equal:
 - a. BASF Master Builders Solutions; "MasterSeal NP 2."
 - b. Sika Corporation, Construction Products Division; "Sikaflex-2c NS."
- C. Multicomponent Urethane Joint Sealant: ASTM C920; self-leveling, Type M, Grade P, Class 25, Uses T, M, A, O, and approved by manufacturer for wide joints up to 1-1/2 inches.
 - 1. Products: The following or equal:
 - a. BASF Master Builders Solutions; "MasterSeal SL 2."
 - b. Sika Corporation, Construction Products Division; "Sikaflex 2c SL."

2.5 BUTYL JOINT SEALANTS

- A. Butyl-Rubber-Based Joint Sealants: ASTM C1311 and FS TT-S-001657, Type I.
 - 1. Products: The following, or equal:
 - a. Bostik, Inc.; "Chem-Calk 300."
 - b. Pecora Corporation; "BC-158."

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2.6 ACRYLIC LATEX JOINT SEALANTS

- A. Latex Joint Sealant: Acrylic latex or siliconized acrylic latex, nonsag, paintable, nonstaining. ASTM C 834, Type OP, Grade NF.
 - 1. Products: The following, or equal:
 - a. Pecora Corporation; "AC-20."
 - b. Sherwin Williams; 950A.

2.7 ACOUSTICAL JOINT SEALANTS

- A. Acoustical Sealant; ASTM C834, nonsag, paintable, nonstaining latex sealant. Effectively reduce airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E90.
 - 1. Products: The following, or equal:
 - a. Pecora Corporation; "AC-20" or "AC-20 FTR" (Fire and Temperature Rated).
 - b. United States Gypsum Company: USG "Sheetrock Acoustical Sealant,"

2.8 JOINT SEALANT BACKING

- A. General: Provide sealant backings of material and type that are nonstaining; are compatible with joint substrates, sealants, primers and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
- B. Cylindrical Sealant Backer Rods: Compressible, non-gassing rod-stock complying with ASTM C1330; polyethylene-jacketed polyurethane foam; butyl-rubber foam; neoprene foam; or other flexible, permanent, durable, non-absorptive closed-cell (Type C), open cell (Type O), or bi-cellular material (Type B) and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.
 - 1. Open cell rods shall not be used at sealant joints for horizontal surfaces.
 - 2. Closed cell rods shall not be used at double sealant joints.
- C. Bond-Breaker Tape: Polyethylene tape or other plastic tape as recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

2.9 SEALANT ACCESSORIES AND ADDITIONAL MATERIALS

- A. Primer: Material recommended by joint sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint sealant-substrate tests **[and field tests]**.
- B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable

of staining or harming in any way joint substrates and adjacent nonporous surfaces, and formulated to promote optimum adhesion of sealants with joint substrates.

- C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.
- D. Spall Repair Mortar: Two-component structural epoxy binder and sand aggregate, producing a mortar that is easily worked and troweled. Early-set system designed specifically for the repair of industrial concrete floors subject to hard wheeled traffic. Compatible with joint filler and recommended by the joint filler manufacturer in writing.
 - 1. Products: The following, or equal:
 - a. Metzger/McGuire: "Armor-Hard."

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint sealant performance. Do not proceed with installation of joint sealants until unsatisfactory conditions have been corrected.
- B. Commencement of work indicates acceptance of substrates.

3.2 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with recommendations of joint sealant manufacturer and the following requirements:
 - 1. Remove foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
 - 2. Clean concrete, masonry, unglazed surfaces of ceramic tile, and similar porous joint substrate surfaces by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining from above cleaning operations by vacuuming or blowing out joints with oil-free compressed air.
 - 3. Remove laitance and form release agents from concrete.
 - 4. Clean metal, glass, porcelain enamel, glazed surfaces of ceramic tile, and other nonporous surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants.

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- B. Spall Repair: Repair spalled joints in concrete slabs to produce joints of profiles recommended by joint sealer manufacturers.
- C. Joint Priming:
 - 1. Prime joint substrates where indicated or where recommended by joint sealant manufacturer based on preconstruction joint sealant-substrate tests or prior experience.
 - 2. Apply primer to comply with joint sealant manufacturer's recommendations. Confine primers to areas of joint sealant bond; do not allow spillage or migration onto adjoining surfaces.
- D. Masking Tape:
 - 1. Use masking tape where required to prevent contact of sealant with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears.
 - 2. Remove tape immediately after tooling without disturbing joint seal.
- E. **[Remove sealant and prepare joints in existing exterior locations as directed by representative of sealant manufacturer specified in this work.]**

3.3 INSTALLATION OF JOINT SEALANTS

- A. General:
 - 1. Comply with joint sealant manufacturer's printed installation instructions applicable to products and applications indicated, except where more stringent requirements apply.
 - 2. Seal around penetrations, holes, gaps, surface mounted fixtures and pipes entering building including light fixtures, mounting brackets and other similar items.
- B. Sealant Installation Standard: Comply with recommendations of ASTM C1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
- C. Joint Sealants at Building Exterior and Interior:
 - 1. Seal the following joints with joint sealant:
 - a. Expansion and control joints in exterior walls, copings, parapets.
 - b. Joints between metal panels.
 - c. Joints between door and window frames and adjacent materials.
 - d. Joints between cabinets and countertops and walls.
 - e. Control joints in interior partitions, including portion above ceilings.
 - f. Expansion and control joints in solid exterior soffits.
 - g. Control joints in interior ceilings and soffits.
 - 2. Apply continuous bead of joint sealant in the following locations during installation of materials specified elsewhere:

- a. In lap joints of sheet metal construction.
 - b. Roofing panels and roof-related sheet metal and flashing.
 - c. Between partition floor and ceiling tracks and adjacent construction.
 - d. Between end stud of partition and adjacent construction.
 - e. Under door sills and thresholds.
 - 1) Set sills and thresholds in continuous double bead of sealant.
 - 2) Provide sealant at butt ends of thresholds against door frame, around door frame and between threshold and resilient floor covering.
 - 3. Apply acoustic sealant at acoustic separations to make assembly airtight.
 - a. Seal perimeter and intersections of finish.
 - b. Seal around electrical boxes and other penetrations of finish; seal holes within electrical boxes; seal conduit ends.
 - c. Seal pipes which penetrate acoustic separations.
 - 4. Apply joint sealant at joints not specifically mentioned above which require sealant to meet the performance criteria cited in this Section.
- D. Installation of Sealant Backer Rods: Install sealant backer rods to comply with the following requirements:
- 1. Install joint fillers of type indicated to provide support of sealants during application and at position required to produce the cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
 - a. Do not leave gaps between ends of joint fillers.
 - b. Do not stretch, twist, puncture, or tear joint fillers.
 - c. Remove absorbent joint fillers that have become wet prior to sealant application and replace with dry material.
 - 2. Install bond breaker tape between sealants where backer rods are not used between sealants and joint fillers or back of joints.
- E. Sealant Installation:
- 1. Install sealants by proven techniques that result in sealants directly contacting and fully wetting joint substrates, completely filling recesses provided for each joint configuration, and providing uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
 - 2. Install sealants at the same time sealant backings are installed.
- F. Tooling of Nonsag Sealants:
- 1. Immediately after sealant application and prior to time skinning or curing begins, tool sealants to form smooth, uniform beads of configuration indicated, to eliminate air pockets, and to ensure contact and adhesion of sealant with sides of joint. Remove excess sealants from surfaces adjacent to joint.
 - 2. Do not use tooling agents that discolor sealants or adjacent surfaces or are not approved by sealant manufacturer.

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3. Profiles:
 - a. Provide concave joint configuration in accordance with Figure 8A in ASTM C1193, unless otherwise indicated.
 - b. Provide flush joint configuration in accordance with Figure 8B in ASTM C1193, where indicated.
 - c. Provide recessed joint configuration in accordance with Figure 8C in ASTM C1193, of recess depth and at locations indicated.
 - 1) Use masking tape to protect adjacent surfaces of recessed tooled joints.

G. Joint Fillers in Refrigerated Rooms:

1. Apply joint filler only after rooms have been brought down to the final temperature for five calendar days.
2. Provide supplemental heat and dual dispensing system as required to apply in strict accordance with the manufacturer's directions.

3.4 SOUND ISOLATION

A. General:

1. At sound-rated assemblies and elsewhere as indicated, seal construction at perimeters, behind control joints, and at openings and penetrations with a continuous bead of acoustical sealant.
2. Install acoustical sealant at both faces of partitions at perimeters and through penetrations.
3. Comply with ASTM C919 and with manufacturer's written recommendations.
4. Sound-insulated partitions and floor/ceiling assemblies are indicated on the Drawings.

B. Intersections: Hold gypsum board back a maximum of 1/4 inch from intersecting gypsum board with floor or other surfaces, and apply a bead of acoustical sealant. Caulk void full and airtight with acoustical sealant.

C. Penetrations:

1. Penetrations by conduits, ducts, pipes, and around electrical junction boxes shall be sealed airtight.
2. Holes smaller than 1 inch but too large to seal with sealant shall first be packed with mineral fiber and then sealed airtight.
3. Holes larger than 1 inch shall first be packed with glass or mineral fiber, then sealed over with acoustical putty pads, and then sealed airtight.
4. Backs of electrical junction boxes in acoustically rated construction shall be sealed airtight with specified pads.

D. Install pipe isolation system wherever a pipe penetrates a stud or framing member.

E. Coordinate sealing with requirements of Section 09 2900, Gypsum Board.

- F. Where sound-insulated walls are fire rated, follow requirements of Section 07 8413, Penetration Firestopping.
- G. Prior to closing walls, obtain Project Inspector's and Architect's observation of insulation installation.

3.5 DEFECTIVE WORK

- A. Repair damaged and defective work and eliminate functional and visual defects. Where repair is not possible replace work. Adjust joints for uniform appearance.
- B. Cut out and remove damaged or deteriorated joint sealants immediately so that and installations with repaired areas are indistinguishable from original work.

3.6 CLEANING AND PROTECTION

- A. Clean off excess sealants or sealant smears adjacent to joints as work progresses by methods and with cleaning materials approved by manufacturers of joint sealants and of products in which joints occur.
- B. Clean excess adhesive from exposed surfaces of neoprene compression seal with solvent cleaner as recommended by manufacturer.
- C. Protect joint sealants during and after curing period from contact with contaminating substances or from damage resulting from construction operations or other causes so that they are without deterioration or damage at time of Substantial Completion.

3.7 SEALANT SCHEDULE

- A. General:
 - 1. Joints in construction between interior and exterior spaces and other designated or required locations to provide effective barrier against passage of elements:
 - a. Multicomponent, Nonsag, Urethane Joint Sealant: ASTM C920, Type M, Grade NS, Class 25, for Use NT, M, A and O.
 - b. Single-Component, Nonsag, Urethane Joint Sealant: ASTM C920, Type S, Grade NS, Class 25, for Use NT.
 - 2. Specialty perimeters where required for appearance or weather tightness:
 - a. Multicomponent, Nonsag, Urethane Joint Sealant: ASTM C920, Type M, Grade NS, Class 25, for Use NT, M, A and O; capable of 50 percent extension and compression movement.
 - b. Single-Component, Nonsag, Urethane Joint Sealant: ASTM C920, Type S, Grade NS, Class 35, for Use NT.
 - c. Single-Component, Nonsag, Neutral-Curing Silicone Joint Sealant: ASTM C920, Type S, Grade NS, Class 50, for Use NT.
 - d. Single-Component, Nonsag, Neutral-Curing Silicone Joint Sealant: ASTM C920, Type S, Grade NS, Class 100 / 50, for Use NT.
- B. Exterior Locations:

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1. Joints Bordered by Glass: Single-component, nonsag, neutral-curing silicone joint sealant, ASTM C920, Type S, Grade NS, Class 50, for Use NT.
 2. Joints Bordered by Plastic: Single-component, nonsag, neutral-curing silicone joint sealant, ASTM C920, Type S, Grade NS, Class 100 / 50, for Use NT.
 3. Horizontal Joints in Exterior Walks Abutting Building Walls, Interior Concrete Floors: Multicomponent urethane sealant, self-leveling; ASTM C920, Grade P, Class 25, Uses T, M and A.
 - a. Where walks abut structural slabs or stoops.
 - b. Where walks abut exterior wall of buildings.
 - c. Where exposed interior concrete slabs abut vertical surfaces.
 - d. Where sealant is shown on the Drawings for concrete slabs.
 4. Membrane Roofing Sealants: Types recommended by roofing manufacturer and complying with requirements of this Section.
 5. Steep Slope Roofing Sealants: Types recommended by roofing manufacturer and complying with requirements of this Section.
 6. Sheet Metal and Roof Accessory Sealants: Types recommended by roofing manufacturer and complying with requirements of this Section.
 7. Exterior Sheet Metal Lap Joints: Types recommended by manufacturer and complying with requirements of this Section.
 8. Joints Between Concrete Panels, and Between Concrete Panels and Other Work: Single-component, nonsag, neutral-curing silicone joint sealant, ASTM C920, Type S, Grade NS, Class 100 / 50, for Use NT and formulated to reduce or eliminate dirt pickup, surface streaking, and substrate staining.
 9. Exterior Metal Panel Butt Joints and Trim: Types recommended by manufacturer and complying with requirements of this Section.
 10. Sills and Thresholds: Butyl-rubber-based joint sealants, ASTM C1311.
 11. All Other Exterior Joints:
 - a. Single-component, nonsag, neutral-curing silicone joint sealant, ASTM C920, Type S, Grade NS, Class 100 / 50, for Use NT.
 - b. Single-component, nonsag, neutral-curing silicone joint sealant, ASTM C920, Type S, Grade NS, Class 50, for Use NT.
 - c. Around perimeters of frames where door, window and louver frames abut concrete, masonry or other building materials.
 - d. Expansion and control joints in masonry.
 - e. Masonry at dissimilar material or at dissimilar masonry.
 - f. Miscellaneous locations where sealant is shown on Drawings.
- C. Interior Locations:
1. Expansion and Control Joints:
 - a. Multicomponent, Nonsag, Urethane Joint Sealant: ASTM C920, Type M, Grade NS, Class 25, for Use NT, M, A and O.
 - b. Single-Component, Nonsag, Urethane Joint Sealant: ASTM C920, Type S, Grade NS, Class 35, for Use NT.

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- c. Around perimeters of frames where door, window and louver frames abut concrete, masonry or other building materials.
 - d. Expansion and control joints in masonry walls.
 - e. Masonry at dissimilar material or at dissimilar masonry.
 - f. At miscellaneous locations where sealant is shown on Drawings.
- 2. Sills and Thresholds : Butyl-Rubber-based joint sealants, ASTM C1311.
 - 3. Interior Concrete Slabs on Grade:
 - a. Warehouse Slabs, Subject to Wheeled Traffic: Two-component, 100 percent solids content epoxy joint filler.
 - b. Refrigerated Room Slabs: Two-component, 100 percent solids content polyurea elastomer joint filler.
 - c. All Other Locations: Urethane, self-leveling; ASTM C920, Grade P, Class 25, Uses T, M and A; single component.
 - 4. Interior Wet Areas, Around Plumbing Fixtures, Countertops Abutting Walls, Food Service Applications: Mildew-resistant, single-component, acid-curing silicone joint sealant, ASTM C920, Type S, Grade NS, Class 25, for Use NT, A and O.
 - 5. Interior Static Dry Joints as Required to Dress Appearance: Acrylic latex or siliconized acrylic latex joint sealant, ASTM C 834, Type OP, Grade NF
 - 6. Sound Control Applications: Acoustical Sealant, ASTM C 834
 - a. Where Required for Sound Control with Limited Flame Spread: Acoustical sealant, ASTM C 834, fire-rated type.
 - 7. Interior Concrete Slab Floors of Generator or Fuel Storage Tank Rooms (On-Grade or Suspended): Fuel Resistant Traffic Sealants.
 - 8. Interior Tilt-Up Concrete Vertical Joints, Non-Wet Locations: Acrylic latex or siliconized acrylic latex sealant, nonsag, paintable, nonstaining, ASTM C 834, Type OP, Grade NF.
 - 9. Interior Tilt-Up Concrete Vertical Joints, Wet locations: Mildew-resistant, single-component, acid-curing silicone joint sealant, ASTM C920, Type S, Grade NS, Class 25, for Use NT, A and O.

END OF SECTION

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PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Gypsum board, including finishing.
 - 2. Metal accessories.
 - 3. Fiberboard backing panel for field-fabricated fabric-wrapped wall panels.

1.2 RELATED REQUIREMENTS

- A. Section 01 6116, Volatile Organic Compound (VOC) Restrictions; for VOC limits pertaining to adhesives, sealants, fillers, primers, and coatings.
- B. Section 01 8113, Sustainable Design Requirements, for CAL-Green general requirements and procedures.
- C. Section 07 9200, Joint Sealants.
- D. Section 09 9100, Painting.
- E. Division 26, Related Electrical Work.

1.3 REFERENCES AND STANDARDS

- A. California Building Code (CBC), edition as noted on drawings, as adopted by the California Division of the State Architect (DSA).
- B. California Green Building Standards Code (CAL Green), edition as noted on drawings, as adopted by the California Division of the State Architect (DSA).
- C. ASTM International (ASTM):
 - 1. C11: Standard Terminology Relating to Gypsum and related Building Materials and Systems.
 - 2. C473: Standard Test Methods for Physical Testing of Gypsum Panel Products.
 - 3. C475/C475M: Specification for Joint Treatment Materials for Gypsum Wallboard Construction.
 - 4. C557: Specification for Adhesives for Fastening Gypsum Wallboard to Wood Framing.
 - 5. C840: Standard Specification for Application and Finish of Gypsum Board.
 - 6. C1047: Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base.
 - 7. C1177/C1177M: Specification for Joint Treatment Materials for Gypsum Wallboard Construction.
 - 8. C1396: "Specification for Gypsum Board.

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9. C1629/C1629M: Standard Classification for Abuse-Resistant Nondecorated Interior Gypsum Panel Products and Fiber-Reinforced Cement Panels.
10. D3273: Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber.
11. E84: Standard Test Method for Surface Burning Characteristics of Building Materials.
12. E119: Method for Fire Tests of Building Construction and Materials.

D. Gypsum Association (GA):

1. GA-600: Gypsum Fire Resistance Design Manual.
2. GA-214: Recommended Levels of Finish for Gypsum Board, Glass Mat & Fiber-Reinforced Gypsum Panels.
3. GA-216: Application and Finishing of Gypsum Panel Products.

E. Underwriters Laboratories (UL): Fire Resistance Directory.

1.4 DEFINITIONS

- A. Gypsum Board Construction Terminology: Refer to ASTM C11 for definitions of terms for gypsum board construction not defined in this Section or in other referenced standards.

1.5 ADMINISTRATIVE REQUIREMENTS

A. Submittal Procedures:

1. Action Submittals and Informational Submittals shall be submitted in accordance with Section 01 3300, Submittal Procedures.
2. Closeout Submittals shall be submitted in accordance with Section 01 7700, Closeout Procedures.
3. Sustainable Design Submittals shall comply with the additional requirement of Section 01 8113, Sustainable Design Requirements.

- B. Coordinate work to avoid delays and interference with work of mechanical, electrical and other trades.

1.6 ACTION SUBMITTALS

- A. Product Data: Submit list and complete descriptive data of all products proposed for use. Include manufacturer's specifications, published warranty or guarantee, installation instructions, and maintenance instructions.
- B. Samples: Submit sample for each type of finish texture to Architect for review.

1.7 INFORMATIONAL SUBMITTALS

- A. Sustainable Design:

1. General:
 - a. Submit information necessary to establish and document compliance with the California Green Building Standards Code.
 - b. Sustainable design submittals are in addition to other submittals.
 2. The following information shall be provided:
 - a. Adhesives and Sealants: Evidence of compliance that products meet maximum VOC content limits specified in Section 01 6116.
 - b. Paints and Coatings: Evidence of compliance that products meet maximum VOC content limits specified in Section 01 6116.
- B. Statement of installer qualifications, if requested by Architect.

1.8 QUALITY ASSURANCE

- A. Use only new materials and products.
- B. Use materials and products of one manufacturer whenever possible.
- C. Materials, components, assemblies, workmanship and installation are to be observed by the Owner's Project Inspector. Work not so inspected is subject to uncovering and replacement.
- D. Workmanship shall be of highest quality. Joints, corners, screws and nail heads shall be finished with long tapered finish, smooth and even in texture. Surfaces shall be prepared to receive paint finish.

1.9 DELIVERY, STORAGE AND HANDLING

- A. Deliver undamaged products to job in manufacturer's sealed containers and/or original bundles with tags and labels intact.
- B. Store materials in protected, dry conditions off of ground and in areas so as to not interfere with the progress of the work.
- C. Transport, store and handle in strict accord with the manufacturer's written recommendations. Materials are to be neatly stacked flat, avoiding undue sag or damaged to board surfaces or edges.

1.10 FIELD CONDITIONS

- A. Do not install wallboard or joint compounds when building temperature is below 55 degrees F or if proper ventilation is not provided to eliminate excessive moisture from building.

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PART 2 - PRODUCTS

2.1 DESIGN AND PERFORMANCE CRITERIA

- A. Fire-Resistance-Rated Assemblies: For fire-resistance-rated assemblies, provide materials and install wallboard assembly identical to those tested in assembly indicated according to ASTM E119 by an independent testing agency.
- B. Sustainable Design:
 - 1. VOC emissions for field-applied adhesives, sealants, and sealant primers must comply with limits specified in Section 01 6116.
 - 2. VOC emissions for field-applied paints and coatings must comply with limits specified in Section 01 6116.

2.2 INTERIOR GYPSUM BOARD PANELS

- A. Gypsum Wallboard: ASTM C1396 Type "X" fire rated with UL label; USG "Sheetrock Firecode," Georgia-Pacific "Fireguard Gypsum Board Type X", National Gypsum "Board Gold Bond Fire-Shield," or equal.
 - 1. Thickness: 5/8 inch unless otherwise shown.
 - 2. Long Edges: Tapered and featured (rounded or beveled) for prefilling.
 - 3. Locations of Use: Walls except as otherwise noted.
- B. Moisture and Mold-Resistant Gypsum Wallboard: ASTM C1396 Type "X" fire rated with UL label; USG "Sheetrock Mold Tough Firecode Core," or equal.
 - 1. Thickness: 5/8 inch unless otherwise shown.
 - 2. Long Edges: Tapered and featured (rounded or beveled) for prefilling.
 - 3. Mold Resistance: 10 on scale of 10 when tested in accordance with ASTM D3273.
 - 4. Moisture Resistance: The average water absorption for panels shall not exceed 5 percent by weight after two-hour immersion when tested in accordance with ASTM C473.
 - 5. Locations of Use:
 - a. Walls at restrooms, shower rooms, toilet rooms, locker rooms, janitor closets, kitchens, where wall will receive FRP finish, and other locations as shown.
 - b. Do not use behind ceramic tile.
 - c. See Section 09 3000, Tiling, for ceramic tile backing.
 - 6. Limitations:
 - a. Avoid exposure to sustained temperatures exceeding 125 degrees F.
 - b. Avoid exposure to excessive, repetitive or continuous moisture before, during and after installation. Eliminate sources of moisture immediately.
 - c. Not suitable for use as a substrate for tile in wet areas such as tubs and showers, gang showers and other areas subject to direct water exposure.

- C. Impact and Mold Resistant Gypsum Wallboard: ASTM C1629 and ASTM E119, Type "X" fire rated with UL label; USG "Mold Tough VHI Firecode Core Panels," National Gypsum "Hi-impact XP," and CertainTeed "AirRenew Extreme Impact with M2Tech," or equal.
1. Thickness: 5/8 inch unless otherwise shown.
 2. Long Edges: Tapered and featured (rounded or beveled) for prefilling.

2.3 ACCESSORIES

- A. Furring Channel, Screwable Type: 25 gage (minimum 0.0188 inches), cold-formed galvanized steel, hat shaped, 7/8 inch deep, with plain or knurled face to receive screws.
- B. Concealed Metal Accessories: Electrogalvanized, conforming to ASTM C1047.
1. Corner Beads: 1-1/4 inch x 1-1/4 inch Cornerbead by Clinch-On Cornerbead Company, or equal, size.
 2. Casing Bead: USG Series No. 200-B, or accepted qual.
 3. Exposed Edge Trim: USG Series No. 200-A with back flange or equal.
 4. Metal Furring Channels: USG Metal Furring Channels, Dale FC-7/8, Gold Bond Furring Channel or equal 7/8 inch deep x 1-1/4 inch face width resilient metal furring channel.
 5. Expansion Joint: USG No. 093 Control Joint, Gold Bond E-Z Expansion Joint, or equivalent product by Beadex, Domtar, or equal.
 6. Others as indicated on the Drawings and as recommended by reference standards.
- C. Exposed Reveals and Moldings:
1. Manufacturer: Fry Reglet Corp. as specified, or equal.
 2. Material: Extruded aluminum with manufacturer's factory-applied silicone polyester finish applied over conversion coating and primer.
 - a. Colors: White, unless otherwise noted.
 3. Profiles: .
- D. Fasteners:
1. Screws:
 - a. Gypsum wallboard to wood, use 1-1/4 inch length, bugle head. Second layer of gypsum wallboard to wood use 2 inch length.
 - b. Gypsum wallboard to metal studs or furring channels, use 1 inch length Hi-Lo type S, bugle head for 20 gauge or less and 1-1/8 inch length Hi-Lo type S, bugle head for studs greater than 20 gauge. Second layer of gypsum wallboard to metal studs or furring channels use 2 inch length.
 2. Other fastener types as required and recommended by gypsum wallboard manufacturer, applicable CBC requirements, and in accordance with the specified standards.

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3. Spacing shall be in accordance with the CBC.
- E. Joint System Materials: Conform to ASTM C475.
1. Tape: USG Sheetrock Brand Joint Tape, or equal.
 2. Joint compound: USG Sheetrock Brand Joint Compound - Taping, or equal.
 3. Joint finishing compound: USG Sheetrock Brand Joint Compound - Topping, or equal.
- F. Sealants:
1. Interior Wall Sealant: Highly elastic, water-based compound, non-bleeding, non-staining, pumpable and easily applied in beads, and specifically formulated for acoustical sealing; Tremco Acoustical Sealant, Presstite 579.64; or equal.
 2. Acoustical Sealants:
 - a. Non-Rated Conditions: USG "Sheetrock Acoustical Sealant," Tremco "Acoustical Sealant," Henry's "Sound Control Sealant" No. 413, or equal conforming to ASTM C919 or equivalent.
 - b. Fire-Rated Partition Perimeter Conditions: USG "Sheetrock Acoustical Sealant," Jaco "Fire and Draft Sealer," or equal.
- G. Adhesives:
1. Laminating Adhesive: As recommended by gypsum board manufacturer for laminating gypsum board together in fire-rated construction.
 2. Application to Wood Framing: Certified in accordance with ASTM C557.
 3. Adhesives shall comply with required VOC regulations.
- H. Primer/sealer: As specified in Section 09 9100, Painting.
- I. Spray-on Texture Coating: USG "Texture XII Drywall Surfacer," or equal.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Check framing for accurate spacing and alignment. Surfaces shall be checked for surface damage, defects or uneven walls. Uneven walls shall mean those that are not straight, plumb or of even true plane
- B. Verify that spacing of installed framing does not exceed maximum allowable for thickness of gypsum board to be used.
- C. Unacceptable conditions shall be corrected prior to application gypsum board.

3.2 INSTALLATION OF GYPSUM BOARD

- A. General: Comply with ASTM C840, GA-216, and CBC. Where UL designs are indicated on the Drawings for fire-rated partitions, comply with UL requirements, except where exceeded by other requirements.
- B. Board Arrangement Layout: Conform to layouts and requirements indicated; use long boards to restrict joints to minimum. Conditions met and not covered by the Drawings and Specifications shall be resolved in conformity with best practice of trade.
- C. Joints: Butt sheets loosely together with tapered edges always placed together (butt edges placed next to tapered edges are not permitted). Sand or kerf cut edges and mill ends to provide smooth jointing on exposed face. Stagger end joints. Shim wallboard on wood framing to get even joints without offsets.
- D. Fasteners: Place fasteners no less than 3/8 inch from edges of boards. Install fasteners with heads dimpled slightly below surface; do not cut through paper. Use crown face hammers for driving nails and approved power tools for self drilling screws. Fasten gypsum wallboard to bearings as follows:
 - 1. Ceilings, Non-rated: Screws 12 inches on center.
 - 2. Walls, Non-rated: Screws 12 inches on center.
 - 3. Ceilings, One-hour Rated: Base layer, screws 12 inches on center; Face layer, screws 8 inches on center.
 - 4. Walls, One-hour Rated: Screws 8 inches on center at edge bearings, 12 inches on center at field bearings.
- E. Ceilings: Place boards with long dimension at right angles to supports and end joint occurring over supports. On fire-rated ceilings butted end joints may be placed between supports and reinforced on upper side with 8 inch wide wallboard back up strips set in approved adhesive. Place perimeters of ceilings and edges of openings over solid bearing members.
- F. Partitions: Place boards with long dimensions either vertical or horizontal (but not combination of both) on studs. Stagger vertical joints on opposite sides of partitions. Locate joints at least 12 inches from jambs of openings. Keep end joints to minimum.
- G. Cutting and scribing: Cut neatly to fit around outlets, switch boxes and other protrusions, using keyhole saw or specially designed cutting tool for opening of exact shape and size needed.
- H. Trim: Edge exterior corners with specified bead set to true plumb line. Where board joins or abuts a material other than gypsum board, cover end of board with specified metal casing, leaving joint sufficient for installation of sealant. Attach trim with nails at wood studs at 9 inches on center each flange, and type S-12 screws at steel studs at 9 inch on center each flange. No clenching allowed.

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- I. Interior Wall Sealant: At interior partitions, use double bead of specified material. Install at floors, wall intersections, where walls abut other materials and at electrical boxes. Apply in accord with manufacturer's printed directions.
- J. Fixture Enclosures: Provide 1 hour enclosures of 5/8 inch thick UL labeled gypsum board around fixtures in one hour fire rating ceilings.
- K. Gypsum Board Inserts for Suspended Grid Ceiling: Cut gypsum board panels for snug fit in ceiling grid. Apply metal casing beads to all edges, mitered at corners, and deliver to painting contractor for painting before installation under Section 09 9100, Painting.

3.3 INSTALLATION OF SPECIALTY PANELS

- A. Fiberboard Base for Vinyl Wallcovering:
 - 1. Apply vertically.
 - 2. Glue and nail to gypsum board backing with 5d nails at 12 inches on center at supports with nails dimpled, leaving minimum 1/8 inch gap between boards.
 - 3. Fill gap between boards with hardening-type patching compound such as "Fixall" with maximum hardening time of 1-1/2 hours.
 - 4. Allow material to dry for 24 hours.
 - 5. Tape and finish joints and nail depressions as specified for gypsum board application, leaving surfaces ready for priming and application of vinyl wall covering.

3.4 INSTALLATION ON METAL FURRING CHANNELS

- A. Fasten metal channels to wall at 24 inches on center maximum.
 - 1. Position channels within 4 inches of floor and ceiling.
 - 2. Channel spacing not to exceed 24 inches on center.
 - 3. At concrete and CMU applications attach channels with Hilti X-GN PDF (power driven fastener), 0.118 shank diameter with 1 inch minimum embedment. Two fasteners within 3 inches each end and two rows at 32 inches on center, stagger 16 inches.
- B. Apply gypsum board to channels using 1 inch long Type S screws spaced 12 inches on center with horizontal abutting edges centered over clip screw flange.

3.5 INSTALLATION OF GYPSUM BOARD WITH ADHESIVE AT INTERIOR CONCRETE AND MASONRY WALLS

- A. Apply adhesive directly to the back of the gypsum board or on the wall in continuous beads not more than 12 inches on center or daubs spaced not exceeding 12 inches on center each way. Beads shall not be less than 3/8 inch in diameter to provide continuous bond between the gypsum board and the wall surface. Daubs shall be 2 inches to 3 inches in diameter.

- B. Gypsum board shall be positioned 1/8 inch from the floor and provide a tight fit at abutting edges or ends. Do not slide the gypsum board. Use mechanical fasteners or temporary bracing to support gypsum board until adhesive sets.
- C. Delay the joint treatment until the gypsum board is firmly bonded.

3.6 FINISHING

- A. Level of Finishes: In accordance with GA-214.
 - 1. General:
 - a. Finish joints, screw/nail heads or fastener depressions, applied metal trim and surface blemishes, applying tape and compounds in strict accord with manufacturer's printed directions.
 - b. Exposed wallboard shall be finished and sanded as necessary to provide flat, smooth surface ready for decoration and the Finish Levels noted below.
 - c. Primer/sealer, where indicated, is in addition to first coat of primer/sealer in Section 09 9100, Painting.
 - 2. Level 0 Finish: Provide for temporary construction barriers.
 - 3. Level 1 Finish: This finish level is not used on this project.
 - 4. Level 2 Finish: Provide where the gypsum wallboard will be covered by fiberboard base/tackboard panels or wall-fastened casework.
 - 5. Level 3 Finish: Provide for finishes with medium to heavy textures and at all exposed surfaces, except as otherwise specified. Provide one coat of drywall primer/sealer at prepared surfaces prior to application of final finish.
 - 6. Level 4 Finish: Provide for gypsum wallboard surfaces when light textures, wall coverings, or a smooth finish with stipple paint is specified, and as scheduled on the Drawings. Not to be used with gloss, semi-gloss, enamel, or non-textured flat paints. Provide one coat of drywall primer/sealer at prepared surfaces prior to application of final finish.
- B. Spray Texture Coat: Apply at exposed gypsum wall board and plaster surfaces not scheduled for a smooth finish.
 - 1. Unless otherwise specified or scheduled, apply the single-coat spray texture to all surfaces in a degree of texture approved by the Architect to match approved sample. No texture shall be applied until approved in writing by the Architect.
 - 2. Finish Texture: Spray texture shall be as follows, unless otherwise noted.
 - a. Walls: Medium texture, Level 3 finish required.
 - b. Ceilings: Medium texture, Level 3 finish required.

3.7 ADDITIONAL INSTALLATION REQUIREMENTS

- A. Accessories and Light Fixture Protection: Wherever accessories, panels and recessed light fixtures penetrate fire-rated gypsum wallboard, provide protection box assembly in accordance with UL specifications and as detailed to maintain integrity of rated wall/ceiling system.

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- B. Access Panels: Install where required for access to serviceable equipment. Refer to Section 08 3113, Access Doors and Frames, and Mechanical and Electrical work under Divisions 22, 23 and 26.
- C. Fill voids at wall/floor joints greater than 3/16 inch to provide solid backing for floor base.

3.8 PROTECTION

- A. Protect work and materials of this Section prior to and during installation and protect the installed work and materials of other trades.
- B. In the event of damage, immediately make all repairs and replacements necessary to the approval of the Architect at no additional cost to the Owner.

3.9 CLEAN-UP

- A. Remove all empty containers, scraps of material and all other debris, and leave premises broom clean. Clean all adjoining work spotted or otherwise defaced by this operation.

END OF SECTION

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Last Updated: March 26, 2021

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: Painting and painter's finish on all exposed exterior and interior surfaces, except prefinished items and unless otherwise noted, as required to complete finishing of the Work. The Work includes, but is not necessarily limited to, the following specific items:
1. Paint, stain or otherwise finish all new surfaces.
 2. Back priming of concealed surfaces, except as otherwise specified.
 3. Paint, repaint or finish of existing painted surfaces altered, defaced or damaged as a result of work of this Contract.
 4. Paint site items which are not prefinished, including posts, screens, panels, bollards, supports, rails and other similar improvements.
 5. Mechanical and plumbing vents on roof.
 6. Unpainted or unfinished exposed building components, pipes and conduit, including sprinkler piping, and metal ductwork, which run exposed across finished or painted surfaces.
 7. Painting work in rooms where finishing work is performed, including painting new surfaces as specified and re-painting existing surfaces within the room, unless otherwise indicated. Re-painting existing surfaces shall be with minimum of one coat using specified coatings compatible with existing.
- B. Surface treatment, priming and coats of paint specified in this Section are in addition to shop priming and surface treatment specified under other Sections unless otherwise noted.
- C. Items Not Included in This Section:
1. Factory and shop-prefinished items as specified in various Sections.
 2. Painting specified elsewhere and included in respective Sections, including but not necessarily limited to shop priming.

1.2 WORK NOT TO BE PAINTED UNLESS OTHERWISE INDICATED

- A. Exposed exterior concrete and concrete slab surfaces, except as noted.
- B. Unfinished masonry, except where noted.
- C. Suspended acoustical ceilings and acoustical tile, except as noted.
- D. Pre-finished casework and other factory and shop-prefinished items as specified in various Sections.
- E. Finish hardware except prime coated items.

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- F. Items typically not to be painted including, but not limited to, the following:
 - 1. Glass.
 - 2. Ceramic tile.
 - 3. Membrane roofing.
 - 4. Safety nosings.
 - 5. Resilient floor covering and base.
 - 6. Carpet.
 - 7. Pre-finished paneling.
 - 8. Plastic laminate.
 - 9. Porcelain enamel.
 - 10. Vinyl wallcovering, except where noted.
- G. Aluminum doors, windows, frames and railings.
- H. Metal or plastic toilet partitions.
- I. Items of chromium, copper, nickel, brass, bronze or stainless steel.
- J. Surfaces in concealed areas such as furred spaces.
- K. Tops of gravel stop flanges (including priming) where roofing material will be adhered to.
- L. Wall areas concealed by cases, counters, cabinets, chalkboards, tackboards (prime coat only required).
- M. Piping or conduit including brackets and similar items therewith running on or across unpainted or otherwise unfinished walls or ceilings.
- N. Galvanized gratings, recessed foot grilles, and thresholds.
- O. Structural steel scheduled to receive fireproofing.

1.3 RELATED REQUIREMENTS

- A. Section 01 6116, Volatile Organic Compound (VOC) Restrictions; for VOC limits pertaining to adhesives, sealants, fillers, primers, and coatings.
- B. Section 01 8113, Sustainable Design Requirements, for CAL-Green general requirements and procedures.
- C. Section 07 6200, Sheet Metal Flashing and Trim.
- D. Section 07 9200, Joint Sealants.
- E. Section 09 2900, Gypsum Board.
- F. Divisions 22, 23 and 26, Exposed piping, ductwork and conduit.

1.4 REFERENCES AND STANDARDS

- A. California Building Code (CBC), edition as noted on the Drawings, as adopted by the California Division of the State Architect (DSA).
- B. California Green Building Standards Code (CAL Green), edition as noted on the Drawings, as adopted by the California Division of the State Architect (DSA).
- C. ASTM International (ASTM):
 - 1. D523: Standard Test Method for Specular Gloss.
 - 2. D4263: Standard Test Method for Indicating Moisture in Concrete by the Plastic Sheet Method.
 - 3. D6386: Standard Practice for Preparation of Zinc (Hot-Dip Galvanized) Coated Iron and Steel Product and Hardware Surfaces for Painting.
 - 4. D7396: Standard Guide for Preparation of New, Continuous Zinc-Coated (Galvanized) Steel Surfaces for Painting.
- D. Master Painters Institute (MPI):
 - 1. Architectural Painting Manual Guide Specification.
- E. The Association for Materials Protection and Performance (AMPP):
 - 1. SSPC-Society for Protective Coatings/ National Association of Corrosion Engineers International (NACE):
 - a. SSPC-SP 1: Solvent Cleaning.
 - b. SSPC SP-10/NACE No. 2: Near-White Metal Blast Cleaning.
 - c. SSPC-SP 16: Brush-Off Blast Cleaning of Coated and Uncoated Galvanized Steel, Stainless Steels, and Non-Ferrous Metals.

1.5 ADMINISTRATIVE REQUIREMENTS

- A. Submittal Procedures:
 - 1. Action Submittals and Informational Submittals shall be submitted in accordance with Section 01 3300, Submittal Procedures.
 - 2. Closeout Submittals shall be submitted in accordance with Section 01 7700, Closeout Procedures.
 - 3. Sustainable Design Submittals shall comply with the additional requirement of Section 01 8113, Sustainable Design Requirements.

1.6 ACTION SUBMITTALS

- A. Product Data: Submit list and complete descriptive data of products proposed for use. Include manufacturer's specifications, published warranty or guarantee, and application instructions. Cross-reference to paint system and locations of application areas.
- B. Samples:

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1. Appropriately label and identify each sample, including location and application. Include **[Architect's number as scheduled on the Drawings,]** manufacturer's name, color number, and gloss units.
2. Prepare on 8 inch x 10 inch card stock for selected colors and finishes.
3. Submit sufficiently ahead of work progress to allow for color board assembly and distribution.
4. Resubmit as requested until required sheen, color, and texture are approved.

1.7 INFORMATIONAL SUBMITTALS

- A. Statement of applicator qualifications.
- B. Sustainable Design:
 1. General:
 - a. Submit information necessary to establish and document compliance with the California Green Building Standards Code.
 - b. Sustainable design submittals are in addition to other submittals.
 2. The following information shall be provided:
 - a. Paints and Coatings: Evidence of compliance that products meet maximum VOC content limits specified in Section 01 6116.

1.8 CLOSEOUT SUBMITTALS

- A. Guarantee: Submit Subcontractor's guarantee.

1.9 MAINTENANCE MATERIAL SUBMITTALS

- A. At completion of the Work, deliver to Owner extra stock of paint of each color used in each coating material used.
- B. Containers shall be full, tightly sealed, and clearly marked.
- C. Provide the following quantities:
 1. Field Colors: 1 five-gallon container.
 2. Accent Colors: 1 one-gallon container.

1.10 QUALITY ASSURANCE

- A. Use only new materials and products.
- B. Single-Source Responsibility:
 1. To the maximum extent practicable, select a single manufacturer to provide all materials required by this Section, using additional manufacturers to provide systems not offered by the selected principal manufacturer.
 2. For each individual system:

- a. Provide primer and other undercoat paint produced by same manufacturer as finish coat.
 - b. Use thinner within manufacturer's recommended limits.
- C. Source Quality Control: Material shall be best grade products of type specified and listed below as regularly manufactured by these manufacturers. Materials not bearing manufacturer's identification as standard "best grade product" of their regular line will not be considered for use.
- D. Materials, components, assemblies, workmanship and installation are to be observed by the Owner's Project Inspector. Work not so inspected is subject to uncovering and replacement.
- E. Materials and application procedures shall comply with local, state and federal air pollution control regulations.
- F. Manufacturer's representative from coating supplier shall visit the site prior to application to review and approve the specified systems. Discrepancies or recommended changes shall be submitted to the Architect for consideration prior to finalization of submittal.
- G. Site Application Mockup:
 - 1. Prior to ordering materials and unless waived by the Architect in writing, the Contractor shall provide large scale mockup areas for all colors, both interior and exterior, directly applied to the building for final color approval by the Architect.
 - 2. Minimum Size:
 - a. Ceiling Areas: Finish a panel 10 feet square.
 - b. Wall Areas: Finish a panel 8 feet long by full height of wall.
 - c. Finish a portion of other items as directed by Architect.
 - 3. Provide up to 2 adjustments at no extra cost to the Owner.
 - 4. Paint shall not be ordered or applied until such large scale sample(s) have been reviewed and approved by the Architect in writing. These requirements as described herein may be waived by the Architect in writing only.

1.11 DELIVERY, STORAGE AND HANDLING

- A. Deliver undamaged products to job in manufacturer's sealed containers and/or original bundles with tags and labels intact.
- B. Store materials in protected, clean, dry conditions off of ground and in areas which will not interfere with the progress of the Work.
- C. Transport, store and handle in strict accordance with the manufacturer's written recommendations and as specified below.
- D. Remove paint-soiled rags and waste from premises at end of each day's work or store in metal containers with metal covers.

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- E. Paint stored at site, shall be in separate structure not less than 60 feet from any other building or structure. Remove empty containers and soiled rags as they accumulate. At completion, remove structure, cleanup area, and leave in original condition.

1.12 FIELD CONDITIONS

- A. Do not apply paints and coatings under conditions which jeopardize quality or appearance of painting or finishing.
- B. Cover or otherwise protect finished work of other trades and surfaces not being painted concurrently or not to be painted.
- C. Exterior:
 - 1. Comply with manufacturer's recommendations as to environmental conditions under which coatings and coating systems can be stored and applied.
 - 2. Do not apply exterior paint when air or surface temperature is under 50 degrees F or when air or surface temperature will be below 50 degrees F for 48 hours after painting.
 - 3. Do not apply immediately following snow, rain, dew or during foggy weather.
 - 4. Do not apply when temperature is over 85 degrees F except in protected or shaded areas.
- D. Interior:
 - 1. Do not apply interior paint when air or surface temperature is below 50 degrees F unless temperature is maintained constantly.
 - 2. Do not apply when ventilation is inadequate to maintain humidity lower than dew point of coldest wall.
- E. Use moisture meter for determining proper moisture levels of surfaces for painting.
- F. Report to Architect in writing upon discovery of any prime coat painting specified in other Sections of Specifications that would prevent proper application of specified finish.
- G. Furnish, erect and remove scaffolding and planks required for work under this Section. Conform to state and local codes, rules and regulations.

1.13 EXISTING CONDITIONS

- A. Existing Surfaces:
 - 1. Paint or otherwise finish all existing surfaces as indicated or scheduled on the Drawings.
 - 2. Work includes primer, paint, repaint or finish of existing painted surfaces altered, defaced or damaged as a result of work under this Contract.
- B. Existing surfaces to be painted include:
 - 1. Exterior wall surfaces, including fascia, trim.

2. Soffits and exterior ceilings including exposed roof framing.
3. Doors and frames, both wood and metal.
4. Window frames, trim and solid infill panels except unpainted or prefinished aluminum.
5. Exposed conduit, piping, brackets, supports, and similar metal fabrications.
6. Downspouts and gutters.
7. Parapet caps and exposed flashings.
8. Mechanical well walls, all surfaces.
9. Concrete foundation where exposed below painted wall surfaces.
10. Roll-up doors and frames.
11. Closure panels between relocatable buildings.
12. Enclosure walls, screen walls, equipment yards.
13. Other work as shown on the Drawings, specified, or as required for a complete Project.

1.14 GUARANTEE

- A. Contractor: Under conditions of its Guarantee under the Contract, paint colors shall be substantially unchanged and finishes shall maintain their original adherence without showing blisters, flaking, peeling, scaling, staining or unusual deterioration or other defects.

PART 2 - PRODUCTS

2.1 DESIGN AND PERFORMANCE CRITERIA

- A. Sustainable Design:
 1. VOC emissions for field-applied paints and coatings must comply with limits specified in Section 01 6116.

2.2 MANUFACTURERS AND COATING PRODUCTS

- A. Products are specified under "Paint Systems" in Part 3 below and are manufactured by Kelly-Moore, except as otherwise indicated. Equivalent products to those scheduled manufactured by Sherwin-Williams, PPG Architectural Finishes, Glidden Professional, Benjamin Moore & Co., Dunn-Edwards, Vista, or equal, are acceptable.
- B. Materials selected for coating systems for each type surface shall be the product of a single manufacturer or shall be acceptable to manufacturer of finish coating for system.
- C. If more than one quality level of product type is marketed, use material of highest quality.

2.3 MIXING AND TINTING

- A. Deliver paints and stains ready mixed to jobsite. On-site color mixing or tinting will not be allowed.

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- B. Each kind of coating for paint finishes shall be factory-mixed to match approved samples, colors, and ready for immediate application.
- C. Mix proprietary products in strict accordance with manufacturer's printed directions.
- D. Thinning, if permitted by manufacturer for a specific coating, shall be in accordance with manufacturer's instructions. Thinning of other products shall be in accordance with standard practice.

2.4 COLORS

- A. Colors shall be as scheduled on the Drawings.
- B. Architect will prepare a color schedule with samples for guidance of painter and reserves right to select, allocate, and vary colors on different surfaces throughout building.
 - 1. Colors selected by Architect may be from manufacturer's full range standard palette or be custom mixed.
 - 2. Unless otherwise indicated on the Drawings, different colors will be selected for different materials such as walls, trim, and doors.
- C. Colors to be selected by the Architect, or where scheduled on the Drawings, are solely for the purpose of conveying color information and do not imply manufacturer's approval or waiver of the requirement that all coatings be from the same manufacturer, unless a specific system is not available from the primary manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Prior to the work of this Section, carefully inspect and verify that the installed work of all other trades is complete to the point where this work may properly commence.
- B. Verify that painting may be performed in accordance with the approved design.
- C. In the event of discrepancy, immediately notify Architect. Do not proceed in discrepant areas until discrepancies have been fully resolved.

3.2 PREPARATION

- A. General:
 - 1. Surface preparation and product application shall be in accordance with manufacturer's printed instructions.
 - 2. In addition to prime coats indicated (primer, sealer, filler, undercoat), use two finish coats minimum, and additional coats as required for complete coverage and good appearance of scheduled finish coat.
 - 3. Surfaces to receive new finish shall be properly prepared prior to application of finish coatings.

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4. Do not apply paint, enamel, stains or varnishes to wet, damp, dusty, finger-marked, rough, unfinished, or defective surfaces until such defects have been corrected.
- B. Wood - Interior:
1. Thoroughly sandpaper and dust off woodwork; putty nail holes, cracks, and other defects after first coat to match color of paint. Putty where finish will be clear.
 2. First coat on wood surfaces shall be sanded smooth. Other coats, except finish coat, shall be lightly sanded and dusted before and between each coat.
 3. Smoothing, rubbing and sand-papering shall be sufficient to insure good results. Sand down all raised grain or rough surfaces and re-coat. Knots, pitch pockets and sappy portion of wood, all nail holes, cuts, cracks and other defects in wood shall have any necessary extra treatment to provide proper paint base.
- C. Wood – Exterior:
1. Surfaces shall be dry and free of grease and splatters.
 2. Rough surfaces shall be sanded smooth. **[Do not sandpaper resawn surfaces.]**
 3. At opaque finish, fill nail holes, cracks, open joints, and other defects with filler after priming coat has dried. Exposed nail heads shall be spot primed.
 4. Avoid painting surfaces while exposed directly to hot sun.
 5. Smooth surfaces shall be sanded thoroughly to allow proper penetration and adhesion. Areas exhibiting tannic acid staining shall receive two coats of primer waiting 24 hours between coats. Sand and prime as soon as possible after installation to avoid UV degradation of unpainted wood surface.
 6. Mildew, if present, shall be removed by scrubbing with a commercial mildew wash in accordance with manufacturer's directions.
- D. Metals-General:
1. On metal work, only such sanding will be required as is necessary to provide for complete bonding of coats.
 2. Steel and ironwork shall be scraped clean of scale, and rust and any grease shall be entirely removed.
 3. Touch-up scratched and damaged places on metal priming coats.
 4. Galvanized or zinc-coated metal shall be given an approved acid treatment 48 hours before paint is applied.
 5. Prep and prime coat factory or shop primed metal products, including metal doors and frames, exposed framing, and other exposed metal if material was not shop primed.
 6. Metal surfaces receiving epoxy coatings shall have stripe coat applied at all welds, edges, joints, etc., with epoxy primer prior to application of primer.
- E. Metals–Galvanized Surfaces:
1. Surfaces shall be cleaned, and profiled where specified, prior to receiving applied coatings in accordance with ASTM D6386 or ASTM D7396 for sheet products.

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- a. Methods shall be selected based on age of galvanized coating, condition of surface and intended paint coating.
 - b. Care shall be taken not to damage the zinc coating.
 - c. Do not use phosphate treatment on galvanized surfaces scheduled to receive zinc-rich primers.
2. Comply with additional recommendations included in the AGA document "Duplex Systems: Painting Over Hot Dip Galvanized Steel."
 3. Comply with any additional procedures required by the coating manufacturer.

F. Gypsum Board:

1. General:
 - a. Fill narrow, shallow cracks and small holes with spackling compound.
 - 1) Rake deep, wide cracks and deep holes.
 - 2) Dampen with clear water.
 - b. Fill with thin layers of drywall joint cement.
 - c. Allow to dry.
 - d. Sand smooth after drying. Do not raise nap of paper on gypsum board.
2. Gypsum Board to Receive Wall Covering and Carpeting:
 - a. Prep and prime surfaces scheduled to receive wall covering with scheduled primer. Refer to Section 09 7200, Wall Covering, for clear acrylic primer to be used at vinyl wall covering.
 - b. Sprayed applications of primer shall be back rolled to assure that the primer has thoroughly sealed the surface.

G. Concrete:

1. Cracks, gaps, hollow areas, bug holes, honey combs, voids, fins, form marks and other protrusions or rough edges are to be ground or stoned to provide a smooth continuous surface.
2. Imperfections may require filling.
 - a. Patch concrete areas with cracks, gaps, hollow areas or other imperfections with compatible material to provide smooth continuous surface.
 - b. Material shall be compatible with and as recommended by the coating manufacturer.
3. Moisture Content:
 - a. Prepared surfaces shall not be painted until they have completely cured and have stabilized moisture content within limits required by the coating manufacturer.
 - b. Testing for Moisture Vapor Emission Rate (MVER) shall be performed to verify suitability using a moisture meter, Delmhorst or equal, or method described in ASTM D4263.
4. Surface shall be reviewed by Architect after surface preparation is complete and prior to application of primer. Additional patching and/or grinding necessary to

provide a visually acceptable surface after application of paint coatings shall be accomplished at no additional cost.

- H. Surfaces that cannot be prepared or painted as specified, or to level required by the coating manufacturer, shall be immediately brought to the attention of the Architect, in writing.
 - 1. Starting of work without such notification will be considered acceptance by the Contractor of surfaces involved.
 - 2. Replace unsatisfactory work caused by improper or defective surfaces, as directed by Architect.

3.3 REPAINTING EXISTING INTERIOR SURFACES

- A. Interior surfaces required to be repainted, except acoustic tile, shall be prepared as follows.
 - 1. Wash clean with solution of trisodium phosphate in water and thoroughly rinse or wash with approved self-neutralizing detergent.
 - 2. Spackle, patch, sandpaper, repair, spot or partially prime to provide "hold out" for finish coats of paint and otherwise properly prepare as necessary to provide suitable surfaces, reasonably equal to new, over which to apply specified paints.
- B. Wall Covering:
 - 1. Check wall covering for adhesion. Loose seams and/or edges shall be reattached prior to painting.
 - 2. Holes, cracks and imperfections shall be filled flush with surface.

3.4 REPAINTING EXISTING EXTERIOR SURFACES

- A. General:
 - 1. Exterior surfaces required to be re-painted, shall be power washed with surfactant, followed by rinsing to remove all loose coatings, chalk, dirt, efflorescence, oils, and other contaminants that would inhibit bond of new coating.
 - 2. Mold or mildew shall be treated with bleach solution followed by thorough rinsing.
 - 3. Protect openings into interior spaces during power washing including louvers, vents, vent screeds, grilles, to prevent water from entering interior areas including, attics and soffits.
- B. Ferrous Metal: Steel framing, metal doors and frames, louvers, metal ductwork, and similar Items:
 - 1. Remove all flaking, peeling and poorly bonded coatings, including rust from metal surfaces using power tool sanders or equivalent equipment. Feather edge remaining coatings.
 - 2. Solvent scrub with MEK, all exposed bare metal, shop applied pretreatment and chalked coatings.

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3. Spot prime exposed bare metal and metal pre-treatment prior to application of specified prime coat.
- C. Galvanized Metal: Down spouts, wall caps, and Other Exposed Galvanized Metal.
1. Remove all loose, flaking or peeling coatings by scraping, chipping or sanding. Feather all rough edges by sanding.
 2. Apply phosphoric acid etch pre-treatment to exposed galvanized metal.
- D. Plaster:
1. Remove loose coatings using hand or power tools.
 2. Patch plaster areas where original material has cracked, spalled or otherwise been removed with compatible material. Fill areas completely to provide smooth, even surface for refinishing. Spot prime patches prior to proceeding.
 3. Patch masonry joints with cracks or missing material with compatible materials.
- E. Wood Siding and Trim:
1. Remove loose, flaking or peeling coatings by scraping, chipping or sanding. Feather rough edges by sanding.
 2. Surfaces that exhibit moderate to heavy chalk deposits shall be thoroughly cleaned to sound substrate by wire brushing, sanding, or power washing.
 3. Spot prime bare wood, exposed nail and fastener heads prior to application of specified prime coat.
 4. Glossy surfaces shall be dulled by sanding. Crystalline deposits shall be removed by flushing with water from a hose.
 5. Mildew, if present, shall be removed by scrubbing with a commercial mildew wash in accordance with manufacturer's directions.
- F. Concrete:
1. Existing exposed concrete scheduled to receive new finish shall be pressure washed or scrubbed to completely remove all bond breakers and oils.
 2. Remove loose coatings not removed by pressure washing using hand or power tools.
 3. Efflorescence to be removed following procedures recommended by the paint manufacturer.
 4. Cracks, gaps, hollow areas, bug holes, honey combs, voids, fins, form marks and other protrusions or rough edges are to be ground or stoned to provide a smooth continuous surface.
 5. Imperfections may require filling.
 - a. Patch concrete areas with cracks, gaps, hollow areas or other imperfections with compatible material to provide smooth continuous surface.
 - b. Material shall be compatible with and as recommended by paint manufacturer.
 6. Test for moisture as specified for new concrete.

7. Surface shall be reviewed by Architect after patching is complete and primer is applied. Additional patching and/or grinding necessary to provide a visually acceptable surface shall be accomplished at no additional cost.

G. Stained Wood Surfaces:

1. Thoroughly sand all surfaces.
2. Fill holes, cracks and defects after first coat with color matched putty.
3. Sand between coats to ensure proper adhesion.

3.5 CAULKING

- A. Caulk all cracks in finished surfaces.
- B. Seal around any wall openings where original sealant is not fully sealing.
- C. Provide sealant at material transitions and intersections as required.

3.6 PROTECTION

- A. Hardware, fixture canopies, outlet covers, switch plates and other such items shall be removed or loosened and replaced after completing work as required for painting and finishing. Protect items until reinstalled.
- B. Protect work and work of others during progress against damage. Leave such work clean and whole. Correct damage by cleaning, repairing, replacing or repainting as directed.
- C. Provide necessary drop cloths for protection of work. Cover finished surfaces adjacent to work.

3.7 APPLICATION

- A. General:
 1. Do not apply initial coating until moisture content of surface is within limitations recommended by paint manufacturer.
 2. Apply coatings in accordance with manufacturer's recommendations and the additional requirements, as applicable, of the Architectural Painting Manual Guide Specifications for application methods and paint systems.
 3. Flow coat on evenly and well brushed in. Should dead spots occur, touch-up before next coat is applied. Should spots or cracks burn through after final coat is applied, apply additional coats to entire surface as necessary to remedy defects.
 4. Rate of application shall be within limits recommended by paint manufacturer for surface involved.
- B. Thicknesses: Rate of application shall be within limits recommended by paint manufacturer for surface involved and comply with the following.

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1. Paint materials shall be applied in manner to average 1.5 to 3 Dry Mills in thickness for the total number of coats scheduled.
 2. Provide Tooke Dry Mill Coating Inspection Gauge manufactured by Micro Metrics Company to the Project Inspector for inspection of finished coating systems, if requested.
- C. Refinish whole area where portion of finish is not acceptable.
- D. Adjust natural finishes as necessary to obtain identical appearance on veneers and solid stock.
- E. Equipment adjacent to walls shall be disconnected, using workers skilled in appropriate trades, and moved to permit wall surfaces to be painted. Following completion of painting, they shall be expertly replaced and reconnected.
- F. Top and bottom edges of all doors shall receive same paint system finish required for door faces.
- G. Do not paint over fire-rating labels, fusible links, or sprinkler heads.

3.8 DEFECTIVE WORK

- A. Painter shall be responsible for damage or unsuitable work, including that caused by improperly prepared surfaces. Refinishing shall be at no cost to the Owner. Repair work damaged during construction; touch-up or refinish as necessary any abraded, stained or otherwise damaged surfaces.

3.9 CLEANING AND PROTECTION

- A. Thoroughly clean any drips, splatters, spills, splashes, etc., from walls, floor or other surfaces, with no damage to those surfaces.
- B. Protect work and materials of this Section prior to and during installation, and protect the installed work and materials of other trades.
- C. In the event of damage, make all repairs and replacements necessary to the approval of the Architect at no additional cost to the Owner.

3.10 PAINT SYSTEMS

- A. General:
1. Only major areas are scheduled, but miscellaneous and similar items and areas within room or space shall be treated with suitable system.
 2. This Specification shall serve as guide and is meant to establish procedure and quality. Confer with the Architect to determine exact finish desired.
 3. Number of coats scheduled is minimum. Additional coats shall be applied at no additional cost as required to hide base material completely, produce uniform color, and provide required and satisfactory finish.

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- B. Gloss and Sheen Ratings: Paint gloss shall be defined as the sheen rating of applied paint, in accordance with the following limits in conformance with Master Painters Institute, Inc. (MPI) Standards according to ASTM D523. Not all of the Gloss Levels are necessarily scheduled or used on this Project.

Gloss Level	Description	Units @ 60 degrees	Units @ 85 degrees
G1	Matte or Flat finish	0 to 5	10 max.
G2	Velvet finish	0 to 10	10 to 35
G3	Eggshell finish	10 to 25	10 to 35
G4	Satin finish	20 to 35	35 min.
G5	Semi-Gloss finish	35 to 70	
G6	Gloss finish	70 to 85	
G7	High-Gloss finish	> 85	

- C. Clarification of System Terminology:

1. Interior paint Systems are specified and identified herein by initial letters "INT."
2. Exterior paint Systems are specified and identified herein by initial letters "EXT."
3. The numbers following "INT" and "EXT" for each System identifies the substrate to be coated.
4. Initial numbers for each System identify the substrate to be coated summarized as follows with further clarification included with the System description:

CODE	DESCRIPTION
3.1	Concrete
3.2	Cement Plaster
4	Masonry
5	Metal
6	Wood
9.2	Gypsum Board
9.3	Acoustical Panels and Tile

5. The letter following substrate number identifies the general finish coat chemistry summarized as follows:

CODE	DESCRIPTION
A	Standard acrylic
B	Non-bridging vinyl acrylic
C	Epoxy-like acrylic
D	Semi-transparent stain
E	Elastomeric
F	High performance epoxy-like acrylic
G	Lacquer
H	Aliphatic urethane
I	Fire Retardant Intumescent
J	Acrylic Urethane
K	PVA primer

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<u>CODE</u>	<u>DESCRIPTION</u>
L	Acrylic primer
M	Premium performance acrylic polymer

6. Hyphenated suffix identifies the topcoat gloss level.

3.11 INTERIOR PAINTING SYSTEMS

INT 3.1A-3

Acrylic on Concrete - Gloss Level 3

1 coat	971 AcryPlex	Vinyl Acrylic Primer (if not previously painted)
2 coats	1010 Premium Professional	Latex Eggshell

INT 3.2A-3

Acrylic on Interior Cement Plaster- Gloss Level 3

1 coat	971 AcryPlex	Vinyl Acrylic Primer (if not previously painted)
2 coats	1010 Premium Professional	Latex Eggshell

INT 5.1A-5

Acrylic on Exposed Steel, Not Shop Primed - Gloss Level 5

1 coat	5725 DTM	Acrylic Primer
2 coats	1050 Premium Professional	Latex Semi-Gloss

Note: Modify scheduled finish coat if lower gloss level is selected by Architect.

INT 5.2A-5

Acrylic on Shop Primed Metal Including Hollow Metal Doors & Frames - Gloss Level 5

2 coats	1050 Premium Professional	Latex Semi-Gloss
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Note: Modify scheduled finish coat if higher or lower gloss level is selected by Architect.

INT 5.2M-6

Premium Performance Acrylic on Exposed Metal - Gloss Level 6

1 coat	Devcryl 1440	Waterborne Acrylic
2 coats	Devcryl 1449	100% Acrylic-Gloss

INT 6.3A-5

Acrylic on Millwork and Wood Doors - Gloss Level 5

1 coat	973 AcryPlex	Acrylic Primer (if not shop primed)
2 coats	1050 Premium Professional	Latex Semi-Gloss

INT 6.4A-5

Acrylic on Plywood - Gloss Level 5

1 coat	973 AcryPlex	Acrylic Primer
2 coats	1050 Premium Professional	Latex Semi-Gloss

INT 9.2A-1

Acrylic on Gypsum Board - Gloss Level 1; at theater stage

1 coat	971 AcryPlex	PVA Primer/Sealer
2 coats	Speedhide 6-753 by PPG Architectural Finishes	Acrylic Latex Flat Black

INT 9.2A-3

Acrylic on Gypsum Board, textured finish - Gloss Level 3

1 coat	971 AcryPlex	PVA Primer/Sealer
2 coats	1010 Premium Professional	Latex Eggshell

INT 9.2A-5

Acrylic on Gypsum Board, smooth finish - Gloss Level 5

1 coat	971 AcryPlex	PVA Primer/Sealer
2 coats	1050 Premium Professional	Latex Semi-Gloss

Note: Provide additional topcoat at toilet rooms and food service areas.

INT 9.3B-1

Acrylic on Acoustic Panels and Tiles - Gloss Level 1

1 coat	1005 Ceiling Paint	Non-Bridging Vinyl Acrylic Flat
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3.12 EXTERIOR PAINTING SYSTEMS

EXT 3.1A-2

Acrylic on Concrete - Gloss Level 2

1 coat	247 AcryShield	Acrylic Masonry Primer
2 coats	1210 Premium Professional	100% Acrylic Low Sheen

EXT 3.2A-2

Acrylic on Cement Plaster - Gloss Level 2

1 coat	247 AcryShield	Acrylic Masonry Primer
2 coats	1210 Premium Professional	100% Acrylic Low Sheen

EXT 5.1A-5

Acrylic over Unprimed Steel - Gloss Level 5

1 coat	5725 DTM	Metal Primer
2 coats	1215 Premium Professional	100% Acrylic Semi-Gloss

EXT 5.2A-5

Acrylic over Shop Primed Metal Doors and Frames, Steel Frame, Mechanical and Electrical Equipment, and Panels - Gloss Level 5

2 coats	2888 DuraPoxy HP	Acrylic Urethane Semi-Gloss
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EXT 5.3A-5

Premium Acrylic over Waterborne Primer on Galvanized Metal – Gloss Level 5

Pretreatment	SSPC SP-1	Heavy-duty cleaner
1 coat	5725 DTM	Acrylic Primer
2 coats	1215 Premium Professional	100% Acrylic Semi-Gloss

Note: Provide pretreatment and primer if preparation and primer not applied in shop.

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EXT 5.3N-5

DTM Acrylic Enamel over Prefinished Vertical Metal Panels - Gloss Level 5

1 coat

Rust-Oleum PEGALINK water-based Adhesion promoting Primer at a dry film thickness of 1.5-2.0 mils.

1 coat

Rust-Oleum's #5200 Industrial Choice DTM Acrylic Enamel at a dry thickness of 2-3 mils.

EXT 5.4A-5

Acrylic over Waterborne Primer on Aluminum – Gloss Level 5

Pretreatment

Devoe Devprep 88 Heavy-duty cleaner

1 coat

5725 DTM Acrylic Primer

2 coats

1215 Premium Professional 100% Acrylic Semi-Gloss

Note: Provide pretreatment and primer if preparation and primer not applied in shop.

3.13 MISCELLANEOUS PAINTING

- A. Mechanical and Electrical Equipment, Conduits and Piping: Paint exposed items as scheduled using appropriate system for material and whether or not item has been factory-primed.
- B. Exposed Insulation-Covered Piping: Size with Arabol, or equal latex type adhesive, and apply 2 coats of semi-gloss enamel.
- C. Material Visible through Grilles, Screens, Louvers, Vents and Screens and Exposed Hardware Cloth Screening: Painted flat black to make them as unnoticeable as possible.
- D. Mechanical Equipment: Paint mechanical equipment housings where indicated on the Drawings.

END OF SECTION

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Last Updated: January 26, 2022

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Metal-framed porcelain enamel markerboards.
 - 2. Horizontal sliding markerboards.

1.2 RELATED REQUIREMENTS

- A. Section 01 6116, Volatile Organic Compound (VOC) Restrictions; for VOC limits pertaining to adhesives, sealants, fillers, primers, and coatings.
- B. Section 01 8113, Sustainable Design Requirements, for CAL-Green general requirements and procedures.
- C. Section 09 2900, Gypsum Board.
- D. Section 12 3216, Manufactured Plastic-Laminate-Clad Casework.

1.3 REFERENCES AND STANDARDS

- A. California Building Code (CBC), edition as noted on the Drawings, as adopted by the California Division of the State Architect (DSA).
- B. California Green Building Standards Code (CAL Green), edition as noted on the Drawings, as adopted by the California Division of the State Architect (DSA).

1.4 ADMINISTRATIVE REQUIREMENTS

- A. Submittal Procedures:
 - 1. Action Submittals and Informational Submittals shall be submitted in accordance with Section 01 3300, Submittal Procedures.
 - 2. Closeout Submittals shall be submitted in accordance with Section 01 7700, Contract Closeout and Final Cleaning.
 - 3. Sustainable Design Submittals shall comply with the additional requirement of Section 01 8113, Sustainable Design Requirements.

1.5 ACTION SUBMITTALS

- A. Shop Drawings: Submit showing all parts, connections and anchorages, adjacent materials, fully dimensioned and noted. Include in-wall blocking requirements.
- B. Product Data: Manufacturer's complete descriptive data of all products proposed for use. Include manufacturer's specifications, installation instructions, and maintenance instructions.

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- C. Samples: The following samples are required.
 - 1. Submit sample for each type of board and trim components to Architect for review.
 - 2. Manufacturer's full range of colors for Architect's selection.

1.6 INFORMATIONAL SUBMITTALS

- A. Sustainable Design:
 - 1. General:
 - a. Submit information necessary to establish and document compliance with the California Green Building Standards Code.
 - b. Sustainable design submittals are in addition to other submittals.
 - 2. The following information shall be provided:
 - a. Adhesives and Sealants: Evidence of compliance that products meet maximum VOC content limits specified in Section 01 6116.
 - b. Composite Wood: Evidence of compliance that products meet formaldehyde limits of current CARB Airborne Toxic Control Measure (ATCM) as specified in Section 01 6116.
- B. Sample of manufacturer's warranty.

1.7 CLOSEOUT SUBMITTALS

- A. Warranty/Guarantee: Submit executed warranty and Subcontractor's guarantee.

1.8 QUALITY ASSURANCE

- A. Use only new materials and products, unless existing materials or products are specifically shown otherwise on the Drawings to be salvaged and re-used.
- B. Single Source Responsibility: Use materials and products of one manufacturer whenever possible.
- C. Materials, components, assemblies, workmanship and installation are to be observed by the Owner's Project Inspector. Work not so inspected is subject to uncovering and replacement.

1.9 DELIVERY, STORAGE AND HANDLING

- A. Deliver undamaged products to job in manufacturer's sealed containers and/or original bundles with tags and labels intact.
- B. Store materials in protected, dry conditions off of ground and in areas so as to not interfere with the progress of the work.
- C. Transport, store and handle in strict accord with the manufacturer's written recommendations.

1.10 WARRANTY

- A. Manufacturer: In addition to the Contractor's and Subcontractor's Guarantee, furnish Owner with the following manufacturer's fully executed written warranties against defects in materials and workmanship including against warping of sliding panel units.
1. Dry Erase Markerboards: Lifetime of the building.
 2. Other Products: As available from the manufacturer.

PART 2 - PRODUCTS

2.1 DESIGN AND PERFORMANCE CRITERIA

- A. Sustainable Design:
1. VOC emissions for field-applied adhesives, sealants, and sealant primers must comply with limits specified in Section 01 6116.
 2. Composite wood products must meet current formaldehyde emission limits of CARB Airborne Toxic Control Measure (ATCM) as specified in Section 01 6116.

2.2 METAL-FRAMED FIXED MARKERBOARDS

- A. Manufacturer and Product: Dry erase, prefabricated, factory laminated and framed as detailed; "LCS Deluxe" by Claridge Products and Equipment, Inc., 800-434-4610 as specified, or equal.
1. Color: Low Gloss White
 2. Layout and Sizes: As shown.
 3. Construction: Balanced, high-pressure-laminated, 3-ply construction with facing sheet, core, and backing.
 - a. Facing Sheet: Enameling grade steel, minimum 24 gage.
 - b. Core: Particle board complying with ANSI A208.1, Grade 1-M-1, 7/16 inch thick manufactured with no added urea-formaldehyde resins.
 - c. Balance porcelain writing surface with aluminum sheet backing. Aluminum foil is not acceptable.
 - d. Laminating Adhesive: Manufacturer's standard moisture-resistant thermoplastic type.
 4. Markerboards up to 16 feet in length shall be in one piece without splices.
- B. Multiple Units: Where multiple units are required and length of markerboard exceeds maximum available from manufacturer, provide concealed splice joints at locations as approved by Architect.
- C. Frame and Trim: Extruded aluminum trim 6063 - T5 alloy with etched anodized satin finish by manufacturer of markerboard.
1. Joints shall have tight smooth fit.

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2. Perimeter Trim: Narrow 5/8-inch profile at exposed edges.
 - a. Trim shall be installed with minimum splices. Butt splices neatly with hairline joint and center on a divider molding.
 - b. Miter corners; form neat, hairline joint.

D. Accessories:

1. Tray: Aluminum, 2-1/2 inch deep, full length of board. Ends of tray shall be rounded and ground smooth.
2. Map Rail: Full length aluminum map rail with cork insert furnished with one combination hook and clip for each 24 inch length of map rail and two flag holders for each markerboard. Provide with end stops.
3. Fasteners: As recommended by markerboard manufacturer for type of wall backing.

2.3 HORIZONTAL SLIDING MARKERBOARDS

A. Manufacturer and Product: Top hung sliding panels and fixed back panels; "Horizontal Sliding Units" by Claridge Products and Equipment, Inc., 800-434-4610 as specified, or equal.

1. Frame: Frame and exposed metal members to be of 6063-T5 alloy, anodized satin finish, aluminum extrusions.
2. Tray: 2-3/4 inch deep aluminum tray with end closures.
3. Map Rail: Full length aluminum map rail with cork insert furnished with one combination hook/clip for each 24 inch of length and two flag holders.
4. Hardware: Rolling hardware to be nylon tipped, ball bearing rollers of sufficient size and number to enable smooth and easy operation of panels.
5. Tracks: As standard with manufacturer for number of panels at each configuration.
6. Panel Finish: Sliding panel units and back fixed panel shall be specified markerboard.
7. Dimensions:
 - a. Overall Size: Typical units, unless indicated otherwise, shall be 7'-0" wide x 4'-0" high.
 - b. Where other sizes are shown, markerboards within sliding Units shall not exceed 5'-6" in width.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Prior to installation, carefully examine and verify that the installed work of all other trades is complete to the point where this installation may properly commence.
- B. Verify that specified items may be installed in accord with the approved designs.

- C. In the event of discrepancy, immediately notify Architect. Do not proceed in discrepant areas until discrepancies have been fully resolved.

3.2 INSTALLATION – MARKERBOARDS

- A. Install items where indicated on the Drawings, in full accord with all reviewed shop drawings and the manufacturer's recommendations, anchoring components firmly in place for long life under hard use.

3.3 PROTECTION

- A. Protect work and materials of this Section prior to and during installation, and protect the installed work and materials of other trades.
- B. In the event of damage, make all repairs and replacements necessary to the approval of the Architect at no additional cost to the Owner.

END OF SECTION

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Last Updated: March 30, 2021

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Code required signage.
 - 2. Exterior building identification and other non-code signage.

1.2 RELATED REQUIREMENTS

- A. Section 01 6116, Volatile Organic Compound (VOC) Restrictions; for VOC limits pertaining to adhesives, sealants, fillers, primers, and coatings.
- B. Section 01 8113, Sustainable Design Requirements, for CAL-Green general requirements and procedures.
- C. Division 23, Mechanical.
- D. Division 26, Electrical.
- E. Signage requirements included on the Drawings.

1.3 REFERENCES AND STANDARDS

- A. California Building Code, edition as noted on the drawings, as adopted by the California Division of the State Architect (DSA).
- B. California Green Building Standards Code (CAL Green), edition as noted on drawings, as adopted by the California Division of the State Architect (DSA).
- C. Title 19, CCR, Article 33.01(i).
- D. American National Standards Institute (ANSI):
 - 1. A-117.1: Accessible and Usable Buildings and Facilities.
- E. ASTM International (ASTM):
 - 1. A53/A53M: Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
 - 2. A153/A153M: Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.

1.4 ADMINISTRATIVE REQUIREMENTS

- A. Submittal Procedures:

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1. Action Submittals and Informational Submittals shall be submitted in accordance with Section 01 3300, Submittal Procedures.
2. Closeout Submittals shall be submitted in accordance with Section 01 7700, Closeout Procedures.
3. Sustainable Design Submittals shall comply with the additional requirement of Section 01 8113, Sustainable Design Requirements.

B. Coordination:

1. Prior to production of shop drawings and samples, coordinate a pre-submittal conference with Architect to confirm submittal requirements, schedule, and sign review process.
2. For signs supported by or anchored to permanent construction, advise installers of anchorage devices about specific requirements for placement of anchorage devices and similar items to be used for attaching signs. Provide template for placement of sign-anchorage devices **[and electrical service]** embedded in permanent construction by other installers.

1.5 ACTION SUBMITTALS

A. Shop Drawings:

1. Scaled drawings and signage schedule for each sign indicating materials, lettering layout, and colors.
2. Large-scale drawing and details of custom logo and lettering. Include mounting details.
 - a. Include plans, elevations, and large-scale sections of typical members and other components.
 - b. Show mounting methods, grounds, mounting heights, layout, spacing, reinforcement, accessories, and installation details.
3. Font Style. 18 point graphical example of alphabet and numerical numbers 0 through 9 of signage font style, upper and lower case letters, punctuation, 18 point scale, and black text on white paper.

B. Product Data: Submit list and complete descriptive data of all products proposed for use. Include manufacturer's specifications, published warranty or guarantee, installation instructions, and maintenance instructions.

C. Samples:

1. Submit three samples of specified signage fonts to be used for visual and tactile characters including braille below the raised characters.
2. Color Verification: Provide physical sample of each available color from the manufacturer. Include color system name and serial number, code and name as applicable.

3. Control Samples. Samples shall be prepared on same base material to be used in fabrication. Submit one sample of each sign type. Signage types are indicated in Construction Document details. Interior signs shall be full size.
4. Dimensional Letters: One full-size representative samples of each dimensional letter type required, showing letter style, color, and material finish and method of attachment.
5. Symbol of Accessibility and Pictograms. Full scale sample of pictograms and symbol of accessibility to be used on sign panels and graphics.

1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For installer.
- B. Sustainable Design:
 1. General:
 - a. Submit information necessary to establish and document compliance with the California Green Building Standards Code.
 - b. Sustainable design submittals are in addition to other submittals.
 2. The following information shall be provided:
 - a. Adhesives and Sealants: Evidence of compliance that products meet maximum VOC content limits specified in Section 01 6116.
- C. Sample of manufacturer's warranty.
- D. Signage Schedule and Alphanumeric Nomenclature. As a component of shop drawings and informational submittals, verify with Architect the sign nomenclature; room names and numbers; wording of way-finding, directional and informational signage; text; and orientation of wayfinding pictorial graphics.

1.7 CLOSEOUT SUBMITTALS

- A. Warranty/Guarantee: Submit executed warranty and Subcontractor's guarantee.
- B. Maintenance data for signs and sign types including maintenance manuals.

1.8 QUALITY ASSURANCE

- A. Contractor shall assure that the vendor shall be responsible for the quality of materials and workmanship of any firm acting as the vendor's subcontractor.
- B. Use only new materials and products, unless existing materials or products are specifically shown otherwise on the Drawings to be salvaged and re-used.
- C. Use materials and products of one manufacturer whenever possible.

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- D. Materials, components, assemblies, workmanship and installation are to be observed by the Owner's Project Inspector. Work not so inspected is subject to uncovering and replacement.
- E. The adhesion of inlaid letters and symbols will be tested. See Article WARRANTY.
- F. Mockups:
 - 1. Prior to installation, provide a taping pattern for sign plaques.

1.9 DELIVERY, STORAGE AND HANDLING

- A. Deliver undamaged products to job in manufacturer's sealed containers and/or original bundles with tags and labels intact.
- B. Store materials in protected, dry conditions off of ground and in areas so as to not interfere with the progress of the work.
- C. Transport, store and handle in strict accord with the manufacturer's written recommendations.

1.10 FIELD MEASUREMENTS

- A. Make and be responsible for all field dimensions necessary for proper fitting and completion of work. Report discrepancies to Architect before proceeding.

1.11 WARRANTY

- A. Manufacturer: In addition to the Contractor's and Subcontractor's Guarantee, furnish Owner with manufacturer's available fully executed written warranty for signage against all defects in materials and workmanship, including without limitation against yellowing, cracking, crazing, and other visible and performance defects for a period of 5 years.
 - 1. Text, pictograms or symbols that can be removed from the sign face utilizing a sharp object or other conventional methods will be considered a manufacturing defect.

PART 2 - PRODUCTS

2.1 DESIGN AND PERFORMANCE CRITERIA

- A. Regulatory Standards:
 - 1. Except as otherwise specified or shown, signage shall conform to the following:
 - a. ANSI A-117.1 and the Americans with Disabilities Act (ADA).
 - b. ATBCB Design Guidelines for Signage in relation to the Americans with Disabilities Act.
 - c. California Code of Regulations, Titles 19 and 24.

- 1) Contracted Grade 2 Braille shall be used whenever Braille symbols are specifically required. Refer to CBC Section 11B-703.3.
 - 2) All signage shall conform to CBC Section 11B-703.
 - d. Uniform Sign Code.
 2. When there is a conflict between the CBC and ADA, comply with the most stringent.
- B. Design Criteria: Refer to Chapter 11B of the California Building Code.
1. Raised Characters: Section 11B-703.2.
 - a. Depth: Section 11B-703.2.1.
 - b. Case: Section 11B-703.2.2.
 - c. Style: Section 11B-703.2.3.
 - d. Character Proportions: Section 11B-703.2.4.
 - e. Character Height: Section 11B-703.2.5.
 - f. Stroke Thickness: Section 11B-703.2.6.
 - g. Character Spacing: Section 11B-703.2.7.
 - h. Line Spacing: Section 11B-703.2.8.
 - i. Installation Height and Location: Section 11B-703.4.
 2. Braille: Section 11B-703.3.
 - a. Contracted (Grade 2) Braille with rounded or domed dots shall be used wherever Braille is required.
 - 1) Braille dimensions in accordance with Table 11B-703.3.1.
 3. Visual Characters: Section 11B-703.5.
 - a. Character Proportions: Section 11B-703.5.4.
 - b. Stroke Thickness: Section 11B-703.5.7.
 - c. Character Spacing: Section 11B-703.5.8.
 - d. Line Spacing: Section 11B-703.5.9.
 4. Pictograms: Section 11B-703.6.
 - a. Pictogram Field: 11B-703.6.1.
 - 1) Characters and Braille shall not be located in the pictogram field.
 - b. Finish and Contrast: Section 11B-703.6.2.
 - 1) Pictograms and their field shall have a non-glare finish. Pictograms shall contrast with their field with either a light pictogram on a dark field or a dark pictogram on a light field.
 - c. Text Descriptors: Section 11B-703.6.3.
 - 1) Locate text descriptors directly below the pictogram field.
 - 2) Text shall be raised characters with braille directly below.
 5. International Symbol of Accessibility: Section 11B-703.7.2.1.
 6. Toilet Room Door Symbols: Section 11B-703.7.2.6.
 7. Tactile Exit Signs: Tactile exit signage to comply with 1013.4 and 11B-703.4.

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C. Sustainable Design:

1. VOC emissions for field-applied adhesives, sealants, and sealant primers must comply with limits specified in Section 01 6116.

2.2 PLASTIC SIGNS - TACTILE

A. Materials, Unless Otherwise Noted:

1. Manufacturer and Product: "Inlaid Tactile Sign" by Accent Signage Systems, Inc. Minneapolis, MN, 800-215-9437 as specified and the basis of design; Ellis & Ellis Sign Systems, Sacramento, CA, 916-924-1936; ASI-Modulex, Los Altos, CA, 650-940-1354; Weidner Architectural Signage, Sacramento, CA; or equal.
 - a. Sign Face: Two 1/8-inch plies with eased edges; New Hermes "Gravo-Tac," or equal.
 - 1) Total Thickness: 1/4 inch.
 - 2) Painted signs will not be accepted.
 - b. Tactile Text: Provide tactile text and "Raster" Braille at plastic tactile signage.
 - 1) Tactile text shall be inlaid into sign face 1/32-inch and raised 1/32- inch minimum above sign face surface.
 - 2) Inlaid text shall be 1-ply, 1/16-inch thick material; "Gravo-Tac" Exterior or equal.
 - 3) Provide text and graphics precisely formed, uniformly opaque to comply with relevant ADA regulations and requirements indicated for size, style, spacing, content, position and colors.
 - 4) Symbols where specified shall be International Style.
 - 5) Braille shall be Contracted (Grade 2) Braille.
 - a) Dots shall be 0.10-inch on centers in each cell, 0.30-inch on center between corresponding dots in adjacent cells, and 0.395-inch minimum to 0.400-inch maximum on center between corresponding dots in cell directly below.
 - b) Dots shall be raised a minimum of 0.025-inch and a maximum of 0.037-inch above the background, and a base diameter of 0.059-inch minimum and 0.063- inch maximum.
 - c) Dots with straight sides and flat tops are not acceptable.
 - c. Colors: High contrast, non-glare, integral colors for graphics.
 - 1) Integral materials shall be U.V. stabilized.
 - 2) Characters, symbols and pictograms shall be in high contrast (light color) with background (dark) color and must conform to the CBC and the ADA Standards.

B. Fabrication:

1. Panel Appearance: Manufacturer's standard, high contrast, semi-matte colors.

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2. Surface Texture: Matte Non-glare.
 3. Character Style, Size and Layout Position:
 - a. Characters shall be 1-inch high, unless otherwise indicated.
 - b. The stroke of the uppercase letter "I" shall be 15 percent maximum of the height of the character.
 - c. The width of the uppercase letter "O" shall be 60 percent minimum and 110 percent maximum of the height of the uppercase letter "I".
 - d. Character style to be Sans Serif, uppercase, accompanied by Braille directly below text at all locations where raised characters are required.
 - e. Spacing between baselines of separate lines of raised characters with a message shall be 135 percent minimum and 170 percent maximum of the raised character height.
 4. Text Schedule: Confirm text, symbols and numbering with the Architect and Owner.
 5. Sign Size: As indicated on the Drawings or, if not shown, as reasonably required to accommodate text, symbols and Braille.
 - a. Where signs are installed on window glazing, fabricate a blank sign back to match in size and shape to sign.
 - b. Sign backs shall cover back side of sign from view through window on opposite side of sign.
 - c. Signs that are mounted back-to-back on glazing are to be matching in size; the smaller sign is to be increased in size as reasonably required to match the larger sign.
 6. Sign Shape: As indicated on the Drawings.
 - a. Corners: Radiused, unless otherwise shown.
 7. Inlaid Letter Adhesion Process: Inlaid material shall be adhered into 1/32-inch deep routed sign face utilizing the heat and pressure bonded/chemically welded process as developed by Accent Signage Systems for the specified "Inlaid Tactile Sign."
 - a. Sign manufacturers for the specified "Inlaid Tactile Sign" shall be familiar with and utilize the exact same manufacturing process developed by Accent Signage Systems.
 - b. Manufacturer must utilize the same and required equipment, products and techniques necessary to produce authentic "Inlaid Tactile Signs" as developed by Accent Signage Systems.
 - c. Other adhesive products and methods, including applied adhesive tapes will not be accepted.
- C. Sign Types: Provide braille translation directly below the raised characters.
1. Room Identification Sign: Provide as shown on the Drawings.
 - a. Provide name and room number at each door indicated.
 - b. Names and numbers to be reviewed and approved by Architect and Owner prior to fabrication.

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- c. Allow an average of 4-numbers and 14-letters for each sign.
 - d. Sign to be provided adjacent to doors as shown.
- 2. Toilet Room Identification Sign: In addition to the specified Door Symbol, provide a Toilet Room Identification Sign at the strike side of every toilet room door.
 - a. Sign shall include an International Symbol of Accessibility, pictogram, and raised characters, specifying the room name with Braille translation below pictogram.
- 3. Tactile Exit Sign:
 - a. Provide with text in raised characters to read: "EXIT".
- 4. Tactile Exit Route Sign:
 - a. Text to Read: "EXIT ROUTE."

2.3 PLASTIC SIGNS - NON-TACTILE

A. Materials, Unless Otherwise Noted:

Manufacturer and Product: Acrylic panel sign as manufactured and distributed by Ellis & Ellis Sign Systems, 916-924-1936, as specified and the basis of design, or equal.

- 1. Sign Face: 1/4-inch, matt finish, non-glare acrylic with subsurface vinyl and paint. Painted faces will not be accepted.
- 2. Colors: Colors shall match specified Tactile Signs and as selected by Architect and Owner.
 - a. Integral materials shall be U.V. stabilized.
 - b. Graphics and text shall be in high contrast (dark color) with background (light) color.

B. Fabrication:

- 1. Sign Thickness: 1/4-inch.
- 2. Character Style, Size and Layout Position:
 - a. Characters shall be a minimum of 1-inch high, unless otherwise indicated.
 - b. The stroke thickness of the uppercase letter "I" shall be 10 percent minimum and 20 percent maximum of the height of the character.
 - c. The width of the uppercase letter "O" shall be 60 percent minimum and 110 percent maximum of the height of the uppercase letter "I".
 - d. Letter style to be Sans Serif, uppercase.
 - e. Space characters 10 percent minimum and 35 percent maximum of height of characters, measured between two closest points of adjacent characters, excluding word spaces.
 - f. Spacing between baselines of separate lines of characters within a message shall be 135 percent minimum and 170 percent maximum of character height.
- 3. Text Schedule: Confirm text, symbols and numbering Architect and Owner using the shop drawing/submittal process.

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4. Sign Size: As indicated on the Drawings or, if not shown, as reasonably required to accommodate text and symbols.
 - a. Where signs are installed on window glazing, fabricate a blank sign back to match in size and shape to sign.
 - b. Sign backs will cover back side of sign from view through window on opposite side of sign.
5. Sign Shape: As indicated on the Drawings or, as reasonably required to accommodate the specified text and size at lettering.
 - a. Corners: 1/4-inch radius, unless otherwise shown.

C. Sign Types:

1. Toilet Room Door Symbol: Provide one of the following symbols as appropriate to the toilet room type. Toilet Room Door Symbols shall have a color contrast that is distinctly different from the color of the door. Characters, as shown, to be flush with face of symbol. The entire background color must contrast with door. A thin contrasting border around the symbol, with remainder of sign background in a non-contrasting color is not allowed.
 - a. Girls: 12-inch diameter circle, with eased edges.
 - b. Boys: Equilateral triangle with sides 12-inches long, with eased edges.
 - c. Women: 12-inch diameter circle, with eased edges.
 - d. Men: Equilateral triangle with sides 12-inches long, with eased edges.
 - e. Unisex or Staff: equilateral triangle of contrasting color and super imposed on and geometrically inscribed within the face of 12-inch diameter circle, which is a contrasting color to the door. The vertices of the triangle symbol shall be located 1/4-inch maximum from the edge of the circle with the vertex pointing upward. Both the circle and triangle to have eased edges.
2. Occupancy Signs (Capacity Sign): Quantity of occupants shall be as indicated on the Drawings or as provided by Architect. Text to read as follows:
 - a. Maximum Number - General: "The number of people permitted in this room shall not exceed _____ by order of the Division of the State Architect."
 - b. Rooms Used for Assembly and Dining: "The number of people permitted in this room shall not exceed _____ for Assembly and _____ for Dining by order of the Division of the State Architect."
3. Assistive Listening System Sign: Provide as indicated on the Drawings.

2.4 BUILDING SIGNS

A. Cast Aluminum:

1. Manufacturer: Gemini Incorporated of Cannon Falls, MN, or equal.
2. Size: 18-inch tall x 1-7/8-inch stroke x 3/4-inch deep letters minimum, unless otherwise indicated.
3. Mounting: Studs as standard with manufacturer.
4. Font: Helvetica regular.

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5. Finish shall be baked enamel.
 - a. Color as selected by Architect.
 - b. Text as specified herein and as indicated in the Drawings.
- B. Provide one each at each building, unless otherwise indicated. Verify exact text prior to fabrication and installation. As a minimum, text shall read as follows:
 1. "A", quantity 4.
 2. "B", quantity 2.
 3. "C", quantity 2.
 4. "D", quantity 2.
 5. "E", quantity 2.
 6. "F", quantity 2.
 7. "G", quantity 2.
 8. "H", quantity 2.
 9. "J", quantity 2.
 10. "K", quantity 2.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Prior to installation, carefully inspect and verify that the installed work of other trades is complete to the point where this installation may properly commence.
- B. Verify that specified items may be installed in accordance with the approved design.
- C. In the event of discrepancy, immediately notify Architect. Do not proceed in discrepant areas until discrepancies have been fully resolved.

3.2 INSTALLATION OF SIGNS

- A. General: Locations of signs must be in accordance with the Drawings and approved shop drawings.
- B. Plastic Signs:
 1. General:
 - a. Provide both mechanical fasteners and either adhesive or 2-sided adhesive tape as recommended by manufacturer for given mounting substrate.
 - b. Fasteners: Minimum 4-recessed flush head tamper-proof (vandal-resistant) screws per sign.
 2. Wood and Metal Framed Walls: Mechanical fasteners shall be of adequate length to penetrate exterior finishes and provide secure embedment into wall structure or sheathing.

- 3. Concrete Walls:
 - a. Use vinyl tape and mounting holes for countersunk, vandal-proof expansion anchors (use both).
- 4. Glass:
 - a. Utilize mounting adhesive and silicone where signs are mounted to glass.
 - b. Provide vinyl window sign backer to match sign face size, mounted on opposite side of glass.
 - c. Signs mounted back-to-back are to be matching in size.
 - d. Do not pre-drill signs for mechanical fastening where sign is to be mounted to glass.
- C. Building Signs:
 - 1. Install using concealed anchors appropriate to substrate material and construction conditions.
 - 2. Individual letters shall be held off finishes 3/4 inch with spacers or as otherwise shown on the Drawings or approved shop drawings.
- D. Other Signs: Use mounting method that is permanent, vandal resistant, and has been approved by the Architect.

3.3 PROTECTION

- A. Protect work and materials of this Section and other Sections prior to and during installation, and protect the installed work and materials of all other trades.
- B. In the event of damage, immediately make all repairs and replacements necessary to the approval of the Architect and at no additional cost to the Owner.

3.4 ADJUSTING AND CLEANING

- A. Remove all dust, dirt, finger marks, etc. from signs and letters using cleaning methods as recommended by manufacturer.

END OF SECTION

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Last Updated: March 30, 2021

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Post-mounted LED message centers.
 - 2. Control software.

1.2 RELATED REQUIREMENTS

- A. Section 01 6116, Volatile Organic Compound (VOC) Restrictions; for VOC limits pertaining to adhesives, sealants, fillers, primers, and coatings.
- B. Section 01 8113, Sustainable Design Requirements, for CAL-Green general requirements and procedures.
- C. Division 26, Electrical.

1.3 REFERENCES AND STANDARDS

- A. California Building Code (CBC), edition as noted on the Drawings, as adopted by the California Division of the State Architect (DSA).
- B. California Green Building Standards Code (CAL Green), edition as noted on Drawings, as adopted by the California Division of the State Architect (DSA).
- C. American National Standards Institute (ANSI) / American Welding Society (AWS):
 - 1. A2.4: Standard Symbols for Welding, Brazing, Nondestructive Examination.
- D. ASTM International (ASTM):
 - 1. A36/A36M: Standard Specification for Carbon Structural Steel.
 - 2. A307: Standard Specification for Carbon Steel Bolts, Studs and Threaded Rod 60 000 PSI Tensile Strength.
 - 3. A500/A500M: Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.
 - 4. A615/A615M: Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement.
 - 5. C33/C33M: Standard Specification for Concrete Aggregates.
 - 6. C150/C150M: Standard Specification for Portland Cement.
 - 7. C270: Standard Specification for Mortar for Unit Masonry.
- E. National Electrical Code.

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1.4 ADMINISTRATIVE REQUIREMENTS

- A. Submittal Procedures:
 - 1. Action Submittals and Informational Submittals shall be submitted in accordance with Section 01 3300, Submittal Procedures.
 - 2. Closeout Submittals shall be submitted in accordance with Section 01 7700, Closeout Procedures.
 - 3. Sustainable Design Submittals shall comply with the additional requirements of Section 01 8113, Sustainable Design Requirements.

1.5 ACTION SUBMITTALS

- A. Shop Drawings:
 - 1. Signage: Showing LED display riser diagram, component parts, connections, interface with supporting structure, fully dimensioned and noted, with site power requirements including legs and Amps per leg.
 - 2. Support Structure: Indicate sizes and locations of structural members.
 - a. Show details, including cuts, copes, connections, holes, threaded fasteners, rivets, and welds, in accordance with ANSI/AWS A2.4.
 - b. Show anchors to footings.
- B. Product Data: Submit list and complete descriptive data of all products proposed for use. Include manufacturer's specifications, installation instructions, and maintenance instructions.
- C. Samples: Manufacturer's full range of colors for Architect's selection.

1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For installer.
- B. Sustainable Design:
 - 1. General:
 - a. Submit information necessary to establish and document compliance with the California Green Building Standards Code.
 - b. Sustainable design submittals are in addition to other submittals.
 - 2. The following information shall be provided:
 - a. Paints and Coatings: Evidence of compliance that products meet maximum VOC content limits specified in Section 01 6116.
- C. Sample of manufacturer's warranty.
- D. Concrete mix design for footing.

1.7 CLOSEOUT SUBMITTALS

- A. Warranty/Guarantee: Submit executed warranty and subcontractor's guarantee.
- B. LED display installation and maintenance manual, and control software operator's manual.

1.8 QUALITY ASSURANCE

- A. Manufacturer: In the business of manufacturing permanently mounted illuminated outdoor displays for a minimum period of 10 years.
- B. Installer: Minimum of three years' experience with installations of same scope as this project, and to have successfully completed a minimum of 4 installations of same scope as this project.
- C. Single-Source Responsibility: Entire sign, identification cabinet and LED display shall be obtained from a single manufacturer to ensure uniformity in quality of appearance and construction.
- D. Work and installation shall be in accordance with the requirements of these Specifications and manufacturer's recommendations. Conflicting information shall be brought to the attention of the Architect prior to proceeding with the work.
- E. Materials, components, assemblies, workmanship and installation are to be observed by the Owner's Project Inspector. Work not so inspected is subject to uncovering and replacement.
- F. F. Entire unit, including the assembled product to include UL listing (Not ETL only).
- G. Made in the USA from domestic and foreign parts in one plant

1.9 DELIVERY, STORAGE AND HANDLING

- A. Deliver undamaged products to job in manufacturer's sealed containers and/or original bundles with tags and labels intact.
- B. Store materials in protected, dry conditions off of ground and in areas so as to not interfere with the progress of the work.
- C. Transport, store and handle in strict accordance with the manufacturer's written recommendations.

1.10 FIELD CONDITIONS

- A. Make and be responsible for all field dimensions necessary for proper fitting and completion of work. Report discrepancies to Architect before proceeding.

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1.11 WARRANTY

- A. Manufacturer: In addition to the Contractor's and Sub Contractor's Guarantee, furnish Owner with manufacturer's fully executed written warranty for LED Message Centers against defects in materials and workmanship for a period of five years.
 - 1. Lifetime warranty against workmanship and defects.
 - 2. Lifetime warranty on the Makrolon SL® sign faces due to breakage by vandalism, except for gunshots.
 - 3. 5 year warranty on the LED display and internal components.
 - 4. 5 year warranty on CELLULAR MODEL (1 YEAR ON ALL OTHERS).
 - 5. 5 year on LED lamping.
 - 6. Provide written warranty for complete details.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURER

- A. Products of the following manufacturer or comparable, provided they comply with the following specifications and are considered functionally and physically similar/acceptable:
- B. TekStar
 - 1. Integrated LED Display Cabinets and Identification Cabinet with Support Structure.
 - 2. By: Stewart Signs, 2201 Cantu Court, Sarasota, FL 34232

2.2 QUALITY STANDARDS

- A. Signage and work under this Section shall be manufactured by vendors dealing extensively in this type of work and capable in producing first quality work.
- B. Signage provider shall have at least ten (10) years of experience providing LED products and services for other organizations.
- C. All work and installation shall be in accordance with the requirements of these specifications and manufacturer's recommendations. In the event of disagreement between these specifications and the manufacturer's recommendations, these specifications shall govern.
- D. Entire unit, including the assembled product to include UL listing (NOT ETL only).
- E. Made in the USA from domestic and foreign parts in one plant, Alabama.

2.3 GENERAL SIGN CONSTRUCTION

- A. Entire sign shall be manufactured by one manufacturer to include:
 - 1. Thermoformed Identification Sign Face.

2. External Extruded Aluminum Cabinet.
 3. Internal LED Display Cabinet.
- B. Signage is to be an integration of four major components
1. External Identification Cabinet
 - a. Cabinet Dimensions.
 - 1) Outer Cabinet (1) to be 5' x 5'8"
 - 2) Inner LED Cabinet (1) to be 2'4" x 4'6"
 - b. Cabinets constructed using 12" deep aluminum extrusions
 - 1) Extrusion Thickness to be 0.156"
 - 2) Double reinforced corners, internally welded
 - c. Hinged Sign Face(s)
 - 1) Allows access to internal lamps and ballast(s) without removing face(s)
 - 2) Concealed extruded aluminum hinges
 - 3) Cover supported with integrated props when open
 - d. DuPont TGIC Powder Coat Finish
 - e. Internally Illuminated
 - 1) LED tube lamping (110 volts - 277 volts)
- C. Tuffak XL Sign Faces - Matte Finish
1. Entire Cabinet containing ID area and LED display is enclosed with Thermoformed, Tuffak XL sign face (UV / graffiti / vandal resistant)
 2. Face decorated with second surface (inside), 3M High Performance Translucent vinyl for all name / logo graphics
- D. Integrated internal LED Display Cabinets (proprietary design)
- E. LED display cabinet is mounted inside the External Identification Cabinet, behind the Tuffak XL Sign Faces for protection against UV / graffiti / vandalism damage.
1. Single-sided LED displays will have one internal LED Display Cabinet inside.
 2. LED Display Cabinet constructed using aluminum extrusions (not sheet metal wraps)
 3. Cabinets are weather resistant and placed inside the External Identification Cabinet for additional protection from the elements and a cleaner finished look.
 - a. Hinged cover allows access to internal electronic components without requiring the removal of LED modules.
- F. Forced Air Ventilation (heating and cooling protection)
1. Ventilation Fans are installed in both the Internal LED Display Cabinets and in the External Identification Cabinet.
 2. LED cabinets shall have forced air ventilation.

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2.4 LED DISPLAY

- A. Pixel Pitch: 10mm.
- B. LED Pixel Matrix: 63 x 128 (up to 8 lines of text).
- C. Three (3) LEDs per pixel: 1 red, 1 blue and 1 green.
- D. LED boards are mounted to a hinged front to allow opening Internal LED Cabinet to allow servicing internal electronic components without the need to remove the LED boards.
- E. NIT Rating shall be variable, up to 10,000.
- F. LED boards to be 16 pixels high by 16 pixels wide.
- G. The LED display can display the following:
 - 1. Text sizes range from 2.8" - 34"
 - 2. Capable of displaying graphics, video clips and animations.
 - 3. Capable of displaying up to 281 quintillion colors.
 - 4. Up to 60 frames per second video clips, animations and transitions.
 - 5. 1,200 Hertz refresh rate.
 - 6. 32 Gigabyte Solid State Hard Drive.
- H. Brightness controlled either automatically via a light sensor or manually through use of the controlling operating platform.
- I. Web-based temperature control via weather.com or customer chosen site.
- J. 120v/20A power requirements (see quote for specifics).
- K. Exhaust fans run 24/7 to prevent moisture build-up inside the displays.

2.5 SYSTEM REQUIREMENTS

- A. Sign to be operated using any internet connected device. Not restricted by any machine. Preference is to interface through a modern browser (i.e., Firefox, Chrome, etc.).
- B. Ability to overlay text on top of graphics or video clips.
- C. Ability to provide a count-down to a specific event in days, hours, minutes, or seconds.
- D. Ability to preview message before transmitting to display.

2.6 SOFTWARE: WWW.SIGNCOMMAND.COM CLOUD-BASED PROGRAMMING

- A. www.SignCommand.com is the interface site.
- B. Secured using Amazon Web Service hosting.

- C. Two factor authentication.
- D. Use from anywhere in the world with internet access on any modern browser.
- E. Intuitive, simple interface.
- F. Nothing to download.
- G. Remote diagnostics.
- H. No monthly fees ever.

2.7 POWER SUPPLIES

- A. Power supply circuitry to be conformal coated.
- B. Support a Voltage Range of 88~264VAC.
- C. Overload protection: 105~135% of rated power.
- D. Input Efficiency: 80%
- E. Over Temperature Protection: Auto shut-down of voltage and recovers automatically when temperature goes down.
- F. Working Temperature: -40 degrees up to 176 degrees Fahrenheit.

2.8 DATA COMMUNICATION OPTIONS

- A. LED display shall be compatible with the following options.
 - 1. Lifetime Cellular data service via Verizon Wireless 4G LTE (no fees/bills).

2.9 SUPPORT STRUCTURE

- A. Entire Sign and footing shall be engineered to withstand 120 mph, Exposure B.
- B. Fabricate items of structural steel in accordance with Division 05.
- C. Footing: Cast-in place concrete engineered at adequate size and depth for sign support/wind loads. Comply with the requirements of Division 03.
- D. Fabricate items of structural steel in accordance with AISC specifications.
- E. Columns: Cold-formed Steel tubing, ASTM A500/A500M, Grade B.
 - 1. Powder coated prior to assembly.
- F. Cowling: Galvannealed steel panels applied to front and back of support columns.
 - 1. Powder coating shall be applied prior to assembly.

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- G. Base Plates: Cold-rolled plate, ASTM A36/A36M. Steel base plates welded to column and fastened to footer with anchor bolts. Plates to contain welded steel gusset plates as required.
- H. Anchor Bolts, Lock Nuts & Washers: Hot-dipped galvanized steel, ASTM A36/A36M.
- I. Unfinished Treated Fasteners: Grade A, Regular low carbon stainless steel bolts and nuts. ASTM A307. Provide hexagonal bolts and nuts.
- J. Surface Preparation - Solvent Cleaning: Removal of all detrimental foreign matter such as oil, grease, dirt, soil, salts, drawing and cutting compounds, and other contaminants from steel surfaces by the use of solvents, emulsions, cleaning compounds or other similar materials and methods which involve a solvent or cleaning action.
- K. Reinforcement Bars, Ties & Stirrups: Grade 60, ASTM A615/A615M. Attach to anchor bolts to create unitized anchoring system.
- L. Cast-in Place Concrete: Engineered footing at adequate size and depth for sign support/wind loads. Mix Design shall be 3000 psi (minimum at 28 days, 5 sacks of cement per cubic yard of concrete (minimum) 6.5 gallons of water per sack (94 pounds) of cement (maximum). Use CRSI "Manual of Standard Practice."
 - 1. Portland Cement: Type I or IA, ASTM C150/C150M.
 - 2. Sand: Clean, sharp natural sand free of loam, clay, lumps, organics or other deleterious materials. ASTM C33/C33M.
 - 3. Aggregate: Coarse Aggregate size #57 for regular aggregate, size #8 for small aggregate. ASTM C33/C33M.
 - 4. Water: Potable water, ASTM C270.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Mounting structure to be installed by contractor to support desired displays in all locations. Verify that separate conduit is in place for power and data to display, unless fiber is being used. Verify that all control equipment has access to 120 VAC.
- B. Prior to installation, carefully inspect and verify that the installed work of other trades is complete to the point where this installation may properly commence.
- C. Verify that specified items may be installed in accordance with the approved design.
- D. In the event of discrepancy, immediately notify Architect. Do not proceed in discrepant areas until discrepancies have been fully resolved.

3.2 INSTALLATION

- A. Install signage and support structure in compliance with approved shop drawings and manufacturer's recommendations.

- B. Mounting hardware shall be capable of supporting all components to be mounted.
- C. Mounted displays must be inspected by a qualified structural engineer.
- D. Separate conduit must be used to route the power, signal in wires, and signal out wires.
- E. Displays must be grounded according to the provisions outlined in Article 250 of the National Electrical Code. The display must be connected to earth-ground. Proper grounding is necessary for reliable equipment operation and protects the equipment from damaging electrical disturbances and lightning.

3.3 CLEANING

- A. Remove all dust, dirt, finger marks, etc. from electronic message signage as recommended by manufacturer.

3.4 CLOSEOUT ACTIVITIES

- A. Training: At no extra cost to the Owner, provide a factory-trained technician (Technician) to be on site to train the school staff in the programming of the sign. This Technician must be completely familiar with the system construction, assembly and testing of the equipment. The Technician will set up the operating computer, test and make operational the control system as well as the display system.
 - 1. Initial Training Set-up:
 - a. Vendor will arrange for Technician to be on site at least 4 hours, or time as required to train the school staff in programming the sign. The Technician must be completely familiar with the system construction, assembly and testing of equipment.
 - b. In addition, the Technician will perform a visual inspection on the newly installed Message Center to ensure proper installation.
 - c. Technician will open and internally inspect the LED display cabinet(s) to ensure all connections are sound and components are properly fastened in place.
 - 2. Before Initial Power-on, Technician to verify the following:
 - a. If telephone modem is being used for communications, ensure a grounded surge protector is installed within the display cabinet.
 - b. All ventilation openings are unobstructed.
 - c. All display modules are properly mounted and secure.
 - 3. Post-power-on, Technician to perform the following:
 - a. Transmit a simple text message and verify communication.
 - b. Transmit a full screen test pattern to verify all pixels are turned on and operating. For RGB displays use a frame for red, green and blue.
 - c. Keep sign on for a full 24 hours.
 - d. Program the dimming schedule.

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3.5 PROTECTION

- A. Protect work and materials of this Section and other Sections prior to and during installation, and protect the installed work and materials of all other trades.
- B. In the event of damage, immediately make all repairs and replacements necessary to the approval of the Architect and at no additional cost to the Owner.

END OF SECTION

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Last Updated: March 30, 2021*

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Floor-supported, overhead-braced, solid plastic toilet partitions.
 - 2. Solid plastic urinal screens.

1.2 RELATED REQUIREMENTS

- A. Section 01 6116, Volatile Organic Compound (VOC) Restrictions; for VOC limits pertaining to adhesives, sealants, fillers, primers, and coatings.
- B. Section 01 8113, Sustainable Design Requirements, for CAL-Green general requirements and procedures.
- C. Section 09 2900, Gypsum Board.
- D. Section 10 2800, Toilet Accessories.

1.3 REFERENCES AND STANDARDS

- A. California Building Code (CBC), edition as noted on the Drawings, as adopted by the California Division of the State Architect (DSA).
- B. California Green Building Standards Code (CAL Green), edition as noted on the Drawings, as adopted by the California Division of the State Architect (DSA).
- C. National Fire Protection Agency (NFPA)
 - 1. NFPA 286: Fire Test for Evaluation Contribution of Wall and Ceiling Interior Finish to Room Fire Growth.
- D. ASTM International (ASTM):
 - 1. A 167: Standard Specification for Stainless and Heat-Resisting Chromium. Nickel Steel Plate.
 - 2. B 221: Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles and Tubes.
 - 3. E 84: Test Method for Surface Burning Characteristics of Building Materials.

1.4 ADMINISTRATIVE REQUIREMENTS

- A. Submittal Procedures:
 - 1. Action Submittals and Informational Submittals shall be submitted in accordance with Section 01 3300, Submittal Procedures.

PLASTIC TOILET COMPARTMENTS

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2. Closeout Submittals shall be submitted in accordance with Section 01 7700, Closeout Procedures.
3. Sustainable Design Submittals shall comply with the additional requirement of Section 01 8113, Sustainable Design Requirements.

B. Scheduling and Coordination:

1. Floor anchor plates for partitions shall be secured to structural subfloor prior to installation of mortar setting bed for tile floor.
2. Coordinate with placement of support framing and anchors in walls.

1.5 ACTION SUBMITTALS

- A. Shop Drawings: Submit plan, interior elevations and details showing components, connections and anchorages, adjacent materials, fully dimensioned and noted. Include blocking layout for use in structural framing.
- B. Product Data: Submit list and manufacturer's complete descriptive data of products proposed for use. Include manufacturer's installation and maintenance instructions.
- C. Samples:
 1. 6-inch-square or larger sample of panel corner in selected color, showing core, edge treatment, and corner treatment.
 2. Manufacturer's full range of colors for Architect's selection.
 3. Hardware samples, if requested by Architect.

1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For manufacturer and installer.
- B. Certification: Submit certification showing independent testing that compartments comply with NFPA 286.
- C. Evidence that plastic panels are Greenguard Certified
- D. Sample of manufacturer's warranty.

1.7 CLOSEOUT SUBMITTALS

- A. Warranty/Guarantee: Submit executed warranty and Subcontractor's guarantee.

1.8 QUALITY ASSURANCE

- A. Qualifications:
 1. Manufacturer: Minimum 5 years' experience in manufacturing of solid plastic (HDPE) toilet compartments with products in satisfactory use under similar service conditions.
 2. Installer: Minimum 5 years' experience in work of this Section.

- B. Use only new materials and products, unless existing materials or products are specifically shown otherwise on the Drawings to be salvaged and re-used.
- C. Single-Source Responsibility: Use materials and products of one manufacturer whenever possible.
- D. All materials, components, assemblies, workmanship and installation are to be observed by the Owner's Project Inspector. Work not so inspected is subject to uncovering and replacement.
- E. Mockups:
 - 1. First installed example of each type of toilet compartment and urinal screen shall serve as a mockup for review and approval by Architect of workmanship, visual effect, accessibility, and interface with adjacent construction.
 - 2. Toilet compartment shall be complete with hardware and with toilet accessories specified in Section 10 2813, Toilet Accessories.

1.9 DELIVERY, STORAGE AND HANDLING

- A. Deliver undamaged products to job in manufacturer's sealed containers and/or original bundles with tags and labels intact.
- B. Store materials in protected, dry conditions off of ground and in areas so as to not interfere with the progress of the work.
- C. Transport, store and handle in strict accord with the manufacturer's written recommendations to avoid deformation.

1.10 FIELD MEASUREMENTS

- A. Make and be responsible for all field dimensions necessary for proper fitting and completion of work. Report discrepancies to Architect before proceeding.

1.11 WARRANTY

- A. Manufacturer: In addition to the Contractor's and Subcontractor's Guarantee, furnish Owner with manufacturer's fully executed written warranty for plastic toilet partition system against defects in materials and workmanship including breakage, warpage, corrosion or delamination of installed plastic components, door latch and strike, integral hinge system and stainless steel shoes and wall brackets for a period of 25 years.
 - 1. Defective components shall be replaced.
 - 2. Labor for reinstallation shall be included.

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PART 2 - PRODUCTS

2.1 DESIGN AND PERFORMANCE CRITERIA

- A. Comply with accessibility requirements of CBC Section 11B-604, "Water closets and toilet compartments," and ADA "Standards for Accessible Design." Comply with the most stringent where there is a conflict.
- B. Brace partitions to structure to meet seismic provisions of the CBC.
- C. Fire Resistance when Tested in accordance with ASTM E 84:
 - 1. Smoke Developed Index: Not to exceed 450.
 - 2. Flame Spread Index: Not to exceed 75.
 - 3. Material Fire Ratings:
 - a. Test Method: NFPA 286.
 - b. Rating: International Code Council (ICC) Class A.
- D. Sustainable Design:
 - 1. Plastic panels shall be Greenguard Certified.

2.2 TOILET COMPARTMENTS

- A. Manufacturer and System: "Hiny Hiders" by Scranton Products, or equal:

2.3 MOUNTING CONFIGURATIONS

- A. Toilet Enclosures: Floor-supported, overhead-braced.
- B. Urinal-Screen Style: Post-to-ceiling supported flat panel.

2.4 MATERIALS AND COMPONENTS

- A. Doors, Panels and Pilasters:
 - 1. Material: High density polyethylene (HDPE), fabricated from polymer resins compounded under high pressure, forming single thickness panel.
 - a. Surface Characteristics: HDPE shall be waterproof and nonabsorbent, with self-lubricating surface, resistant to marks by pens, pencils, markers, and other writing instruments.
 - 2. Minimum Finished Thickness:
 - a. Panels and Urinal Screens: 1 inch straight cut with fine radius edge.
 - b. Stiles: 1 inch straight cut with fine radius edge.
 - c. Doors: 1 inch straight cut with fine radius edge.
 - 3. Door Width:
 - a. Typical: 24 inch minimum.
 - b. Accessible Stalls: Sized to provide minimum 36 inch clear opening.

- 4. Door and Panel Height: 55 inches mounted 14 inches above finish floor.
- 5. Urinal Screens:
 - a. Height: 42 inches mounted 14 inches above floor.
 - b. Depth: 18 inches.
- B. Leveling Device: 7-gauge (0.0874 inch) hot rolled steel bar; chromate-treated and zinc-plated; through-bolted to base of solid color reinforced composite stile.
- C. Stile Shoes: Type-304, 20-gauge (0.036 inch) stainless steel with satin finish.
 - 1. Top shall have 90 degree return to stile.
 - 2. Shoe shall be one-piece and capable of being securing fastened to stiles.
- D. Headrails: 1-inch x 1-5/8-inch minimum, heavy-duty tubular stainless steel or extruded anodized aluminum, satin finish, anti-grip profile.
- E. Floor to Ceiling Posts: 1-1/4 inch square x 18 gauge stainless steel with satin finish, full height, where indicated.
- F. Other Components: Non-corroding metal.

2.5 HARDWARE AND FITTINGS

- A. General:
 - 1. Hardware shall be ADA and accessibility compliant.
 - 2. All hardware to be 18-8, type-304 stainless steel with satin finish.
 - 3. Hardware of chrome-plated "Zamak", aluminum, or plastic is unacceptable except as otherwise specified.
 - 4. All hardware to be Vandal-Resistant, Institutional Grade.
 - 5. Each through-bolted fasteners and threaded bass insert shall withstand direct pull force exceeding 1,500 pounds.
 - 6. Emergency Access: Hinges and door latch shall allow door to be lifted over keeper from outside compartment on inswing doors.
- B. Mounting Brackets:
 - 1. Panels: 18-gauge (0.048 inches) stainless steel, full height of panel.
 - a. U-channels shall be furnished to secure panels to stiles.
 - b. Angle brackets shall be furnished to secure stiles to walls and panels to walls.
 - c. Fasteners at locations connecting panels-to-stiles shall utilize through bolted, stainless steel, pin-in-head Torx sex bolt fasteners.
 - 2. Urinal Screen: 11 gauge (0.120 inches) stainless steel, full height of panel.
- C. Hinges and Stops:

PLASTIC TOILET COMPARTMENTS

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1. Hinges: Self-closing, 16-gauge (0.060 inch) continuous piano hinge.
 - a. Continuous piano hinge, self-closing gravity type, shall be attached to door and stile by theft-resistant, pin-in-head Torx stainless steel machine screws into factory-installed, threaded brass inserts. Fasteners secured directly into the core are not acceptable.
 2. Stops: Two 11-gauge (0.120 inch) stainless steel door stop plates with attached rubber bumpers to resist door from being kicked in/out beyond stile.
 3. Door stops and hinges shall be secured with stainless steel, pin-in-head Torx machine screws into threaded brass inserts.
- D. Latch, Strike, and Keeper:
1. Stainless steel door latch shall slide into a stainless steel keeper.
 - a. Sliding door latch shall require less than 5-pound force to operate. Twisting latch operation is not acceptable.
 - b. Latch track shall be attached to door by machine screws into factory-installed threaded brass inserts.
 2. Through bolted, stainless steel, pin-in-head Torx sex bolt fasteners shall be used at attach keeper-to-stile.
 3. Mount latch at 42-inches above the finished floor in accessible stalls.
 4. Track of door latch shall prevent inswing doors from swinging out beyond stile.
 5. On outswing doors, door keeper shall prevents door from swinging in beyond stile.
 6. Bumper: Extruded black vinyl.
- E. Locking: Door locked from inside by sliding door latch into keeper.
- F. Coat Hook and Bumper:
1. Combination type.
 2. Equip outswing doors at accessible compartments with second door pull and door stop.
 3. Mount hook at 48-inches above the finished floor in center of door on the inside of the stall.
- G. Door Pulls:
1. Provide door pull and wall stop for outswinging doors.
 2. Equip doors to accessible stall with both inside and outside pulls.
 3. Pulls shall be "U" shaped.
- H. Fasteners: As recommended by partition manufacturer and the following:
1. Use stainless steel hardware to attach panel-to-stile brackets, coat hooks, and latch keepers.
 2. Exposed Bolts and Screws: Theft-resistant, one-way heads, stainless steel, ASTM A167; Type 304, pinhead Torx screws.

2.6 COLORS AND FINISHES

- A. Color of HDPE: As selected by the Architect from the manufacturer's available standard colors for fire-rated HDPE. Doors, pilasters and panels may be of different colors.
- B. Color of HDPE: Paisley.
- C. Stainless Steel: No. 4 satin finish.
- D. Aluminum: Clear Anodized.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Prior to installation, carefully inspect and verify that the installed work of other trades is complete to the point where this installation may properly commence.
- B. Verify that toilet partitions may be installed in complete accordance with the original design. Verify solid blocking has been provided in walls and ceilings at all partition and bracing connection locations. Do not install if blocking is missing.
- C. In the event of discrepancy, immediately notify the Architect. Do not proceed in discrepant areas until discrepancies have been fully resolved.

3.2 INSTALLATION

- A. General:
 - 1. Install all toilet partitions and screens where indicated on the Drawings and reviewed shop drawings, anchoring into solid blocking in compliance with manufacturer's installation instructions.
 - 2. Install partitions and screens rigid, straight, plumb and level.
- B. Provide clearances of not more than 3/8 inch between pilasters and panels, and not more than 1/2 inch between panels and walls and not more than 3/8 inch between vertical edge of doors and pilasters.
- C. Secure panels to walls with full length, continuous wall brackets using stainless steel fasteners spaced maximum 12 inches on-center.
- D. Stile shoes shall be anchored to floor with 1-1/2 inch, #14 stainless steel screws and metal anchors. Secure pilaster within shoe with theft resistant sex bolt.
- E. Attach panels and pilasters to continuous brackets with theft resistant sex bolts.
- F. Secure overhead brace to face sheets with not less than 2 fasteners per face.
- G. Set tops of doors to be parallel with top of pilasters and overhead brace when doors are in closed position.

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- H. Urinal Screens: Provide floor to ceiling post and wall brackets.

3.3 ERECTION TOLERANCES

- A. Maximum Variation From True Position: 1/4 inch.
- B. Maximum Variation From Plumb: 1/8 inch.

3.4 ADJUSTING

- A. Make final adjustments to leveling devices.
- B. Adjust and lubricate hardware for proper operation after installation.
 - 1. Set hinges on in-swing doors to hold doors open approximately 30 degrees from closed position when unlatched.
 - 2. Set hinges on out-swing doors to return to fully closed position.
- C. Replace damaged parts, surfaces which are not free from imperfections. Field touch-up of scratches or damaged finish will not be permitted. Replace damaged or scratched materials with new materials.

3.5 CLEANING

- A. Upon completion, and as a condition of acceptance, visually inspect the entire work of this Section. Surfaces shall be free of imperfections, scratch marks, blemishes or color variations.
- B. Upon completion, thoroughly wash surfaces, remove foreign material, and polish surfaces.
- C. Leave entire work in neat, orderly, clean, acceptable condition as approved.

3.6 PROTECTION

- A. Protect work and materials of this Section prior to and during installation, and protect the installed work and materials of other trades.
- B. In the event of damage, make all repairs and replacements necessary to the approval of the Architect at no additional cost to the Owner.
- C. Adequately protect products during and after installation against damage of every nature. Exposed finishes shall be free from scratches, dents, permanent discolorations and other defects in workmanship or materials.

END OF SECTION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Toilet accessories.

1.2 RELATED REQUIREMENTS

- A. Section 10 2113, Plastic Toilet Compartments.
- B. Division 26, Electrical.

1.3 REFERENCES AND STANDARDS

- A. California Building Code (CBC), edition as noted on the Drawings, as adopted by the California Division of the state Architect (DSA).
- B. California Green Building Standards Code (CAL Green), edition as noted on the Drawings, as adopted by the California Division of the State Architect (DSA).

1.4 ADMINISTRATIVE REQUIREMENTS

- A. Submittal Procedures:
 - 1. Action Submittals and Informational Submittals shall be submitted in accordance with Section 01 3300, Submittal Procedures.
 - 2. Closeout Submittals shall be submitted in accordance with Section 01 7700, Closeout Procedures.
- B. Coordination: Coordinate with other trades as required to ensure proper and adequate provision in framing and wall finish for the installation of the selected toilet accessories in the locations required including recessed items)

1.5 ACTION SUBMITTALS

- A. Shop Drawings: Submit showing parts, connections and anchorages, adjacent materials, fully dimensioned and noted.
- B. Product Data: Submit list of each required accessory and complete descriptive data of products proposed for use. Include manufacturer's specifications, published warranty, installation instructions, and maintenance instructions.

1.6 INFORMATIONAL SUBMITTALS

- A. Sample of manufacturer's warranty.

TOILET ACCESSORIES
SECTION 10 2813
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Increment 2

1.7 CLOSEOUT SUBMITTALS

- A. Warranty/Guarantee: Submit executed warranty and Subcontractor's guarantee.
- B. Keys for lockable accessories.
- C. Maintenance data and operating instructions.

1.8 QUALITY ASSURANCE

- A. Use only new materials and products, unless existing materials or products are specifically shown otherwise on the Drawings to be salvaged and re-used.
- B. Use materials and products of one manufacturer whenever possible.
- C. All materials, components, assemblies, workmanship and installation are to be observed by the Owner's Project Inspector. Work not so inspected is subject to uncovering and replacement.

1.9 DELIVERY, STORAGE AND HANDLING

- A. Deliver undamaged products to job in manufacturer's sealed containers and/or original bundles with tags and labels intact.
- B. Store materials in protected, dry conditions off of ground and in areas so as to not interfere with the progress of the Work.
- C. Transport, store and handle in strict accord with the manufacturer's written recommendations.

1.10 FIELD CONDITIONS

- A. Make and be responsible for field dimensions necessary for proper fitting and completion of Work. Report discrepancies to Architect before proceeding.
- B. Verify wall depths are adequate for each item prior to ordering. Notify Architect of conflicts or discrepancies.

1.11 WARRANTY

- A. Manufacturer: In addition to the Contractor's and Subcontractor's Guarantee, furnish Owner with manufacturer's fully executed written warranty for toilet accessories against defects in materials and workmanship, agreeing to replace and install toilet accessories at no additional cost to the Owner, within warranty period as follows:
 - 1. For a period of 3 years.

PART 2 - PRODUCTS

2.1 OWNER FURNISHED CONTRACTOR INSTALLED PRODUCTS

- A. The following products will be furnished by the Owner for installation by Contractor. Provide adequate blocking for attachment. Miscellaneous items are to be provided and installed by Contractor.
 - 1. Toilet Tissue Dispensers.

2.2 DESIGN AND PERFORMANCE CRITERIA

- A. Conform to applicable requirements of ADA and CBC for accessibility. When in conflict, conform to the most stringent.

2.3 MANUFACTURERS

- A. Accessories: Bobrick Washroom Equipment Inc. or Bradley Corporation as specified and the basis of design, unless otherwise noted, or equal.
 - 1. Manufactured accessories not specified shall require approval as a substitution to be considered equal. Refer to substitution requirements specified in Section 01 3300, Submittal Procedures.
 - 2. Although multiple manufacturers may be specified for a specific accessory, all accessories shall be the product of a single manufacturer, unless otherwise specified or approved.

2.4 MANUFACTURED UNITS

- A. Grab Bars: 18 gauge 1-1/2 inch outside diameter, type 304 stainless steel welded to 1/8 inch type 304 solid stainless steel wall plates; Bobrick Series B-6806, Bradley 812 Series, or equal.
 - 1. Configurations and Lengths: As shown.
 - 2. Grab bar shall withstand a 250 pound point load.
 - 3. Joints ground and polished.
 - 4. Finish on Exposed Surfaces: Satin.
 - 5. Fastening: Concealed, vandal resistant.

2.5 FASTENINGS

- A. Toilet accessories shall be complete with required fastenings.
- B. Fastenings shall either harmonize with the item being fastened, or be of the concealed type.
- C. Exposed fastenings shall be theft and vandal-resistant.

TOILET ACCESSORIES
SECTION 10 2813
22-1515
Increment 2

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Prior to installation of the Work of this Section, carefully inspect and verify that the installed Work of other trades is complete to the point where this installation may properly commence.
- B. Verify that specified items may be installed in accordance with the approved design.
- C. In the event of discrepancy, immediately notify the Architect. Do not proceed in discrepant areas until discrepancies have been fully resolved.

3.2 PREPARATION

- A. The Contractor shall provide recesses, anchorage and back-up blocking in sizes and in locations as required for proper installation of accessories. Coordinate with other trades where necessary to make provisions for installation.
- B. Securely anchor items in place in locations and at mounting heights indicated. Where specific dimensions are not noted, installation shall be approved by the Architect.
- C. Securely fasten grab bar mounting plates to solid framing or blocking, in accordance with CBC.
- D. Provide cut-outs in toilet partitions for napkin disposal units as required.

3.3 INSTALLATION

- A. Install fixtures, accessories and items in accordance with manufacturers' printed instructions where shown or as approved by Architect.
- B. Mount surface-mounted accessories to solid backing or blocking.
- C. Install plumb and level, securely and rigidly anchored to substrate.
- D. Use concealed vandal-resistant fastenings wherever possible.
 - 1. Adhesive installation not permitted.
 - 2. Provide anchors, bolts and other necessary fasteners, and attach accessories securely to walls or toilet partitions as recommended by manufacturer for each item and each type of substrate condition.
- E. Grab bars: Solidly anchor grab bars to withstand minimum downward pull of 500 pounds between any 2 supports after installation.
- F. Verify type, location and attachment methods of items furnished by Owner to ensure proper preparation of substrate for solid attachment of accessories.
- G. Sealants: Comply with requirements of Section 07 9200, Joint Sealants.

1. Apply behind toilet accessories as necessary to ensure sanitary and watertight integrity of surfaces.
2. Conceal sealants.

3.4 CLEANING AND ADJUSTING

- A. Upon completion of installation, remove manufacturer's temporary labels, marks of identification.
- B. Thoroughly wash surfaces, remove foreign materials, polish surfaces.
- C. Leave entire accessories in neat, orderly, clean, acceptable condition as approved.
- D. Replace damaged parts, surfaces which are not free from imperfections.

3.5 PROTECTION

- A. Protect Work and materials of this Section prior to and during installation, and protect the installed Work and materials of other trades.
- B. In the event of damage, make repairs and replacements necessary to the approval of the Architect at no additional cost to the Owner.
- C. Exposed finish shall be free from scratches, dents, permanent discolorations and other defects in workmanship or material.

END OF SECTION

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Last Updated: April 1, 2021

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Manual-operated horizontal louver blinds.

1.2 RELATED REQUIREMENTS

- A. Section 06 4023, Interior Architectural Woodwork.
- B. Section 09 2900, Gypsum Board.

1.3 REFERENCES AND STANDARDS

- A. California Building Code (CBC), edition as noted on the Drawings, as adopted by the California Division of the State Architect (DSA).
- B. California Green Building Standards Code (CAL Green), edition as noted on the Drawings, as adopted by the California Division of the State Architect (DSA).
- C. National Fire Protection Association (NFPA):
 - 1. 701: Standard Methods of Fire Tests for Flame Propagation of Textiles and Films.
- D. California Administrative Code:
 - 1. Title 19: Public Safety.

1.4 ADMINISTRATIVE REQUIREMENTS

- A. Submittal Procedures:
 - 1. Action Submittals and Informational Submittals shall be submitted in accordance with Section 01 3300, Submittal Procedures.
 - 2. Closeout Submittals shall be submitted in accordance with Section 01 7700, Contract Closeout and Final Cleaning.

1.5 ACTION SUBMITTALS

- A. Shop Drawings: Submit showing parts, connections and anchorages, adjacent materials, fully dimensioned and noted.
- B. Product Data: Submit list and complete descriptive data of products proposed for use. Include Manufacturer's specifications, published warranty or guarantee, installation instructions, and maintenance instructions.
- C. Samples: The following samples are required.

HORIZONTAL LOUVER BLINDS
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22-1515
Increment 2

1. Manufacturer's full range of colors for Architect's selection.

1.6 INFORMATIONAL SUBMITTALS

- A. Sample of manufacturer's warranty.

1.7 CLOSEOUT SUBMITTALS

- A. Warranty/Guarantee: Submit executed warranty and Subcontractor's guarantee.

1.8 QUALITY ASSURANCE

- A. Use only new materials and products, unless existing materials or products are specifically shown otherwise on the Drawings to be salvaged and re-used.
- B. Use materials and products of one Manufacturer whenever possible.
- C. Materials, components, assemblies, workmanship and installation are to be observed by the Owner's Inspector of Record. Work not so inspected is subject to uncovering and replacement.
- D. Flame-resistant materials shall pass or exceed one of more of the following:
 1. National Fire Protection Association (NFPA) 701.
 2. California Administrative Code Title 19.

1.9 DELIVERY, STORAGE AND HANDLING

- A. Deliver undamaged products to job in Manufacturer's sealed containers and/or original bundles with tags and labels intact.
- B. Store materials in protected, dry conditions off of ground and in areas so as to not interfere with the progress of the Work.
- C. Transport, store and handle in strict accord with the manufacturer's written recommendations.

1.10 FIELD CONDITIONS

- A. Verify field measurements for openings to receive vertical blinds allowing proper clearances as recommended by Manufacturer to allow free rotation and traversing.
- B. Prior to shade installation, building shall be enclosed.
- C. Interior temperature shall be maintained between 60 degrees F and 90 degrees F during and after installation; relative humidity shall not exceed 80 percent. Wet work shall be complete and dry.

1.11 WARRANTY

- A. Manufacturer: In addition to the Contractor's and Subcontractor's Guarantee, furnish Owner with manufacturer's fully executed written limited lifetime warranty for the repair or replacement of horizontal louver blinds against defects in materials and workmanship.

PART 2 - PRODUCTS

2.1 PRODUCTS

- A. Model "CD80 1 Mini Aluminum Blind" as manufactured by Hunter Douglas Contract, or equal.

2.2 MATERIALS

- A. Slats: Aluminum alloy, 1 inch wide by .008 inch thick, heat-treated and spring tempered aluminum alloy 6011, with eased corners and manufacturing burrs removed. Furnish not less than nominal 15.2 slats per foot to ensure tight closure and light control.
- B. Slat Support: Braided ladders of 100 percent polyester yarn color compatible with slats and spacing of ladder no more than 20mm, reinforced to withstand 100 pound pull. Distance between ladders not to exceed Manufacturer's requirements.
- C. Headrail: U-shaped profile with rolled edges, measuring 1-3/8 inches x 1-3/8 inches x 0.024 inch constructed of corrosion-resistant steel, providing a beveled edge valance-free design. Ends to be fitted with 0.024 inch steel end lock with adjustable tab for centering blinds. Finish to be standard baked-on polyester and to match slats.
- D. Bottom Rail: Steel with corrosion-resistant finish formed with double-lock seam into closed oval shape for optimum beam and torsional strength. Ends fitted with color-coordinated engineered polymer caps. Finish to be standard baked-on polyester and to match slats.
- E. Lifting Mechanism: Crashproof steel cordlocks with corrosion-resistant finish, two-ply polyester cord filler in braided polyester jacket lift cords, cord equalizers, cordlock adapter, and cord stop / single pull cord.
- F. Tilting Mechanism: Permanently lubricated die-cast worm and gear type tilter gear mechanism in fully enclosed housing with clutch action to protect ladder tapes from over rotation of the solid steel, corrosion resistant tilt rod.
- G. Tilt Control Wand: Tubular shaped 7/16 inch diameter extruded clear plastic, ribbed for positive grip and detachable without tools.
- H. Mounting Hardware: Manufacturer's standard as required for the type of installation shown.
- I. Hold-Down Brackets: Provide metal hold down brackets where blinds are to be mounted on doors.

HORIZONTAL LOUVER BLINDS
SECTION 12 2113
22-1515
Increment 2

2.3 FINISHES

- A. Aluminum: Manufacturer's standard baked-on finish in colors selected by Architect from manufacturer's available contract colors utilizing "Dust Shield" finish to inhibit dust build-up for easier maintenance.
- B. Cord and braided ladders shall be color coordinated with slat.

2.4 FABRICATION

- A. Blind measurements shall be accurate to within plus or minus 1/8 inch or as recommended in writing by the manufacturer for the specific installation conditions.
- B. Hardware shall be enclosed in a metal head. Operating hardware shall be machine clinched to head to assure perfect alignment. Slats shall tilt to any angle by turning a transparent wand. Blinds shall fit within the window openings as detailed, unless otherwise indicated.
- C. Other materials and components not specifically described, but required for a complete and proper installation of horizontal window blinds, shall be selected by the Installer, subject to approval of the Architect. Do not intermix component parts of various manufacturers in assembled units.
- D. Prior to fabrication, verify cords and tilt devices will be accessible and operational from the floor and will not conflict with cabinets, doors, fixtures or other items. Locate on either end as directed or approved. Bring potential conflicts to Architect's attention for resolution prior to start of Work.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Prior to installation, carefully inspect and verify that the installed Work of other trades is complete to the point where this installation may properly commence.
- B. Verify that specified items may be installed in accordance with approved design.
- C. In the event of discrepancy, immediately notify the Architect. Do not proceed in discrepant areas until discrepancies have been fully resolved.

3.2 INSTALLATION

- A. Install horizontal window blinds level and true, in accordance with the Drawings and the manufacturer's recommended procedures.
- B. Blinds shall be installed inside mount, unless otherwise indicated. Consult with Architect where inside mount may not be possible.
- C. Provide 1-1/2 inch overlap at each jamb where face installations are indicated or approved.

- D. Divisions between blinds, where required, shall occur only at mullions.
- E. Install intermediate support brackets and extension brackets as needed to prevent deflection in headrail.

3.3 CLEANING AND ADJUSTING

- A. Test operation of horizontal window blind hardware before and after installation. Operation shall be smooth and uniform.
- B. Upon completion of installation, remove manufacturer's temporary labels, marks of identification. Thoroughly wash surfaces and remove foreign material. Leave entire Work in neat, orderly, clean and acceptable condition as approved. Replace damaged parts and surfaces which are not free from imperfections.
- C. Finish installation free of dirt and finger marks. Leave work area clean and free of debris.

3.4 PROTECTION

- A. Protect Work and materials of this Section prior to and during installation, and protect the installed Work and materials of other trades.
- B. In the event of damage, make repairs and replacements necessary to the approval of the Architect at no additional cost to the Owner.
- C. Exposed finishes shall be free from scratches, dents, permanent discolorations and other defects in workmanship or material.

END OF SECTION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Manufactured, plastic-laminate-faced, modular casework and accessory items.

1.2 RELATED REQUIREMENTS

- A. Section 01 6116, Volatile Organic Compound (VOC) Content Restrictions, for VOC limits pertaining to adhesives, sealants, fillers, primers, and coatings.
- B. Section 01 8113, Sustainable Design Requirements, for CAL-Green general
- C. Section 06 4023, Interior Architectural Woodwork.
- D. Section 09 2900, Gypsum Board.
- E. Section 09 9100, Painting.
- F. Section 12 3623, Plastic-Laminate-Clad Countertops.
- G. Division 26, Electrical, for electrical outlets and fittings built into architectural casework.

1.3 REFERENCES AND STANDARDS

- A. California Building Code (CBC), edition as note on the Drawings, as adopted by the California Division of the State Architect (DSA).
- B. California Green Building Standards Code (CALGreen), edition as noted on the Drawings, as adopted by the California Division of the State Architect (DSA).
- C. American National Standards Institute (ANSI):
 - 1. ANSI A208.2: Medium Density Fiberboard for Interior Use.
 - 2. ANSI/BHMA A156.9: American National Standard for Cabinet Hardware; Builders Hardware Manufacturers Association.
 - 3. ANSI/BHMA A156.18: American National Standard for Materials and Finishes; Builders Hardware Manufacturers Association.
- D. National Electrical Manufacturers Association (NEMA):
 - 1. NEMA LD3.1: "High-Pressure Decorative Laminates."
- E. Woodwork Institute (WI)/ Architectural Woodwork Manufacturers of Canada (AWMAC):
 - 1. North American Architectural Woodwork Standards (NAAWS).

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1.4 DEFINITIONS

- A. General: The following definitions are in conformance with those included in the referenced NAAWS document.
- B. “Exposed Exterior” surfaces include all surfaces visible when doors and drawers are closed.
 - 1. Bottoms of casework more than 4 feet above the floor will be considered an exposed surface.
 - 2. Tops of casework that are visible by building occupants from stairs, mezzanines or other elevated locations will be considered as exposed.
- C. “Exposed Interior Surfaces” surfaces exposed to view in open casework or behind glass doors.
- D. “Semi-Exposed Surfaces” are interior surfaces only exposed to view when doors or drawers are open.
- E. “Concealed Surfaces” include surfaces of sleepers, web frames, dust panels, and other surfaces that are not visible after installation.

1.5 ADMINISTRATIVE REQUIREMENTS

- A. Submittal Procedures:
 - 1. Action Submittals and Informational Submittals shall be submitted in accordance with Section 01 3300, Submittal Procedures.
 - 2. Sustainable Design Submittals shall comply with the additional requirement of Section 01 8113, Sustainable Design Requirements.
 - 3. Closeout Submittals shall be submitted in accordance with Section 01 7700, Closeout Procedures.
- B. Scheduling and Coordination:
 - 1. Require casework fabricator to examine the schedule and check it for timing, accuracy and compatibility with its work and shall coordinate work with the master schedule and job superintendent.
 - 2. Require casework fabricator to furnish assistance in coordination and scheduling of other work pertinent to casework installation and to notify Contractor of requirements so as to result in a well-coordinated job.

1.6 ACTION SUBMITTALS

- A. Shop Drawings:
 - 1. Submit dimensioned plans, elevations, component profiles, and details for each casework layout showing the following:
 - a. Locations and type of service fixtures with lines thereto; anchorage locations, installation details to floors and walls.

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- b. Relationship of units in to surrounding and adjacent construction including walls, doors, and windows.
 - c. Swing of doors.
 - d. Shelving.
 - e. Accessory items such as fillers, end panels, and valance.
 - f. Base height.
 - 2. First page of shop drawings and each elevation shall bear an individually serial-numbered WI "Certified Compliance Label."
- B. Product Data:
- 1. Provide manufacturers cut sheets for all materials proposed for use including:
 - a. Panel products.
 - b. Cabinet hardware items.
 - c. Laminates.
 - 2. Include manufacturer's literature for items which are proposed for use and specified herein only by listing the intended performance requirements.
- C. Samples: The following samples are required.
- 1. Each type of high pressure laminate (HPL), edge banding, cabinet liner, and melamine-faced panel.
 - a. Plastic laminate and edge banding to be selected from manufacturers' full range of colors by Architect.
 - 2. Hardware: Adjustable shelf clip, hinge, pull, magnetic catch, elbow catch and lockset. Returned hardware samples may be used on the project unless otherwise noted by the Architect.

1.7 INFORMATIONAL SUBMITTALS

- A. Before delivery of casework to jobsite, submit a WI "Certified Compliance Certificate" listing the items certified, the applicable NAAWS Grade, and whether installation is included.
- B. Qualification Data: For installer.
- C. Sample of manufacturers' warranty.
- D. Sustainable Design:
 - 1. General:
 - a. Submit information necessary to establish and document compliance with the California Green Building Standards Code.
 - b. Sustainable design submittals are in addition to other submittals.
 - 2. The following information shall be provided:

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- a. Composite Wood: Evidence of compliance that products meet formaldehyde limits of current CARB Airborne Toxic Control Measure (ATCM) as specified in Section 01 6116.
- b. Adhesives and Sealants: Evidence of compliance that products meet maximum VOC content limits specified in Section 01 6116.

1.8 CLOSEOUT SUBMITTALS

- A. Warranty: Submit executed warranty.
- B. **[Specified maintenance materials]**

1.9 MAINTENANCE MATERIAL SUBMITTALS

- A. Provide additional materials as follows:
 1. Hinges: 10 each.
 2. Pulls: 10 each.
 3. Cabinet Locks: 10 each.
 4. Adjustable Shelf Supports: 25 each.
- B. Deliver to Owner as directed.

1.10 QUALITY ASSURANCE

- A. General:
 1. Furnish all components and accessories and all allied products new and free from defects.
 2. To assure proper coordination and eliminate divided responsibility, all work specified in this Section shall be executed under the direction of a single manufacturer and supplier.
- B. Qualifications:
 1. Manufacturer: The casework manufacturer must have not less than 5 years of production experience similar to this project, and the specified product, and whose qualifications indicate the ability to comply with the requirements of this section.
 2. Installer: The installer must have at least one project in the past 5 years with similar systems and complexities to those required for this project, and where the value of the woodwork is a minimum of 80% of the cost of woodwork for this project.
- C. Use only new materials and products, unless existing materials or products are specifically shown otherwise on the Drawings to be salvaged and re-used.
- D. Single-Source Responsibility: Use materials and products of one manufacturer whenever possible.

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- E. Materials, components, assemblies, workmanship and installation are to be observed by the Owner's Project Inspector. Work not so inspected is subject to uncovering and replacement.
- F. Casework Designations:
 - 1. Reference numbers on Drawings are related to NAAWS Cabinet Design Series (CDS) Elevation numbers, and are used to identify prefinished casework and to indicate dimensions, general design, equipment, shelving (adjustable and fixed) and other components to be furnished. Unless modified by notation on Drawings, description for indicated number shall constitute requirements for such cabinets incorporating all features set forth in the NAAWS CDS Elevations.
 - 2. Use of the NAAWS CDS Elevations numbers, and specific requirements set forth on the Drawings and as specified, are not intended to preclude use of other manufacturer's product or procedure, which may be equal thereto, but are given to establish standard of design and quality of materials, construction and workmanship.
- G. Proof of compliance with the specified NAAWS Grade assembly and installation shall be provided by the following WI Quality Control Program:
 - 1. WI Monitored Compliance Program.
 - a. All casework and the installation thereof for this project shall be directly monitored for compliance to the Contract by the Woodwork Institute under the scope of their Monitored Compliance Program (MCP).
 - 1) Inspections are to be performed at the beginning of fabrication, at the time of delivery to the job, at the beginning of installation, at completion of installation.
 - 2) Further information on the WI Monitored Compliance Program's Policies and Procedures are available directly from the Woodwork Institute, 916-372-9943.
 - 3) The WI MCP Registration Number shall be referenced in all communication.
 - b. Fees charged by the Woodwork Institute for their monitored compliance service are the responsibility of the Contractor and shall be included in the Contract sum.
 - c. Casework and/or installation determined to be non-compliant by WI and not corrected will be rejected.
 - d. Issuance of the WI Monitored Compliance Certificate is a prerequisite of the Owner's final acceptance.
- H. Mockups: Provide mockup of one base cabinet and one wall hung cabinet to verify finish material selections, modifications made under sample submittals, and to demonstrate aesthetic effects and set quality standards for materials and execution for cabinet exteriors, interior construction, and hardware.
 - 1. The base cabinet is to have at least one drawer and be of the same material to be provided for the project.

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2. The approved mockup may be incorporated in the project.

1.11 DELIVERY, STORAGE AND HANDLING

- A. Deliver undamaged products to job in manufacturer's sealed containers and/or original bundles with tags and labels intact.
- B. Store materials in protected, dry conditions off of ground and in areas so as to not interfere with the progress of the work.
- C. Transport, store and handle in strict accordance with the manufacturer's recommendations.
- D. Do not deliver until wet operations in building are completed and storage area is closed in and broom clean, with relative humidity 50 percent or less at 70 degrees F.
- E. Deliver in sections to fit through openings.

1.12 FIELD CONDITIONS

- A. Environmental Limitations: Do not deliver or install casework until building is enclosed, wet-work is complete, and HVAC system is operating and maintaining temperature and relative humidity at levels planned for building occupants during the remainder of the construction period.
- B. Products shall be available at project when required for installation so as not to delay job progress. Installer for these products shall cooperate with installers performing work under other sections involved to effect proper installation.
- C. Casework fabricator shall coordinate installation of any Owner supplied equipment where indicated on the Drawings.
- D. Field Measurements: Make and be responsible for all field dimensions necessary for proper fitting and completion of work. Report discrepancies to Architect before proceeding.

1.13 WARRANTY

- A. Manufacturer: In addition to the Contractor's Standard Guarantee, furnish Owner with manufacturer's fully executed written 5-year warranty for casework against defects in materials and workmanship. Warranty shall include against delaminations, joint separations, warp or twist in doors more than 1/4 inch, and splits or cracks in finished surfaces.

PART 2 - PRODUCTS

2.1 DESIGN AND PERFORMANCE CRITERIA

- A. Sustainable Design:

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1. Composite wood products must meet current formaldehyde emission limits of CARB Airborne Toxic Control Measure (ATCM) as specified in Section 01 6116.
2. VOC emissions for field-applied adhesives, sealants, and sealant primers must comply with limits specified in Section 01 6116.

2.2 PANEL MATERIALS

- A. Medium-Density Fiberboard (MDF): ANSI A208.2, Grade 155, formaldehyde-free, and meeting grade MR30 moisture resistance; "Medite II," by Roseburg, or equal.
 1. Thickness: 3/4 inch, unless otherwise shown or specified.
- B. Thermally-Fused Melamine Panels (TFM): Melamine resin-impregnated decorative paper thermally fused to a formaldehyde free MDF core.
 1. Color: White, unless otherwise noted or selected by Architect from a minimum of 6 colors.
- C. Plywood: Exterior type, Grade B-C or better. Plywood to be free of urea-formaldehyde.
- D. Hardboard: Tempered Grade, conforming to standards of American Hardboard Association or PS-50; use smooth side exposed.
- E. Particle Board: Not permitted.

2.3 LAMINATE MATERIALS

- A. High-Pressure Plastic Laminate: Conforming to NEMA LD3.1 and ISO 4586-2.
 1. Grades:
 - a. Horizontal Surfaces: ISO 10/HGS; horizontal, general purpose, standard.
 - b. Vertical Surfaces: ISO 20/VG; vertical, general purpose.
 - c. Cabinet Liner (If Specified TFM Panel is Not Used): ISO 72/CLS, cabinet liner, standard.
 - d. Backing Sheet: ISO 91/BKL; backer, light duty.
 2. Manufacturers: Formica, Wilsonart, Arborite, Pionite, Nevamar, or equal.
 3. Colors, and Patterns:
 - a. Exposed: As selected by Architect from manufacturer/suppliers' full product color range.
 - 1) There will be no additional cost allowance for premium color selections, or for selection of different colors for different rooms up to a maximum 6 colors.
 - 2) Doors and frames may be different selections.
 - b. Cabinet Liner: White.

2.4 ADDITIONAL MATERIALS

- A. Edge Bandings:

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1. 3-mm thick PVC: Solid, high impact, purified, color-thru, acid resistant, pre-laminated primed edging, machine-applied with hot melt adhesives, automatically trimmed, inside/outside length-radiused for uniform appearance, buffed and corner-radiused for consistent design.
 - a. Locations: Door and drawer face edge, and exposed shelf edge.
 - b. Color: As selected by Architect from manufacturer's full range of standard colors.
2. 0.02-inch thick PVC: Flat Edge, solid, high impact, purified, color-thru, acid resistant PVC, edging machine-applied with hot melt adhesives, automatically trimmed face, back and corners for uniform appearance.
 - a. Locations:
 - 1) Drawer body edge, not drawer face, and cabinet body edge including door and drawer front spacer rail.
 - 2) Interior body component edging, interior dividers and interior shelving.
 - b. Color: Match cabinet interior surface color.

2.5 HARDWARE

- A. Comply with requirements of BHMA A156.9, Type 2 (Institutional).
- B. Finishes:
 1. Exposed Items: Satin chromium plated, 626, unless otherwise noted complying with ANSI/BHMA A156.18.
 2. Concealed Items: Manufacturer's standard finish, complying with applicable product class of ANSI/BHMA A156.9.
- C. Hinges:
 1. Type: Heavy duty, five knuckle, 2-3/4-inch, institutional type hinge; let into door to achieve 1/8 inch reveals; Part Number 374 by Rockford Process Control, or equal, unless otherwise recommended by fabricator for total door and side panel thickness after application of laminate finish.
 - a. Hinges shall be mill ground, hospital tip, tight pin feature with all edges eased.
 - b. Hinges to be full wrap around type of tempered steel 0.095 inch thick.
 - c. Hinges shall accommodate 3/4 inch thick laminated door and allow 270 degree swing.
 2. Fasteners: Each hinge to have minimum 9 screws, #7, 5/8 inch FHMS to assure positive door attachment. Fill all holes if greater than 9.
 3. Quantity:
 - a. One pair per door to 48 inches in height.
 - b. One and one-half pair 48 inches in height to 84 inches in height.
 - c. Over 84 inches in height, provide 2 pair of hinges.
- D. Door and Drawer Pulls: Hafele, Catalog No. 110.08.400, or equal.

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- E. Magnetic Catches: Häfele 246 with matching strike plate, matt nickel finish, or equal.
- F. Locks: CompX National Lock C8100 Series pin tumbler, or equal.
 - 1. All cabinets in each Room to be keyed alike.
 - 2. All Rooms to be keyed different.
 - 3. Locations: As indicated on the Drawings.
- G. Locks: Schlage CL2000 Series cabinet and drawer locks with solid brass 6 pin cylinders.
 - 1. Locks in rooms keyed alike; rooms keyed differently.
- H. Surface Bolt for Locked Pair Doors: Elbow Catch: #2 Elbow Catch by Ives, or equal.
 - 1. Finish: Satin chrome.
 - 2. Locate and mount surface bolt on door far enough below shelf to allow for 1/2-inch deflection of shelf and also to allow for proper engagement of surface bolt and angle strike.
- I. Drawer Guides: Accuride as specified, or equal:
 - 1. Drawers Less Than 24 inches Wide: Light duty, full extension; Model 3732.
 - a. Provide appropriate length.
 - b. Load Rating per Pair: 100-pounds.
 - 2. Drawers 24 inches to 36 Inches Wide: Medium duty with 1-inch over travel; Model 3301.
 - a. Provide appropriate length.
 - b. Load Rating per Pair: 150-pounds.
 - 3. Drawers 36-inches to 42-inches Wide: Heavy-duty with 1-inch over travel; Model 3634.
 - a. Provide appropriate length.
 - b. Load Rating per Pair: 200-pounds.
 - 4. Drawers 42-inches to 48-inches Wide: Heavy duty with 1-inch over travel; Model SS5321.
 - a. Provide appropriate length.
 - b. Load Rating per Pair: 350-pounds.
- J. Adjustable Shelf Supports: Seismic restraining type; "Universal 1" by Hettich International for insertion into 5 mm holes, or equal.

2.6 ADDITIONAL MATERIALS

- A. Bumper Pads (Silencers): Hemispherical, quiet clear type, 55 Shore A hardness; 3M Bump-on Protective Products, or equal.

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- B. Adhesive: As recommended by panel manufacturer best suited for the intended use and that has a VOC content of 50 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
- C. Glue: Aliphatic-resin, polyurethane, or resorcinol wood glue recommended by manufacturer for general carpentry use that has a VOC content of 30 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
- D. Fasteners: Size and type to suit application in accordance with specified standards and as required.

2.7 FABRICATION - GENERAL

- A. Construction shall conform to NAAWS casework requirements.
- B. Make job measurements as required for proper fabrication of the work.
- C. Grade: Custom. If provisions for the NAAWS Grade are in conflict with, or modified by the drawings and/or specifications, the modifications shall govern.
- D. Door and Drawer Front Style: Flush overlay, NAAWS Style A.
- E. Carcass Construction: Type A frameless. Provide as single unit at open shelving to greatest extent possible.

2.8 FABRICATION OF CABINET COMPONENTS

- A. Cabinet Bodies:
 - 1. Fabricate, assemble and finish each cabinet as complete, self-supporting unit.
 - a. Unless otherwise shown, counter height and tall storage units shall be 24 inches minimum overall depth; wall-hung units shall be 15 inches minimum overall depth.
 - b. At concealed locations, provide tops on all wall-hung and tall cabinets utilizing melamine on both faces.
 - c. At locations where the tops of wall hung or tall cabinets are visible, provide tops on all wall-hung and tall cabinets utilizing HPL on exterior face and melamine on interior face.
 - d. Fabricate bottoms, tops and frames of lock-joint glued and screwed, or dowelled and glued construction to end panel construction. Simple butted not permitted.
 - e. Tops and sides of tall units and wall-hung cabinets shall be 3/4-inch thick MDF core.
 - f. Bottoms of upper cabinets shall be constructed of same materials as specified for shelving.
 - g. Tall cabinets and base cabinets, fronts and sides shall be 3/4-inch thick MDF core.
 - h. Cabinet backs shall be a minimum of 1/4-inch thick.

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- i. Dowel and screw partitions and boxed shelves into top framing, bottoms or ends, as applicable.
 - j. Middle shelf of tall cabinets, 5 feet or greater in height, shall be fixed.
 - k. At top of counter height units, provide 3/4-inch plywood boxed subframe, mortised and tenoned, glued and screwed, for concealed attachment of countertop and for cabinet rigidity.
 - l. Provide toe space on floor-mounted units.
 - m. For tall units and wall-mounted cabinets, include 5/8 inch x 3 inch concealed wood strips full length at top and bottom, for screw or bolt anchorage to wall to conform to pull requirements of Title 24.
 - n. Holes for Shelf Support Clips: 32mm on center.
 - 1) Provide 2 holes on each side of shelf except provide a 3rd hole where cabinets are deeper than 24 inches.
 - 2) Locations shall be confirmed with Architect.
 - o. The fabrication of casework must allow for shim space at the base of the cabinets, to account for field conditions, as required so that the height from finish floor to top of counter, and sink rim where occurs, does not exceed the specified height at any location along the countertop after installation.
2. Finishing:
- a. Exposed Interior Surfaces and Semi-Exposed Surfaces:
 - 1) Melamine bonded to MDF core; specified TFM panel.
 - 2) Use for all semi-exposed surfaces, tops and bottoms of wall-hung and tall cabinets except as otherwise specified, concealed ends, partitions, and drawer boxes.
 - 3) See "Shelves" Paragraph for panel and finish requirements for shelving.
- B. Drawers:
1. Fabrication:
- a. Fabricate and assemble drawer boxes with subfront and back glued and screwed into tenons at drawer sides.
 - b. Fronts shall be 3/4 inch thick MDF.
 - c. Sides: 1/2 inch thick MDF to create drawer box subfront, sides, back and bottom.
 - d. Extend bottom into dados with glue and screws at all 4 edges, using 1/4-inch materials matching the sides and backs.
 - e. At drawers over 30 inches wide, provide 1/2-inch bottoms.
 - f. Install 2-drawer guides for each drawer with positive closing and stop device to prevent inadvertent removal.
 - g. Drawer boxes to be full height of drawer opening.
 - h. Attach drawer front to subfront with #8 x 1-inch pan head wood screws (P.H.W.S.)

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- i. Provide closing stops at the rear of both drawer sides, unless stops are built into the slides to prevent the drawer front from impacting the cabinet body.
 - 2. Finishing:
 - a. Drawer Front: Vertical grade high-pressure laminate (HPL).
 - b. Interior Face of Drawer Front: Cabinet liner.
 - c. Band all 4 edges of drawer front with specified banding material.
 - d. Provide TFM panel with melamine finish on both faces, for subfront, sides, back and bottom.
- C. Doors:
- 1. Fabrication:
 - a. Panel: 3/4-inch thick MDF.
 - b. Hang face-mounted over cabinet, pairs parallel with proper clearance at pull edges. Install hardware.
 - c. Clearance Tolerances: Develop 1/8 inch maximum reveals.
 - 2. Finishing:
 - a. Exposed Exterior Face: Specified HPL.
 - 1) Where wood grain pattern is selected, provide pairs of doors with book-match wood grain patterns.
 - b. Exposed Interior Face: Cabinet liner.
 - c. Band all 4 edges of doors with specified banding material.
- D. Shelves:
- 1. Fabrication - General:
 - a. Shelving to be adjustable on 1-1/4 inch centers supported by 4 adjustable shelf clips.
 - b. Loading capacity to be minimum 50 pounds per square foot, not to exceed 200 pounds on any shelf.
 - c. Shelving shall match the interior depth of the cabinet box.
 - d. Band all leading edges with edge banding material as specified.
 - 2. Shelving less than 24 inches: 3/4-inch MDF.
 - a. Finish: Melamine, both sides.
 - 3. Shelving 24 to 30 inches: 1-inch MDF.
 - a. Finish: Melamine, both sides.
 - 4. Shelving Greater than 30 inches, up to 36 inches: 1-inch, MDF.
 - a. Finish: Vertical grade HPL, both sides, applied with rigid glue line process.
 - 5. Shelving Greater than 36 inches, up to 48 inches: 1-inch plywood.
 - a. Finish: Vertical grade HPL, both sides, applied with rigid glue line process. Contact adhesive is not permitted.
- E. Scribes and Filler Panels:

1. Provide matching scribes and filler panels, and scribe all cabinets to abutting walls, partitions and ceilings.
2. Scribes shall not exceed 1-1/2 inches wide.
3. Scribe to be covered top and bottom.
4. At locations where casework wraps inside corners, provide top and bottom filler panels where voids occur.

F. Cabinet Bases:

1. If casework manufacturer chooses to use cabinet bases, they shall be 4 inches standard height.
2. Fabricate completely out of 3/4-inch plywood in continuous lengths to insure straight and level installation of cabinet bodies. MDF is not acceptable for use at bases.
3. Freestanding cabinets shall have cabinet ends running directly to the floor.
4. Anchorage fasteners to be neatly installed through the back and anchor strip at the top and bottom, and middle at tall cabinets.

2.9 COORDINATION WITH APPLIANCES

- A. Contractor shall have casework manufacturer review all locations where appliances are to be installed and coordinate dimensions to ensure the correct size openings are provided.
 1. Shop drawings shall clearly indicate locations and opening dimensions.
 2. Where appliances are not in contract, shop drawings shall request confirmation of critical dimensions.
- B. Adjustments that need to be made to the casework due to appliances not fitting correctly are to be done at no additional cost to the Project.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Prior to installing casework, examine and verify that the installed work of all other trades is complete to the point where this work may properly commence.
- B. Verify that specified items may be installed in accordance with the approved design.
- C. Review in job conditions, installation requirements, and quality of completed substrate for compliance with Architect's expectations related to floor flatness for installation of casework.
- D. In the event of discrepancy, immediately notify the Architect. Do not proceed in discrepant areas until discrepancies have been fully resolved.

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3.2 PREPARATION

- A. Take all necessary measurements in the field to ensure proper dimensions for cabinets prior to fabrication.
- B. Coordinate with other trades whose work adjoins, combines, or aligns with casework.
- C. Where substrate is not in compliance with Architect's expectations related to floor flatness for installation of casework, and where excessive shimming to meet these expectations would be required, level substrate using latex-modified, portland cement based or blended hydraulic-cement-based formulation as specified in Section 03 5416, Hydraulic Cement Underlayment.

3.3 INSTALLATION

- A. Install all work in conformance with the referenced NAAWS document.
- B. Supervision: Installation work shall be under direct supervision of representative of manufacturer of the casework.
- C. Set work level, square and in true alignment. Cabinetwork shall fit to walls and upon completion of installation shall show no marks, indentations or other defects. Furnish scribes, filler panels, trim and molding required for finished installation. When set, each individual cabinet shall be capable of withstanding, without movement, a force of 200 pounds applied in any direction.
- D. Cabinet work shall be installed as required so that the height from finish floor to top of counter, and sink rim where occurs, does not exceed the specified height at any location along the countertop after installation.
- E. Method of attachment, including the type, size, frequency and/or spacing of anchoring devices and fasteners shall comply to NAAWS minimum requirements or be as indicated on the Drawings or as specified, whichever is more restrictive.
- F. Doors, drawers and fixtures shall operate correctly and smoothly.
- G. Furnish miscellaneous metal support and bracing required for installation. If necessary, deliver these items to other trades responsible for installation into adjacent work and designate exact location for their installation.
- H. Provide specified seismic restraining, adjustable shelf supports at all adjustable shelves to prevent shelf from sliding out of cabinets with or without doors.

3.4 ADJUSTING AND CLEANING

- A. Prior to final inspection and acceptance by the Architect, completely check each installed item and adjust for proper operation.
- B. Remove all fingerprints, smudges and the like from casework; vacuum clean drawers and interiors of dust, dirt and sawdust.

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3.5 PROTECTION

- A. Protect work and materials of this Section prior to and during installation and protect the installed work and materials of other trades. Adjust all moving or operating parts to function smoothly and correctly.
- B. In the event of damage, make all repairs and replacements necessary to the approval of the Architect at no additional cost to the Owner.

END OF SECTION

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Last Updated: November 1, 2021

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Plastic laminate faced counters and splashes.

1.2 RELATED REQUIREMENTS

- A. Section 01 6116, Volatile Organic Compound (VOC) Restrictions, for VOC limits pertaining to adhesives, sealants, fillers, primers, and coatings.
- B. Section 01 8113, Sustainable Design Requirements, for CAL-Green general requirements and procedures.
- C. Section 06 4023, Interior Architectural Woodwork.
- D. Section 07 9200, Joint Sealants.
- E. Section 12 3216, Manufactured Plastic-Laminate-Clad Casework; casework to receive countertops.
- F. Division 26, Electrical, for electrical outlets and fittings built into countertops.

1.3 REFERENCES AND STANDARDS

- A. California Building Code (CBC), edition as noted on the Drawings, as adopted by the California Division of the State Architect (DSA).
- B. California Green Building Standards Code (CAL Green), edition as noted on the Drawings, as adopted by the California Division of the State Architect (DSA).
- C. American National Standards Institute (ANSI):
 - 1. A161.2: Decorative Laminate Countertops, Performance Standards for Fabricated High Pressure.
 - 2. A208.1: Particleboard.
 - 3. A208.2: Medium Density Fiberboard (MDF) for Interior Applications.
- D. International Organization for Standardization (ISO):
 - 1. 4586-2: "High-pressure decorative laminates (HPL, HPDL) - Sheets based on thermosetting resins (usually called laminates) - Part 2: Determination of properties."
- E. Woodwork Institute (WI): North American Architectural Woodwork Standards (NAAWS) published jointly by WI and the Architectural Woodwork Manufacturers of Canada (AWMAC).

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1.4 ADMINISTRATIVE REQUIREMENTS

- A. Submittal Procedures:
 - 1. Action Submittals and Informational Submittals shall be submitted in accordance with Section 01 3300, Submittal Procedures.
 - 2. Closeout Submittals shall be submitted in accordance with Section 01 7700, Closeout Procedures.
 - 3. Sustainable Design Submittals shall comply with the additional requirement of Section 01 8113, Sustainable Design Requirements.

1.5 ACTION SUBMITTALS

- A. Shop Drawings: Prepare for each countertop in accordance with Section 1 Article entitled "Submittals" of the referenced NAAWS document.
 - 1. Show items interfacing with countertops including relationship to supporting casework.
 - 2. Identify materials to be used.
 - 3. Shop drawings for countertops may be submitted as part of shop drawings prepared and submitted under Section 12 3216, Manufactured Plastic-Laminate-Clad Casework.
- B. Samples: 8 by 10-inch piece of selected pattern and color of plastic laminate.

1.6 INFORMATIONAL SUBMITTALS

- A. Before delivery of countertops to jobsite, submit a WI "Certified Compliance Certificate" listing the items certified, the applicable NAAWS Grade, and whether installation is included.
- B. Sustainable Design:
 - 1. General:
 - a. Submit information necessary to establish and document compliance with the California Green Building Standards Code.
 - b. Sustainable design submittals are in addition to other submittals.
 - 2. The following information shall be provided:
 - a. Adhesives and Sealants: Evidence of compliance that products meet maximum VOC content limits specified in Section 01 6116.
 - b. Composite Wood: Evidence of compliance that products meet formaldehyde limits of current CARB Airborne Toxic Control Measure (ATCM) as specified in Section 01 6116.
- C. Qualification Data: For fabricator.

1.7 CLOSEOUT SUBMITTALS

- A. Guarantee: Submit extended Contractor guarantee.

1.8 MAINTENANCE MATERIAL SUBMITTALS

- A. Grommets: 5 of each Type.

1.9 QUALITY ASSURANCE

- A. Fabricator Qualifications: Active member of WI. Other fabricators will be considered for approval upon submission of at least 5 years of verifiable evidence of experience in successful completion of work similar to work of this Project. This provision does not waive compliance with specified WI certification.
- B. Standard for Materials and Workmanship:
 - 1. Comply with the applicable requirements of Section 11 - Countertops of the "North American Architectural Woodwork Standards (NAAWS)" published jointly by WI and AWMAC. (hereinafter referred to as "woodworking standard").
 - 2. Where Contract Documents indicate requirements that conflict with or augment the woodworking standard, comply with the conflicting or augmenting requirements.
- C. Materials, components, assemblies, workmanship and installation are to be observed by the Owner's Project Inspector. Work not so inspected is subject to uncovering and replacement.
- D. Proof of compliance with the specified NAAWS Grade assembly and installation shall be provided by the following WI Quality Control Program:
 - 1. WI Monitored Compliance Program.
 - a. All countertops and the installation thereof for this project shall be directly monitored for compliance to the Contract by the Woodwork Institute under the scope of their Monitored Compliance Program (MCP).
 - 1) Inspections are to be performed at the beginning of fabrication, at the time of delivery to the job, at the beginning of installation, at completion of installation.
 - 2) Further information on the WI Monitored Compliance Program's Policies and Procedures are available directly from the Woodwork Institute, 916-372-9943.
 - 3) The WI MCP Registration Number shall be referenced in all communication.
 - b. Fees charged by the Woodwork Institute for their monitored compliance service are the responsibility of the Contractor and shall be included in the Contract sum.
 - c. Countertops and/or installation determined to be non-compliant by WI and not corrected will be rejected.

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- d. Issuance of the WI Monitored Compliance Certificate is a prerequisite of the Owner's final acceptance.

1.10 DELIVERY, STORAGE, AND HANDLING

- A. Do not deliver products until wet work, painting, and similar operations in storage and installation areas that could damage or soil work have been completed.
- B. Protect products during transit, delivery, storage, and handling so as to prevent damage, soiling, and deterioration.
- C. Store countertops only in areas where ambient conditions required can be and are maintained.
- D. Coordinate delivery with fabrication and installation of casework.

1.11 FIELD CONDITIONS

- A. Products shall be available at project when required for installation so as not to delay job progress. Contractor shall have its installer for these products cooperate with installers performing work under other Sections involved to effect proper installation.
- B. Environmental Limitations: Do not deliver or install countertops until building is enclosed, wet-work is complete, and HVAC system is operating and maintaining temperature and relative humidity at levels planned for building occupants during the remainder of the construction period.
- C. Field Measurements: Where countertops are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication and indicate measurements on shop drawings.

1.12 GUARANTEE

- A. Contractor: In addition to its standard Guarantee under the Contract, furnish Owner a special extended written 5-year guarantee, cosigned by installer, agreeing to repair or replace plastic-laminate-clad countertops that fail to perform as required within guarantee period as a result of failure of materials or installation workmanship at no additional cost to the Owner.

PART 2 - PRODUCTS

2.1 DESIGN AND PERFORMANCE CRITERIA

- A. Sustainable Design:
 - 1. VOC emissions for field-applied adhesives, sealants, and sealant primers must comply with limits specified in Section 01 6116.
 - 2. Composite wood products must meet current formaldehyde emission limits of CARB Airborne Toxic Control Measure (ATCM) as specified in Section 01 6116.

2.2 PANEL MATERIALS

- A. Medium-Density Fiberboard (MDF): ANSI A208.2, Grade 155, formaldehyde free. 3/4 inch thick unless otherwise indicated.
 - 1. Typical Locations: Meeting grade MR30 moisture resistance; "Medite II," by Roseburg, or equal.
 - 2. At Sinks and Adjoining Countertops on Same Wall: Meeting grade MR50 moisture resistance; "Medex," by Roseburg, or equal.
- B. Particleboard: Not permitted.

2.3 LAMINATE MATERIALS

- A. High-Pressure Plastic Laminate: Conforming to ISO 4586-2.
- B. Grades:
 - 1. Horizontal Surfaces and Backsplash: ISO 10/HGS; horizontal, general purpose.
 - 2. Postforming: ISO 12/HGP; horizontal, general purpose, postformable.
 - 3. Backing Sheet: ISO 91/BKL; backer, light duty.
- C. Manufacturers: Formica, Wilsonart, Arborite, Pionite, Nevamar, or equal.
- D. Colors, and Patterns: As selected by Architect from manufacturer/suppliers' full product color range.
 - 1. There will be no additional cost allowance for premium color selections, or for selection of different colors for different rooms up to a maximum 6 colors.

2.4 ACCESSORIES

- A. Edge Treatment: Same as laminate cladding on horizontal surfaces.
- B. Grommets: Doug Mockett & Co. Inc., Manhattan Beach, CA, 310-318-2491, or equal.
 - 1. Type: SG Series, or EDP Series; coordinate data connection requirements with Owner.
 - 2. Material and Color: As selected by Architect.
- C. Countertop Braces: A&M Brace as manufactured by A & M Hardware, Inc. or equal.
 - 1. Size brace appropriate with size of countertop.
 - 2. Provide Häfele "Hebgo" (1100 lb. capacity) bracket, or equal at locations where continuous raceway runs directly below countertop brace.
 - 3. Provide largest brace available for given countertop depth to achieve maximum countertop support.
 - 4. Color: As selected by Architect from full range of manufacturer's standard colors. Multiple colors may be selected.

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- D. Fasteners: Type and size as required.
- E. Adhesives: VOC compliant and passing NAAWS "Heat Resistance Test.". Do not use adhesives that contain urea formaldehyde.

2.5 FABRICATION

- A. General:
 - 1. Obtain field measurements, and verify dimensions before fabricating work.
 - 2. Comply with NAAWS Custom Grade requirements and ANSI A161.2.
- B. Core Material: Specified MDF.
- C. Fabricate to dimensions, profiles, and details shown.
- D. Build up countertop thickness to 1-1/2 inches at front, back, and ends with additional layers of core material laminated to top.
- E. Provide specified backing sheet at configurations and installation conditions recommended in the woodworking standard.
- F. All other Countertops: Provide roll-form 180-degree edge.
- G. Unless otherwise shown, round projecting or outside corners with 3/4-inch minimum radius or clip 45-degree angle corner.
- H. Provide joints only where maximum available lengths or countertop configuration requires a joint and where interfacing with existing. Where joints are required, balance and center. Make joints neat, flush and watertight.
- I. To greatest extent possible, complete fabrication and assembly before shipment to site.
 - 1. Disassemble components only as necessary for shipment and installation.
 - 2. Where necessary for fitting at site, provide extra borders and edges so as to allow scribing and trimming to fit.
- J. Precut openings for applied fixtures and fitting, where possible. Field cuts shall be performed by the fabricator.
- K. Conceal all fasteners.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Verify that backing has been installed at appropriate locations for anchorage.
- B. Examine shop-fabricated work for completion. Complete work as required.

3.2 INSTALLATION

- A. Install countertops in accordance with Section 11 of the NAAWS and requirements shown on the Drawings.
- B. Install countertops and backsplashes with concealed fastenings, securely attaching to cabinet bases or countertop braces / brackets at 36 inches on center maximum. Scribe neatly to walls or other adjoining surfaces.
- C. Make joints neatly, with uniform appearance.
- D. Install work plumb, level, true, and straight, with no distortions. Install with no variation in flushness of adjoining surfaces.
- E. Countertops shall be installed as required so that the height from finish floor to top of counter, and sink rim where occurs, does not exceed the specified height at any location along the countertop after installation.
- F. Shim as required, using concealed shims.
- G. Sealant: Install sealant as specified in Section 07 9200, Joint Sealants, to close small unavoidable gaps between counter and abutting surfaces, and at sinks. Sealant shall not be a substitute for tightly scribed work.
- H. Install, at no additional charge, extra stock grommets where directed by Owner following completion of countertop installation.

END OF SECTION

PART 1 - GENERAL

1.1 SUMMARY

- A. The Requirements of General Conditions and Special Conditions apply to Work of this Section as if fully repeated herein.

1.2 WORK INCLUDED

- A. Provide a complete working installation with all material and equipment as shown and specified.
- B. Provide submittals and shop drawings.
- C. Make electrical connections for equipment furnished as part of Work of other Sections.
- D. Include sealing and fireproofing of conduits and cables.
- E. Electrical products shall be anchored and fastened to building elements and finishes as follows:
 - 1. Concrete Structural Elements: Provide expansion anchors and powder actuated anchors.
 - 2. Steel Structural Elements: Provide beam clamps and spring steel clips.
 - 3. Concrete Surfaces: Provide expansion anchors.
 - 4. Solid Masonry Walls: Provide expansion anchors.
 - 5. Sheet Metal: Provide sheet metal screws.
 - 6. Wood Elements: Provide wood screws.
- F. Provide as-built drawings.

1.3 QUALITY ASSURANCES

- A. Requirements of Regulatory Agencies:
 - 1. Nothing in the Contract Documents shall be construed to permit Work not conforming to applicable codes, laws, ordinances, rules or regulations.
 - 2. All installed or connected equipment shall be labeled or certified for its use by a nationally recognized testing laboratory.
 - 3. All materials and equipment shall be installed in accordance with manufacturer's recommendations and in accordance with the National Electrical Contractors Association (NECA) Standard of Installation.

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1.4 PERMITS, FEES AND INSPECTIONS

- A. Contractor shall obtain all permits and arrange for Owner to pay required fees to any governmental agency or utility company having jurisdiction over the work of this Section. Inspections required by any local ordinances or utility companies during construction shall be arranged by the Contractor.
- B. All work and materials covered by these specifications and accompanying drawings shall at all times be subject to inspection by the Architect or his representative. Any material not in accordance with the plans and specifications, or not installed in a neat and workmanlike manner, shall, upon order from the Architect, be removed from the premises or corrective action taken within three (3) days; and if material in question has been installed, the entire expense for removing and reinstalling shall be borne by the Contractor.
- C. On completion of the work, satisfactory evidence shall be furnished to the Architect to show that all work has been installed in accordance with the Codes.

1.5 SPECIFICATIONS AND CONTRACT DRAWINGS

- A. Accuracy of data given herein and on the drawings is as exact as could be secured, but their extreme accuracy is not guaranteed. The drawings and specifications are for the assistance and guidance of the Contractor and exact locations, distances, levels, etc., will be governed by the construction and the Contractor shall accept same with this understanding.
- B. Layouts of equipment, accessories and wiring systems are diagrammatic (not pictorial and not exact), but shall be followed as closely as possible. Architectural, structural, mechanical, and other drawings shall be examined noting all conditions that may affect this work. Where connections to equipment provided by other divisions are shown on electrical drawings, refer to drawings of respective division for exact locations and electrical requirements of equipment.
- C. Report conflicting conditions to the Architect for adjustment before proceeding with work. Should Contractor proceed with work without reporting conflict(s), he does so on his own responsibility, and shall alter work if directed by the Architect, at his own expense.
- D. Right is reserved to make minor changes in locations of equipment and wiring systems shown, providing change is ordered before conduit runs and/or work directly connected to same is installed and no extra materials are required.
- E. Drawings and specifications may be superseded by later detail specification and detail drawings prepared by the Architect, and the Contractor shall conform to them and to such reasonable changes in the contract drawings as may be called for by these revised drawings without extra cost to the Owner.
- F. Contractor may request additional detail(s) and such shall be conformed to, without additional cost. Contractor may offer alternate detail(s), but such detail(s) shall be approved by Architect and authority having jurisdiction

1.6 SUBMITTALS

A. Submission Requirements

1. Contractor is responsible for the scheduling of submittals in order to avoid detrimental impact to the construction schedule and to support the timely sequence of the Work. Allow a minimum of 15-working days for submittal review by the Engineer. Complex submittals or submittals which are not provided as complete packages may take longer than 15-working days for review. Contractor should allow time for potential rejection and re-submittal of submittals which are being offered as substitution to the specified products.
2. Contractor shall review submittals for completeness, coordination and conflicts between subcontractors and other work in the Contract Documents. Submittals made by Contractor which are not thoroughly reviewed by the Contractor will be returned. Submittals which vary significantly from the Contract Documents and are not so identified prior to submission, will be returned to the Contractor without review.
3. Make submissions within following number of days from issuance of Notice to Proceed or Start Letter
 - a. Items needed in initial stages of Work or requiring long lead-time for ordering: 15 calendar days.
 - b. All other items: 21 calendar days.
4. Before submitting a shop drawing or any related material, Contractor shall: review each such submission for conformance with the means, methods, techniques, sequences, and operations of construction, and safety precautions and programs incidental thereto, all of which are the sole responsibility of the Contractor; approve each such submission before submitting it; and stamp each such submission before submitting it. Engineer shall assume that no shop drawing or related submittal comprises a variation unless the Contractor advises the Engineer otherwise via a written instrument which is acknowledged by the Engineer in writing.
5. Engineer will check submittals for conformance with design concepts of project. Approval covers only such conformance. Effort will be made by Engineer to discover any errors, but responsibility for accuracy and correctness of all submittals shall be with the Contractor.
6. Approval of submittals will be on a general basis only and shall not relieve the Contractor from their responsibility for proper fitting and construction of the Work, nor from furnishing materials and labor required by the Contract which may not be indicated on the submittals when approved.
7. No portion of the work requiring submittals shall be commenced until the submittal for that portion of the work has been approved by Engineer. All such portions of work shall be in accordance with the approved submittal. Any work performed without approved submittals will be done so at the Contractor's own risk. Work found not to be in compliance with the approved submittals shall be removed and corrected at the Contractor's own expense.
8. Number of Copies Required - Contractor shall submit following number of copies:

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- a. Shop Drawings: 1-electronic copy in PDF format.
- b. Product Data/Material Lists: 1-electronic copy in PDF format.
- c. Samples: As specifically indicated in pertinent specification section.
- d. Substitution Request: 1-copy in PDF format
- 9. Submittals shall include (where applicable):
 - a. Date and revision dates.
 - b. Project title and number.
 - c. The names of Architect, Engineer, Contractor, Subcontractor and supplier or manufacturer.
 - d. Identification of product or material.
 - e. Relation to adjacent structure or material.
 - f. Field dimensions, clearly identified as such.
 - g. Specification section number.
 - h. A blank space for Engineer's stamp.
 - i. Contractor's stamp on each, initialed or signed, certifying that submittal was reviewed, field measurements have been verified and submittal is in compliance with the applicable specification section and the overall Contract Documents.
- 10. Incomplete, inaccurate or non-complying submittals requiring revisions, re-submittal and additional review time, shall not be considered as a basis for Contract time extension.
- 11. Two reviews will be made for each submittal. Additional reviews will be charged to the Contractor. A rejection of a submittal or review of a partially presented submittal constitutes one submittal review. Incomplete submittals, such as product data submitted without required shop drawings, will be returned without review.

B. Required Submittals

- 1. Various specification sections may state additional information to be submitted.
- 2. Submittals are required for all materials even though the submitted material may be exactly as specified in the Project Manual.
- 3. Electrical Materials Submittal:
 - a. Electrical materials include raceway, boxes, supports, finish material, etc.
- 4. Electrical Equipment Submittal:
 - a. Submit product data for all equipment.
 - b. Electrical equipment includes panelboards, switchboards, transformers, underground pullboxes, floor boxes, light fixtures, etc.
- 5. Low Voltage and Control Systems Submittals:
 - a. Provide product data for each item in the system.
 - b. Provide shop drawings for each system.
 - c. Low voltage and control systems include lighting controls, sound communications, fire alarm, etc.

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C. Product Data

1. Manufacturer's Standard Schematic Drawings:
 - a. Modify drawings to delete information which is not applicable to the Project.
 - b. Supplement standard information to provide additional information which is applicable to the Project.
2. Manufacturer's catalog sheets, brochures, diagrams, schedules, performance charts, illustrations and other standard descriptive data.
 - a. Clearly mark each copy to identify pertinent materials, products or models. Mark out or remove all extraneous information.
 - b. Show dimensions and clearances required.
 - c. Show performance characteristics and capacities.
 - d. Show wiring diagrams and controls.

D. Shop Drawings

1. Submit shop drawings as a copy of the original set maintained by the Contractor. Shop drawings are to include the name of the project, the name of Contractor and are to be numbered consecutively. Provide legible and complete copies in every respect. Provide quantity as described below. Do not reproduce bid document drawings in lieu of Contractor or subcontractor produced shop drawings.
2. Contract documents define the general scope of work. Contractor's submittal shall not be a duplication of the contract drawings, but shall be a result of site and system investigation and shall show all the work required. Do not reproduce bid document drawings in lieu of Contractor or subcontractor produced shop drawings.
3. If shop drawings show variations from Contract requirements because of standard shop practice or other reason, make specific mention of such variations in letter of transmittal, as well as on drawings, in order that (if acceptable) suitable action may be taken for proper adjustment of the Contract Documents. Unless specific changes have been noted and approved, no deviations from Contract Documents will be accepted.
4. If the shop drawings are accepted or rejected, all reviewed and stamped copies will be distributed to all parties. If corrections are required, the Contractor is responsible for making the necessary corrections and re-submitting the shop drawings in a timely fashion as to not affect the project schedule. The Contractor must secure final acceptance prior to commencing work involved.

E. Substitutions

1. Engineer's Approval Required:
 - a. Contract is based on materials, equipment and methods described in Contract Documents. Substitutions will not be reviewed and approved prior to the award of the contract.
 - b. Engineer will consider proposals during the submittal process for substitution of materials, equipment and methods only when such proposals are accompanied by full and complete technical data and all other information

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required by Engineer to evaluate proposed substitution. Substitution shall be submitted with completed Substitution Request Form.

- c. Do not substitute materials, equipment or methods unless such substitution has been specifically approved for this work by Engineer.
2. "Or Equal": Whenever, in Contract Documents, any material, process or specified patent or proprietary name and/or by name of manufacturer is indicated, such name shall be deemed to be used for purpose of facilitating description of material and/or process desired, and shall be deemed to be followed by the words "or equal", or "accepted equal", and Contractor may offer any material or process which shall be equal in every respect to that so indicated or specified; provided, however, that if material, process or article offered by Contractor is not, in opinion of Architect, equal in every respect to that specified, then Contractor must furnish material, process or article specified or one that in opinion of Engineer is equal thereof in every respect.
3. "No Substitutions": Items indicated as "No Substitutions" must be provided as specified and no alternates will be allowed. These items are required either due to District standards by the Board or to match materials recently installed by others.
4. Coordination: Approval of substitution shall not relieve Contractor from responsibility for compliance with all requirements of Drawings and Project Manual, and Contractor shall be responsible at his own expense for any changes in other parts of his own work or work of others which may be caused by approved substitution.
5. DSA Approval: Substitutions of certain items may cause such items to require a Deferred Approval by DSA. Should a DSA Deferred Approval be required, the Contractor shall provide all information and documents necessary to complete the Deferred Approval process without any additional costs to the Owner, including engineering, calculation and modification of substitute products.

1.7 OPERATION AND MAINTENANCE MANUALS

- A. General: Contractor shall incorporate in Maintenance/Operation Manual(s) all brochures, manufacturer's catalogs and written instructions for equipment and materials needing regular care or maintenance and other items as required elsewhere in project documents. Prepare all such manuals in durable plastic loose leaf binders size to accommodate 8-1/2 x 11 sheets with following minimum data:
 1. Identification on or readable through, front cover stating general nature of manual.
 2. Neatly typewritten index of all contents.
 3. Site plan and building plans indicating location of equipment referenced (reduced scale).
 4. Complete instructions regarding operation, maintenance, replacement instructions and programming instructions of all equipment involved.
 5. Complete nomenclature of all replaceable parts, their part numbers, current cost and name and address of nearest vendor of parts.
 6. Copy of all guarantees and warranties issued, in a separate binder as specified in this section.

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7. Copy of approved shop drawings (reduced scale) with all data concerning changes made during construction.
- B. Extraneous Data:
1. Where contents of manuals include manufacturer's catalog pages, clearly indicate precise items included in the Project installation and delete, or otherwise clearly indicate, all manufacturer's data with which the Project installation is not concerned.
- C. Materials shall be organized in a logical and consistent manner, by specification section number, with separating tabs clearly marked.
- D. Data shall be provided for:
1. Panelboards
 2. Lighting Fixtures
 3. Lighting Control System
 4. Stage Lighting System
 5. Emergency Lighting System
 6. Sound and Signal Systems
 7. Intrusion Alarm System
 8. Clock System
 9. Fire Alarm System
- E. In addition to the requirements above, contractor shall provide final programming information to District on disk for all systems requiring programming.

1.8 RECORD DRAWINGS (AS-BUILTS)

- A. At time of installation, installed locations of all underground work shall be recorded on prints by Contractor, and reviewed with Inspector. Record drawings are to be maintained and adjusted on a daily basis by the Contractor.
- B. All information entered on drawings copy shall be neat, legible and emphasized by drawing "clouds" around changed items. Changes shall be made in an accurate manner by a qualified draftsperson acceptable to Architect. Completed Record Drawings shall be signed by the Contractor.
- C. Locate and dimension all major equipment and underground work, including stubs and pullboxes. Provide dimensions from curbs, foundations, or other permanent landmarks.
- D. All symbols and designations used in preparing record drawings shall match those used in the Contract Drawings.
- E. Record drawing shall be up-dated monthly.
- F. Record drawing signoff:

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1. At such time that the underground work has been completed, all the contractors and sub contractors notes, sketch and miscellaneous drawings documenting installed locations not currently part of the ongoing record drawing set shall be transferred. These updates shall be reviewed for accuracy by the inspector of record and architect. Once all corrections have been completed the inspector shall sign and date the record set coversheet noting it as acceptance of the underground phase of record drawings.
2. At project completion, the record drawings shall be submitted by the contractor for project inspector and architect review and comment. These will be returned to the contractor for revisions. Once all corrections have been completed the inspector shall sign and date the record set coversheet noting it as acceptance of the completed record drawings. The original record drawings are to be resubmitted to the architect along with a scanned electronic file set in PDF format with file names matching the drawing titles.

1.9 GUARANTEES

- A. Standard Guarantee: Provide individual as well as overall guarantees for all work executed under this Contract or any extra work to be absolutely free of all defects of workmanship and materials for a period of two years from the date of filing of notice of completion and acceptance by Owner. Repair and make good all such defects and repair any damage to other work caused thereby which may occur during same period at no cost to the owner.
- B. Indicate on Guarantee Form specific provisions required by individual specification sections. List all special requirements, extended periods, bonding, etc.
- C. Additional Guarantees: Provide additional guarantees (in excess of year(s) required by Standard Guarantee) where specifically required by pertinent Specification Sections.
- D. Binder: Provide a binder with all guarantees placed in the order in which they occur in the project manual. Include an Index of Guarantees listing each specification section, specific items covered and length of guarantee for each item.

1.10 SITE EXAMINATION AND CONDITIONS

- A. Examine site; verify dimensions and locations against Drawings and become informed of all conditions under which Work is to be done before submitting proposals.
- B. Where signal systems exist, and services of other firms are required, Contractor shall instruct those firms to investigate existing systems and determine labor and materials needed to add devices or modify systems.
- C. Where new conduits are to be run underground at existing sites, contractor shall visit site prior to bidding and walk routes of new underground conduits, note areas of concrete and asphalt being crossed, and include in bid all costs for cutting and patching.
- D. Where existing conduits are shown, their location is diagrammatic and their exact location may not be known.

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- E. No allowances shall subsequently be made in Contractor's behalf for any extra expense to which he or his "subs" may be put due to failure or neglect to discover conditions affecting the work.

1.11 UTILITY COMPANY COORDINATION:

- A. Immediately after award of contract, Contractor shall contact utility company representatives for power, telephone, and TV services. Contractor shall obtain specific requirements and details from respective representative. Contractor shall discuss the aspects of the project related to services and coordinate scheduling of the work and inspections required by utility companies.

1.12 UNDERGROUND UTILITIES:

- A. Existing underground utilities, services, circuits, piping, irrigation piping, etc., are present, but their exact locations are not known. Contractor shall locate and protect before trenching or excavating in any area. Consult utility companies, "as-built drawings" and Owner's maintenance personnel for location of existing underground work. If existing piping or utilities are damaged during construction. Contractor shall repair immediately at own expense. New underground work shall be modified as necessary to conform to existing conditions.

1.13 CLEANING AND CLEANUP

- A. After all work has been accomplished such as sanding, painting, etc., lighting fixtures, panelboards, and switchboards shall be cleaned to remove all dust, dirt, grease, paint, or other marks. All electrical equipment shall be left in a clean condition inside and out, satisfactory to the Architect. Keep buildings and premises free from accumulated waste materials, rubbish, and debris resulting from work herein, and, upon completion of said work, remove tools, appliances, surplus materials, waste materials, rubbish, debris, and accessory items used in or resulting from said work and legally dispose of off the site.

1.14 PROTECTION

- A. The Contractor shall protect from damage during construction the work and materials of other trades as well as the electrical work and material. Electrical equipment stored and installed on the job site shall be protected from dust, water, or any other damage.

1.15 WORKING SPACE

- A. Adequate working space shall be provided around electrical equipment in strict compliance with the Codes. In general, provide 6'6" of headroom and 36" minimum clear work space in front of switchboards, panelboards, transformers, disconnect switches and controls for 120/208 volts and 42" for 277/480 volts. Carefully coordinate locations and orientation of electrical equipment with other divisions to ensure that working space will be clear of piping, conduits, and equipment provided by others.

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1.16 COOPERATION AND COORDINATION

- A. Cooperate and coordinate with other crafts in putting the installation in place at a time when the space required by this installation is accessible. Work done without regard to other crafts shall be moved at the Contractor's expense.

1.17 INSPECTION

- A. The Contractor shall cooperate with the Architect and shall provide assistance at all times for the inspection of the electrical work performed under this contract. He shall remove covers, operate machinery, or perform any reasonable work which, in the opinion of the Engineer, will be necessary to determine the quality and adequacy of the work.

1.18 MANUFACTURER'S DIRECTIONS

- A. Follow manufacturer's directions where these directions cover points not included on the drawings or in the specifications. When equipment is provided by other divisions, obtain directions from respective supplier.

1.19 WORKMANSHIP

- A. Good workmanship shall be evidenced in the installation of all electrical materials and equipment. Equipment shall be level, plumb and true with the structure and other equipment. All materials shall be firmly secured in place and adequately supported and permanent. The recommendations of the National Electrical Contractors Association Standard of installation shall be followed except where otherwise specifically directed.

1.20 OPERATING TEST

- A. After the installation is complete, and at such time as the Engineer and other authorities having jurisdiction may request, the Contractor shall conduct an operating test for approval.

PART 2 - PRODUCTS

2.1 NOT USED

PART 3 - EXECUTION

3.1 GENERAL

- A. Manufacturer's Directions: Follow manufacturer's directions where manufacturers of articles used furnish directions covering points not specified or shown.
- B. All Work shall be done in orderly, workmanlike manner and present neat appearing installation when completed.

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- C. Provide metal backing plates, anchor plates, and similar items that are required for anchorage for the Work of this Section; securely weld or bolt to metal framing. Wood blocking or backing will not be permitted in combination with metal framing.
- D. Equipment: Accurately set and level, neatly place support and anchor properly. Anchorage shall conform to the requirements of California Building Code. No allowance will be made for negligence to foresee means of placing, installing or supporting equipment in position.
- E. Electrical products shall be anchored and fastened to building elements and finishes as follows:
 - 1. Concrete Structural Elements: Provide expansion anchors and powder actuated anchors.
 - 2. Steel Structural Elements: Provide beam clamps and spring steel clips.
 - 3. Concrete Surfaces: Provide expansion anchors.
 - 4. Solid Masonry Walls: Provide expansion anchors.
 - 5. Sheet Metal: Provide sheet metal screws.
 - 6. Wood Elements: Provide wood screws.

3.2 TESTING AND ADJUSTING

- A. Furnish all labor and test equipment required for the Work of this Division. Testing work is defined as that work necessary to establish that equipment has been properly assembled, connected, and checked to verify that intent and purpose of Drawings, manufacturer's instruction manuals, and directions of Architect have been accomplished in satisfactory manner.
- B. Test each individual circuit at panel with equipment connected for proper operation.
- C. Test each individual receptacle device for proper polarity and grounding.
- D. Test each ground fault circuit interrupter for proper operation.

- END OF SECTION -

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PART 1 - GENERAL

1.1 SECTION INCLUDES:

- A. Removal of existing electrical equipment, wiring, and conduit in areas to be remodeled; removal of designated construction; dismantling, cutting and alterations for completion of the Work.
- B. Disposal of materials.
- C. Storage of removed materials.
- D. Identification of utilities.
- E. Salvaged items.
- F. Protection of items to remain as indicated on Drawings.
- G. Relocate existing equipment to accommodate construction.

1.2 CLOSEOUT SUBMITTALS

- A. Project Record Documents: Record actual locations of capped utilities, conduits, and equipment abandoned in place.

1.3 QUALITY ASSURANCE

- A. Perform Work in accordance with State, Municipality, Highways, and Public Work's standard.

1.4 SCHEDULING

- A. Schedule work to coincide with new construction.
- B. Cease operations immediately when structure appears to be in danger and notify Architect/Engineer. Do not resume operations until directed.

1.5 COORDINATION

- A. Conduct demolition to minimize interference with adjacent and occupied building areas.
- B. Coordinate demolition work with Owner's representative and all other disciplines.
- C. Coordinate and sequence demolition so as not to cause shutdown of operation of surrounding areas.
- D. Shut-down Periods:

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1. Arrange timing of shut-down periods of in service panels with Owner's representative. Do not shut down any utility without prior written approval.
 2. Keep shut-down period to minimum or use intermittent period as directed by Owner's representative.
 3. Maintain life-safety systems in full operation in occupied facilities, or provide notice minimum 72 hours in advance.
- E. Identify salvage items in cooperation with Owner.

PART 2 - PRODUCTS

2.1 NOT USED

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify wiring and equipment indicated to be demolished serve only abandoned facilities.
- B. Verify termination points for demolished services.
- C. Verify extent of demolition work required. Drawings show the general demolition scope and may not show all required work.

3.2 PREPARATION

- A. Take care to ensure that there will be no damage to structural elements or portions thereof-which are not to be removed. Erect and maintain temporary shoring, bracing, and other means to safeguard the structural integrity of the existing buildings and structures.
- B. Erect, and maintain temporary safeguards, including warning signs and lights, barricades, and similar measures, for protection of the public, Owner, Contractor's employees, and existing improvements to remain.
- C. Protect existing structures, facilities, and plant life from damage. Items damaged because of demolition operations shall be repaired or replaced, at no cost to the Owner.
- D. Interruption of Service:
 1. Services (power, telephone, fire alarm and other signal services) to existing building(s) and their related circuits which are to remain in operation shall not be interrupted except by specific approval of the Owner.
 2. Make temporary connections to maintain service in areas adjacent to work area.
 3. If it is deemed necessary to shut down circuits for the installation of new work, such shut down shall be scheduled with the Owner who may, at his option, have a representative present.

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4. Any accidental interruption of service to circuits or equipment as a result of work performed by the Contractor shall, at the Contractor's expense, be restored in a manner acceptable to the Owner.
5. Fire Alarm and Intrusion Alarm Systems:
 - a. Fire alarm system must be kept operational during work of this contract. If operation of existing system or portion of existing system is disrupted for connections into system or cutoff for any reason by work of this project, Contractor must provide fire watch. Fire watch must occur 24-hours per day and every day system is down. Fire watch proposed by Contractor must be acceptable to local fire authority and Owner. All costs for fire watch shall be Contractor's responsibility.
 - b. Intrusion alarm system must be kept operational during unoccupied hours. In the event that the system or portion of system is nonoperational during off-hour periods as a result of work of this contract, the Contractor must provide guard(s) to patrol the campus. Guard(s) and guard duties proposed by Contractor must be acceptable to District and District Police (local enforcement if District does not have its own Police Services). All costs for security guard(s) shall be Contractor's responsibility.

3.3 DEMOLITION

- A. Demolition Drawings are based on casual field observation and existing record documents. Report discrepancies to Owner or Architect/Engineer before disturbing existing installation.
- B. Completely remove items shown to be removed on plans. Remove all associated raceways, supports, boxes, wiring, etc.
- C. When walls or ceilings are opened up during construction, remove any abandoned raceways, boxes, supports, wiring, etc.
- D. Cut conduit flush with walls and floors, and patch surfaces.
- E. Where devices are removed and flush outlet box is to remain, provide blank cover plates.
- F. Where removal of a device cuts off circuits to devices that are to remain, make connections as required to maintain the existing circuits.
- G. Remove conduit, wire, boxes, and fastening devices to avoid any interference with new installation.
- H. Disconnect abandoned outlets and remove devices. Remove abandoned outlets if conduit and wiring servicing them is abandoned and removed. Provide blank cover for abandoned outlets which are not removed.
- I. Disconnect and remove abandoned panelboards and distribution equipment.

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- J. Disconnect and remove electrical devices and equipment serving utilization equipment that has been removed.
- K. Disconnect and remove abandoned luminaires. Remove brackets, stems, hangers, and other accessories.
- L. Disconnect electrical systems in walls, floors, and ceilings scheduled for removal.
- M. Remaining Circuits and Equipment: Reinstall existing electrical installations disturbed. Certain existing electrical installations may be in walls, ceilings or floors that are to be removed and are essential for the operation of other remaining installations. Where this condition occurs provide a new extension of original circuits, raceways, equipment and outlets to retain service continuity. Installations shall be concealed in finished areas.
- N. Reconnect equipment being disturbed by renovation work and required for continue service to or nearest available panel.
- O. Disconnect or shut off service to areas where electrical work is to be removed. Remove electrical fixtures, equipment, and related switches, outlets, conduit and wiring which are not part of final project.
- P. Install temporary wiring and connections to maintain existing systems in service during construction.
- Q. Perform work on energized equipment or circuits with experienced and trained personnel.
- R. Remove, relocate, and extend existing installations to accommodate new construction.
- S. Repair adjacent construction and finishes damaged during demolition and extension work.
- T. Remove exposed abandoned grounding and bonding components, fasteners and supports, and electrical identification components, including abandoned components above accessible ceiling finishes. Cut embedded support elements flush with walls and floors.
- U. Clean and repair existing equipment to remain or to be reinstalled.
- V. Protect and retain power to existing active equipment remaining.
- W. Cap abandoned empty conduit at both ends.
- X. Jack-hammering
 - 1. Jack-hammering will be permitted only to a limited degree, and only with the prior written approval of the Owner.
 - 2. Do not jack-hammer within 2-inches of reinforcing or structural steel to remain; remove final 2-inches of material with chipping gun.

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3.4 EXISTING PANELBOARDS

- A. Ring out circuits in existing panel affected by the Work. Where additional circuits are needed, reuse circuits available for reuse. Install new breakers.
- B. Tag unused circuits as spare.
- C. Where existing circuits are indicated to be reused, use sensing measuring devices to verify circuits feeding Project area or are not in use.
- D. Remove existing wire no longer in use from panel to equipment.
- E. Provide new updated directories where more than three circuits have been modified or rewired.

3.5 SALVAGE ITEMS

- A. Remove and protect items indicated on Drawings to be salvaged and turn over to Owner.
- B. Items of salvageable value may be removed as work progresses. Transport salvaged items from site as they are removed.

3.6 REUSABLE ELECTRICAL EQUIPMENT

- A. Carefully remove equipment, materials, or fixtures which are to be reused.
- B. Disconnect, remove, or relocate existing electrical material and equipment interfering with new installation.
- C. Relocate existing lighting fixtures as indicated on Drawings. Clean fixtures and re-lamp. Test fixture to see if it is in good working condition before installation at new location.

3.7 CUTTING AND PATCHING

- A. Make new openings neat, as close as possible to profiles indicated, and only to extent necessary for new work.
- B. Do not cut or alter structural members unless specifically indicated or approved, and do not damage reinforcing or structural steel to remain.
- C. At concrete, masonry, paving, and other materials where edges of cuts and holes will remain exposed in the completed work, make cuts using power-sawing and coring equipment. Do not over cut at corners of cut openings – saw overruns will not be permitted. Core hole at corner of proposed openings to insert blade and chip square.
- D. Upon completion of cutting and coring, clean remaining surfaces of loose particles and dust.

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- E. Repair and patch all holes and openings from the removed electrical equipment, outlet boxes, etc. Coordinate with the General Contractor and the Architect to include and provide finished to match adjacent area.

3.8 CLEANING

- A. Remove demolished materials as work progresses. Legally dispose.
- B. Keep workplace neat.
- C. Clean surfaces on which new materials will be applied, removing adhesives, bitumen, and other adhering materials, as necessary to furnish acceptable substrates for new materials.
- D. Perform sandblasting, chipping, grinding, acid washing, etching, and other work as required by conditions encountered and new materials involved
- E. Use of acids or other cleaning agents shall include neutralizing, washing, rinsing, and drying, as applicable.
- F. Determine substrate requirements for reconditions surfaces in cooperation with the manufacturer's representative and installer of each new installer involved.
- G. Clean surfaces on which new materials will be applied, removing adhesives, bitumen, and other adhering materials, as necessary to furnish acceptable substrates for new materials.

3.9 PROTECTION OF FINISHED WORK

- A. Do not permit traffic over unprotected floor surface.

- END OF SECTION -

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PART 1 - GENERAL

1.1 SUMMARY

1. Section includes building wire and cable, wiring connectors and connections.

1.2 REFERENCES

- A. International Electrical Testing Association:
 1. NETA ATS - Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems.
- B. National Fire Protection Association:
 1. NFPA 70 - National Electrical Code with California Amendments.
 2. NFPA 262 - Standard Method of Test for Flame Travel and Smoke of Wires and Cables for Use in Air-Handling Spaces.
- C. Underwriters Laboratories, Inc.:
 1. UL 1277 - Standard for Safety for Electrical Power and Control Tray Cables with Optional Optical-Fiber Members.

1.3 SYSTEM DESCRIPTION

- A. Product Requirements: Provide products as follows:
 1. All wiring shall be copper.
 2. All wiring shall be installed in raceway.
 3. Solid conductor for feeders and branch circuits 10 AWG and smaller.
 4. Stranded conductors for control circuits.
 5. Conductor not smaller than 12 AWG for power and lighting circuits.
 6. Conductor not smaller than 14 AWG for control circuits.
 7. Increase wire size in branch circuits to limit voltage drop to a maximum of 3 percent.
 8. 10 AWG conductors for 20 ampere or larger as designated on plans for 120 volt branch circuit home runs longer than 75 feet.
 9. 10 AWG conductors for 20 ampere or larger as designated on plans for 277 volt branch circuit home runs longer than 200 feet.

1.4 WIRING METHODS: PROVIDE THE FOLLOWING WIRING METHODS:

- A. Concealed Dry Interior Locations: Use only building wire, Type THHN/THWN-2 insulation, in raceway.

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- B. Exposed Dry Interior Locations: Use only building wire, Type THHN/THWN-2 insulation, in raceway.
- C. Above Accessible Ceilings: Use only building wire, Type THHN/THWN-2 insulation, in raceway.
- D. Wet or Damp Interior Locations: Use only building wire, Type THHN/THWN-2 insulation, in raceway.
- E. Exterior Locations: Use only building wire, Type XHHW-2 insulation, in raceway.
- F. Underground Locations: Use only building wire, Type XHHW-2 insulation, in raceway.

1.5 DESIGN REQUIREMENTS

- A. Conductor sizes are based on copper.

1.6 SUBMITTALS

- A. Refer to 26 0000.

1.7 QUALITY ASSURANCE

- A. Provide wiring materials located in plenums with peak optical density not greater than 0.5, average optical density not greater than 0.15, and flame spread not greater than 5 feet when tested in accordance with NFPA 262.
- B. Perform Work in accordance with State, Municipality, Highways, and Public Work's standard.
- C. Maintain one copy of each document on site.

1.8 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years documented experience.

1.9 FIELD MEASUREMENTS

- A. Verify field measurements are as indicated on Drawings.

1.10 COORDINATION

- A. Where wire and cable destination is indicated and routing is not shown, determine routing and lengths required.
- B. Wire and cable routing indicated is approximate unless dimensioned.

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- C. Determine required separation between wire, cable and other work. Determine cable routing to avoid interference with other work.

PART 2 - PRODUCTS

2.1 BUILDING WIRE

- A. Product Description: Single conductor insulated wire.
- B. Conductor: Copper.
- C. Insulation Voltage Rating: 600 volts.
- D. Insulation Temperature Rating: 75 or 90 degrees C.
- E. Insulation Material: Thermoplastic.

2.2 PLASTIC TAPE:

- A. Black 7 mil thick general purpose electrical tape, Scotch 33 plus or equal.

2.3 INSULATING RESIN:

- A. Use two part liquid epoxy resin with resin and catalyst in premeasured, sealed mixing pouch. Scotchcast 4 or equivalent.

2.4 REDUCING ADAPTERS:

- A. Burndy, Thomas and Betts or approved equal.

2.5 TERMINATIONS

- A. Terminal Lugs for Wires 6 AWG and Smaller: Solderless, compression type copper.
- B. Lugs for Wires 4 AWG and Larger: Color keyed, compression type copper, with insulating sealing collars.

2.6 SPLICES:

- A. #10 and smaller, including fixture taps - pre-insulated coiled-spring type connectors, 3M Scotchlocks, T&B Piggys, or equal.
- B. #8 to #4, Split bolt service connectors, T&B locktite, Burndy Servit, or equal, insulated with Scotch #88, Okoweld four purpose tape, or equal.
- C. #2 and larger, bolted pressure connectors, OZ ST, Burndy OKLIP, or equal, insulated with "Scotchfill" and Scotch #88 or Okoweld four purpose tape.

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PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify interior of building has been protected from weather.
- B. Verify mechanical work likely to damage wire and cable has been completed.
- C. Verify raceway installation is complete and supported.

3.2 PREPARATION

- A. Completely and thoroughly swab raceway before installing wire.

3.3 EXISTING WORK

- A. Remove exposed abandoned wire and cable, including abandoned wire and cable above accessible ceiling finishes. Patch surfaces where removed cables pass through building finishes.
- B. Disconnect abandoned circuits and remove circuit wire and cable. Remove abandoned boxes when wire and cable servicing boxes is abandoned and removed. Install blank cover for abandoned boxes not removed.
- C. Provide access to existing wiring connections remaining active and requiring access. Modify installation or install access panel.
- D. Extend existing circuits using materials and methods as specified.
- E. Clean and repair existing wire and cable remaining or wire and cable to be reinstalled.

3.4 INSTALLATION

- A. Route wire and cable to meet Project conditions.
 - 1. Wire and cable routing indicated is approximate unless dimensioned.
 - 2. Where wire and cable destination is indicated and routing is not shown, determine exact routing and lengths required.
 - 3. Include wire and cable of lengths required to install connected devices within 10 ft. of location shown.
- B. Neatly train and lace wiring inside boxes, equipment, and panelboards.
- C. Identify and color code wire and cable. Identify each conductor with its circuit number or other designation indicated.
- D. Special Techniques--Building Wire in Raceway:

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1. Pull conductors into raceway at same time.
 2. Install building wire 4 AWG and larger with pulling equipment.
 3. Use suitable cable fittings and connectors.
- E. Special Techniques - Wiring Connections:
1. Clean conductor surfaces before installing lugs and connectors.
 2. Make splices, taps, and terminations to carry full ampacity of conductors with no perceptible temperature rise.
 3. Tape uninsulated conductors and connectors with electrical tape to 150 percent of insulation rating of conductor.
 4. Install bolted pressure connectors for copper conductor splices and taps, 2 AWG and larger.
 5. Install split bolt connectors with for copper conductor splices and taps, 8 AWG to 4 AWG.
 6. Install insulated spring wire connectors with plastic caps for copper conductor splices and taps, 10 AWG and smaller.
 7. Encapsulate below grade splices at outlet, pull and junction boxes with specified insulating resin kits. Make all splices watertight.
 8. Install waterproof wire connectors with plastic caps for copper conductor splices and taps, 10 AWG and smaller in outdoor or wet locations.
 9. Where oversized cables are used to accommodate voltage drop, whether a single or parallel feeder, provide appropriate reducing adapter and conductors for termination.
- F. Install stranded conductors for branch circuits 10 AWG and smaller. Install crimp on fork terminals for device terminations. Do not place bare stranded conductors directly under screws.
- G. Install terminal lugs on ends of 600 volt wires unless lugs are furnished on connected device, such as circuit breakers.
- H. Size lugs in accordance with manufacturer's recommendations terminating wire sizes. Install 2-hole type lugs to connect wires 4 AWG and larger to copper bus bars.
- I. For terminal lugs fastened together such as on motors, transformers, and other apparatus, or when space between studs is small enough that lugs can turn and touch each other, insulate for dielectric strength of 2-1/2 times normal potential of circuit.

3.5 WIRE COLOR

- A. General:
1. For wire sizes 10 AWG and smaller, install wire colors in accordance with the following:

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- a. Black and red for single phase circuits at 120/240 volts.
 - b. Black, red, and blue for circuits at 120/208 volts single or three phase.
 - c. Orange, brown, and yellow for circuits at 277/480 volts single or three phase.
2. For wire sizes 8 AWG and larger, identify wire with colored tape at terminals, splices and boxes. Colors are as follows:
 - a. Black and red for single phase circuits at 120/240 volts.
 - b. Black, red, and blue for circuits at 120/208 volts single or three phase.
 - c. Orange, brown, and yellow for circuits at 277/480 volts single or three phase.
- B. Neutral Conductors: White. When two or more neutrals are located in one conduit, individually identify each with proper circuit number.
- C. Branch Circuit Conductors: Install three or four wire home runs with each phase uniquely color coded.
- D. Feeder Circuit Conductors: Uniquely color code each phase.
- E. Ground Conductors:
 1. For 6 AWG and smaller: Green.
 2. For 4 AWG and larger: Identify with green tape at both ends and visible points including junction boxes.

3.6 FIELD QUALITY CONTROL

- A. Inspect and test in accordance with NETA ATS, except Section 4.
- B. Perform inspections and tests listed in NETA ATS, Section 7.3.1.

- END OF SECTION -

PART 1 - GENERAL

1.1 SECTION INCLUDES:

- A. Rod electrodes.
- B. Wire.
- C. Grounding well components.
- D. Mechanical connectors.
- E. Exothermic connections.

1.2 REFERENCES

- A. Institute of Electrical and Electronics Engineers:
- B. IEEE 142 - Recommended Practice for Grounding of Industrial and Commercial Power Systems.
- C. IEEE 1100 - Recommended Practice for Powering and Grounding Electronic Equipment.
- D. International Electrical Testing Association:
- E. NETA ATS - Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems.
- F. National Fire Protection Association:
- G. NFPA 70 - National Electrical Code, with California Amendments.
- H. NFPA 99 - Standard for Health Care Facilities.

1.3 SYSTEM DESCRIPTION

- A. Grounding systems use the following elements as grounding electrodes:
- B. Metal underground water pipe.
- C. Metal building frame.
- D. Concrete-encased electrode.
- E. Ground ring.
- F. Rod electrode.

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- G. Plate electrode.

1.4 PERFORMANCE REQUIREMENTS

- A. Grounding System Resistance: 25 ohms maximum.

1.5 SUBMITTALS

- A. Product Data: Submit data on grounding electrodes and connections.

1.6 CLOSEOUT SUBMITTALS

- A. Project Record Documents: Record actual locations of components and grounding electrodes.
- B. Test Reports: Indicate overall resistance to ground and resistance of each electrode.

1.7 QUALITY ASSURANCE

- A. Provide grounding materials conforming to requirements of NEC, IEEE 142, and UL labeled.
- B. Perform Work in accordance with State, Municipality, Highways, and Public Work's standard.
- C. Maintain one copy of each document on site.

1.8 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing Products specified in this section with minimum three years documented experience.
- B. Installer: Company specializing in performing work of this section with minimum 3 years documented experience.

1.9 PRE-INSTALLATION MEETINGS

- A. Convene minimum one week prior to commencing work of this section.

1.10 DELIVERY, STORAGE, AND HANDLING

- A. Accept materials on site in original factory packaging, labeled with manufacturer's identification.
- B. Protect from weather and construction traffic, dirt, water, chemical, and mechanical damage, by storing in original packaging.
- C. Do not deliver items to project before time of installation. Limit shipment of bulk and multiple-use materials to quantities needed for immediate installation.

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1.11 COORDINATION

- A. Complete grounding and bonding of building reinforcing steel prior concrete placement.

PART 2 - PRODUCTS

2.1 ROD ELECTRODES

- A. Product Description:
- B. Material: Copper.
- C. Diameter: 0.75 inch.
- D. Length: 10 feet.
- E. Connector: Connector for exothermic welded connection.

2.2 WIRE

- A. Material: Stranded copper.
- B. Foundation Electrodes: 4/0 AWG or as indicated on drawings.
- C. Grounding Electrode Conductor: Copper conductor insulated.
- D. Bonding Conductor: Copper conductor insulated.

2.3 GROUNDING WELL COMPONENTS

- A. Well Pipe: 8 inches by 24 inches long concrete pipe with belled end.
- B. Well Cover: Cast iron with legend "GROUND" embossed on cover.

2.4 MECHANICAL CONNECTORS

- A. Description: Bronze connectors, suitable for grounding and bonding applications, in configurations required for particular installation.

2.5 EXOTHERMIC CONNECTIONS

- A. Product Description: Exothermic materials, accessories, and tools for preparing and making permanent field connections between grounding system components.

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PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify final backfill and compaction has been completed before driving rod electrodes.

3.2 PREPARATION

- A. Remove paint, rust, mill oils, surface contaminants at connection points.

3.3 EXISTING WORK

- A. Modify existing grounding system to maintain continuity to accommodate renovations.
- B. Extend existing grounding system using materials and methods as specified.

3.4 INSTALLATION

- A. Install in accordance with IEEE 142 and 1100.
- B. Accomplish grounding of electrical system by using insulated grounding conductor installed with feeders and branch circuit conductors in conduits. Size grounding conductors in accordance with NEC. Install from grounding bus of serving panel to ground bus of served panel, grounding screw of receptacles, lighting fixture housing, light switch outlet boxes or metal enclosures of service equipment. Ground conduits by means of grounding bushings on terminations at panelboards with installed number 12 conductor to grounding bus.
- C. Permanently ground entire light and power system in accordance with NEC, including service equipment, distribution panels, lighting panelboards, switch and starter enclosures, motor frames, grounding type receptacles, and other exposed non-current carrying metal parts of electrical equipment.
- D. Each building shall have its own grounding electrode. Metal water and gas piping, and building structural steel, shall be bonded to grounding electrode at first panel ground bus unless detailed otherwise on the Drawings.
- E. Unless detailed otherwise on drawings, grounding electrode(s) shall be foundation ground grid(s) consisting of two opposing runs of 25' lengths of #4/0 soft drawn bare copper conductors installed at bottom of foundation with 2" of concrete between conductors and earth, encased in concrete their entire length exclusive of tails for connections to equipment. Keep conductors separated from reinforcing steel by use of insulating tape. Conductors shall be interconnected by the Cadweld process using molds and charges according to manufacturer's recommendations. Tails for connection to equipment where shown or called for on drawings shall provide not less than 24" length above finished floor level. Protect all tails against damage.

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- F. Grounding electrodes and connections to building water and gas mains or building structural steel shall have insulated conductors run in conduit directly to service ground bus separate from any other grounding conductor.
- G. Install rod electrodes at locations as indicated on Drawings. Install additional rod electrodes to achieve specified resistance to ground.
- H. Install grounding and bonding conductors concealed from view.
- I. Provide grounding bar in electrical room, closet, etc. for grounding of low voltage (LV) equipment, racks and the like. Refer to drawings for detail. Locate grounding bar adjacent to data communication rack.
- J. Install grounding well pipe with cover at each rod location. Install well pipe top flush with finished grade.
- K. Bond together metal siding not attached to grounded structure; bond to ground.
- L. Bond together reinforcing steel and metal accessories in pool and fountain structures.
- M. Install ground grid under access floors. Construct grid of 4 AWG bare copper wire installed on 24 inch centers both ways. Bond each access floor pedestal to grid.
- N. Bond together each metallic raceway, pipe, duct and other metal object entering space under access floors. Bond to underfloor ground grid. Install 2 AWG bare copper bonding conductor.
- O. Equipment Grounding Conductor: Install separate, insulated conductor within each feeder and branch circuit raceway. Terminate each end on suitable lug, bus, or bushing.
- P. All grounding type receptacles shall have grounding contact connected to a grounding conductor. Grounding conductor may be code size green insulated copper conductor installed in circuit raceway or may be metallic raceway. If metallic raceway is used as grounding conductor, a green insulated copper conductor must connect receptacle grounding contact to lug or screw terminal in outlet box or to grounding bushing at raceway. Isolated grounding type receptacles shall have code sized green insulated copper conductor installed in circuit raceway.
- Q. Connect to site grounding system.
- R. Install continuous grounding using underground cold water system and building steel as grounding electrode. Where water piping is not available, install artificial station ground by means of driven rods or buried electrodes.
- S. Install branch circuits feeding isolated ground receptacles with separate insulated grounding conductor, connected only at isolated ground receptacle, ground terminals, and at ground bus of serving panel.

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- T. Grounding electrical system using continuous metal raceway system enclosing circuit conductors in accordance with NEC.
- U. Permanently attach equipment and grounding conductors prior to energizing equipment.

3.5 FIELD QUALITY CONTROL

- A. Inspect and test in accordance with NETA ATS, except Section 4.
- B. Grounding and Bonding: Perform inspections and tests listed in NETA ATS, Section 7.13.
- C. Perform ground resistance testing in accordance with IEEE 142.
- D. Perform leakage current tests in accordance with NFPA 99.
- E. Perform continuity testing in accordance with IEEE 142.
- F. When improper grounding is found on receptacles, check receptacles in entire project and correct. Perform retest.

3.6 INDEPENDENT TESTING ORGANIZATION AND PERSONNEL

- A. Obtain the services of an independent third-party testing organization to perform electrical tests.
- B. Independent testing organization and personnel shall meet the requirements of NETA ATS 3.1 and 3.2.
- C. Tests shall be performed using a Megger Earth Tester or equivalent.
- D. Provide written test results and a final report of electrical tests per NETA ATS 5.4 to Engineer.

- END OF SECTION -

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Conduit supports.
 - 2. Formed steel channel.
 - 3. Spring steel clips.
 - 4. Sleeves.
 - 5. Mechanical sleeve seals.
 - 6. Firestopping relating to electrical work.
 - 7. Firestopping accessories.
 - 8. Equipment bases and supports.

1.2 REFERENCES

- A. ASTM International:
 - 1. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
 - 2. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials.
 - 3. ASTM E814 - Standard Test Method for Fire Tests of Through-Penetration Fire Stops.
 - 4. ASTM E1966 - Standard Test Method for Fire-Resistive Joint Systems.
- B. FM Global:
 - 1. FM - Approval Guide, A Guide to Equipment, Materials & Services Approved by Factory Mutual Research for Property Conservation.
- C. National Fire Protection Association:
 - 1. NFPA 70 - National Electrical Code with California Amendments.
- D. Underwriters Laboratories Inc.:
 - 1. UL 263 - Fire Tests of Building Construction and Materials.
 - 2. UL 723 - Tests for Surface Burning Characteristics of Building Materials.
 - 3. UL 1479 - Fire Tests of Through-Penetration Firestops.
 - 4. UL 2079 - Tests for Fire Resistance of Building Joint Systems.

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- 5. UL - Fire Resistance Directory.

1.3 DEFINITIONS

- A. Firestopping (Through-Penetration Protection System): Sealing or stuffing material or assembly placed in spaces between and penetrations through building materials to arrest movement of fire, smoke, heat, and hot gases through fire rated construction.

1.4 SYSTEM DESCRIPTION

- A. Firestopping Materials: ASTM E119, ASTM E814, UL 263, UL 1479, to achieve fire ratings of adjacent construction in accordance with FM and UL Design Numbers noted on Drawings.
- B. Firestop interruptions to fire rated assemblies, materials, and components.

1.5 PERFORMANCE REQUIREMENTS

- A. Firestopping: Conform to applicable code, FM, and UL for fire resistance ratings and surface burning characteristics.
- B. Firestopping: Provide certificate of compliance from authority having jurisdiction indicating approval of materials used.

1.6 SUBMITTALS

- A. Shop Drawings: Indicate system layout with location and detail of trapeze hangers.
- B. Product Data:
 - 1. Hangers and Supports: Submit manufacturers catalog data including load capacity.
 - 2. Firestopping: Submit data on product characteristics, performance and limitation criteria.
- C. Firestopping Schedule: Submit schedule of opening locations and sizes, penetrating items, and required listed design numbers to seal openings to maintain fire resistance rating of adjacent assembly.
- D. Design Data: Indicate load carrying capacity of trapeze hangers and hangers and supports.
- E. Submit details and calculations for support and anchors that are not specifically detailed on the Drawings where required by California Building Standards Code, California Code of Regulations, Title 24. Pre-approved systems may be used as noted below only if the pre-approval is current and accepted by the local agency having jurisdiction.
- F. Where pre-approved bracing systems will be employed, submit:

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1. System component brochure describing components used and detailed installation instructions.
 2. Loads to be transmitted to the structure at anchor points.
- G. Where pre-approved bracing systems are not used, submit details and calculations of proposed systems. Include:
1. Detailed drawings and calculations showing system to be installed, stamped by a Structural Engineer registered in the state of California.
 2. Loads to be transmitted to the structure at anchor points.
 3. Submit detailed routing and installation drawings of all raceway systems requiring seismic supports for review. Include attachment points, raceway sizes and methods proposed for securing and attaching.
- H. Manufacturer's Installation Instructions:
1. Hangers and Supports: Submit special procedures and assembly of components.
 2. Firestopping: Submit preparation and installation instructions.
- I. Manufacturer's Certificate: Certify products meet or exceed specified requirements.
- J. Firestopping Engineering Judgments: For conditions not covered by UL listed designs, submit judgments by licensed professional engineer suitable for presentation to authority having jurisdiction for acceptance as meeting code fire protection requirements.

1.7 QUALITY ASSURANCE

- A. Through Penetration Firestopping of Fire Rated Assemblies: UL 1479 or ASTM E814 with 0.10-inch water gage minimum positive pressure differential to achieve fire F-Ratings and temperature T-Ratings as indicated on Drawings, but not less than 1-hour.
1. Wall Penetrations: Fire F-Ratings as indicated on Drawings, but not less than 1-hour.
 2. Floor and Roof Penetrations: Fire F-Ratings and temperature T-Ratings as indicated on Drawings, but not less than 1-hour.
 - a. Floor Penetrations Within Wall Cavities: T-Rating is not required.
- B. Through Penetration Firestopping of Non-Fire Rated Floor and Roof Assemblies: Materials to resist free passage of flame and products of combustion.
1. Noncombustible Penetrating Items: Noncombustible materials for penetrating items connecting maximum of three stories.
 2. Penetrating Items: Materials approved by authorities having jurisdiction for penetrating items connecting maximum of two stories.

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- C. Fire Resistant Joints in Fire Rated Floor, Roof, and Wall Assemblies: ASTM E1966 or UL 2079 to achieve fire resistant rating as indicated on Drawings for assembly in which joint is installed.
- D. Fire Resistant Joints Between Floor Slabs and Exterior Walls: ASTM E119 with 0.10-inch water gage minimum positive pressure differential to achieve fire resistant rating as indicated on Drawings for floor assembly.
- E. Surface Burning Characteristics: Maximum 25/450 flame spread/smoke developed index when tested in accordance with ASTM E84.
- F. Perform Work in accordance with State, Municipality, Highways, and Public Work's standard.
- G. Maintain one copy of each document on site.

1.8 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing Products specified in this section with minimum three years documented experience.
- B. Installer: Company specializing in performing work of this section with minimum 3 years documented experience.

1.9 PRE-INSTALLATION MEETINGS

- A. Convene minimum one week prior to commencing work of this section.

1.10 DELIVERY, STORAGE, AND HANDLING

- A. Accept materials on site in original factory packaging, labeled with manufacturer's identification.
- B. Protect from weather and construction traffic, dirt, water, chemical, and mechanical damage, by storing in original packaging.

1.11 ENVIRONMENTAL REQUIREMENTS

- A. Do not apply firestopping materials when temperature of substrate material and ambient air is below 60 degrees F.
- B. Maintain this minimum temperature before, during, and for minimum 3 days after installation of firestopping materials.
- C. Provide ventilation in areas to receive solvent cured materials.

PART 2 - PRODUCTS

2.1 CONDUIT SUPPORTS

- A. Hanger Rods: Threaded high tensile strength galvanized carbon steel with free running threads.
- B. Beam Clamps: Malleable Iron, with tapered hole in base and back to accept either bolt or hanger rod. Set screw: hardened steel.
- C. Conduit clamps for trapeze hangers: Galvanized steel, notched to fit trapeze with single bolt to tighten.
- D. Conduit clamps - general purpose: One-hole malleable iron for surface mounted conduits.
- E. Cable Ties: High strength nylon temperature rated to 185 degrees F. Self-locking.

2.2 FORMED STEEL CHANNEL

- A. Product Description: Galvanized 12 gage thick steel.

2.3 SPRING STEEL CLIPS

- A. Product Description: Mounting hole and screw closure.

2.4 SLEEVES

- A. Sleeves for Through Non-fire Rated Floors: 18 gage thick galvanized steel.
- B. Sleeves for Through Non-fire Rated Beams, Walls, Footings, and Potentially Wet Floors: Steel pipe or 18 gage thick galvanized steel.
- C. Sleeves for Through Fire Rated and Fire Resistive Floors and Walls, and Fire Proofing: Prefabricated fire rated sleeves including seals, UL listed.
- D. Fire-stopping Insulation: Glass fiber type, non-combustible.

2.5 MECHANICAL SLEEVE SEALS

- A. Product Description: Modular mechanical type, consisting of interlocking synthetic rubber links shaped to continuously fill annular space between object and sleeve, connected with bolts and pressure plates causing rubber sealing elements to expand when tightened, providing watertight seal and electrical insulation.

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2.6 FIRESTOPPING

- A. Product Description: Different types of products by multiple manufacturers are acceptable as required to meet specified system description and performance requirements; provide only one type for each similar application.
1. Silicone Firestopping Elastomeric Firestopping: Single component silicone elastomeric compound and compatible silicone sealant.
 2. Foam Firestopping Compounds: Single component foam compound.
 3. Formulated Firestopping Compound of Incombustible Fibers: Formulated compound mixed with incombustible non-asbestos fibers.
 4. Fiber Stuffing and Sealant Firestopping: Composite of mineral fiber stuffing insulation with silicone elastomer for smoke stopping.
 5. Mechanical Firestopping Device with Fillers: Mechanical device with incombustible fillers and silicone elastomer, covered with sheet stainless steel jacket, joined with collars, penetration sealed with flanged stops.
 6. Intumescent Firestopping: Intumescent putty compound which expands on exposure to surface heat gain.
 7. Firestop Pillows: Formed mineral fiber pillows.
- B. Color: Dark gray.

2.7 FIRESTOPPING ACCESSORIES

- A. Primer: Type recommended by firestopping manufacturer for specific substrate surfaces and suitable for required fire ratings.
- B. Dam Material: Permanent:
1. Mineral fiberboard.
 2. Mineral fiber matting.
 3. Sheet metal.
 4. Plywood or particle board.
 5. Alumina silicate fire board.
- C. Installation Accessories: Provide clips, collars, fasteners, temporary stops or dams, and other devices required to position and retain materials in place.
- D. General:
1. Furnish UL listed products.
 2. Select products with rating not less than rating of wall or floor being penetrated.
- E. Non-Rated Surfaces:

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1. Stamped steel, chrome plated, hinged, split ring escutcheons or floor plates or ceiling plates for covering openings in occupied areas where conduit is exposed.
2. For exterior wall openings below grade, furnish modular mechanical type seal consisting of interlocking synthetic rubber links shaped to continuously fill annular space between conduit and cored opening or water-stop type wall sleeve.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify openings are ready to receive sleeves.
- B. Verify openings are ready to receive firestopping.

3.2 PREPARATION

- A. Clean substrate surfaces of dirt, dust, grease, oil, loose material, or other matter affecting bond of firestopping material.
- B. Remove incompatible materials affecting bond.
- C. Install backing materials to arrest liquid material leakage.
- D. Obtain permission from Architect/Engineer before using powder-actuated anchors.
- E. Obtain permission from Architect/Engineer before drilling or cutting structural members.

3.3 INSTALLATION - HANGERS AND SUPPORTS

- A. Anchors and Fasteners:
 1. Concrete Structural Elements: Provide precast inserts and expansion anchors.
 2. Steel Structural Elements: Provide beam clamps, spring steel clips, steel ramset fasteners, and welded fasteners.
 3. Concrete Surfaces: Provide self-drilling anchors and expansion anchors.
 4. Hollow Masonry, Plaster, and Gypsum Board Partitions: Provide toggle bolts.
 5. Solid Masonry Walls: Provide expansion anchors and preset inserts.
 6. Sheet Metal: Provide sheet metal screws.
 7. Wood Elements: Provide wood screws.
- B. Inserts:
 1. Install inserts for placement in concrete forms.
 2. Install inserts for suspending hangers from reinforced concrete slabs and sides of reinforced concrete beams.

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3. Provide hooked rod to concrete reinforcement section for inserts carrying pipe over 4 inches.
 4. Where concrete slabs form finished ceiling, locate inserts flush with slab surface.
 5. Where inserts are omitted, drill through concrete slab from below and provide through-bolt with recessed square steel plate and nut flush with top of slab.
- C. Install conduit and raceway support and spacing in accordance with CEC.
- D. Do not fasten supports to pipes, ducts, mechanical equipment, or conduit.
- E. Install multiple conduit runs on common hangers.
- F. Supports:
1. Fabricate supports from structural steel or formed steel channel. Install hexagon head bolts to present neat appearance with adequate strength and rigidity. Install spring lock washers under nuts.
 2. Install surface mounted cabinets and panelboards with minimum of four anchors.
 3. In wet and damp locations install steel channel supports to stand cabinets and panelboards 1 inch off wall.
 4. Support vertical conduit at every floor.

3.4 INSTALLATION - FIRESTOPPING

- A. Install material at fire rated construction perimeters and openings containing penetrating sleeves, piping, ductwork, conduit and other items, requiring firestopping.
- B. Apply primer where recommended by manufacturer for type of firestopping material and substrate involved, and as required for compliance with required fire ratings.
- C. Apply firestopping material in sufficient thickness to achieve required fire and smoke rating.
- D. Place intumescent coating in sufficient coats to achieve rating required.
- E. Remove dam material after firestopping material has cured.
- F. Fire Rated Surface:
1. Seal opening at floor, wall, partition, ceiling, and roof as follows:
 - a. Install sleeve through opening and extending beyond minimum of 1 inch on both sides of building element.
 - b. Size sleeve allowing minimum of 1-inch void between sleeve and building element.
 - c. Pack void with backing material.

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- d. Seal ends of sleeve with UL listed fire resistive silicone compound to meet fire rating of structure penetrated.
 - 2. Where cable tray, bus, cable bus, conduit, wireway, and trough penetrates fire rated surface, install firestopping product in accordance with manufacturer's instructions.
- G. Non-Rated Surfaces:
- 1. Seal opening through non-fire rated wall, partition, floor, ceiling, and roof opening as follows:
 - a. Install sleeve through opening and extending beyond minimum of 1 inch on both sides of building element.
 - b. Size sleeve allowing minimum of 1-inch void between sleeve and building element.
 - c. Install type of firestopping material recommended by manufacturer.
 - 2. Install floor plates or ceiling plates where conduit, penetrates non-fire rated surfaces in occupied spaces. Occupied spaces include rooms with finished ceilings and where penetration occurs below finished ceiling.
 - 3. Exterior wall openings below grade: Assemble rubber links of mechanical seal to size of conduit and tighten in place, in accordance with manufacturer's instructions.
 - 4. Interior partitions: Seal pipe penetrations at clean rooms, laboratories, hospital spaces, computer rooms, telecommunication rooms, and data rooms. Apply sealant to both sides of penetration to completely fill annular space between sleeve and conduit.

3.5 INSTALLATION - EQUIPMENT BASES AND SUPPORTS

- A. Provide housekeeping pads of concrete, minimum 3-1/2 inches thick and extending 6 inches beyond supported equipment.
- B. Using templates furnished with equipment, install anchor bolts, and accessories for mounting and anchoring equipment.
- C. Construct supports of formed steel channel. Brace and fasten with flanges bolted to structure.

3.6 INSTALLATION - SLEEVES

- A. Exterior watertight entries: Seal with adjustable interlocking rubber links.
- B. Conduit penetrations not required to be watertight: Sleeve and fill with silicon foam.
- C. Set sleeves in position in forms. Provide reinforcing around sleeves.
- D. Size sleeves large enough to allow for movement due to expansion and contraction. Provide for continuous insulation wrapping.

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- E. Extend sleeves through floors 1 inch above finished floor level. Caulk sleeves.
- F. Where conduit or raceway penetrates floor, ceiling, or wall, close off space between conduit or raceway and adjacent work with fire stopping insulation and caulk airtight. Provide close fitting metal collar or escutcheon covers at both sides of penetration.
- G. Install chrome plated steel escutcheons at finished surfaces.

3.7 FIELD QUALITY CONTROL

- A. Inspect installed firestopping for compliance with specifications and submitted schedule.

3.8 CLEANING

- A. Clean adjacent surfaces of firestopping materials.

3.9 PROTECTION OF FINISHED WORK

- A. Protect adjacent surfaces from damage by material installation.

- END OF SECTION -

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PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes conduit, surface raceways, J-hooks, wireways, outlet boxes, pull and junction boxes, concrete pullboxes and vaults, floor boxes.

1.2 REFERENCES

1.3 AMERICAN NATIONAL STANDARDS INSTITUTE:

- A. ANSI C80.1 - Rigid Steel Conduit, Zinc Coated.
- B. ANSI C80.3 - Specification for Electrical Metallic Tubing, Zinc Coated.

1.4 NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION:

- A. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).
- B. NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit and Cable Assemblies.
- C. NEMA OS 1 - Sheet Steel Outlet Boxes, Device Boxes, Covers, and Box Supports.
- D. NEMA RN 1 - Polyvinyl Chloride (PVC) Externally Coated Galvanized Rigid Steel Conduit and Intermediate Metal Conduit.
- E. NEMA TC 2 - Electrical Polyvinyl Chloride (PVC) Tubing and Conduit.
- F. NEMA TC 3 - PVC Fittings for Use with Rigid PVC Conduit and Tubing.

1.5 SYSTEM DESCRIPTION

- A. Raceway and boxes located as indicated on Drawings, and at other locations required for splices, taps, wire pulling, equipment connections, and compliance with regulatory requirements. Raceway and boxes are shown in approximate locations unless dimensioned. Provide raceway to complete wiring system.
- B. All wiring shall be installed in raceway.
- C. Provide raceway as follows:
 - 1. Underground: Provide thickwall nonmetallic conduit. Provide cast metal boxes or nonmetallic handhole.
 - 2. In Slab Above Grade: Not permitted.
 - 3. Below Slab: Use thickwall nonmetallic conduit. Terminate with coated rigid steel elbows and short length of coated rigid steel conduit out of concrete.

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4. Outdoor Locations, Above Grade: Provide galvanized rigid steel conduit. Provide cast metal outlet, pull, and junction boxes.
5. Wet and Damp Locations: Provide galvanized rigid steel conduit. Provide cast metal outlet, junction, and pull boxes. Provide flush mounting outlet box in finished areas.
6. Concealed Dry Locations: Provide electrical metallic tubing. Provide sheet-metal boxes. Provide flush mounting outlet box in finished areas. Provide hinged enclosure for large pull boxes where shown on drawings. Provide J-hooks when shown on plans.
7. Exposed Interior Dry Locations: Use rigid steel conduit or intermediate metal conduit below eight feet or where subject to damage. Use rigid steel conduit, intermediate metal conduit, or electrical metallic tubing above eight feet or in electrical, mechanical or telecommunication rooms. Use sheet-metal or cast metal boxes. Use flush mounting outlet box in finished areas. Provide hinged enclosure for large pull boxes.

1.6 DESIGN REQUIREMENTS

- A. Minimum Raceway Size: 0.75 inch unless otherwise specified.
- B. Minimum Raceway Size for Data Communications: 1.00 inch unless otherwise specified.
- C. Minimum Raceway Size for Telecommunications: 1.00 inch unless otherwise specified.
- D. Minimum Raceway Size for AV Systems: 1.00 inch unless otherwise specified.

1.7 SUBMITTALS

- A. Refer to Section 26 0000.

1.8 CLOSEOUT SUBMITTALS

- A. Project Record Documents:
 1. Record actual routing of conduits larger than 2 inches.
 2. Record actual locations and mounting heights of outlet, pull, and junction boxes.

1.9 DELIVERY, STORAGE, AND HANDLING

- A. Protect conduit from corrosion and entrance of debris by storing above grade. Provide appropriate covering.
- B. Protect PVC conduit from sunlight.

1.10 COORDINATION

- A. Coordinate mounting heights, orientation and locations of outlets mounted above counters, benches, and backsplashes.

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- B. Coordinate Work of this Division and Work of other Divisions in advance of installation. Provide additional Work to overcome tight conditions at no increase in Contract Sum.
- C. Coordinate installation of outlet boxes for equipment specified in other divisions.

PART 2 - PRODUCTS

2.1 METAL CONDUIT

- A. Rigid Steel Conduit: ANSI C80.1.
- B. Rigid Aluminum Conduit: ANSI C80.5.
- C. Intermediate Metal Conduit (IMC): Rigid steel.
- D. Fittings and Conduit Bodies: NEMA FB 1. Fittings shall be steel/malleable iron with threaded fittings. Use insulated metallic bushings with lug where ground connections are required. Use plastic bushing for non-bonding applications.

2.2 PVC COATED METAL CONDUIT

- A. Product Description: NEMA RN 1; rigid steel conduit with external PVC coating, 40 mil thick.
- B. Fittings and Conduit Bodies: NEMA FB 1; steel fittings with external PVC coating to match conduit.

2.3 FLEXIBLE METAL CONDUIT

- A. Product Description: Interlocked steel construction.
- B. Fittings: NEMA FB 1.

2.4 LIQUIDTIGHT FLEXIBLE METAL CONDUIT

- A. Product Description: Interlocked steel construction with PVC jacket.
- B. Fittings: NEMA FB 1.

2.5 ELECTRICAL METALLIC TUBING (EMT)

- A. Product Description: ANSI C80.3; galvanized tubing.
- B. Fittings and Conduit Bodies: NEMA FB 1; steel couplings and connectors. Box connectors shall have with insulated throat. Set screw type couplings.

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2.6 NONMETALLIC CONDUIT

- A. Product Description: NEMA TC 2; Schedule 40 PVC.
- B. Fittings and Conduit Bodies: NEMA TC 3.

2.7 SURFACE RACEWAY (WIREMOLD)

- A. Product Description: Surface raceway as shown on plans. Raceway shall be Wiremold or equal.
- B. Fittings: Provide all supports, adapters, clips, elbows, covers, device fittings, and other hardware as required for a complete installation. Provide B-Line "transition" boxes to clear offset surfaces. Supports shall be concealed, exposed straps are not allowed.
- C. Finish:
 - 1. Steel raceway and associated transition boxes and exposed hardware shall be spray painted with two coats of semi-gloss acrylic enamel paint, color as directed by Architect.
 - 2. Aluminum raceway shall be provided with factory finish, color as directed by Architect. Transition boxes shall be spray painted with two coats of semi-gloss acrylic enamel paint, color as directed by Architect.
 - 3. Plastic raceway shall be provided with factory finish, color as directed by Architect. Transition boxes shall be spray painted with two coats of semi-gloss acrylic enamel paint, color as directed by Architect.
 - 4. Coordinate all colors with Architect prior to ordering.

2.8 J-HOOKS

- A. Product Description: Low voltage signal cable J-Hooks shall be Caddy CableCat CAT425 for main runs. From main runs, provide Caddy CableCat CAT21 or CAT32 J-Hooks. Provide with support device for construction encountered.

2.9 WIREWAY

- A. Product Description: General purpose for indoor applications and raintight type for outdoor locations wire way.
- B. Knockouts: Manufacturer's standard.
- C. Cover: Hinged cover with full gaskets.
- D. Connector: Flanged.
- E. Fittings: Lay-in type with removable top, bottom, and side; captive screws and drip shield for outdoor.

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- F. Finish: Rust inhibiting primer coating with gray enamel finish.

2.10 OUTLET BOXES

- A. All boxes shall be suitable for the environment in which they are installed.
- B. Sheet Metal Outlet Boxes: NEMA OS 1, galvanized steel.
 - 1. Luminaire and Equipment Supporting Boxes: Rated for weight of equipment supported; furnish 0.5-inch male fixture studs where required.
 - 2. Boxes for shall be 1.5-inch-deep by 4-inch square minimum for single devices.
 - 3. Boxes for shall be 1.5-inch-deep by 4-11/16 inch square minimum for two devices.
 - 4. Boxes for data and signal outlets shall be 2-1/8-inch-deep by 4-11/16-inch square minimum.
 - 5. Concrete Ceiling Boxes: Concrete type.
 - 6. Provide rings as required.
- C. Cast Boxes: NEMA FB 1, Type FD, aluminum. Furnish gasketed cover by box manufacturer. Furnish threaded hubs.

2.11 BOX EXTENSIONS

- A. At rooms being remodeled and where existing walls are to receive new finish material, replace existing plaster rings with new rings.

2.12 PULL AND JUNCTION BOXES

- A. Boxes having an internal volume less than 100 cubic inches shall be as specified for outlet boxes. Boxes having internal volume greater than 100 cubic inches shall be of panelboard type construction except that covers shall be secured by screws or bolts.
- B. Boxes exposed to rain or installed in wet locations shall be specifically designed for the purpose.
- C. All boxes shall be installed so that covers are accessible after completion of the installation.
- D. Boxes shall not be installed in finished areas unless specific approval for such installation is granted by Architect.

2.13 CONCRETE PULLBOXES AND VAULTS

- A. Boxes: Boxes shall be precast, high density reinforced concrete. In areas of vehicular traffic, boxes shall be H20 rated.

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- B. Extensions: Extensions shall be provided at each pullbox. Provide a minimum of (1) extension. Provide additional extension(s) as required to provide space in box for code required cable bending.
- C. Covers: Covers in concrete or asphalt shall be galvanized. In all other areas, covers shall be steel checker plate. In areas of vehicular traffic, lids shall be galvanized steel, H20 rated. All covers shall be provided with hold-down bolts.
- D. Floor: Provide poured concrete slab as detailed on plans. At H20 rated boxes, provide manufacturer's concrete slab.
- E. Size: Provide size as noted on plans. If size is not shown, provide boxes sized per codes.
- F. Labeling: Covers shall be factory marked as shown on plans.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify outlet locations and routing and termination locations of raceway prior to rough-in.

3.2 EXISTING WORK

- A. Remove exposed abandoned raceway, including abandoned raceway above accessible ceiling finishes. Cut raceway flush with walls and floors, and patch surfaces.
- B. Remove concealed abandoned raceway to its source.
- C. Disconnect abandoned outlets and remove devices. Remove abandoned outlets when raceway is abandoned and removed. Install blank cover for abandoned outlets not removed.
- D. Maintain access to existing boxes and other installations remaining active and requiring access. Modify installation or provide access panel.
- E. Extend existing raceway and box installations using materials and methods [compatible with existing electrical installations, or] as specified.
- F. Clean and repair existing raceway and boxes to remain or to be reinstalled.
- G. At rooms being remodeled and where existing walls are to receive new finish material, replace existing plaster rings with new rings with depth required to bring box flush with new finish. Contractor shall review Architectural drawings prior to bid to note walls receiving new finishes (tackboards, sheetrock, etc.) and include the necessary work in bid.

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3.3 INSTALLATION

- A. Ground and bond raceway and boxes.
- B. Fasten raceway and box supports to structure and finishes.
- C. Identify raceway and boxes.
- D. Arrange raceway and boxes to maintain headroom and present neat appearance.

3.4 INSTALLATION - RACEWAY

- A. Raceway routing is shown in approximate locations unless dimensioned. Route to complete wiring system.
- B. Unless otherwise specified, all raceway shall be installed concealed. Raceway may be run exposed on unfinished walls, in attic spaces, in electrical rooms and when routed to surface panels, cabinets or gutters.
- C. Arrange raceway supports to prevent misalignment during wiring installation.
- D. Support raceway using coated steel or malleable iron straps, lay-in adjustable hangers, clevis hangers, and split hangers.
- E. Group related raceway; support using conduit rack. Construct rack using steel channel and provide space on each for 25 percent additional raceways.
- F. Do not support raceway with wire or perforated pipe straps. Remove wire used for temporary supports
- G. Do not attach raceway to ceiling support wires or other piping systems.
- H. Construct wire way supports from steel channel.
- I. Route exposed raceway parallel and perpendicular to walls.
- J. Route raceway installed above accessible ceilings parallel and perpendicular to walls.
- K. Route conduit in and under slab from point-to-point.
- L. Maintain clearance between raceway and piping for maintenance purposes.
- M. Maintain 12-inch clearance between raceway and surfaces with temperatures exceeding 104 degrees F.
- N. Cut conduit square using saw or pipe cutter; de-burr cut ends.
- O. Bring conduit to shoulder of fittings; fasten securely.

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- P. Join nonmetallic conduit using cement as recommended by manufacturer. Wipe nonmetallic conduit dry and clean before joining. Apply full even coat of cement to entire area inserted in fitting. Allow joint to cure for minimum 20 minutes.
- Q. Install conduit hubs to fasten conduit to sheet metal boxes in damp and wet locations and to cast boxes.
- R. Install no more than equivalent of three 90-degree bends between boxes. Install conduit bodies to make sharp changes in direction, as around beams. Install factory elbows for bends in metal conduit larger than 2-inch size.
- S. Avoid moisture traps; install junction box with drain fitting at low points in conduit system.
- T. Install fittings to accommodate expansion and deflection where raceway crosses seismic and expansion joints.
- U. Install suitable pull string or cord in each empty raceway except sleeves and nipples.
- V. Install suitable caps to protect installed conduit against entrance of dirt and moisture.
- W. Surface Raceway:
 - 1. Anchor raceway to structural members using screws. Supports shall be concealed. Space screws 24" maximum on center. Each run shall have a minimum of (2) screws.
 - 2. Mount plumb and level.
 - 3. Install insulating bushings and inserts at connections to outlets and corner fittings.
 - 4. Raceway shown on plans is schematic. Contractor shall coordinate exact routing and installation with building conditions and provide all parts, pieces, elbows, transition boxes and other items as required for a complete, closed and professionally installed installation.
 - 5. Coordinate exact routing with Architect prior to installation.
- X. J-Hooks:
 - 1. Provide J-hooks 48" maximum on center.
 - 2. All cable to be run parallel and perpendicular to building lines.
 - 3. Provide mounting hardware as required.
 - 4. Provide Unistrut channels between structural members as required.
 - 5. Provide 24" long 2" conduit sleeves through walls, draft stops, etc. Provide as many as necessary to accommodate cables in contract plus two extra capped at each end for future cabling. All conduits shall be provided with bushed ends.
- Y. Close ends and unused openings in wire way.

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3.5 EXCAVATING AND TRENCHING:

- A. Perform all excavations as required for the installation of the work included under this Section, including shoring of earth banks to prevent cave-ins and to protect workmen and equipment.
- B. Restore all surfaces, roadways, walks, curbs, walls, existing underground installation, etc., damaged or cut as a result of the excavations to their original condition in a manner approved by the Architect.
- C. Stop machine excavation for trenches, in solid ground, several inches above required grade line, then trim trench bottom by hand to accurate grade so that a firm and uniform bearing throughout entire length of duct is provided. In lieu of above hand excavation in bottom of trench, Contractor may excavate to depth no less than 6" below required grade line and place a bed of sand or granular soil, properly compacted to provide a uniform grade and to provide a firm support for duct throughout its entire length.
- D. Minimum conduit depth of pipe crown shall be 2'0" below finished or natural grade, unless detailed otherwise on Drawings. Conduits under parking lots, roadways, driveways, fire truck access routes, and other areas subject to vehicular traffic shall be installed a minimum of 24" below grade.

3.6 BACKFILLING:

- A. No backfilling operations shall begin until the required tests and inspection has been made. Should any of the work be enclosed or covered up before it has been approved, Contractor shall, at his expense, uncover the work.
- B. After it has been inspected, tested, and approved, he shall make all repairs necessary to restore the work of other contractors to the condition in which it was found at the time of uncovering.
- C. Except under existing paved area, walks, roads, or similar surfaces, and in cases where rock is encountered, backfill more than 12" above the top of the pipe shall be made using suitable excavated material placed in 6" layers measured before compaction, and tamped by machine.
- D. Surface work shall be replaced to match the existing.
- E. Entire backfill for bored excavations under existing pavement, walks, roads, or similar surfaces, shall be made with clean sand compacted by flooding.
- F. The contractor shall install a marking tape 6" below grade and directly above all electrical conduits. The tape shall consist of a 4 mil insert plastic film specifically formulated for prolonged use underground. It shall be highly resistant to alkalis, acids and other destructive agents found in the soil. Tape shall have a minimum tensile strength of 20 lbs. per 3" with strips and a minimum elongation of 500%. Tape shall bear a continuous

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painted message repeated every 16" to 36" warning of the installation buried below. The message shall read "CAUTION – ELECTRICAL POWER LINE BURIED BELOW" or "CAUTION – ELECTRICAL SIGNAL LINES BURIED BELOW" as applies. Installation instruction for the tape shall be printed with each message along the entire length. The tape shall be as that manufactured by Reef Industries, Inc., or approved equal. For those installations involving non-metallic pipe, tape shall be aluminum foil encased in two layers of inert plastic film enabling the tape to be inductively located. Terre Tape "D" Warning Tapes are acceptable. When conduit below is plastic, tape shall have metallic content and shall respond to metal detectors. Do not exclude this. It will be required to verify the installation of this tape.

3.7 FLASHING AND SEALING:

- A. Flash and counterflash roof and wall penetrations in manner described under other applicable sections of this Specification and as approved by the Architect.
- B. Conduits, ducts, etc., passing through finished walls and ceilings shall be fitted with steel escutcheon plates, chrome or paint finish as directed.
- C. Conduits which penetrate floor slabs and concrete or masonry walls shall be grouted and sealed watertight at penetration.
- D. Conduits penetrating exterior walls other than concrete or masonry shall be sealed watertight with polyurethane sealant.
- E. Underground conduits stubbing up into a room shall be sealed around cables or pullstring with foam sealant.
- F. All flashing and sealing shall be provided by this Contractor.

3.8 INSTALLATION – BOXES

- A. Boxes shall be accurately placed as shown on Drawings or as close thereto as possible. Contractor shall refer to Drawings, specifications, and submittals covering work of the other trades to coordinate outlet location. In the event of conflict between planned locations of outlet and other equipment or furnishing, Contractor shall not proceed until direction has been given by Architect.
- B. Unless otherwise specified or shown on Drawings, boxes shall be flush mounted with front edge of box or ring flush with wall or ceiling finish. Use plaster ring of appropriate depth in plastered or gypboard applications. Contractor shall review architectural drawings and note wall and ceiling construction and finishes for each wall.
- C. Boxes shall not be installed back-to-back in walls. To prevent sound transfer, outlets, switches, etc. shown on opposing sides of the same wall shall be installed in separate stud spaces, except that outlets installed at different elevations may occupy the same

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stud space when box separation exceeds 18". Where these requirements cannot be met, Contractor shall provide insulation material between boxes.

- D. Orient boxes to accommodate wiring devices.
- E. Install pull boxes and junction boxes above accessible ceilings and in unfinished areas only.
- F. In Accessible Ceiling Areas: Install outlet and junction boxes no more than 6 inches from ceiling access panel or from removable recessed luminaire.
- G. Install stamped steel bridges to fasten flush mounting outlet box between studs.
- H. Install flush mounting box without damaging wall insulation or reducing its effectiveness.
- I. Install adjustable steel channel fasteners for hung ceiling outlet box.
- J. Do not fasten boxes to ceiling support wires or other piping systems.
- K. Support boxes independently of conduit.
- L. Install gang box where more than one device is mounted together. Do not use sectional box.
- M. Install gang box with plaster ring for single device outlets.

3.9 INSTALLATION CONCRETE PULLBOXES AND VAULTS

- A. Install boxes flush with finished grade or surface material.
- B. Install hold down bolts for all covers.
- C. Ground bond steel cover plate with insulated green grounding conductor.
- D. Grout between box and extension(s).
- E. Any box installed in areas of vehicular traffic shall be H20 rated. Contractor shall verify this requirement prior to ordering.

3.10 INTERFACE WITH OTHER PRODUCTS

- A. Install conduit to preserve fire resistance rating of partitions and other elements.
- B. Route conduit through roof openings for piping and ductwork or through suitable roof jack with pitch pocket. Coordinate location with roofing installation.
- C. Locate outlet boxes to allow luminaires positioned as indicated on reflected ceiling plan.
- D. Align adjacent wall mounted outlet boxes for switches, thermostats, and similar devices.

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3.11 ADJUSTING

- A. Adjust flush-mounting outlets to make front flush with finished wall material.
- B. Install knockout closures in unused openings in boxes.

3.12 CLEANING

- A. Clean interior of boxes to remove dust, debris, and other material.
- B. Clean exposed surfaces and restore finish.

- END OF SECTION -

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Nameplates.
 - 2. Device labels.
 - 3. Wire markers.
 - 4. Low voltage cable markers.
 - 5. Underground warning tape.
 - 6. Brass tags.

1.2 SUBMITTALS

- A. Product Data:
 - 1. Refer to section 26 0000.

1.3 QUALITY ASSURANCE

- A. Perform Work in accordance with State, Municipality, Highways, Public Work's standard.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Accept identification products on site in original containers. Inspect for damage.
- B. Protect insulation from weather and construction traffic, dirt, water, chemical, and mechanical damage, by storing in original wrapping.

1.5 ENVIRONMENTAL REQUIREMENTS

- A. Install labels and nameplates only when ambient temperature and humidity conditions for adhesive are within range recommended by manufacturer.

PART 2 - PRODUCTS

2.1 NAMEPLATES

- A. Product Description: Laminated three-layer plastic with engraved white letters on black contrasting background color.
- B. Letter Size:
 - 1. 0.125 inch high letters for identifying individual equipment and loads.

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2. 0.25 inch high letters for identifying grouped equipment and loads.

C. Minimum nameplate thickness: 0.125 inch.

2.2 DEVICE LABELS

A. Labels: Embossed adhesive tape, with 0.125 inch white letters on black background.

2.3 WIRE MARKERS

A. Description: Self-adhering, pre-printed, machine printable or write-on, self-laminating vinyl wrap around strips. Blank markers shall be inscribed using the printer or pen recommended by manufacturer for this purpose.

2.4 LOW VOLTAGE CABLE MARKERS

A. Small markers: Open marker sleeve with label pocket for snap mounting on cable, yellow with white label, T&B PTC Series or as noted on Plans.

B. Large markers: Nomex, yellow, Brady B-508.

2.5 UNDERGROUND WARNING TAPE

A. Refer to applicable specification section for underground conduit or detail on plans.

2.6 BRASS TAGS

A. Description: 2" Round, 20 gauge brass.

B. Letter Size: 0.25 inch minimum.

PART 3 - EXECUTION

3.1 PREPARATION

A. Degrease and clean surfaces to receive adhesive for identification materials.

3.2 EXISTING WORK

A. Install identification on existing equipment to remain in accordance with this section.

B. Install identification on unmarked existing equipment.

C. Replace lost nameplates, labels, and markers.

3.3 INSTALLATION

A. Install identifying devices after completion of painting.

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B. Nameplates

1. Install nameplate parallel to equipment lines.
2. Install nameplates with screws or rivets.
3. Secure nameplate to the front of equipment.
4. Install nameplates for the following:
 - a. Switchboards.
 - b. Switchgear.
 - c. Motor Control Centers.
 - d. Distribution Panelboards.
 - e. Breakers at individual breakers in switchboards, switchgear and distribution panelboards.
 - f. Panelboards.
 - g. Transformers.
 - h. Service Disconnects.
 - i. Fused and Non-Fused Disconnects.
 - j. Automatic Transfer Switches.
 - k. Signal terminal backboards.
 - l. Signal terminal cabinets.
 - m. Terminal blocks at terminal backboards and cabinets.
 - n. Boxes and cabinets containing control equipment.
 - o. Signal system control panels, power supplies, amplifiers, etc.
5. Provide nameplates that present, as applicable, the following information:
 - a. Equipment or device designation.
 - b. Amperage, kVA, or horsepower rating where applicable.
 - c. Voltage or signal system name.
 - d. Source or power or control.
 - e. Examples:
 - 1) Boards: PANEL HA; 1000A; 277/480V, 3-Phase, 4-Wire.
 - 2) Transformers: TRANSFORMER T-1; 112.5kVA; 480V to 120/208V, 3-Phase, 4-Wire; Served from H2A; Load Served L2A.
 - 3) Disconnects and Individual Motor Starters: AC-A1; 25HP; 480V, 3-Phase, 3-Wires; Served from HA-4/6/8.
 - 4) Available Fault Current: XX,XXX Amperes. Date Calculated: XX/XX/XX.
 - 5) Breakers: 200A; 3-POLE.
 - 6) Terminal Backboards: SIGNAL TERMINAL BACKBOARD STB-A.
 - 7) Terminal Cabinets: SIGNAL TERMINAL CABINET STC-A.

C. Device Labels

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1. Install label parallel to equipment lines.
2. Install labels for permanent adhesion and seal with clear lacquer.
3. Install labels on device faceplate.
4. Install labels to indicate the circuit number of device.
5. Install labels for the following:
 - a. Receptacles
 - b. Controlled receptacles
 - c. Fire alarm devices located above ceilings. Install label on access door or on t-bay at lay-in ceilings.
 - d. As noted on plans.
6. Examples:
 - a. Receptacle: LA1-15.
 - b. Controlled Receptacle: CONTROLLED.
 - c. FA device above ceiling: DETECTOR ABOVE CEILING.

D. Wire Markers

1. Install wire marker for each conductor at panelboard gutters, pull boxes, outlet and junction boxes, and each load connection.
2. Power and Lighting Circuits: Branch circuit or feeder number as indicated on Drawings.
3. Signal and Control Circuits: Control wire number as indicated on shop drawings.

E. Low Voltage Cable Markers

1. Install at each cable in terminal cabinets and terminal backboards.
2. Install at each bundle of cables in each underground vault or pullbox. Provide one marker for each system.

F. Junction Boxes

1. Identify all junction boxes located above suspended ceilings and below ceilings in non-public areas.
2. Boxes shall be identified with permanent felt tip marker on cover indicating panel and circuit numbers or signal system.

G. Underground Warning Tape

1. Refer to applicable specification section for underground conduit or to detail on plans.

H. Brass Tags:

1. Provide brass tags for all feeder cables in underground vaults and pull boxes.

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2. Example: PANEL LA FEEDER.

- END OF SECTION -

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes:
 - 1. Distribution and branch circuit panelboard breakers.

1.2 REFERENCES

- A. American National Standards Institute:
 - 1. ANSI C12.1 - Code for Electricity Metering.
 - 2. ANSI C39.1 - Requirements, Electrical Analog Indicating Instruments.
- B. Institute of Electrical and Electronics Engineers:
 - 1. IEEE C57.13 - Standard Requirements for Instrument Transformers.
 - 2. IEEE C62.41 - Recommended Practice on Surge Voltages in Low-Voltage AC Power Circuits.
- C. National Electrical Manufacturers Association:
 - 1. NEMA FU 1 - Low Voltage Cartridge Fuses.
 - 2. NEMA KS 1 - Enclosed and Miscellaneous Distribution Equipment Switches (600 Volts Maximum).
 - 3. NEMA PB 2 - Deadfront Distribution Switchboards.
 - 4. NEMA PB 2.1 - General Instructions for Proper Handling, Installation, Operation, and Maintenance of Deadfront Distribution Switchboards Rated 600 Volts or Less.
 - 5. NEMA ICS 2 - Industrial Control and Systems: Controllers, Contactors, and Overload Relays, Rated Not More Than 2000 Volts AC or 750 Volts DC.
 - 6. NEMA ICS 5 - Industrial Control and Systems: Control Circuit and Pilot Devices.
 - 7. NEMA PB 1 - Panelboards.
 - 8. NEMA PB 1.1 - General Instructions for Proper Installation, Operation, and Maintenance of Panelboards Rated 600 Volts or Less.
- D. International Electrical Testing Association:
 - 1. NETA ATS - Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems.
- E. National Fire Protection Association:
 - 1. NFPA 70 - National Electrical Code with California Amendments.
- F. Underwriters Laboratories Inc.:
 - 1. UL 489 - Molded-Case Circuit Breakers, Molded-Case Switches, and Circuit-Breaker Enclosures.

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2. UL 891 - Dead-Front Switchboards.
3. UL 50 - Cabinets and Boxes
4. UL 67 - Safety for Panelboards.
5. UL 489 - Molded-Case Circuit Breakers, Molded-Case Switches, and Circuit-Breaker Enclosures.

1.3 SUBMITTALS

- A. Product Data: Submit electrical characteristics including voltage, frame size and trip ratings, fault current withstand ratings, and time-current curves of equipment and components.

1.4 CLOSEOUT SUBMITTALS

- A. Project Record Documents: Record actual locations, configurations, and ratings of switchboards and their components on single line diagrams and plan layouts.
- B. Operation and Maintenance Data: Submit spare parts data listing; source and current prices of replacement parts and supplies; and recommended maintenance procedures and intervals.

1.5 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years documented experience.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store in clean, dry space. Maintain factory wrapping or provide additional canvas or plastic cover to protect units from dirt, water, construction debris, and traffic.

1.7 ENVIRONMENTAL REQUIREMENTS

- A. Conform to NEMA PB 2 service conditions during and after installation of switchboards.

1.8 FIELD MEASUREMENTS

- A. Verify field measurements prior to fabrication.

1.9 SEQUENCING

- A. Sequence Work to avoid interferences with building finishes and installation of other products.

PART 2 - PRODUCTS

2.1 CIRCUIT BREAKERS

- A. Product Description: UL 489, molded-case circuit breaker.
- B. All circuit breakers shall be bolt-on type.
- C. Field-Adjustable Trip Circuit Breaker: Circuit breakers with frame sizes 200 amperes and larger have mechanism for adjusting long time delay, short time delay, continuous current, short time pickup, long time pickup, instantaneous pickup setting for automatic operation. Range of Adjustment: seconds, amperes, percent.
- D. Field-Changeable Ampere Rating Circuit Breaker: Circuit breakers with frame sizes 200 amperes and larger have changeable trip units.
- E. Current Limiting Circuit Breaker: Circuit breaker indicated as current-limiting have automatically-resetting current limiting elements in each pole. Let-through Current and Energy: Less than permitted for same size Class RK-5 fuse.
- F. Solid-State Circuit Breaker: Electronic sensing, timing, and tripping circuits for adjustable current settings; ground fault trip with integral ground fault sensing and zero sequence type ground fault sensor; instantaneous trip; and adjustable short time trip.
- G. Current Limiter: Designed for application with molded case circuit breaker.
- H. Coordinate limiter size with trip rating of circuit breaker to prevent nuisance tripping and to achieve interrupting current rating specified for circuit breaker.
- I. Interlocks trip circuit breaker and prevent closing circuit breaker when limiter compartment cover is removed or when one or more limiter is not in place or has operated.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify surface is suitable for switchboard installation.

3.2 EXISTING WORK

- A. Disconnect and remove abandoned switchboards.
- B. Maintain access to existing switchboards and other installations remaining active.
- C. Clean and repair existing switchboards to remain or to be reinstalled.

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3.3 INSTALLATION

- A. Install in accordance with NEMA PB 2.1.
- B. Install engraved plastic nameplates.
- C. Install breaker circuit directory.
- D. Install filler plates for unused spaces in panelboards.
- E. Provide typed circuit directory for each branch circuit panelboard. Revise directory to reflect circuiting changes to balance phase loads. Identify each circuit as to its clear, evident and specific purpose of use.
- F. Modifications to existing equipment shall be as indicated on the Drawings. New equipment shall match existing where possible and in all cases be compatible with existing. Where new breakers are installed in existing equipment, provide all hardware and trim pieces as required for a complete closed installation. Provide new nameplates at equipment where existing breakers are identified by nameplates and provide new breaker identification in directory where existing breakers are identified in a directory.
- G. Where new breakers are indicated to be installed in existing equipment, but insufficient space exists, provide enclosed circuit breakers externally and tap existing bussing. Tap conduit and wire sizes shall be same as breaker line side conduit and wire.

3.4 ADJUSTING

- A. Adjust circuit breaker trip and time delay settings to values as indicated on Fault, Coordination, and ArcFlash Study.

3.5 CLEANING

- A. Touch up scratched or marred surfaces to match original finish.
- B. Clean existing panelboards and load centers to remain or to be reinstalled.

- END OF SECTION -

**ELECTRICAL CABINETS
AND ENCLOSURES
SECTION 26 2716
22-1515
Increment 2**

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Hinged cover enclosures.
 - 2. Terminal and control equipment cabinets.
 - 3. Terminal backboards.

1.2 REFERENCE STANDARDS

- A. National Electrical Manufacturers Association:
 - 1. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).
 - 2. NEMA ICS 4 - Industrial Control and Systems: Terminal Blocks.

1.3 SUBMITTALS

- A. Product Data: Submit manufacturer's standard data for enclosures, and terminal cabinets.
- B. Manufacturer's Instructions: Submit application conditions and limitations of use stipulated by product testing agency specified under Regulatory Requirements. Include instructions for storage, handling, protection, examination, preparation, and installation of product.

PART 2 - PRODUCTS

2.1 HINGED COVER ENCLOSURES

- A. Description: NEMA 250, Type 1 (Interior) and 3R (Exterior) steel enclosure.
 - 1. Covers: Continuous hinge, held closed by flush latch operable by key.
 - 2. Furnish interior plywood panel for mounting terminal blocks and electrical components; finish with white enamel.
 - 3. Enclosure Finish: Manufacturer's standard enamel.

2.2 TERMINAL AND CONTROL EQUIPMENT CABINETS

- A. Description:
 - 1. Interior locations: NEMA 1.
 - 2. Exterior locations: NEMA 3R.
 - 3. Boxes: Steel.
 - 4. Box Size: As required to house all conduits, wiring terminal blocks, modules, etc. or as indicated on drawings.

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5. Backboard: Furnish 5/8-inch-thick plywood backboard for mounting terminal blocks. Paint with (3) coats of fire retardant white paint.
6. Fronts: Hinged steel, flush or surface type with concealed trim clamps door with concealed hinge, to match branch circuit panelboard. Provide key lock at interior cabinets. Provide padlock hasp at exterior locations.

B. Finish: Finish with gray baked enamel.

2.3 SIGNAL TERMINAL BACKBOARDS

- A. Description: 0.75" Architectural grade plywood, 8' high x width shown on plans.
- B. Finish: Paint with (3) coats of fire-retardant white paint.

PART 3 - EXECUTION

3.1 DEMOLITION

- A. Remove abandoned cabinets and enclosures, including abandoned cabinets and enclosures above accessible ceiling finishes. Patch surfaces.
- B. Maintain access to existing cabinets and enclosures and other installations remaining active and requiring access. Modify installation or provide access panel.
- C. Extend existing cabinets and enclosures using materials and methods as specified.

3.2 REPAIR/RESTORATION

- A. Repair existing cabinets and enclosures to remain or to be reinstalled.

3.3 INSTALLATION

- A. Install enclosures and boxes plumb. Anchor securely to wall and structural supports at each corner.
- B. Install cabinet fronts plumb.
- C. Install interior cabinets with top of enclosure 6'6" above finished floor.
- D. Install exterior cabinets with top of enclosure 6'6" above finished grade.
- E. Install terminal backboards with sanded side exposed.
- F. Provide ground bus at each terminal backboard.

3.4 CLEANING

- A. Clean existing cabinets and enclosures to remain or to be reinstalled.

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- B. Clean electrical parts to remove conductive and harmful materials.
- C. Remove dirt and debris from enclosure.
- D. Clean finishes and touch up damage.

- END OF SECTION -

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes wall switches; receptacles; device plates; and decorative box covers.

1.2 REFERENCES

- A. National Electrical Manufacturers Association:
 - 1. NEMA WD 1 - General Requirements for Wiring Devices.
 - 2. NEMA WD 6 - Wiring Devices-Dimensional Requirements.

1.3 SUBMITTALS

- A. Product Data: Submit manufacturer's catalog information showing dimensions, colors, and configurations.

PART 2 - PRODUCTS

2.1 WALL SWITCHES

- A. Product Description: NEMA WD 1, Heavy-Duty, AC only general-use snap switch.
- B. Body and Handle: Gray plastic with toggle handle.
- C. Ratings:
 - 1. Voltage: 120-277 volts, AC.
 - 2. Current: 20 amperes.
- D. Wiring: Back and side wired. Back wiring with clamp type terminals suitable for stranded or solid wire.

2.2 LOW VOLTAGE SWITCHES/DIMMERS

- A. Refer to lighting control details and/or specifications.
- B. Color: Gray.

2.3 RECEPTACLES

- A. Product Description: NEMA 5-20, 20 amp, decora, unless noted otherwise.
- B. Color: Gray, unless noted otherwise.
- C. Wiring: Back and side wired. Back wiring with clamp type terminals suitable for stranded or solid wire.

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- D. Standard Receptacles: Commercial Grade, Heavy-Duty, Tamper-Resistant, Leviton TDR20-GY.
- E. Controlled Receptacles:
 - 1. Half Controlled: Commercial Grade, Tamper-Resistant, White, Leviton TDR20-S1W.
 - 2. Dual Controlled: Commercial Grade, Tamper-Resistant, White, Leviton TDR20-S2W.
- F. Ground Fault Interrupting (GFI) Receptacles: Commercial Grade, Tamper-Resistant, Lockout Feature (disables receptacle when GFI protection is compromised), Self Testing, LED Indicator Light
 - 1. Interior Dry Locations: Leviton GFTR2-GY
 - 2. Exterior, Wet or Damp Locations: Weather-Resistant, Leviton GFWT2-GY
 - 3. Receptacles for Refrigerators and Freezers: Audible Trip Alert, Ivory, Leviton GFTA2-I.
- G. Receptacles for Computer Use: Commercial Grade, Tamper-Resistant, Surge Protected, Indicator Light, Leviton T5380-GY.
- H. Special Purpose Receptacles: Type and rating and number of poles indicated or required for the anticipated purpose.

2.4 WALL PLATES

- A. Decorative Cover Plates: Stainless Steel.
- B. Weatherproof Cover Plates:
 - 1. For devices at grade or areas accessible to pedestrians: Cast aluminum cover with spring-loaded door and appropriate mounting plate, Legrand 4600-26.
 - 2. For devices on roof or where not accessible to pedestrians: While-in-use cover, metal, Cooper WIUMV-1.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify outlet boxes are installed at proper height.
- B. Verify wall openings are neatly cut and completely covered by wall plates.
- C. Verify branch circuit wiring installation is completed, tested, and ready for connection to wiring devices.

3.2 PREPARATION

- A. Clean debris from outlet boxes.

3.3 EXISTING WORK

- A. Disconnect and remove abandoned wiring devices.
- B. Modify installation to maintain access to existing wiring devices to remain active.
- C. Clean and repair existing wiring devices to remain or to be reinstalled.

3.4 INSTALLATION

- A. Install devices plumb and level.
- B. Install switches with OFF position down.
- C. Install wall dimmers to achieve full rating specified and indicated after derating for ganging as instructed by manufacturer.
- D. Do not share neutral conductor on load side of dimmers.
- E. Install receptacles with grounding pole on top.
- F. Connect wiring device grounding terminal to outlet box with bonding jumper and branch circuit equipment grounding conductor.
- G. Install wall plates on flush mounted switches, receptacles, and blank outlets.
- H. Install decorative plates on switch, receptacle, and blank outlets in finished areas.
- I. Connect wiring devices by wrapping solid conductor around screw terminal. Install stranded conductor for branch circuits 10 AWG and smaller. When stranded conductors are used in lieu of solid, use crimp on fork terminals for device terminations. Do not place bare stranded conductors directly under device screws.
- J. Use jumbo size plates for outlets installed in masonry walls.
- K. Install galvanized steel plates on outlet boxes and junction boxes in unfinished areas, above accessible ceilings, and on surface mounted outlets.
- L. Provide weather resistant GFI receptacles with specified weatherproof covers for all receptacles installed outdoors or in damp or wet locations.
- M. Whether indicated on the plans or not, provide GFI receptacles for the following conditions:
 - 1. Within 6 feet of sinks.
 - 2. In toilet rooms.
 - 3. In kitchens.
 - 4. Serving electric drinking fountains.

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- N. Where receptacles are to be GFI type or surge suppression, each receptacle shall be GFI or surge suppression. Contractor may not use standard receptacles connected for "downstream" protection.
- O. Unless noted otherwise, do not use combination switch/receptacle devices.

3.5 INTERFACE WITH OTHER PRODUCTS

- A. Coordinate locations of outlet boxes to obtain mounting heights as specified and as indicated on Architectural elevations.
- B. Install wall switch 44 inches to center of box above finished floor.
- C. Install convenience receptacle 18 inches to center of box above finished floor.
- D. Install convenience receptacle 6 inches to center of box above counter or back splash of counter.
- E. Install dimmer 44 inches to center of box above finished floor.

3.6 FIELD QUALITY CONTROL

- A. Inspect each wiring device for defects.
- B. Operate each wall switch with circuit energized and verify proper operation.
- C. Verify each receptacle device is energized.
- D. Test each receptacle device for proper polarity.
- E. Test each GFCI receptacle device for proper operation.

3.7 ADJUSTING

- A. Adjust devices and wall plates to be flush and level.

3.8 CLEANING

- A. Clean exposed surfaces to remove splatters and restore finish.

- END OF SECTION -

PART 1 - GENERAL REQUIREMENTS

1.1 OVERVIEW

- A. Copper cabling will be Panduit with a 25 year Pan-Net warranty.
 - 1. At project completion, the contractor shall present to owner a single project binder with electronic and hard copies of test results, as built drawings, pictures, bill of materials listing part numbers, etc and a Visio 2007 drawing electronic provided to owner's Information Services and Educational Technology (ISET) office which identifies all Data jack locations and port assigned numbers.
- B. The installing contractor shall furnish and install all hardware, cables, devices, and other materials even though not specifically mentioned herein, which are necessary for the proper integration of the system so that the system shall perform the functions listed herein in compliance with all specified requirements.
- C. A Contractor may use up to ONE sub-contractor to install all CAT6 data cabling. Contractor will provide 'As Builts' and warranty information to ISET department.
 - 1. The contract shall have a minimum of five years professional field experience pulling/terminating fiber and Cat6 cable.
 - 2. The contractor shall possess a valid C-7 California State contractor's license. This license shall have been issued two (2) years prior to the date of the bid. No other license classification is acceptable.
 - 3. The contractor and/or sub-contractors shall have Panduit Certified Installers as well as Corning Certified NPI Installers.
- D. The contractor and/or sub-contractors shall have at least half BICSI installers and one RCDD who will work on the project.
 - 1. The contractor shall provide a twenty-five (25) year application performance warranty for all Panduit Pan-Net copper cable and connectivity products. The system shall be installed to meet all TIA/EIA commercial building wiring standards and installed per appropriate Panduit instruction sheets. If any Panduit product fails to perform as stated above, Panduit will provide new components at no charge.

1.2 ABBREVIATIONS

- A. A.P. - Wireless Access Point
- B. AFF - Above the finished floor
- C. BKBRD - Backboard
- D. E.F. - Entrance Facility (formerly called MPOE or MPOP)

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- E. E.R. - Equipment Room. A building/campus serving facility connecting backbone to horizontal cabling and housing the building/campus' core system equipment.
- F. IDF – Intermediate Distribution Facility
- G. ISP - Inside Plant
- H. MAC - Moves, Adds, and Changes
- I. MDF – Main Distribution Facility
- J. MM - Multimode fiber
- K. NEXT - Near End Crosstalk
- L. OSP - Outside Plant
- M. SM - Single mode fiber
- N. T.R./T.E. - Telecommunications Room/Enclosure. A floor serving facility connecting backbone and E.R. to horizontal cabling in a region on each floor.
- O. TBB - Telecommunications Bonding Backbone
- P. TGB - Telecommunications Ground Buss Bar
- Q. TMGB - Telecommunications Main Ground Buss Bar
- R. U.O.N. - Unless otherwise noted

1.3 RELATED DOCUMENTS

- A. In addition to these specifications, the contractor shall reference the following drawings and documents:
 - 1. Architectural / Engineer drawings
 - 2. Detail Visio 2007 As Built Drawings and Diagrams.
 - 3. Any addendum, hereafter release of specifications
 - 4. Panduit Pan-Net 25 year Warranty
- B. Contractor shall ensure that, manufacture, ANSI/TIA/EIA-586-B cable testing, and install of the telecommunications cabling network is per manufacturer's requirements and in accordance with NFPA-70 (National Electrical Code®), state codes, local codes, requirements of authorities having jurisdiction, and particularly the following standards:
 - 1. ANSI/TIA/EIA-568-B.1 - Commercial Building Telecommunications Cabling Standard, Part 1: General Requirements
 - 2. ANSI/TIA/EIA-568-B.2 - Commercial Building Telecommunications Cabling Standard, Part 2: Balanced Twisted Pair Cabling Components

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3. ANSI/TIA/EIA-568-B.3 - Optical Fiber Cabling Components Standard
 4. ANSI/TIA/EIA-569-A - Commercial Building Standard for Telecommunications Pathways and Spaces
 5. ANSI/TIA/EIA-606(A) - The Administration Standard for the Telecommunications Infrastructure of Commercial Buildings
 6. ANSI/TIA/EIA-607(A) - Commercial Building Grounding and Bonding Requirements for Telecommunications
 7. ANSI/TIA/EIA-758(A) Customer-Owned Outside Plant Telecommunications Cabling Standard
 8. ISO/IEC 11801:2002 ed 2- International standard for Class F (Cat7)
 9. IEC 61076-3-104:2002- International standard for RJ quad jack
 10. ISO/IEC CD14165-114 - International standard for duplex gigabit on two pair Ethernet
 11. TIA TSB 155 - 10G Ethernet over existing Cat6 up to 50 meters
 12. ANSI/TIA/EIA 565.B.2,10 - Standard for Cat6
 13. Cal/OSHA-Pocket Guide for the Construction Industry (recent edition)
- C. Contractor shall install cabling in accordance with the most recent edition of BICSI publications:
1. BICSI - Telecommunications Distribution Methods Manual (TDMM)
 2. BICSI - Cabling Installation Manual
 3. BICSI - Customer-Owned Outside Plant Design Manual
- D. Federal, state, and local codes, rules, regulations, and ordinances governing the work, are as fully part of the specifications as if herein repeated or hereto attached. If the contractor shall note items in the drawings or the specifications, construction of which would be code violations, promptly call them to the attention of the owner's representative in writing. Where the requirements of other sections of the specifications are more stringent than applicable codes, rules, regulations, and ordinances, the specifications shall apply.

1.4 PRE-INSTALLATION MEETING

- A. Schedule a meeting a minimum of five calendar days prior to beginning work.
- B. Agenda: Clarify questions related to work to be performed, scheduling, coordination, labeling for data jacks, data jack layout on telco racks in MDF and IDFs, etc.
- C. Attendance: Communications systems installer, general contractor, architects representatives, and other parties affected by work.
- D. A copy of manufacturer warranty application shall be provided at this meeting.

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1.5 WARRANTY

- A. The project shall be pre-registered with manufacturer before installation has begun.
- B. The installation will have to pass scan tests by a certified contractor.
- C. The installation will have to be documented with labels and drawings.
- D. A 25-year PAN-NET manufacturer warranty covering all components, equipment and workmanship shall be passed through in writing with system documentation. The warranty period shall begin on the system's first use by the owner.

1.6 APPROVED PARTS LIST

The following is an approved parts list:

Wire Management

<u>Manufacturer</u>	<u>Part Number</u>	<u>Description</u>
Panduit		J-Hooks shall be Panduit
Panduit	WMP1E	2U Horizontal Wire management
Panduit	WMPSE	1U Horizontal Wire Management
Panduit	CLT100F-C3	1" Split Loom Tubing Orange
Panduit	CLT188F-X3	1.88" Split Loom Tubing Orange
		1" Fiber Innerduct
		2" Fiber Innerduct
Panduit	CWF400N	4" Conduit Waterfalls
Panduit	CCMKIT1	Cable Management Kit
Panduit	WMPVHC45E	Vertical Cable Manager Front & Rear
Panduit	NCMH2	2U Horizontal Cable Manager Front & Rear
Trilobular		Taptite II thread

Twisted Pair Products

<u>Manufacturer</u>	<u>Part Number</u>	<u>Description</u>
Panduit	PUR6004BU-U	Cat 6 Riser Blue
Panduit	PUR6004WH-U	Cat 6 Riser White
Panduit	PUR6004OR-U	Cat 6 Riser Orange
Panduit	PUR6004RD-U	Cat 6 Riser Red
Panduit	PUR6004YL-U	Cat 6 Riser Yellow
Panduit	PUR6004VL-U	Cat 6 Riser Violet
Panduit	PUP6004BU-U	Cat6 Plenum Blue
Panduit	PUP6004WH-U	Cat6 Plenum White
Panduit	PUP6004OR-U	Cat6 Plenum Orange
Panduit	PUP6004RD-U	Cat6 Plenum Red
Panduit	PUP6004YL-U	Cat6 Plenum Yellow
Panduit	PUP6004VL-U	Cat6 Plenum Violet
General Cable	7136100	Outside Plant Cat 6
Panduit	CFPE1WHY	1 Port White Faceplate
Panduit	CFPE2WHY	2 Port White Faceplate
Panduit	CFPE4WHY	4 Port White Faceplate
Panduit	CFPE6WHY	6 Port White Faceplate

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Panduit	CFP2SY	Stainless Steel 2 Port Faceplate
Panduit	CJ688TGWH	Cat 6 Jack White
Panduit	CJ688TGOR	Cat 6 Jack Orange
Panduit	CJ699TGYL	Cat 6 Jack Yellow
Panduit	CJ688TGBL	Cat 6 Jack Blue
Panduit	CJ688TGVL	Cat 6 Jack Violet
Panduit	CJ688TGRD	Cat 6 Jack Red
Panduit	CPPL24WBLY	Blank, Minicom, 24 port patch panel
Panduit	CPPL48WBLY	Blank, Minicom, 48 Port Patch Panel
Panduit	SRBWCY	Strain Relief for Patch Panel
Panduit	PSL-DCJB	Black out Module Red (Need White, Red Listed)
Panduit	PSL-DCJB-IW	Black out Module White
Panduit	PSL-DCJB	Black out Module
Panduit	C4PPLK	Replacement Label Kit
Panduit	UTPSP3RD	3 Foot Cat 6 Red Patch Cord
Panduit	UTPSP5RD	5 Foot Cat 6 Red Patch Cord
Panduit	UTPSP3OR	3 Foot Cat 6 Orange Patch Cord
Panduit	UTPSP6OR	5 Foot Cat 6 Orange Patch Cord

Raceway		
Manufacturer	Part Number	Description
Panduit	LD3WH6-A	LD3 Raceway (Substitute 6 with 8 and 10, for Longer Lengths)
Panduit	LD5WH6-A	LD5 Raceway (Substitute 6 with 8 and 10, for Longer Lengths)
Panduit	LD10WH6-A	LD10 Raceway (Substitute 6 with 8 and 10, for Longer Lengths)
Panduit	CFXWH-E	Raceway Coupler (Replace 'X' with 3, 5, or 10 for the different size raceway)
Panduit	RAFXWH-E	Right Angle Fitting (Replace 'X' with 3, 5, or 10 for the different size raceway)
Panduit	ICFXWH-E	Inside Corner Fitting (Replace 'X' with 3, 5, or 10 for the different size raceway)
Panduit	OCFXWH-E	Outside Corner Fitting (Replace 'X' with 3, 5, or 10 for the different size raceway)
Panduit	DCFXWH-E	Drop Ceiling Fitting (Replace 'X' with 3, 5, or 10 for the different size raceway)
Panduit	JBX3510WH-A	Single Gang Outlet for LD Raceway

Tools		
Manufacturer	Part Number	Description
Panduit	CGJT	

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Panduit	EGJT	
Panduit	CWST	
Panduit	CJAST	
Panduit	TTS-20R0	Tak Tape Rolls
Panduit	HLS-75R0	Bulk Velcro

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. The acceptable manufacturer for the cabling connectivity is Panduit/General copper or Panduit/Panduit copper.
- B. Part listed are the owner's standards and any substitutions shall be approved in writing through submittal.
- C. Panduit 25 year Pan-Net.

2.2 QUANTITIES

- A. Distances mentioned and shown on drawings or spreadsheets are approximate. Field verification shall be made prior to install.
- B. Quantities listed here and in "parts list" document take precedence over drawing quantities.

2.3 SYSTEM COMPONENTS

- A. Materials provided shall meet or exceed the standards/description listed below.
- B. Horizontal Cable (Cat6):
 - 1. Solid copper, 24 AWG, 100 balanced twisted-pair (UTP) Category 6 cables with four individually twisted-pairs, which meet or exceed the mechanical and transmission performance specifications in ANSI/TIA/EIA-568-B.2 to 250 MHz. General Cables Genspeed 6000 Enhanced CAT6E meets the specification.
 - 2. Use plenum rated cable in PLENUM air environments only.
 - 3. Use gel-filled cables in OSP environments as under slab concrete, outside near water, etc.
 - 4. Use outdoor plant cable when going in slab or in areas with moisture.
- C. Connectors (Cat6):
 - 1. 8-pin modular, category 6, pinned to T5689B standard.
- D. Faceplates:

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1. Provide 1, 2, 4 or 6 port faceplates and use classic style with label window. Fill unused ports with blank inserts.

E. Patch Frames:

1. Data frame is to be 19" rack mountable, 24 or 48 empty ports for 8-pin modular jacks. Panels shall include a window for labels. Note: unused ports are to be filled in with black blank inserts.

F. Wire management:

1. On racks the horizontal cable managers shall be Panduit center mounting brackets (WMPF1E) for the wire managers in front for easy access during MACs. Horizontal managers shall be a minimum 1 RU.
2. Vertical cable managers (WMPVHC45E) are to be same height as rack. With fingers in the rear and in the front. They shall to have a bend radius control or strain relief clips. Panduit vertical managers are to be used for extra capacity.
3. Cable runway shall be ladder style or mesh /solid cable tray with a 12" width and 4" depth. The runway shall be mounted to a support loading wall as well as supported to the rack. An angle transition shall be used for adjoining runways or 90 degree bends. A cable drop shall be used to protect cables transitioning from runway to point of termination. If using a ladder style, use cable fingers attached to the sides to prevent spilling of cable over the sides.

G. Cable Pathways:

1. J-hooks will be used for suspending cables. These hooks shall have a 50 cable capacity and optional mounting. Preferred hooks have a wheel attachment capability so cables will not be dragged across during installation. Ensure that bends and edges will not pinch or cut cable sheath. Provide enough J-hooks to keep pathway along walls, J-hooks shall not cross the room.
2. Penetrations through fire rated walls shall utilize a metallic assembly with fire stop built into the assembly. EZ Path mechanical fire stop by Specified Technologies meets this requirement and shall be used. There is no exception to this.

H. Miscellaneous:

1. Cable ties shall be Velcro with a loop strap. Nylon cable ties shall not be used. If they are they shall be black and strapped with a loose tie so as not to pinch the cable sheath and with enough slack to get snips and fingers between tie and cable. The end of the tie shall be cut off after strapping.
2. Labels for patch panels, faceplates, and cables shall be by one manufacturer. Ex: Label Ware, EasyMark, Brady, LabelMo, etc.
3. All conduits shall have a maximum fill ratio of 60%.
4. All labels including the cable label shall be laser printed.
5. Labeling (Wire and Wall Jacks): All Labeling shall follow the "Tracy U.S.D. Labeling Format" (See "Tracy U.S.D. Labeling Format" Spreadsheet) with

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exception of workstation cables (i.e. patch cords). Hand written labels are not acceptable. All labels shall be machine printed black lettering on opaque white tape, stenciled onto adhesive labels, or type written onto adhesive labels. The font shall be at least one-eighth inch (1/8") in height, block characters, and legible. Patch panels shall be assembled and terminated in a sequential order, exhibiting room and workstation numbers for all workstations served by the MDF or IDF.

6. Each fiber optics cable segment shall be labeled at each end with its respective IDF identifier. Each fiber interconnect device shall be labeled with its respective IDF identifier.
7. Each telecommunication outlet shall be labeled with its respective workstation number respective (machine labels only).
8. Workstation Terminal Outlets are to be installed within single-gang or double-gang electrical boxes. No mud-rings are to be used. WAO faceplates are to have labeling which identifies connected IDF.
9. Each copper backbone cable shall be machine labeled and printed EIA/TIA-606 Section 8 compliant only at each end with its respective IDF number/letter. Each binder group shall be tied off with its respective identifying ribbon at each breakout point.
10. Labeling will be completed before testing shall begin; discrepancies during inspection with the labeling will void all test results.

PART 3 - EXECUTION

3.1 SYSTEM SPECIFIC INSTRUCTIONS

A. Horizontal Cable:

1. Contractor shall label cables in 2 locations 12" apart.
2. Contractor is to terminate using the 568B pin out.
3. Contractor is to leave 10 feet of slack for all cables at the station in the accessible ceiling.
4. All cables will terminate at the stations with RJ45 connectors and shall be housed in a faceplate. IF the connector is in the ceiling or behind a faceplate (such as the AV control panel) the connector shall be installed in a surface housing.

B. Closet/Rack:

1. All cables will terminate on the rack on a modular patch panel with an RJ45 connector.
2. A horizontal manager shall be installed above and below every 48 ports of patch panels (CPPL48WBLY) and switches.
3. A service coil shall be created above the rack on the wall of the closet. Do not place a service coil within the vertical and horizontal wire management. Cables within those managers shall be kept straight with proper bend radius.

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4. The service coil shall be long enough to reach the farthest corner of the room and then down to the floor.
5. Patch frames shall be rack mounted using grounding screws and washers.
6. Note: unused ports on the patch frames are to be filled in with black blank inserts. Also, 1-2 blanks will be installed after each student data, teacher, admin, ceiling, and paging outlet with less than 4 cables to allow for future MACs.
7. Contractor shall place a drawing next to the data rack showing a floor plan with outlet locations and labels that match the rack labels. These drawings are to be laminated or in a plastic casing.

3.2 INSTALLATION PROCEDURES

- A. The following are installation practices that ensure superior performance and aesthetics.
- B. NOTE: References to conduit, raceway and electrical are for contractors information. Actual installation of these components is included in another specification. If contractor notices a difference between actual install and the specs below, the contractor shall bring that immediately to the attention of the electrical contractor.
- C. Work Area Outlet
 1. The 10 ft coil shall not be a traditional service loop. Rather, the cable shall be extended along the wall then brought back at a lower height.
 2. A pull string for MACs shall be pulled with cable into accessible ceiling space or length of conduit. *Label strings to indicate destination of conduit.*
 3. Fill and label faceplates starting in the top left then moving right and downward.
 4. In addition to labeling, jacks shall be quickly identifiable by the following color:
 - a. Paging Jack Blue
 5. All jacks are to be terminated using 568B pin assignment.
 6. Minimize the amount of untwisting in a pair as a result of termination to connecting hardware. The amount of twisting shall not exceed 1/2" for category 6 and higher cables. Cable sheath shall touch the back of jack after termination (leave no portion of the cable exposed).
 7. A classic series faceplate (or surface mount box if needed) with a label window shall be used or the Jack itself labeled (Easy Mark #PLL-46-Y3C-1 or equal).
 8. The cable behind the faceplate shall also be labeled to match faceplate.
 9. ALL labels are to be machine generated, laminated, and adhesive.
 10. Each faceplate shall be labeled with its respective workstation number.
- D. Cable Pathways
 1. Acceptable Pathways:
 - a. All horizontal cable shall have support, the cable shall never be lain freely and resting on structural supports nor shall they use ceiling grid or lighting support wires.

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- b. The pathway to the work area shall allow for a minimum of 3 cable runs per individual work area.
 - c. Pathways shall ensure that a maximum pulling tension 25 lb-f is not exceeded and pathways (or installers) shall not deform the cable jacket. *If cable becomes kinked, contractor shall replace the cable.*
 - d. Acceptable pathways above ceiling, raceway floor unless outdoor plant going to drop location on wall. No floor mounted boxes are: cable tray, j-hooks, conduit, and surface mount raceway.
- 2. J-hooks - responsibility of cable installer
 - a. Cables shall not be attached to ceiling grid or lighting support wires. Instead cable pathway shall be along walls. Cables shall never cross a room. The pathway shall always be along a wall. This makes for easier MAC as any tile next to a wall can be moved to access.
 - b. For large quantities of cables (50 to 75) that converge at the TR and other areas, provide cables trays that are specifically designed to support the required cable weight and volume. When more than 50 cables are in a pathway j-hooks shall not be used or a second pathway shall be created. (NOTE: It is recommended that no more than 25 UTP Cat6 cables be placed in a single J-hook).
 - c. If cable tray is used follow manufacturer guidelines for installation and use a product that is designed specifically for communications cabling. The depth of the tray shall not exceed 4".
 - d. When using J-hooks, locate them staggered between 4 ft to 5 ft to adequately support and distribute the cable's weight. Do not evenly space the hooks, vary between 4 to 5 feet between each hook to prevent signal disruption.
 - e. When using J-hooks install cable with a wheel pulley system that will remove after cable is in place.
 - f. Contractor shall not strap the cables in between hooks to enable easier MACs and to lessen possibility of alien crosstalk.
- 3. Conduit
 - a. When pulling through conduit, cable pulling lubricants shall be continuously applied to all cables and be specifically approved by the cable manufacturer.
 - b. Pull string shall be installed in conduit to allow future MACs. If more than one string is installed in a conduit, the strings shall be labeled for identification of destination.
 - c. Conduits shall have grommets on end to protect the cable.
 - d. No more than (2) 90 degree turns in a given length
- 4. Fill capacities
 - a. Cable pathways shall not be filled greater than the NEC maximum fill for the particular pathway type.
 - b. The fill cable capacity for conduit shall not exceed the following and be no more than 60% full:

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1)	½ "	0 – Do not use
2)	¾ "	0 – Do not use
3)	1"	4 – Do not use
4)	1 ¼ "	6
5)	1 ½ "	8
6)	2 "	12
7)	2 ½ "	16
8)	3 "	24

- c. Fill capacity for raceway: (See Manufacturer Specs and Size by Cat6 requirements or 8.4mm/.33in diameter cable)

5. Distance Limitations

- a. Horizontal cable distance (Outlet to Panel) is not to exceed 298 feet.
- b. Premise cable distance (Outlet to Panel) shall be no less than 55 ft for any cable installed. Coil excess in ceiling if physically closer than 55 ft.

6. Aerial cable shall not be utilized.

E. Bend Radius Limits

1. The minimum bend radius for copper cable 4x cable diameter which is approximately 1.24 inches (31 mm).
2. The minimum bend radius for indoor (ISP) backbone optical fiber when under no load is 10 times the cable diameter and while it is being pulled it is 15 times.

F. EMI Avoidance

1. Cabling shall be installed to avoid devices that cause electromagnetic interference, such as Microwaves, Refrigerators, lighting, ballasts, power panels, etc.
2. Keep a minimum of 6" from electrical conductor cable.
3. Telecommunications conductors shall not be routed closer than 6 ft. from any lightning protection system conductor.

G. Cabinets and Racks

1. Only black Velcro cable ties shall be used for bundling and routing. Bundles shall be loose and Velcro ties shall have at least 18 inches between and the bundle shall be loose enough to place two fingers between the cable and the ties.
2. The service coil at the rack shall be located above the rack on the ladder rack/cable tray system or on the wall. Do not place the service coil within the vertical and horizontal wire management.
3. Entrances to cabinets shall be protected with grommets and shall have a conduit stubbed to ceiling space.
4. Installer shall create a detailed floor drawing designating jack locations and labels. A copy shall be attached inside the cabinet or back wall of the rack. The drawing shall also have the date and contractors contact information.

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5. Installer shall ensure that every telco rack/cabinet shall have separate and individual patch panels for workstation data cabling for each classroom, office or room space. In-addition, separate and individual patch panels shall be installed for each individual system such as: Extron A/V, Valcom IP Paging, Security Surveillance, and Wireless Access Point devices.

H. Wire Management

1. When bringing cable into the data rack, keep the bundle size small (optimum size may be 12 cables no more than 24 cables).
2. Velcro Ties shall be used in place of cable ties. Do not cinch cables so tightly to deform the cable in any way. It is recommended to leave Velcro ties loose enough to get fingers in between without deforming cable. Velcro ties shall be placed no less than 18 inches from other Velcro straps.
3. Every 48 ports of patch frame shall have its own wire manager below and above (except angled patch frames). The manager shall be d-rings on the front for easy access for MACs. Rear management shall also be used and may be finger style or bar style.
4. In addition to the horizontal managers, the installer shall either install a vertical (WMPVHC45E) Panduit center mounting brackets for the wire managers for vertical management.
5. In addition to binding in Velcro ties, ring runs shall be used for cables run in corners and for drop and rise on walls. These bundles shall be labeled indicating the destination of the bundle (i.e. floor horizontal cables, to TR2, etc.).
6. When cable bundles transition from wall to a floor rack a cable tray or ladder rack shall be utilized. Install brackets on sides to prevent cables from falling off the rack if ladder rack is used.

I. Fire stopping

1. All procedures in this category shall be done in accordance with authority having jurisdiction (AHJ), local codes, CEC, and insurance underwriter's requirements. If a procedure in one of these effects performance, the AHJ shall be alerted immediately in writing.
2. Ensure that materials used are U.L. Listed.
3. For sleeves through ALL walls, EZ Path by Specified Technologies shall be used to ensure a fire stopped pathway on future MAC.
4. Contractor shall put a label per ANSL11A/EIA 569 with warning to not remove, company name and phone number, and date next to each penetration. Contractor shall also place a label stating how many cables can fit within the EZ Path. It initial install fills the firestop, the label shall read "Capacity full — DO NOT ADD CABLES". Do this labeling and take a picture to include in close out doors. Cabling will not exceed 60% fill.
5. If the firestop capacity is filled more than 85% during initial, contractor shall install an additional EZ Path.

J. Grounding and Bonding

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1. All network equipment, shielded cables, patch panels, racks, and tray/ladder rack segments shall be Bonded and Grounded according to TJNEIA 607, BICSI guidelines, CEC, insurance underwriter's requirements, and local code (AHJ). The purpose is to provide a path to ground for all components to ensure personal safety and equipment protection.
2. Ensure that materials used are U.L. Listed.
3. Conduits that contain grounding backbone conductors shall be bonded to the grounding conductor at each end of the conduit. This negates the high impedance choke" effect while the cable carries lightning currents.
4. All Racks, trays, and electronics shall be grounded.
5. Contractor shall install on rack an ESD Port Kit on each rack in front and back.
6. The use of aluminum conductors is discouraged in the establishment of grounding scenarios. Aluminum does not provide the lowest resistive path. Additionally, aluminum conductors can become loose from mechanical screw/bolt connections due to vibration from carrying AC current.
7. Panduit's Data Center Grounding Solution and components shall be used. The following components shall be used to form a complete system (see the detailed drawing): Cabinet Grounding Complete Kit, Common Bonding Network Jumper (CBN) Kit, Surge Suppressor Jumper Kit, Front to Back Rail Jumper Kit, Rack Ground Strip Kit, Grounding Bus bar Kit, Paint Piercing Grounding Washers Kit, Thread Forming Screws, and Electrostatic Discharge (ESD) Discharge Port Kit.
8. Contractor shall test the ground system to ensure it has less than 5 Ohms. The test results shall be documented and submitted in close out docs.
9. Documentation: Contractor shall provide a single set of documentation to include test results and Visio "As-built" drawings in both soft copy and hard copy format.
 - a. Workstation Cable: The results of the workstation cable tests shall be provided in the form of printouts from the test equipment as well as computer file copies on CD with the software to read the results included. Test results shall be in PDF format.
 - b. As-Built Drawings: Contractor shall produce drawings depicting data outlet locations as they are actually installed. The drawings shall indicate actual cable routing, work station locations and workstation numbers, to be submitted before final inspection for punch list. Incorrect Visio drawings are punch list items and are to be corrected before re-inspection. "Tracy Unified School District's Telecommunications Jack Legend" shall be applied to all drawings. Results shall be returned to ISET within 30 days.

3.3 TESTING

- A. Testing shall be done with a Fluke Level IV cable tester (DTX 1800 meets this specification) and an Optical Time-Domain Reflectometer (OTDR). The new Fluke DTX 1800 unit is one test set that is capable of testing all frequencies through 900 MHz. If another manufacturer provides this test, contractor shall submit spec sheets and receive written approval for the tester prior to testing.

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- B. Contractor shall ensure that the tester has been manufacturer calibrated within nine months of testing and has the latest software version downloaded.
- C. Prior to testing, the tester shall be set for the specific cable and jack used on the project.
- D. A summary test report shall be submitted as well as detailed reports for each cable.
- E. All test results shall have the individual cable label and project name in the header along with the date and time of testing.
- F. Test results shall clearly indicate a Pass or Fail on the report. If a cable fails in one parameter the test is considered a Fail. Marginal Pass cables (indicated with an asterisk) are not acceptable and will be considered as a Fail.
- G. Any cable damaged or exceeding recommended installation parameters during installation shall be replaced by the contractor prior to final acceptance at no cost to the Owner.
- H. Test reports shall show a pass result for network standards, continuity, length, cross-talk, attenuation, and ambient noise.
- I. No Splices will be accepted.

3.4 EXAMINATION /FIELD QUALITY CONTROL

- A. On a daily basis, the contractor's project manager shall inspect the installation to ensure that installers are following the specifications and quality craftsmanship.
- B. Throughout the project regular, interval inspections will be completed by an architect representative to eliminate "unchangeable" installations.
- C. If the representative inspects the site and makes a change to the design or installation, this shall be noted in writing. The contractor shall not complete this change until approval is given.
- D. After installation, the architect representative will first inspect the site and create a closeout punch list for contractor to complete.
- E. After completion, the representative and contractor will inspect the site together.

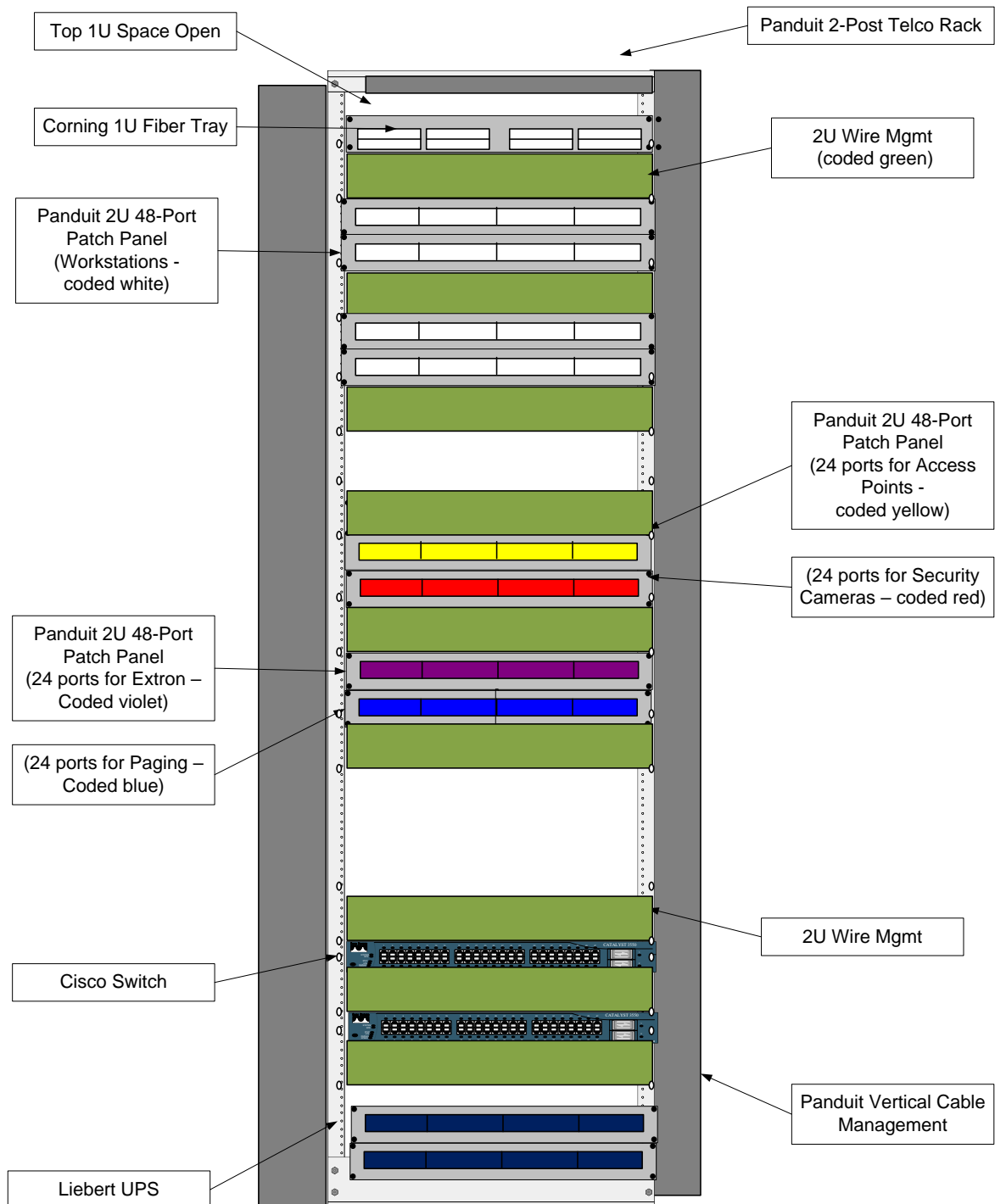
3.5 IDENTIFICATION

- A. The labels are to be laser printed onto adhesive labels using software and labels by Label Ware, Easy Mark, Brady, LabelMo, etc.
- B. Each cable is to be labeled using the following pattern: XXX-A##
 - 1. Segment XXX: Designates the location where the other end of the cable is. That is, at the station it says what room the patch panel is, and at the patch panel it says what room the station is.

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- 2. Segment A: Designates which patch panel the cable is terminated. This allows 26 patch panels per closet.
- 3. Segment ##: Designates which port on the patch panel the cable is terminated.
- C. Segment A and ## shall be the same on both sides of the cable.
- D. Contractor is to place labels onto the faceplates and panels. In addition, contractor shall place an adhesive label on each end of the cable.
- E. Layout of an IDF rack (*not to scale*)

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F. Labeling Format

1. All data cables at both the patch panel and the data jacks shall be labeled using the following standard labeling format. The labels are to be laser printed onto adhesive labels using software and labels by Label Ware, Easy Mark, Brady, LabelMo, etc.
2. Telecommunication outlets for a Valcom IP Paging horn, speaker or clock/speaker shall be labeled with its respective Valcom IP device number (machine labels only). Valcom numbers shall be comprised of the room number (i.e. C1, C2, etc.) and Valcom IP device number/drop number (i.e. PA1, PA2, etc.). Each data cable at a telecommunications outlet shall have an alpha identifier for the data jack (i.e. A). No biscuit shall be used and the data jack should be placed inside the Valcom back box. The labeling will start from the main door entering the room and go clockwise around the room. Each workstation cable shall be neatly labeled at each end with its respective workstation number.
3. Labeling for the respective port on the MDF/IDF patch panel shall be:
 - a. C1 – PA1 – A

3.6 CLEANING

- A. All work shall be cleaned to remove all dust, dirt, grease, paint or other marks. All electrical equipment shall be left in a clean condition inside and out, satisfactory to the owner. Keep buildings and premises free from accumulated waste materials, rubbish and debris resulting from work herein, and upon completion of said work, remove tools, appliances, surplus materials, waste materials, rubbish debris, and accessory items used in or resulting from work and legally disposed of offsite. For lead and asbestos dust removal, refer to "Safe School Standards" documentation.

3.7 CLOSEOUT

- A. The contractor will submit to owner within thirty days of completion a closeout package containing:
1. Hard copy and electronic test results.
 2. Hard copy and electronic as-built drawings with labels (with extra copies to be posted in the E.R. and T.E.s).
 3. Warranty information and manuals.
 4. A bill of materials with part numbers to be used for later MAC.
 5. Hard copy and electronic pictures.
- B. As prerequisite to final acceptance, supply to the owner certificates of inspection from IOR and owner designated RCDD.

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PART 1 - GENERAL

1.1 WORK INCLUDED

- A. General Conditions and requirements of Division 1 and Section 26 00 00 apply to work hereunder.
- B. Furnish and install a new IP Sound/Communications System with clock subsystem, including all wiring and connections and other materials as shown on Plans and specified herein. It is the intent that complete operating systems be installed and that any power supplies, transformers, modules, cards, cages, programming, or other items required to achieve this end result shall be furnished whether or not such item or items are specified herein. Provide connection to telephone system, providing at a minimum, the same functionality that currently exists.
- C. These specifications are based on IP PoE devices manufactured by Advanced Network Devices, Inc., 3820 Ventura Drive, Arlington Heights, IL 60004. Find product details at <https://www.anetd.com/our-products/>. Any other proposed manufacturers must be pre-approved.
- D. Descriptions and details, acceptable manufacturers' names listed, and specific manufacturer and model number items indicated in the plans and specifications shall establish a standard of quality, function, and design. Manufacturers are model numbers listed "no exceptions" shall not be substituted without specific notice in an addendum. Otherwise, where a specific manufacturer's product is indicated, products of other manufacturers listed as acceptable may be submitted for approval based on the substitute product being, in the opinion of the Engineer, of equivalent or better quality than that of the product specified.
- E. Proposed contractors wishing to propose any product substitution must do so in writing to the specifying authority at least ten (10) days prior to the proposal opening.
- F. For manufacturers equipment or models other than that specified, the proposed contractor shall supply proof that such substitute equipment equals or exceeds the features, functions, performance, and quality of the specified equipment. Proposals must include details information showing all deviations from the system as specified.
- G. Substitute products for which the proposed contractor does not obtain prior approval will not be considered acceptable for this project. Final approval of alternate products shall be based on the decision of the Owner and Architect. Prior approval to make a proposal for this project does not automatically ensure products will be an acceptable equivalent.
- H. It is the responsibility of the Contractor to provide all features and functions as outlined in these specifications. The functions and features specified are vital to the operation of this facility; therefore, inclusion in the list of acceptable manufacturers does not released the contractor from strict compliance with the requirements of this specification.

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- I. The model numbers used shall constitute the quality and performance of the equipment to be furnished.
- J. The system shall provide distribution of intercom, overhead paging, emergency paging, class change time tones and emergency tones.
- K. Site and System Investigation: Sound/Communications System bidder shall visit site prior to bid and become thoroughly knowledgeable about existing system and work required to perform work of this section. Failure to discover the equipment, materials, and labor required to complete the extensions will not relieve the contractor from completing the work at no additional cost.

1.2 GENERAL REQUIREMENTS

- A. System Requirements: All of various equipment components to be complete with all appurtenant accessories required to provide specified facilities and perform specified functions throughout presently planned construction and space; and provisions for expanding system to provide same facilities, and perform same functions in all future planned construction, including space and mountings in consoles and terminal backboards.
- B. Equipment Tests and Standards:
 - 1. For all equipment operating at 26 volts or more, or utilizing over 50 watts, Contractor to submit proof within time allowed for submittals that all items of equipment will conform to requirements of U.L. Label or listing of equipment by U.L. to be accepted as evidence of conformance.
 - 2. For all items of equipment operating at 25 volts or less, and utilizing less than 50 watts, Contractor may submit, in lieu of such label or listing, written certificate from any nationally recognized testing agency, adequately equipped and competent to perform such services, that each item has been tested and conforms to U.L. standards, including method of test of U.L.
- C. Instructions and Manuals:
 - 1. Equipment supplier of systems to demonstrate operation of systems to satisfaction of Owner and furnish Owner three (3) wiring schematics and a list of MAC addresses for all items of equipment, installation instructions, and details of all routine maintenance and servicing which must be given systems by Owner. Manuals shall be provided in 3-ring binders, with title page, list of contents, and conspicuous label on cover and shall be delivered to District. Refer to Section 26 01 20 for additional requirements. Submit copy to Architect for approval before delivering to Owner.
 - 2. Supplier shall demonstrate operation of systems and provide training to all end users, administrative staff, and system administrator. Coordinate times of instruction with District, at District's convenience. Supplier shall provide a minimum

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of 2 hours of user instructions to clerical staff and 4 hours of user/maintenance instructions to District maintenance personnel. Instruction periods shall not coincide and shall be scheduled with District, not school staff. District shall provide list of authorized personnel for training sessions.

D. Submittals:

1. Refer to Sections 26 0000 and 27 1000.
2. Contractor shall submit name of firms he proposes to do work under this Section, addresses, phone numbers, and name of firm's contact, for approval. Such firms shall be factory authorized representatives of the existing system and submittal shall include manufacturer's letter of confirmation. Proposed firm shall furnish all equipment and specialty cables, make all connections to same, and place the systems in operation. Such firms shall have offices and service departments within a 100 mile radius of project and shall have been in business of this type for at least five years.

E. Record Drawings:

1. Refer to Section 26 00 00. Final Inspection will not be made until drawings are received and approved. Record Drawings shall include "As-Built" one-line and wiring diagrams, with terminations identified, wire color coding schedule, pullbox locations, and conduit routing plans.
2. The Contractor shall provide complete drawings detailing all interconnections and panel wiring diagrams in Visio 2000 format.

F. Guarantee:

1. One firm to assume full responsibility for performance on all work of this section. Guarantee all equipment against defects in material and workmanship for two (2) years, and provide on-the-premises service during normal working hours for two years, at no cost to Owner if trouble is not caused by misuse, abuse, or accident, or at current labor rates if so caused. Provide manufacturer's written one-year guarantee for equipment and parts to Owner.
2. Service shall normally be available within 24 hours from service department of authorized distributor of manufacturer by factory trained servicemen.
3. On-the-premises service at other than normal working hours to also be available, but labor charges for such calls to be paid by Owner at current labor rates.

PART 2 - DETAIL REQUIREMENTS AND PRODUCTS

2.1 RELATED WORK – NETWORK CONNECTIVITY

- A. Refer to Section 27 10 00 – Data Communications for all Ethernet network drop connections. All Ethernet cabling and jacks used to connect to the building network shall

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be provided as indicated on the plans under 27 10 00. All system devices provided in this section, which require an Ethernet network connection shall be coordinated with this contractor.

- B. All system devices provided in this section that require a network connection shall be coordinated with district IT department to be assigned TCP/IP configuration settings including a static IP address, if required, domain, gateway, and subnet mask.
- C. The intercom system will require streaming devices/server in a single Class C subnet 255.255.255.0 attached to the server primary network port.
- D. This contractor shall implement all device network configuration and device programming required to provide a complete and functional system under this specification, including any special connecting network jumpers, and all other types of cabling and interconnect wires and cables required.

2.2 INTERCOM AND PUBLIC ADDRESS OPERATION

- A. Each room shall be equipped with an IP display and speaker unit with enclosed microphone.
- B. All speakers shall broadcast announcements and other audio messaging individually, as zoned, or all together.
- C. Common zone analog paging speakers with an amplifier shall connect to the network using a ZONEC2 zone controller, which can also receive a microphone signal via a single pair wire.
- D. The system shall use Power-over-Ethernet (PoE) network switches to deliver at least twelve (12.9) watts RMS to each AND IP device endpoint. The Advanced Network Devices IP LCD display Devices (IPCSHD-DS-MB and IPSWDHD-MW) require PoE+ network switches or injectors to deliver at least twenty-five (25.5) watts to each endpoint.
- E. The system shall provide the capability of assigning IP device locations to any one or more of the software programmable zones for target paging and messaging.
- F. Provide for the distribution of emergency announcements and for the distribution of manually activated visual and audio alerts to all locations with speakers from any authorized web interface.
- G. Through programming, it shall be possible to exclude selected speakers from the reception of paging and messaging.
- H. Provide capability of restricting the origination of emergency announcements, all page, zone page, and alarm messaging origination to specific assigned stations.
- I. Provide a Priority Paging Microphone for use by administrative personnel. The microphone shall be a desk type with a locking Push-to-Talk bar. When the Push-to-

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Talk bar is pressed, the system shall automatically initiate an all-page from the microphone.

- J. The system shall also provide the capability of initiating audio and visual alerts manually from a web interface.

2.3 PROGRAM DISTRIBUTION OPERATION

- A. A system shall provide for the streaming of audio.
- B. The system shall provide facilities to stream audio (i.e. music, radio broadcasts).
- C. Selected AND IP devices shall be configured to receive a stream of audio at a specified common multicast IP address. One AND IP device shall be configured to broadcast the audio on its line in to the specified common multicast IP address.
- D. The staff member shall approach the “remove program and microphone interface” (music input jacks, connected to the line-in of an AND IP device) and plug in a program source such as a radio, tape or CD player, or mp3 player.
- E. Audio played from the program source shall be broadcast to the selected AND IP devices per the configuration.

2.4 CLOCK AND BELL SCHEDULE SYSTEM FUNCTIONS/OPERATION

- A. The server shall provide a bell/tone scheduler with the following minimum capabilities:
 - 1. The system shall provide the capacity for storing 255 or more events.
 - 2. The system shall provide a minimum of 4 bell schedules to allow flexibility due to seasonal changes or special events. One or more of the schedules may be active at any given time.
 - 3. Classroom speakers may be assigned to any one or more zones. The system shall provide the ability to distribute class change signals to any or all of the zones. Time Zones shall be separate from paging zones. The system shall provide separate bell duration for each zone.
 - 4. The system shall provide up to sixteen (16) programmable holidays with fully automatic holiday program execution. Bells can be silence or special schedules can be implemented. Normal bells will resume after the holiday period.
 - 5. The system shall provide Automatic Daylight Savings Time Change. The time will be updated automatically when the server detects daylight savings changes.
 - 6. The system shall provide the ability to review, edit, and delete events and schedules. Editing may take place via a web browser on computer within the network with sufficient access privileges.
 - 7. The system shall provide the ability to test all output zones.
 - 8. The system shall provide a time base based on atomic time gathered from an NTP server or third-party software server for assured accuracy.

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2.5 SOUND/COMMUNICATIONS SYSTEM

- A. General: Furnish and install a new IP Intercommunications System.
- B. Equipment Standards:
 - 1. All enclosures for all equipment to be of metal throughout system. Enclosures other than metal are not acceptable.
 - 2. Speaker grilles to be non-directional diffusion type insulated from speaker by fiber mounting board. Dampening material to be installed between mounting board and grille to prevent metallic resonance.

2.6 JACKS

- A. At the MDF and IDF's, provide a jack for each device, Panduit CJ688TGV, Cat 6, Blue.

2.7 SYSTEM CABLING

- 1. Each clock/speaker and speaker shall have a Category-6 cable homerun from the local data rack. The cable shall be terminated on a jack and surface mount box inside the provided housing.
- 2. Electronics contractor completing this specification shall provide the patch cord for connecting the speaker to the jack. Contractor shall provide a 1 foot, Cat 6, Violet, Panduit patch cable.
- 3. At the MDF and IDF's, provide (1) patch cable for each device, 5 foot, Cat 6, Violet, Panduit.
- 4. Refer to Section 27 1000 for wiring requirements.

2.8 PERIPHERAL EQUIPMENT

- A. Intercom Call-in Switch
 - 1. Advanced Network Devices AND-BTN-KIT-1 single call switch for IP LED display models. The pushbutton shall be the momentary contact type. Intercom calls or pages are placed by momentarily depressing the pushbutton. Call switches shall be installed in all locations designated on the plans.
 - a. The switches shall be mounted on a single-gang brushed stainless steel faceplate.
 - b. Each switch shall each be connected to the GPIO input of one Advanced Network Devices display/speaker device via 2-conductor 22-gauge cable.
 - 2. Advanced Network Devices BTN-KIT-MIC-ND for IP speaker models with no displays or IP LCD display models (IPSWDHD-MW or IPCSHD-MB). The pushbutton shall be the monetary contact type. Intercom calls or pages are placed by momentarily depressing the pushbutton. Call switches shall be installed in all locations designated on the plans.

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- a. The switches shall be mounted on a single-gang brushed stainless steel faceplate.
- b. Each switch shall each be connected to the module of one Advanced Network Devices speaker via RJ25 (6P6C) cable.

B. IP Devices

1. Classrooms:

- a. The speaker and baffle assembly shall be an Advanced Network Devices IP LCD display device with speaker (IPSWDHD-MW).
- b. The speaker on the IP device shall be an 8" (20.32 cm) permanent magnet dual-cone type having a ceramic magnet. It shall have a frequency range of at least 60 Hz to 17,000 Hz, a 10-watt RMS program power-handling capability, and an axial sensitivity of at least 95 dB at 1 meter with a 1-watt input. The voice coil shall have 8-ohm impedance.
- c. The speaker shall accept power from any IEEE802.3af (PoE) or IEEE802.3 at (PoE+) compliant network switch or injector.
- d. The LED display device shall include a 56 x 16 multi-color LED display capable of displaying the current time and any messages sent from the server.
- e. The LCD display device shall include an LCD display of at least 4" x 11.5" size capable of displaying full-color graphics and images, the current time, and any messages sent from the server.

2. Hallways:

- a. The display/speaker and baffle assembly shall be an Advanced Network Devices IP LCD display device (IPCSHD-DS-MB).
- b. The display/speaker shall accept power from any IEEE802.3af (PoE) or IEEE802.3at (PoE+) compliant network switch or injector. The IP LCD display device (IPCSHD-DS-MB) requires an IEEE802.3at (PoE+) compliant network switch or injector.
- c. The LED display shall include a 56 x 16 multi-color LED display capable of displaying the current time and any messages sent from the server on both sides of the device.
- d. The LCD display device shall include an LCD display of at least 4" x 11.5" size capable of displaying full-color graphics and images, the current time, and any messages sent from the server on both sides of the device.
- e. The display/speaker and baffle assembly shall include secure mounting that can mount either to the wall or to the ceiling.
- f. The baffle shall be constructed of 18-guage (IPCSHD-DS-MB) cold rolled steel, and have a matte black baked epoxy finish (IPCSHD-DS-MB).

3. Gymnasium and Large Commons, etc.:

- a. The speaker and baffle assembly shall be an advanced Network Devices Large IP Signboard display device with speaker (IPSIGNL-RWB) and/or IP speaker (IPSWS).

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- b. The speaker shall be an 8" (20.32 cm) permanent magnet dual-cone type having a ceramic magnet. It shall have a frequency range of at least 60 Hz to 17,000 Hz, a 10-watt RMS program power-handling capability, and an axial sensitivity of at least 95 dB at 1 meter with a 1-watt input. The voice coil shall have 8-ohm impedance.
 - c. The speaker shall accept power from any IEEE802.3af (PoE) or IEEE802.3at (PoE+) compliant network switch or injector.
 - d. The LED display shall include a 56 x 16 multi-color LED display capable of displaying the current time and any messages sent from the server.
 - e. The baffle shall be constructed of 18-gauge (IPSIGNL-RWB) or 22-gauge (IPSWS) cold rolled steel, and have a stainless-steel finish (IPSIGNL-RWB) or semi-gloss white baked epoxy finish (IPSWS).
- 4. Enclosures
 - a. Surface Mount
 - 1) Where speakers are to be surface mounted, enclosures shall be Advanced Network Devices IPS-SM2 (included with IPSWS-SM). The enclosure shall be constructed of 16-gauge (IPS-SM2) galvanized steel, and have a semi-gloss white baked epoxy finish. The IPS-SM2 enclosure shall have a dimension of 11.75" square and 4" deep.
 - b. Contractor will need to coordinate with other divisions for locating speakers to avoid conflicts and for optimal sound coverage.
- 5. Outdoor Speakers
 - a. Outdoor paging speakers shall be an Advanced Network Devices IPSWS-SM-O weather-resistant compressed horn speaker. The baffle and enclosure shall be constructed of 16-gauge galvanized steel, with a semi-gloss white baked epoxy finish. The enclosure shall have a dimensions of 11.75" square and 4" deep.
 - b. The paging speaker shall be a double re-entrant horn, compression type loudspeaker. It shall have a frequency range of at least 600 Hz to 14,000 Hz, at least 10W RMS program power-handling capability, and an axial sensitivity of at least 104 dB at 1 meter with a 1-watt input, and 8-ohm impedance.
 - c. The speaker shall accept power from any IEEE802.3af (PoE) or IEEE802.3at (PoE+) compliant network switch or injector.

PART 3 - EXECUTION

3.1 INSTALLATION REQUIREMENTS

- A. Electrical Contractor shall retain the services of the duly appointed representative as specified hereinbefore, who shall furnish all equipment, make all connections to same, and place system in operation. Technician and workman employed shall be particularly skilled in this type of work. Workmanship on installed systems shall be of professional quality, best commercial practice.

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- B. All wiring throughout entire system shall be installed in conformance with standard industry practice.
- C. Station locations shall be identified by location and school's actual room numbers as furnished by District, and in all ways shall relate as closely as possible to record wiring drawings. Prior to performing final labeling and programming, coordinate information with District.

3.2 CONSTRUCTION MEETINGS

- A. The Contractor shall schedule construction meetings at the jobsite as follows:
 - 1. Prewire meeting shall occur after raceways are installed and prior to pulling of any wire or cable.
 - 2. Pre-termination meeting shall occur after wire and cable has been installed and prior to termination.
- B. Meetings shall be scheduled by the Contractor on a building by building basis and shall include the Project Inspector, School's Representative, the electrical subcontractor, and the Signal System subcontractor as a minimum.

3.3 TESTS

- A. After all equipment specified herein has been installed and is in operating condition, performance tests shall be conducted to determine that installation and components comply with these specifications. Contractor shall furnish competent personnel for these tests.
- B. Perform initial programming of system and audio level adjustments.
- C. Contractor shall physically walk to each speaker and ensure that sound is coming from each speaker.
- D. Contractor shall set the volume level to approximately 6 dB above ambient noise during occupancy.
- E. The sound level for each speaker and zone shall be tested with an audio meter.
- F. Contractor shall provide a drawing showing dB levels for each speaker and zone. The drawing shall be dated and signed by the person administering the test.
- G. Contractor shall test the extension for each room. Extension also be noted on the drawings.
- H. Testing shall be scheduled with the Owner and shall occur after receipt by Architect of Contractor's written certification of completion, record one-line diagram, wiring diagrams, maintenance and operation manuals, and other "As-Built" data required by these specifications. Tests shall be scheduled with School before occupancy occurs.

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- END OF SECTION -

**INTRUSION ALARM
SYSTEM
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PART 1 - GENERAL

1.1 WORK INCLUDED

- A. General Conditions and requirements of Division 1 and Section 26 0000 apply to work hereunder.
- B. Furnish Intrusion Alarm System including all wiring and connections and other materials as shown on Plans and specified herein. It is the intent that a complete operating system be installed and that any power supplies, relays, resistors, cards, modules, programming, or other items required to achieve this end result shall be furnished whether or not such item or items are specified herein.
- C. Site and System Investigation: System bidder shall visit site prior to bid and become thoroughly knowledgeable about existing system and work required to perform work of this section. Failure to discover the equipment, materials, and labor required to complete the extensions will not relieve the contractor from completing the work at no additional cost.
- D. Proprietary Systems: Where school is protected and monitored by a proprietary system, such as ADT or Sonitrol, Contractor shall coordinate the exact requirements with those firms. If the Division 16 Contractor elects to use a sound and signal firm other than the proprietary company, the sound and signal firm must include in bid, the materials, equipment, and labor required by the proprietary company to make the extensions complete and fully functional.

1.2 GENERAL REQUIREMENTS

- A. System Requirements: All of various equipment components to be complete with all appurtenant accessories required to provide specified facilities and perform specified functions throughout presently planned construction and space; and provisions for expanding system to provide same facilities, and perform same functions in all future planned construction, including space and mountings in control panels and terminal backboards.

1.3 QUALITY ASSURANCE

- A. Latest applicable publications listed below form a part of this Specification:
 - CEC 2019 CALIFORNIA ELECTRICAL CODE
 - CFC 2019 CALIFORNIA FIRE CODE
 - NFPA 72 NATIONAL FIRE ALARM CODE WITH CALIFORNIA AMENDMENTS, 2019
 - ADA TITLE 3 OF THE AMERICANS WITH DISABILITIES ACT
 - CCR TITLES 19 AND 24 OF THE CALIFORNIA CODE OF REGULATIONS

1.4 CONTRACTOR QUALIFICATIONS

- A. Fabricator/Installer/Vendor shall be licensed contractor and servicing agent, as well as installer for all components and systems in this System, and be acceptable to

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manufacturer of the major components of the system. Service personnel shall be capable of serving any and/or all components of the System.

- B. Fabricator/Installer/Vendor must be able to present evidence of technical expertise, be a firm who has successfully installed projects of a similar scope to this project for a minimum of five (5) years, and shall maintain service office within 100 miles of the project site.
- C. All equipment is to be manufactured by a firm/firms who have successfully fabricated elements/systems of a scope similar to this project for a minimum of ten (10) years.
- D. Have a valid State of California Contractor's license in classification C10 - Electrical.
- E. Provide authorized dealer service on-site at facility within four (4) hours of a problem being reported, with this response time available twenty-four (24) hours per day, seven (7) days per week.
- F. Affirm that he maintains, or will maintain, or has access to, a stock of system spares sufficient to insure that no element of the System will be out of service for more than twenty-four (24) hours due to lack of proper spares.

1.5 SUBMITTALS, O&M'S AND RECORD DRAWINGS

A. Submittals:

- 1. Refer to Section 26 0000.
- 2. Contractor shall submit name of firm he proposes to do work under this Section, addresses, phone numbers, and name of firm's contact, for approval. Such firms shall be factory authorized representatives of the system and submittal shall include manufacturer's letter of confirmation. Proposed firm shall furnish all equipment and specialty cables, make all connections to same, and place the systems in operation. Such firms shall have offices and service departments within a 100 mile radius of project and shall have been in business of this type for at least five years.
- 3. Submittals shall be complete and include catalog data, shop drawings, one-line diagrams, battery calculations, voltage drop calculations, and scaled plan drawings. Building plans shall be 1/8"=1'-0", and site plans shall be no smaller than 1"=40'.
- 4. Shop Drawings shall contain complete wiring and schematic diagrams for equipment furnished, equipment layout, conduit and wiring layout drawings, and any other details required to demonstrate that system has been coordinated and will properly function as a unit. Equipment Vendor shall check Drawings for adequacy of conductors and raceways for proposed system. Include in Bid Amount all required raceways, conductors and material necessary to suit proposed system.

B. Operation and Maintenance Manuals:

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1. Operating Instruction Manuals outlining the step-by-step procedures required for system start-up and operations shall be furnished. The instructions shall include manufacturer's name, model number, service manual parts list, and brief description of all equipment and their basic operating features.
 2. Maintenance Instruction Manuals outlining maintenance procedures shall be furnished. The manual shall include a troubleshooting guide listing possible breakdowns and repairs and a simplified connection wiring diagram for the system as installed.
- C. Record Drawings: Refer to Section 26 0000. Final Inspection will not be made until drawings are received and approved. Record Drawings shall include "As-Built" one-line and wiring diagrams, with terminations identified, wire color coding schedule, pullbox locations, and conduit routing plans.
- D. Furnish to District a printed copy of the control panel programming upon completion of final system programming.
- E. Performance Test Reports: Upon completion of installed system, submit in booklet form all field tests performed to prove compliance with the specified performance criteria. Each test report shall indicate the final position of controls.

1.6 TRAINING

- A. Supplier shall demonstrate operation of systems and provide training to all end users, administrative staff, and system administrator. Coordinate times of instruction with District, at District's convenience. Supplier shall provide a minimum of 1 hour of user instructions to clerical staff and 2 hours of user/maintenance instructions to District maintenance personnel. Instruction periods shall not coincide and shall be scheduled with District, not school staff. Deliver to Owner at time of demonstration, all settings and codes programmed into system. Furnish three copies on manufacturer's standard programming worksheets. District shall provide list of authorized personnel for training sessions.

1.7 GUARANTEE

- A. One firm to assume full responsibility for performance on all work of this section. Guarantee all equipment against defects in material and workmanship for two (2) years, and provide on-the-premises service during normal working hours for two years, at no cost to Owner if trouble is not caused by misuse, abuse, or accident, or at current labor rates if so caused. Provide manufacturer's written one-year guarantee for equipment and parts.
- B. Service shall normally be available within 24 hours from service department of authorized distributor of manufacturer by factory trained servicemen.
- C. On-the-premises service at other than normal working hours to also be available, but labor charges for such calls to be paid by Owner at current labor rates.

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PART 2 - DETAIL REQUIREMENTS AND PRODUCTS

2.1 SYSTEM OPERATION

- A. Activation of an intrusion alarm sensor shall cause a signal to be transmitted to a Central Station via telephone lines. Signal transmission shall be initiated by a built-in dialer unit. In addition to alarm reporting, system shall report trouble, low battery, and shunted zone indications.

2.2 SYSTEM DESCRIPTION

- A. A. Intrusion Detection Control Panels: Basis-of-design is the Honeywell VISTA 128BPT System, a burglary/access control/CCTV switching system that includes the following capabilities:
 - 1. Listed for UL Commercial Burglary.
 - 2. Supports up to 128 zones.
 - 3. Supports up to 8 separate partitions.
 - 4. Supports up to 150 users.
 - 5. Supports commercial wireless devices.
 - 6. Provides integrated security, access control, and CCTV switching capability.
 - 7. Provides supervision of peripheral devices.
 - 8. Supports up to 96 optional relay outputs.
 - 9. Supports long-range radio (LRR) communication.
 - 10. Provides scheduling capability to allow for automated operations.
 - 11. Supports alarm reporting via Internet.
 - 12. Interfaces with automation software.
 - 13. Monitors smoke detector maintenance signals
 - 14. Capable of being installed using existing wiring

2.3 MANUFACTURER

- A. Intrusion Detection Alarm Panel Manufacturer: VISTA 128BPT by Honeywell, www.security.honeywell.com.

2.4 SYSTEM PERFORMANCE

- A. Control Panel: The control panel shall be an 8-partition, UL commercial and burglary control panel that supports up to 128 zones using basic hardwired, polling loop, and wireless zones, RF receivers, and relay modules. The control shall provide the ability to schedule time-driven events, and allow certain operations to be automated by pressing a single button. The system shall be capable of interfacing with an ECP long range radio (LRR) unit that can send Contact ID messages. The control shall provide integrated access control and CCTV-switching capability with the use of a single downloader and database.
1. Basic Hardwired Zones: Control shall provide 8 style-B hardwire zones.
 2. Optional Expansion Zones:
 - a. Polling Loop Expansion: Control shall support up to 120 additional hardwire zones using a built-in two-wire polling (multiplex) loop interface. The polling loop shall provide power and data to remote point modules, and constantly monitor the status of all zones on the loop. Maximum current draw shall not exceed 128 mA.
 - b. Wireless Expansion Zone: Control shall support up to 128 wireless zones using a 5800 series RF receiver (fewer if using hardwire and/or polling loop zones).
 3. Partitions: Control shall provide the ability to operate 8 separate areas, each functioning as if it had its own control.
 4. User Codes: Control shall accommodate 150 user codes, all of which can operate any or all partitions.
 5. Peripheral Devices: Control shall support up to 30 addressable ECP devices, which can be any combination of keypads, RF receivers, relay modules, and interactive phone module.
 6. Keypad/Annunciator: Control shall accommodate up to 16 keypads or six (6) touchscreen (i.e.; advanced user interface) keypads.
 7. Optional Output Relays: A total of 96 relay outputs shall be accommodated using relay modules. Each relay module shall provide four (4) Form C (normally open and normally closed) relays for general-purpose use.
 8. Optional Vista Interactive Phone Module: The control shall support the ADEMCO 4285/4286 VIP Modules, which permit access to the security system.
 9. Integrated Access Control
 10. CCTV Switching: System shall be capable of supporting the VistaView 100 CCTV Switching System. The CCTV system shall be fully integrated and be

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event driven by Burglary or Access events. When cameras are not event driven, they shall be driven by an automatic preset dwell time.

11. Commercial Wireless Equipment: Control shall be compatible with UL Listed Commercial Wireless Security equipment.
12. Optional Keyswitch: Control shall support the ADEMCO 4146 Keyswitch on any one of the system's 8 partitions. If used, zone 7 is no longer available as a protection zone.
13. Voltage Triggers: System shall provide voltage triggers, which change state for different conditions. Used with devices such as a remote keypad sounder or keyswitch ARMED and READY LEDs.
14. Event Log: System shall maintain a log of different event types (enabled in programming). The event log shall provide the following characteristics:
 - a. Stories up to 512 events.
 - b. Viewable at the keypad or through the use of Compass software.
 - c. Printable on a serial printer, including zone alpha descriptors.
15. Scheduling: Provides the following scheduling capabilities:
 - a. Open/close schedules (for control of arming/disarming and reporting).
 - b. Holiday schedules (allows different time windows for open/close schedules).
 - c. Timed events (for activation of relays, auto-bypassing and un-bypassing, autoarming and disarming, etc.).
 - d. Access schedules (for limiting system access to users by time).
 - e. End User Output Programming Mode (provides 20 timers for relay control).
 - f. The system shall automatically adjust for daylight savings time.
16. Communication Features: Supports the following formats and features for the primary and secondary central station receivers:
 - a. Formats: ADEMCO Express; ADEMCO Contact ID 4 and 10 Digit Acct number.
 - b. Backup reporting: The system shall support backup reporting via the following: Secondary phone number; ECP long-range radio (LRR) interface; option to select long range radio (LRR) or dialup as the primary reporting method (dynamic signaling feature).
 - c. Internet reporting: The system shall be capable of communicating with the central station via the internet using Alarmnet-i. It shall provide the user with the ability to control the system via a browser interface (i.e., AOL, Netscape, Internet Explorer). All packet data transmitted to the monitoring station shall be encrypted with a minimum of 1024 bits of encryption.

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17. Audio Alarm Verification Option: Provides a programmable Audio Alarm Verification (AAV) option that can be used in conjunction with an output relay to permit voice dialog between an operator at the central station and a person at the premises.
18. Cross-Zoning Capability: Helps prevent false alarms by preventing a zone from going into alarm unless its cross-zone is also faulted within 5 minutes.
19. Exit Error False Alarm Prevention Feature: System shall be capable of differentiating between an actual alarm and an alarm caused by leaving an entry/exit door open.
20. Built-in User's Manual and Descriptor Review: For end-user convenience, the control panel shall contain a built-in User's Manual.
21. Programming: Control shall be capable of being programmed locally or remotely using the ADEMCO Compass Downloader.

2.5 COMPONENTS

- A. Equipment and accessories furnished under the terms of these specifications shall be the standard products of the manufacturers specified or required. All equipment shall be listed by U.L. All equipment and accessories shall be compatible with the system.
- B. System Integration: System shall integrate with facility doors, windows, and departments. The system shall also integrate with external systems, such as building appliances and building alert systems for remote control and central collection of external system alerts. When integrated with external systems, the system shall connect to the external system to receive status changes by way of a dry contact output from the external system. The system shall use its user interface to provide local status messages from external systems, providing for the initiation of local building policies. Optionally, the system may transmit information to an off-site monitoring service to provide initiation of remote policies when appropriate. The installer shall follow manufacture's instructions when installing and programming system equipment.
 1. V-Plex Bus Extensions: Extended system V-Plex bus branch circuits shall be scaleable to increase the total size of the bus in larger installations. Branch circuits leading from different buildings or from different floors in multi-story buildings shall be isolated from one another so that a shorted or grounded branch circuit is isolated away from other near-side branch circuits, allowing other V-Plex devices to be isolated so that they can continue to operate.
 2. Zone Input: System zone inputs allow the system to sense the change in state of an output from an external device, such as a door/window position sensor, a motion detector, a relay output from an appliance, the output of an external alert system, or other devices that provide a dry closure output.

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3. Combined AlarmNet-I (Internet) and AlarmNet-GSM (Global System for Mobile) Fire Alarm Communication: The facility system shall be monitored using both the AlarmNet-I and the AlarmNet-G Communication services. The system shall use Honeywell's AlarmNet IGSMCF Fire Alarm transmitter or equivalent. The communication service shall employ a two-way Internet connection through AlarmNet Communication Service as the primary method of communication, and then the two-way GPRS (General Packet Radio Service) as the secondary means of communication and shall use SMS (Short Message Service) as a tertiary means of communication. The equipment shall be UL listed for use in this application. The installer shall follow manufacturer's instructions when installing the AlarmNet unit.
4. VSI Bus Isolation and Integrity: System V-Plex bus branch circuits shall be isolated from one another so that a shorted, overloaded, or grounded branch circuit is isolated away from other near-side branch circuits, allowing undamaged V-Plex bus circuits to continue to operate. VSI Isolation modules shall be installed at near-side connections to cable runs leading to additional buildings, at cable runs leading to additional floors in multi-story buildings, and at junction boxes leading to multiple VPlex branch circuits within the system. The installer shall use the Honeywell VSI module or equivalent.
5. Zone Input: System zone inputs allow the system to sense the change in state of an output from an external device, such as a door/window position sensor, a motion detector, a relay output from an appliance, the output of an external alert system, or other devices that provide a dry closure output.
6. Door Contacts:
 - a. Hollow Steel Frame Doors, V-Plex: Honeywell Model 4191SN-WH Recessed 1/2" sensor, equipped with the steel door adapter.
 - b. Filled Steel Frame Doors: Honeywell Model 960 Door sensor, and a 4193SN V-Plex adapter.
 - c. Wood Frame Doors: Honeywell Model 4191SN-WH Recessed 1/2" sensor.
 - d. Roof Hatches: Honeywell Model 960 Armored Door Sensor, and a 4193SN V-Plex adapter.
 - e. Roll-Up Doors, V-Plex: Honeywell Model 4959SN Overhead Door sensor.
7. Motion Detector, Wall-Mounted, V-Plex: Honeywell Model DT7500SN V-Plex Dual-Tec Motion Detector.
8. Keypad, Alpha Display: Honeywell Vista 6160 keypad.
9. Alarm Bells: 12V DC motor Bell and box, Amseco ABB-1033.
10. End of line resistors, as required.
11. Power Supplies: Altronics SMP Series with output voltage and capacity as required. Provide with appropriate transformer, enclosure(s), and battery(s).

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Battery(s) shall be sized to provide 24 hours of backup power. Provide power supplies as necessary.

12. RJ-31X mounted on Main Telephone Terminal Backboard.

PART 3 - EXECUTION

3.1 INSTALLATION REQUIREMENTS

- A. Work shall be installed as shown on the Drawings in accordance with the manufacturer's diagrams and recommendations, except where otherwise indicated.
- B. Electrical Contractor shall retain the services of the duly appointed representative as specified hereinbefore, who shall furnish all equipment, make all connections to same, and place system in operation. Technician and workman employed shall be particularly skilled in this type of work.
- C. At existing sites, the existing system shall be tested as soon as possible after award of contract and prior to preparing submittals. Contractor shall test entire system to insure proper operation. Any defects or deficiencies found shall be listed and presented to Owner in letter form. It will be assumed that existing equipment is fully functional unless identified otherwise by Contractor.
- D. Control panel shall be mounted with sufficient clearance for observation and testing.
- E. All junction boxes must be clearly marked for distinct identification.
- F. Panel enclosures shall comply with the Requirements of UL 864. Enclosures having doors over forty-eight inches (48") in height shall be provided with a three (3) point catch and lock; all other doors shall contain a cabinet type cylinder lock. Inserts shall be blind fastened so that no screws show on panel front.
- G. Detectors shall be installed in accordance with manufacturer's written instructions in areas as indicated on the Drawings.
- H. Circuits shall be terminated on screw terminals. Terminal blocks shall be Allen-Bradley Bulletin 1492 with 600 volt screw terminals for #22 to #10 conductors, mounted to type N22 channel, or approved equal. Submittal shall show internal elevation of terminal cabinets with equipment laid out.
- I. All cables shall be run through fanning strip to terminals of terminal blocks.
- J. All cables entering terminal cabinet shall be identified with T&B Vinyl, Brady Permashield mylar markers, or equal. Upon completion of installation, six (6) copies of one-line "as-built" wiring diagram shall be furnished to Architect.
- K. Each cable run on wiring diagram shall be identified with exact wire marker code (numerical or alphabetical) as appears in terminal cabinets.
- L. Detector locations shown on drawings are approximate only. Exact locations shall be coordinated with lighting and mechanical equipment and shall be placed in accordance with manufacturer's recommendations (with respect to supply air diffusers, etc.).

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- M. Station locations shall be identified by school's actual room numbers and system shall be programmed accordingly. Coordinate actual room numbers with District. Coordinate final programming with District. Contractor shall furnish a printed copy of final programming to District.
- N. End-of-line resistors shall be installed at locations readily accessible, not above an elevation of 10 feet above finish floor or grade, or as shown on Drawings.
- O. No splices shall occur in underground pullboxes. System wiring shall be continuous, without splices, from terminal cabinet to terminal cabinet and control panel to devices. All interior pullboxes shall be accessible and locations shall be recorded on "As-Built" drawings.
- P. Door contacts shall be located 6" from strike side of door and both the switch and magnet shall be "glued" in place with clear silicone. Wiring shall enter door frame through jamb. Do not drill headers.
- Q. Each detector installed in this contract shall have a popit. Each door contact installed in this contract shall have a popit, unless door contacts are shown grouped on drawings. In rooms with accessible ceilings, mount popit in junction box above ceiling. Where hard ceilings occur, provide flush box high on wall or on ceiling with blank finish plate. Wiring shall go to popits, then down to detectors.
- R. Protected areas accessing remote keypads shall be wired and connected on delay zone, separate from all other protected areas.
- S. After all equipment is installed and is operational, Intrusion Alarm System subcontractor shall set angle settings, sensitivity settings, etc., of each detector to insure optimum performance and minimal false alarms. Mask out areas of each motion type detector to remove sources of false alarms (windows, heaters, air diffusers, etc.) from detection zones.

3.2 CONSTRUCTION MEETINGS

- A. The Contractor shall schedule construction meetings at the jobsite as follows:
 - 1. Pre-rough-in meeting shall occur before installation of any boxes, raceways, etc. Exact locations of all detectors shall be established as recommended by the Intrusion Alarm System subcontractor.
 - 2. Prewire meeting shall occur after raceways are installed and prior to pulling of any wire or cable.
 - 3. Pre-termination meeting shall occur after wire and cable has been installed and prior to termination.
- B. Meetings shall be scheduled by the Contractor on a building by building basis and shall include the Project Inspector, School's Representative, the electrical subcontractor, and the Intrusion Alarm System subcontractor as a minimum.
- C. One-half to three-quarters of the way through project, District Facilities will set up a meeting (preferably at the school site) with decision makers from Facilities, Police

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Services, Maintenance, Maintenance Alarm Tech, General Contractor, Alarm Sub-contractor, and School Administrator to review the alarm protocol and to identify responsible personnel and timelines.

3.3 TESTS

- A. After all equipment specified herein has been installed and is in operating condition, performance tests shall be conducted to determine that installation and components comply with these specifications.
 - 1. Testing shall be scheduled by the Contractor and shall be conducted at time least disruptive to school activities and as approved by District. Contractor shall provide technicians to conduct all testing (from same firm preparing submittals and performing intrusion alarm work). Testing shall be coordinated to include the Project Inspector and a representative from Engineer's office.
 - 2. At time of testing, Contractor shall insure that his submittal will reflect all materials and work necessary to make new equipment function properly with existing.
 - 3. Contractor shall furnish all instruments and personnel required for tests.
 - 4. Conduct tests for following:
 - a. Verify that the system is free of grounds or open circuits. The central control board shall indicate when a ground or open circuit exists.
 - b. Verify that devices are functioning as specified.
- B. Testing shall be reconducted to verify correction of any defect found in initial testing.
- C. After system is completely tested, the Contractor shall take the following actions with the Owner:
 - 1. The Contractor will schedule a meeting with the Alarm Sub-contractors and Owner's Representatives to determine alarm zone and device nomenclature. The Contractor shall insure that the alarm zone and device nomenclature matches the actual building and door or room numbers used by the school. Architectural numbering shall not be used. Once confirmed, the Contractor shall demonstrate this to Owner's Representatives.

- END OF SECTION -

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PART 1 - GENERAL

1.1 WORK INCLUDED

- A. General Conditions and requirements of Division 1 and Section 26 0000 apply to work hereunder.
- B. Furnish and install a Fire Alarm System including all wiring and connections and other materials as shown on Plans and specified herein. It is the intent that a complete operating system be installed and that any power supplies, relays, resistors, cards, modules, programming, or other items required to achieve this end result shall be furnished whether or not such item or items are specified herein.
- C. Site and System Investigation: System bidder shall visit site prior to bid and become thoroughly knowledgeable about existing system and work required to perform work of this section. Failure to discover the equipment, materials, and labor required to complete the extensions will not relieve the contractor from completing the work at no additional cost.

1.2 GENERAL REQUIREMENTS

- A. System Requirements: All of various equipment components to be complete with all appurtenant accessories required to provide specified facilities and perform specified functions throughout presently planned construction and space; and provisions for expanding system to provide same facilities, and perform same functions in all future planned construction, including space and mountings in control panels and terminal backboards.
- B. Interruption of Service: Existing fire alarm system must be kept operational during work of this contract. If operation of existing system or portion of existing system is disrupted for connections into system or cutoff for any reason by work of this project, Contractor must provide fire watch. Fire watch must occur 24 hours per day and every day system is down. Fire watch proposed by Contractor must be acceptable to local fire authority and Owner. All costs for fire watch shall be Contractor's responsibility.

1.3 QUALITY ASSURANCE:

- A. Latest applicable publications listed below form a part of this Specification:
- B. CEC 2019 California Electrical Code
- C. CFC 2019 California Fire Code
- D. NFPA 72 National Fire Alarm Code with California Amendments, 2016
- E. ADA Title 3 of the Americans with Disabilities Act
- F. CCR Titles 19 and 24 of the California Code of Regulations
- G. CMC 2019 Uniform Mechanical Code with 2019 California Amendments

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1.4 CONTRACTOR QUALIFICATIONS:

- A. Fabricator/Installer/Vendor shall be licensed contractor and servicing agent, as well as installer for all components and systems in this System, and be acceptable to manufacturer of the major components of the system. Service personnel shall be capable of serving any and/or all components of the System.
- B. Fabricator/Installer/Vendor must be able to present evidence of technical expertise, be a firm who has successfully installed projects of a similar scope to this project for a minimum of five (5) years, and shall maintain service office within 100 miles of the project site.
- C. All equipment is to be manufactured by a firm/firms who have successfully fabricated elements/systems of a scope similar to this project for a minimum of ten (10) years.
- D. Have a valid State of California Contractor's license in classification C10 - Electrical.
- E. Provide authorized dealer service on-site at facility within four (4) hours of a problem being reported, with this response time available twenty-four (24) hours per day, seven (7) days per week.
- F. Affirm that he maintains, or will maintain, or has access to, a stock of system spares sufficient to insure that no element of the System will be out of service for more than twenty-four (24) hours due to lack of proper spares.

1.5 SUBMITTALS, O&M'S AND RECORD DRAWINGS:

- A. Submittals:
 - 1. Refer to Section 26 0000.
 - 2. Contractor shall submit name of firm he proposes to do work under this Section, addresses, phone numbers, and name of firm's contact, for approval. Such firms shall be factory authorized representatives of the system and submittal shall include manufacturer's letter of confirmation. Proposed firm shall furnish all equipment and specialty cables, make all connections to same, and place the systems in operation. Such firms shall have offices and service departments within a 100 mile radius of project and shall have been in business of this type for at least five years.
 - 3. Submittals shall be complete and include catalog data, shop drawings, one-line diagrams, battery calculations, voltage drop calculations, and scaled plan drawings. Building plans shall be 1/8"=1'-0", and site plans shall be no smaller than 1"=40'.
 - 4. Shop Drawings shall contain complete wiring and schematic diagrams for equipment furnished, equipment layout, conduit and wiring layout drawings, and any other details required to demonstrate that system has been coordinated and will properly function as a unit. Equipment Vendor shall check Drawings for adequacy of conductors and raceways for proposed system. Include in Bid Amount all required raceways, conductors and material necessary to suit proposed system.

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5. Battery Capacity Calculations: Complete battery calculation sheet showing all the electrical requirements of the entire fire alarm system, including the power consumption of the individual devices, both in alarm and supervisory modes shall be submitted.
 6. Voltage Drop Calculations: Submit voltage drop calculations for all fire alarm signal circuits.
- B. Operation and Maintenance Manuals:
1. Operating Instruction Manuals outlining the step-by-step procedures required for system start-up and operations shall be furnished. The instructions shall include manufacturer's name, model number, service manual parts list, and brief description of all equipment and their basic operating features.
 2. Maintenance Instruction Manuals outlining maintenance procedures shall be furnished. The manual shall include a troubleshooting guide listing possible breakdowns and repairs and a simplified connection wiring diagram for the system as installed.
- C. Record Drawings: Refer to Section 26 0000. Final Inspection will not be made until drawings are received and approved. Record Drawings shall include "As-Built" one-line and wiring diagrams, with terminations identified, wire color coding schedule, pullbox locations, and conduit routing plans.
- D. Furnish to District a printed copy of the control panel programming upon completion of final system programming.
- E. Performance Test Reports: Upon completion of installed system, submit in booklet form all field tests performed to prove compliance with the specified performance criteria. Each test report shall indicate the final position of controls.

1.6 TRAINING:

- A. Supplier shall demonstrate operation of systems and provide training to all end users, administrative staff, and system administrator. Coordinate times of instruction with District, at District's convenience. Supplier shall provide a minimum of 1 hour of user instructions to clerical staff and 2 hours of user/maintenance instructions to District maintenance personnel. Instruction periods shall not coincide and shall be scheduled with District, not school staff. Deliver to Owner at time of demonstration, all settings and codes programmed into system. Furnish three copies on manufacturer's standard programming worksheets. District shall provide list of authorized personnel for training sessions.

1.7 GUARANTEE:

- A. One firm to assume full responsibility for performance on all work of this section. Guarantee all equipment against defects in material and workmanship for two (2) years, and provide on-the-premises service during normal working hours for two years, at no cost to Owner if trouble is not caused by misuse, abuse, or accident, or at current labor

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rates if so caused. Provide manufacturer's written one-year guarantee for equipment and parts.

- B. Service shall normally be available within 24 hours from service department of authorized distributor of manufacturer by factory trained servicemen.
- C. On-the-premises service at other than normal working hours to also be available, but labor charges for such calls to be paid by Owner at current labor rates.

PART 2 - DETAIL REQUIREMENTS AND PRODUCTS

2.1 SYSTEM OPERATION

- A. Activation of any manual station or automatic detector shall cause the operation of all audible and visual signals. In addition to sounding local alarm signals, operation of manual stations or automatic detectors shall activate a digital communicator for telephone leased line reporting to remote SB575 compliant supervisory station. Telephone company leased lines and remote station monitoring shall be arranged by the Owner.
- B. Contractor to ensure synchronization of visual devices where required by NFPA 72.
- C. The system shall be electrically supervised against open circuits and grounds on the wiring to the alarm and initiating devices.

2.2 SYSTEM DESCRIPTION

- A. A new intelligent reporting, Style 7 networked, fully peer-to-peer, microprocessor-controlled fire detection and emergency voice alarm communication system shall be installed in accordance with the specifications and as indicated on the Drawings.
- B. Each Signaling Line Circuit (SLC) and Notification Appliance Circuit (NAC): Limited to only 80 percent of its total capacity during initial installation.
- C. Basic Performance:
 - 1. Network Communications Circuit (NetSOLO) Serving Network Nodes: Wired using single twisted non-shielded 2-conductor cable or connected using approved fiber optic cable between nodes in Class B configuration.
 - 2. Signaling Line Circuits (SLC) Serving Addressable Devices: Wired Class B.
 - 3. Initiation Device Circuits (IDC) Serving Non-addressable Devices Connected to Addressable Monitor Modules: Wired Class B.
 - 4. Notification Appliance Circuits (NAC) Serving Strobes, Horns and Speakers: Wired Class B.

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5. On Class A Configurations: Single ground fault or open circuit on Signaling Line Circuit shall not cause system malfunction, loss of operating power, or ability to report an alarm.
6. Alarm Signals Arriving at INCC COMMAND CENTER: Not be lost following primary power failure until alarm signal is processed and recorded.
7. Transponders:
 - a. Operate in peer-to-peer fashion with other panels and transponders in system.
 - b. Each transponder shall store copy of audio evacuation messages and tones.
 - c. Systems that use centralized message storage and control at main fire alarm control panel shall not be acceptable.
8. Network Node Communications, Audio Evacuation Channels and Fire Phone Communications:
 - a. Communicated between panels and transponders on single twisted pair of copper wires or fiber optic cables.
 - b. To enhance system survivability, ability to operate on loss of INCC Command Center, short or open of entire riser at INCC Command Center shall be demonstrated at time of system acceptance testing.
 - c. Systems that are not capable of providing true Class A performance for fire fighter's phone communications shall not be acceptable.
9. Signaling Line Circuits (SLC):
 - a. Reside in remote transponders with associated audio zones.
 - b. SLC modules shall operate in peer-to-peer fashion with all other panels and transponders in system.
 - c. On loss of INCC Command Center, each transponder shall continue to communicate with remainder of system, including all SLC functions and audio messages located in all transponders.
 - d. Systems that provide a "Degraded" mode of operation upon loss of INCC Command Center or short in riser shall not be acceptable.
10. Audio Amplifiers and Tone-Generating Equipment: Electrically supervised for normal and abnormal conditions.
11. Amplifiers: Located in transponder cabinets serving no more that 3 floors per transponder to enhance system survivability, reduce required riser wiring, simplify installation, and reduce power losses in length of speaker circuits.
12. Speaker NAC Circuits: Arranged such that there is a minimum of 1 speaker circuit per fire alarm zone.

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13. Notification Appliance Circuits (NAC), Speaker Circuits, and Control Equipment: Arranged such that loss of any 1 speaker circuit will not cause loss of any other speaker circuit in system.
14. Speaker Circuits:
 - a. Electrically supervised for open and short circuit conditions.
 - b. If short circuit exists on speaker circuit, it shall not be possible to activate that circuit.
 - c. Arranged for 25 or 70 VRMS and shall be power limited in accordance with NEC
 - d. 20 percent spare capacity for future expansion or increased power output requirements.
15. Speaker Circuits and Control Equipment:
 - a. Arranged such that loss of any 1 speaker circuit will not cause loss of any other speaker circuit in system.
 - b. Systems utilizing “bulk” audio configurations shall not be acceptable.
16. 2-Way Telephone Communication Circuits:
 - a. Shall communicate digitally over the network between transponders.
 - b. Supervised for open and short circuit conditions.
 - c. Short circuit condition on 2-way telephone communications circuit shall result in trouble condition and not result in call-in condition.
17. Voice Communication:
 - a. Connect telephone circuits to speaker circuits to allow voice communication over speaker circuit from telephone handset.
 - b. Capable of remote phone-to-phone conversations and party-line communications as required.
- D. Basic System Functional Operation: When fire alarm condition is detected and reported by 1 of the system alarm initiating devices, the following functions shall immediately occur:
 1. System Alarm LEDs: Flash.
 2. Local Piezo-Electric Signal in Control Panel: Sound at a pulse rate.
 3. 80-Character LCD Display: Indicate all information associated with fire alarm condition, including type of alarm point and its location within protected premises.
 4. Historical Log: Record information associated with fire alarm control panel condition, along with time and date of occurrence. History Log shall have capacity for recording up to 4,100 events.

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5. System output programs assigned via control-by-event equations to be activated by particular point in alarm shall be executed, and the associated system outputs (alarm notification appliances and/or relays) shall be activated.
 - a. Close Fire Doors
 - b. Shot down air handlers as required by code
 - c. Notify the Central Station or Municipal Tie.
 6. Strobes flash synchronized continuously.
 7. Audio Portion of System: Sound alert tone followed by pre-recorded message determined by event and this scenario repeating or other message as approved by local authority until system is reset.
- E. Fire Alarm System Functionality:
1. Provide complete, electrically supervised distributed, Class B networked analog/addressable fire alarm and control system, with analog initiating devices, integral multiple-channel voice evacuation, and fire fighter's phone system.
 2. Fire Alarm System: a. Consist of multiple-voice channels with no additional hardware required for total of 4 channels. b. Incorporate multiprocessor-based control panels, including model E3 Series modules includes Intelligent Network INCC Command Center(s) (INCC), Intelligent Loop Interface (ILI-MB-E3 or ILI95-MB-E3), Intelligent Network Transponders (INX), communicating over peer-to-peer token ring network with standard capacity of up to 64 nodes expandable to 122.
 3. Each ILI-MB-E3 or ILI95-MB-E3 Node: Incorporate 2 Signaling Line Circuits (SLC), with capacity to support in Velociti ® mode up to 159 analog addressable detectors and 159 addressable modules per ILI-MB-E3 SLC or support in Apollo mode up to 126 detectors and modules per ILI95-MB-E3 SLC.
 4. Voice, Data, and Fire Fighter's Phone Riser: Transmit over single pair of wires or fiber optic cable.
 5. Each Intelligent Network Transponder: Capable of providing 16 distributed voice messages, fire fighter phones connections, SLC loop for audio control devices, and integral network interface.
 6. Each Network Node: Incorporate Boolean control-by-event programming, including as a minimum AND, OR, NOT, and Timer functions.
 7. Control Panels: Capability to accept firmware upgrades via connection with laptop computer, without requirement of replacing microchips.
 8. Network: a. Based on peer-to-peer token ring technology operating at 625 K baud, using Class A configuration. b. Capability of using twisted-pair wiring, pair of fiber optic Multi-mode cable strands up to 200 microns or Single-mode optimized for 9/125 microns, or any combination, to maximize flexibility in system configuration.
 9. Each Network Node: a. Capability of being programmed off-line using Windows-based software supplied by fire alarm system manufacturer. Capability of being

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downloaded by connecting laptop computer into any other node in system. Systems that require system software to be downloaded to each transponder at each transponder location shall not be acceptable. b. Capability of being grouped with any number of additional nodes to produce a "Region", allowing that group of nodes to act as 1, while retaining peer-to-peer functionality. Systems utilizing "Master/Slave" configurations shall not be acceptable. c. Capability of annunciating all events within its "Region" or annunciating all events from entire network, on front panel LCD or touchscreen display without additional equipment.

10. Each SLC Network Node: Capability of having integral DACT (Digital Alarm Communicator Transmitter) that can report events in either its region, or entire network to single central station monitoring account.
11. Each Control Panel: Capability of storing its entire program, and allow installer to activate only devices that are installed during construction, without further downloading of system.
12. Password Protection: Each system shall be provided with 4 levels of password protection with up to 16 passwords.
13. Have the capacity for multiple pre-recorded messages (at least sixteen (16), but more if required by local AHJ) and address a list of subjects.
 - a. Fire evacuation and relocation
 - b. Intruder or hostile person sighted within or around the building grounds
 - c. Directions to occupants to take cover within building
 - d. Emergency weather conditions appropriate for local area
 - e. All Clear

2.3 MANUFACTURER

- A. Gamewell-FCI, Honeywell Fire Systems, 12 Clintonville Road, Northford, Connecticut 06472. Phone (203) 484-7161. Fax (203) 484-7118. Website: www.gamewell-fci.com.
- B. Gamewell-FCI is a District Standard..

2.4 DISTRIBUTED NETWORKED FIRE ALARM SYSTEM

- A. Distributed Networked Fire Alarm System: Gamewell-FCI E3 Series Expandable Emergency Evacuation Fire Alarm System.

2.5 INTELLIGENT NETWORK INCC COMMAND CENTER HARDWARE

- A. Intelligent Network INCC Command Center (INCC): Supply user interface, including LCD or touch-screen 1/4 VGA display Intelligent Loop Interface Modules (ILI-MB-E3/ILI95-MB-E3), manual switching, phone, and microphone inputs to the network. INCC shall consist of the following units and components:

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1. System Cabinet (B-, C-, or D-Size Cabinet) with associated inner door.
 2. Power Supply Module (PM-9) with batteries.
 3. Intelligent Network Interface Voice Gateway (INI-VG).
 4. 80-Character LCD Display (LCD-E3).
 5. Intelligent Loop Main Board Interface (ILI-MB-E3 or ILI95-MB-E3).
 6. Optional Intelligent Loop Supplemental Interface (ILI-S-E3 or ILI95-S-E3).
 7. Optional DACT (DACT-E3).
 8. Optional ARCNET Repeater (RPT-E3) with fiber-optic modules (FSL-E3 or FML-E3).
 9. Optional 1/4 VGA touch-screen display (NGA).
 10. Optional Auxiliary Switch Module (ASM-16).
 11. Optional LED Driver Module (ANU-48)
 12. Optional Microphone Assembly (INCC-MIC).
 13. Optional Telephone Assembly (INCC-TEL).
 14. Optional AM-50 Series amplifiers (AM-50, AM-50-70).
 15. Optional Addressable Node Expander (ANX-SR, ANX-MR-FO, ANX-MR-UTP).
- B. System Cabinet:
1. Surface or semi-flush mounted as shown on drawings, with texture finish.
 2. Consist of back box, inner door, and door.
 3. Available in at least 3 sizes to best fit project configuration, plus 25% capacity (battery, power supplies, NdC, SLC, etc.) for future expansion.
 4. Houses 1 or more PM-9 Power Supply Modules, INI-VG Intelligent Network Interface Voice Gateway, 1 or more ILI-MB-E3/ILI95-MB-E3 assemblies, and other optional modules as specified.
 5. Construction: Dead-front steel construction with inner door to conceal internal circuitry and wiring.
 6. Wiring Gutter Space: A minimum of 1-inch wiring gutter space behind mounting plate.
 7. Wiring: Terminated on removable terminal blocks to allow field servicing of modules without disrupting system wiring.
- C. Power Supply Module (PM-9): Use latest technologies to provide system power, incorporates the following features: 1. Power-saving switching technology using no step-down transformers. 2. 9-amp continuous-rated output to supply up to all power necessary under normal and emergency conditions for INCC Command Center Modules. 3. Integral battery charger with capacity to charge up to 55 amp-hour batteries while under full load.
- D. Batteries:

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1. Sufficient capacity to provide power for entire system upon loss of normal AC power for a period of 24 hours with 15 minutes of alarm signaling at end of this 24-hour period, as required by NFPA 72, Local Systems. Minimum battery size shall be as shown on plans.
- E. Intelligent Network Interface Voice Gateway INCC Command Center (INI-VG): INI-VG shall be a multi-function board interchangeable in both INCC and INX. Functions of board shall have the following features as a minimum:
1. Microprocessor shall monitor all system events and perform all system programs, for all control-by-event (CBE) functions. System program shall not be lost upon failure of both primary and secondary power. Programming shall supporting Boolean logic including AND, OR, NOT, TIMING functions for maximum flexibility.
 2. Network Interface: Operate at 625 K baud configurable with any combination of wire and/or fiber topologies. Interface shall communicate with up to 122 nodes in peer-to-peer fashion.
 3. Fire Fighter Phone Riser: INI-VG shall generate local phone riser for use with AOM-TEL phone modules for connection to fire fighter phone stations and/or for connection of local phone when used as INCC Command Center, including phone circuits. INI-VG shall mix its local phone riser to network in true Class A fashion. Systems not capable of true Class A communications for fire fighter's phone risers shall not be acceptable.
 4. Advanced Processing: INI-VG shall incorporate latest in digital signaling processing technology with supporting Boolean logic including AND, OR, NOT, TIMING, COUNT, SCHEDULE functions.
 5. Microphone Input: On-board and allow for addition of local microphone when used as INCC Command Center, including speaker circuit control.
 6. Signal Processing: INCC shall use advanced Digital Signal Processing (DSP) technology to allow maximum flexibility of digital audio and control capabilities and operation. Signals to and from INCC shall be transmitted over single pair of twisted unshielded wire or fiber optic pair.
 7. Field Programmable: INCC shall be capable of being fully programmed or modified by Field Configuration Program (FCP), to be downloaded via portable computer from any node in system.
 8. Control-by-Event Programming (CBE): INCC shall be capable of programming using Boolean logic including AND, OR, NOT, COUNT, TIMING, and SCHEDULE functions to provide complete programming flexibility.
 9. Remote INCC Command Center Options: System shall have capability of adding remote INCC Command Centers or re-locating INCC Command Centers utilizing only single pair of twisted unshielded wire or fiber optic pair for all functions.

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10. RS-485 Serial Output: System shall incorporate RS-485 bus via ribbon harness for connection of modules inside same cabinet, and via 4-wire quick connector for connection of modules up to 3,000 feet from cabinet.
 11. Riser Wiring: All data, voice, and fire fighter phone riser shall transmit over single pair of twisted unshielded wire or fiber optic pair for all functions configured in Class A format. Any short or open in data, voice, or phone sections shall not affect transmission over remainder of network.
 12. Class A Network: All communication between control panels and transponders shall be through supervised Style 7 token passing network. In event of single short, open, or ground, all system communication shall operate as normal and report fault. This protection shall incorporate all data, voice, and fire fighter phone transmissions. Upon single short, open, or ground of either system data, live voice, pre-recorded channels, or phone risers, the function of each of these items shall continue to operate. "Degrade" functionality shall not be acceptable. This shall be demonstrated at system acceptance.
- F. LCD Display Module (LCD-E3):
1. LCD Display: 80-character RS-485 based textual annunciator with capability of being mounted locally or remotely. Provides audible and visual annunciation of all alarms and trouble signals. Provide dedicated LEDs for:
 - a. AC Power On: Green.
 - b. Alarm: Red.
 - c. Supervisory: Yellow.
 - d. System Trouble: Yellow.
 - e. Power Fault: Yellow.
 - f. Ground Fault: Yellow.
 - g. System Silenced: Yellow.
 2. 80-Character Alphanumeric Display: Provide status of all analog/addressable sensors, monitor and control modules. Display shall be liquid crystal type (LCD), clearly visible in dark and under all light conditions.
 3. Panel shall contain 4 functional keys:
 - a. Alarm Acknowledge.
 - b. Trouble Acknowledge.
 - c. Signal Silence.
 - d. System Reset/Lamp Test.
 4. Panel shall contain 3 configuration buttons: a. Menu/Back. b. Back Space/Edit. c. OK/Enter.
 5. Panel shall have 12-key telephone-style keypad to permit selection of functions.
- G. Intelligent Loop Interface (ILI-MB-E3/ILI95-MB-E3): System shall be of multiprocessor design to allow maximum flexibility of capabilities and operation. Intelligent Loop

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Interface shall be capable of mounting in stand-alone enclosure or integrated with Intelligent Network INCC Command Center (INCC) as specified.

1. Field Programmable: System shall be capable of being programmed by Field Configuration Program (FCP), allowing programming to be downloaded via portable computer from any node on network.
2. RS-232C Serial Output: Supervised RS-232C serial port shall be provided to operate remote printers and/or video terminals, accept downloaded program from portable computer, or provide 80-column readout of all alarms, troubles, location descriptions, time, and date. Communication shall be standard ASCII code operating from 1,200 to 115,200 baud rate.
3. RS-485 Serial Output: Each ILI-MB-E3/ILI95-MB-E3 shall incorporate RS-485 bus via ribbon harness for connection of modules inside same cabinet, and via 4-wire quick connector for connection of modules up to 3,000 feet from cabinet. RS-485 bus shall support up to 16 ASM-16 auxiliary switch modules, 6 LCD-E3 main annunciators, and 5 LCD-7100 annunciators.
4. Peer-to-Peer Panel Configuration: All Loop Interface Modules shall incorporate own programming, log functions, Central Processor Unit, and control-by-event (CBE) programming. If any loop becomes disabled, each remaining loop driver shall continue to communicate with remainder of network and maintain normal operation. "Degrade" configurations under these conditions shall not be acceptable.
5. Control-by-Event (CBE) Program: ILI-MB-E3/ILI95-MB-E3 shall be capable of programming using Boolean logic including AND, OR, NOT, TIMING, COUNT, SCHEDULE functions to provide complete programming flexibility.
6. Alarm Verification: Smoke detector alarm verification shall be standard option while allowing other devices such as manual stations and sprinkler flow to create immediate alarm. This feature shall be selectable for smoke sensors that are installed in environments prone to nuisance or unwanted alarms.
7. Alarm Signals: All alarm signals shall be automatically latched or "locked in" at control panel until operated device is returned to normal and control panel is manually reset. When used for sprinkler flow, "SIGNAL SILENCE" switch may be bypassed, if required by AHJ.
8. Electrically Supervised: a. Each SLC and NAC circuit shall be electrically supervised for opens, shorts, and ground faults. Occurrence of fault shall activate system trouble circuitry, but shall not interfere with proper operation of other circuits. b. Yellow "SYSTEM TROUBLE" LEDs shall light and system audible sounder shall steadily sound when trouble is detected in system. Failure of power, open or short circuits on SLC or NAC circuits, disarrangement in system wiring, failure of microprocessor or any identification module, or system ground faults shall activate this trouble circuit. Trouble signal shall be acknowledged by operating "TROUBLE ACKNOWLEDGE" switch. This shall silence sounder. If subsequent trouble conditions occur, trouble circuitry shall resound. During

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alarm, all trouble signals shall be suppressed with exception of lighting yellow "SYSTEM TROUBLE" LEDs.

9. Drift Compensation – Analog Smoke Sensors: System software shall automatically adjust each analog smoke sensor approximately once each week for changes in sensitivity due to effects of component aging or environment, including dust. Each sensor shall maintain its actual sensitivity under adverse conditions to respond to alarm conditions while ignoring factors which generally contribute to nuisance alarms. System trouble circuitry shall activate, display "DIRTY DETECTOR" and "VERY DIRTY DETECTOR" indications and identify individual unit that requires maintenance.
10. Analog Smoke Sensor Test: System software shall automatically test each analog smoke sensor a minimum of 3 times daily. Test shall be recognized functional test of each photocell (analog photoelectric sensors) and ionization chamber (analog ionization sensors) as required annually by NFPA 72. Failure of sensor shall activate system trouble circuitry, display "Test Failed" indication, and identify individual device that failed.
11. Off-Premises Connection:
 - a. Fire Alarm System: Connect via Digital Alarm Communicator Transmitter (DACT) and telephone lines to central station or remote station. Panel shall contain disconnect switch to allow testing of system without notifying fire department.
12. Central Station Option: Fire alarm control panel shall provide integral Digital Alarm Communicator Transmitter (DACT) for signaling to central station. DACT shall contain "Dialer-Runaway" feature preventing unnecessary transmissions as result of intermittent faults in system and shall be Carrier Access Code (CAC) compliant, accepting up to 20digit central station telephone numbers. The Fire department shall be consulted as to the authorized central station companies serving the municipality. Fire alarm system shall transmit both alarm and trouble signals, with alarm having priority over trouble signal. Contractor shall be responsible for all installation charges and Owner will be responsible for line lease charges.
13. Network Annunciator Option: Each ILI-MB-E3 or ILI95-MB-E3 and associated display shall provide option of being configured as network annunciator. Options for annunciation shall default as regional annunciator with capability of selecting global annunciation to provide system-wide protection and Acknowledge, Silence, and Reset capabilities.
14. Redundant History Log: Each ILI-MB-E3 or ILI95-MB-E3 shall contain full 4100 event history log supporting local and network functions. If a main processor or network node is lost the entire log shall be accessible at any other Loop Interface board. This shall be demonstrated by removing power from INCC Command Center followed by extraction of history log from any loop driver location, including INCC Command Center or Transponder.
15. LEDs Indicator and Outputs: Each ILI-MB-E3/ILI95-MB-E3 Loop Interface shall incorporate as a minimum the following diagnostic LED indicators:

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- a. Power: Green.
 - b. Alarm: Red.
 - c. Supervisory: Yellow.
 - d. General Trouble: Yellow.
 - e. Ground Fault: Yellow.
 - f. Transmit: Green.
 - g. Receive: Green.
16. Auxiliary Power Outputs: Each ILI-MB-E3/ILI95-MB-E3 Loop Interface shall provide the following supply outputs:
- a. 24 VDC non-resettable, 1 amp. maximum, Class A power-limited.
 - b. 24 VDC resettable, 1 amp. maximum, Class A power-limited.
17. Microprocessor: Loop interface shall incorporate 32-bit RISC processor. Isolated "watchdog" circuit shall monitor microprocessor and upon failure shall activate system trouble circuits on display. Microprocessor shall access system program for all control-byevent (CBE) functions. System program shall not be lost upon failure of both primary and secondary power. Programming shall support Boolean logic including AND, OR, NOT, TIME DELAY functions for maximum flexibility.
18. Auto Programming: System shall provide for all SLC devices on any SLC loop to be preprogrammed into system. Upon activation of auto programming, only devices that are present shall activate. This allows for system to be commissioned in phases without need of additional downloads.
19. Environmental Drift Compensation: System shall provide for setting Environmental Drift Compensation by device. When detector accumulates dust in chamber and reaches unacceptable level but yet still below allowed limit, control panel shall indicate maintenance alert warning. When detector accumulates dust in chamber above allowed limit, control panel shall indicate maintenance urgent warning.
20. NON-FIRE Alarm Module Reporting: Non-reporting type ID shall be available for use for energy management or other non-fire situations. NON-FIRE point operation shall not affect control panel operation nor shall it display message at panel LDC. Activation of NON-FIRE point shall activate control by event logic, but shall not cause indication on control panel.
21. 1-Man Walk Test:
- a. System shall provide both basic and advanced walk test for testing entire fire alarm system. Basic walk test shall allow single operator to run audible tests on panel. All logic equation automation shall be suspended during test and while annunciators can be enabled for test, all shall default to disabled state. During advanced walk test, field-supplied output point programming shall react to input stimuli, such as CBE and logic equations. When points are activated in advanced test mode, each initiating event shall latch input. Advanced test shall be audible and shall be used for pull

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station verification, magnet activated tests on input devices, input and output device, and wiring operation/verification.

- b. Test feature is intended to provide for certain random spot testing of system and is not intended to comply with requirements of testing fire alarm systems in accordance with NFPA 72, as it is impossible to test all functions and verify items such as annunciation with only 1 person. 24. Signaling Line Circuits: Each ILI-MB-E3 module shall provide communication with analog/addressable (initiation/control) devices via 2 signaling line circuits. Each signaling line circuit shall be capable of being wired Class B, Style 4 or Class A, Style 6. Circuits shall be capable of operating in NFPA Style 7 configuration when equipped with isolator modules between each module type device and isolator sensor bases. Each circuit shall communicate with a maximum of 159 analog sensors and 159 addressable monitor/control devices. Unique 40-character identifier shall be available for each device. Devices shall be of the Velocity series with capability to poll 10 devices at a time with a maximum polling time of 2 seconds when both SLCs are fully loaded.
 - 22. Notification Appliance Circuits: 2 independent NAC circuits shall be provided on ILI-MB, polarized and rated at 2 amperes DC per circuit, individually over current protected and supervised for opens, grounds, and short circuits. They shall be capable of being wired Class B, Style Y or Class A, Style Z.
 - 23. Alarm Dry Contacts: Provide alarm dry contacts (Form C) rated 2 amps at 30 VDC (resistive) and transfer whenever system alarm occurs.
 - 24. Supervisory Dry Contacts: Provide supervisory dry contacts (Form C) rated 2 amps at 30 VDC (resistive) and transfer whenever system supervisory condition occurs.
 - 25. Trouble Dry Contacts: Provide trouble dry contacts (Form C) rated 2 amps at 30 VDC (resistive) and transfer whenever system trouble occurs.
 - 26. Permitted zone types shall be general zone, releasing zone, and special zone. Each output point (control module, panel circuit module) can support a list of up to eight zones including general zone, logic zone, releasing zone, and trouble zone. It shall be possible for output points to be assigned to list general alarm. Non-Alarm or Supervisory points shall not activate the general alarm zone.
 - 27. Multiple Agent Releasing Zones: The system shall support up to eight releasing zones to protect against eight independent hazards. Releasing zones shall provide up to three cross-zone and four abort options to satisfy any local jurisdiction requirements.
- H. Auxiliary Switch Module (ASM-16):
- 1. Each ASM-16 has 16 programmable push-button switches.
 - 2. Each push-button switch has 3 associated status LEDs (red, yellow, and green), configurable to indicate any combination of functions.

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3. Flexible switch configurations to allow flexible set-up of phone, speaker, and auxiliary function circuits.
 4. An insertable label to identify function of each switch and LEDs combination.
 5. Provide capability to communicate with up to 16 ASM-16 modules locally, up to 3,000 feet from INCC Command Center.
 6. Specialty modules that only perform 1 task such as speaker, phone, or auxiliary shall not be acceptable.
- I. Telephone Assembly: Include the following items:
1. Mounting cabinet which occupies 2 module locations on inner door of INCC.
 2. Standard phone operating on piezo effect with integral 6-foot cord.
 3. Interconnect cable for connection of phone to Command Center.
- J. Microphone Assembly: Include the following items:
1. Mounting cabinet which occupies 1 module location on inner door of INCC.
 2. Interconnect cable for connection of microphone to INI-VG.
 3. 1 noise canceling microphone with push-to-talk button.
- K. Addressable Node Expander (ANX):
1. Addressable Node Expander shall provide interconnection between the Fire Alarm Control Panel networks.
 2. ANX-MR-FO (Addressable Node Expander Multi-Ring with Fiber Optic connectors) and ANX-MR-UTP (Addressable Node Expander Multi-Ring with Fiber Optic and Twisted Pair connectors) shall expand the E3 Series network from 64 nodes to 122 nodes. ANX-SR (Addressable Node Expander Single Ring) will function in single 64 node systems.
- L. Network Repeater Module (RPT-E3):
1. Intelligent Network Interface shall provide interconnection and protection of remote INCC Command Centers and Transponders. Repeater shall regenerate and condition token passing, 625 K baud signal between units. Repeater shall be available in wire, or wire/fiber configurations as determined by field conditions.
 2. Interface shall have jumper to allow selection of ground detection of wiring when used in wire mode. Interface shall have integral LEDs to display current status of board.
 3. Fiber configurations shall use:
 - a. Multi-Mode ST-type connectors with a maximum attenuation of 8db with 62.5/125 micron cable.

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- b. Single-Mode LC-style connector with a maximum attenuation of 30db with 9/125 micron cable.
- M. Network Graphic Annunciator (NGA): Network able, 1/4 VGA, touch-screen annunciator with the following characteristics:
 - 1. Custom Graphics: Panel shall permit uploading of custom bit-mapped graphic to display screen. Graphic shall display when all systems are normal.
 - 2. Intuitive Functions: In alarm or trouble condition, annunciator shall display only information pertaining to event, including control switches.
 - a. Trouble Condition: Display shall indicate cause of trouble. Only controls available to operator shall be Acknowledge and Reset functions.
 - b. Alarm Condition: Display shall indicate cause of alarm. Only controls available to operator shall be Acknowledge, Silence, and Reset functions.

2.6 INTELLIGENT NETWORK TRANSPONDER (INX)

- A. System shall be of multiprocessor design to allow maximum flexibility of capabilities and operation. INX shall receive, transmit, and regenerate voice, fire fighter phones, and data over single pair of wire or fiber optic cable.
- B. INX shall provide full multi-channel distributed voice messaging, with integrated switching amplification, and SLC and extended phone riser. INX shall communicate with network system in true peer-to-peer fashion operating at 625 K baud over any combination of fiber or wire media. INX shall consist of the following units and components.
- C. System Cabinet: System cabinet shall be surface or semi-flush mounted with texture finish and shall consist of 4 parts, back box, back plate, inner door, and outer door. System cabinet houses INI-VG, PM-9 power supply, up to 4 - AM50, microphone, and related circuitry.
- D. Intelligent Network Interface Voice Gateway (INI-VG): INI-VG shall be a multi-function board interchangeable in both INCC and INX. Functions of board shall include the following features as a minimum:
 - 1. Network interface operating at 625 K baud configurable with any combination of wire and/or fiber topologies. Interface shall communicate with up to 122 total INCC, INX, and E3 and S3 control panels in peer-to-peer fashion.
 - 2. Fire Fighter Phone Riser: INI-VG shall generate local phone riser for use with AOM-TEL phone modules for connection to fire fighter phone. INI-VG shall mix its local phone riser to network in true Style 7 fashion.
 - 3. Signaling Line Circuit (SLC): INI-VG shall generate local SLC to communicate with and control up to 16 AOM-TEL modules and 32 AOM-2S or AOM-MUX circuits for fire phone interfacing and additional split-speaker circuits.

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4. RS-485: Provide capability to communicate with up to 16 ASM-16 modules, when used in INX mode up to 3,000 feet.
 5. Advanced Processing: INI-VG shall incorporate latest in digital signaling processing technology with supporting Boolean logic including AND, OR, NOT, TIME DELAY functions.
 6. Voice Generation: INI-VG shall incorporate all processing to allow for 16 distinct prerecorded messages used in priority fashion with message 1 as highest priority. Total length for 1 to 16 messages shall be up to 3 minutes.
- E. Power Supply Module (PM-9): PM-9 power supply shall supply all power necessary under normal and emergency conditions. Power supply shall provide capacity to charge up to 55 amp-hour batteries while under full load. Technology used shall be of power-saving switching configuration, eliminating need of stepping transformer.
- F. Audio Amplifier (AM-50): Include as a minimum, the following features:
1. 50-watt switching audio amplifier:
 - a. AM-50-25 amplifier produces 25VRMS at 50 watts digital audio output.
 - b. AM-50-70.7 amplifier produces 70VRMS at 50 watts digital audio output.
 2. 2 individually addressable speaker circuits, each with capability of handling part or all of 50-watt supplied power.
 3. Power shall be 24 VDC supplied via terminal block from local PM-9 power supply.
 4. Ability to select from 1 of 16 pre-programmed messages in INI-VG, and paging from locally or from INCC Command Center.
 5. Back-up amplification configurable so 1 AM-50 can perform back-up or 3, or perform 1-to1 back-up if configured to do so in programming.
 6. Status LEDs to indicate normal operation and trouble condition.

2.7 SYSTEM PERIPHERALS

- A. LCD Display Annunciator:
1. Furnish and install as indicated on the Drawings a remote serial annunciator, Model LCD7100. Annunciator shall provide 80-character display, which shall duplicate all information on basic system display, including any network nodes its host panel is annunciating, with exception of menus. Contain the following function keys:
 - a. Alarm Acknowledge.
 - b. Trouble Acknowledge.
 - c. Signal Silence.
 - d. System Reset/Lamp Test. e. System Drill Test.

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2. Key Lock: Enable switches only when placed in "ON" position, with exception of Trouble Acknowledge, which is used to silence local trouble audible sounder. Annunciator shall contain the following LEDs:
 - a. Alarm.
 - b. Supervisory.
 - c. System Trouble.
 - d. Power Fault.
 - e. System Silenced.
 3. Mount on standard 3-gang surface or flush electrical box.
 4. Each ILI-MB-E3/ILI95-MB-E3: Accommodate up to 5 remote LCD-7100 annunciators which shall be located up to 3,000 feet from control panel.
- B. NGA Network Graphic Annunciator
1. Main Menu
 - a. Configure allows Auto-configuration of ILI-MB-E3/ILI-S-E3/ and ILI95-MB-E3/ILI95S-E3 and NGA or ANX.
 - b. Walk/Drill enables Walk Test and Fire Drill function.
 - c. I/O Allows enable/disable input and output devices.
 - d. Clock system real-time clock.
 - e. View system configuration information
 - f. NGA log displays, stores, prints and clears the 4100 event history log.
 - g. Service provides Network Query functions.
 - h. (More spec items – Text messaging, custom logo, custom screensaver, max amount of text on screen at one time)

2.8 ACCESSORIES

- A. Equipment and accessories furnished under the terms of these specifications shall be the standard products of the manufacturers specified or required. All equipment shall be listed by U.L. All equipment and accessories shall be compatible with the system. Refer to drawings for accessories and devices used.
- B. Manual stations shall conform to DSA Access Compliance requirements. Operation of the manual station shall not require grasping of the handle.
- C. Each manual station shall be provided with a clear protective cover, non locking, STI-1200 (flush mount) or STI-1230 (surface mount). Covers shall not be equipped with horn.
- D. Each duct detector shall be provided with a key-activated remote test station.
- E. Each duct detector shall be provided with a relay module.

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- F. Each voice evac audio booster (amplifier) shall be provided with a cabinet and all required accessories.
- G. Provide a monitor module at each above ceiling heat detector.
- H. Provide appropriate cabinet for the remote microphone.

PART 3 - EXECUTION

3.1 INSTALLATION REQUIREMENTS

- A. Work shall be installed as shown on the Drawings in accordance with the manufacturer's diagrams and recommendations, except where otherwise indicated.
- B. Electrical Contractor shall retain the services of the duly appointed representative as specified hereinbefore, who shall furnish all equipment, make all connections to same, and place system in operation. Technician and workman employed shall be particularly skilled in this type of work.
- C. At existing sites, the existing system shall be tested as soon as possible after award of contract and prior to preparing submittals. Contractor shall test entire system to insure proper operation. Any defects or deficiencies found shall be listed and presented to Owner in letter form. It will be assumed that existing equipment is fully functional unless identified otherwise by Contractor. Control panel shall be mounted with sufficient clearance for observation and testing.
- D. All junction boxes must be clearly marked for distinct identification.
- E. Panel enclosures shall comply with the Requirements of UL 864. Enclosures having doors over forty-eight inches (48") in height shall be provided with a three (3) point catch and lock; all other doors shall contain a cabinet type cylinder lock. Inserts shall be blind fastened so that no screws show on panel front.
- F. Detectors shall be installed in accordance with manufacturer's written instructions in areas as indicated on the Drawings.
- G. Locate detectors with pilot light visible from floor. Do not conceal behind HVAC duct work.
- H. Do not locate detectors in direct air stream from supply air outlets (minimum of four feet (4') from air grille).
- I. Provide access doors in ceiling directly below above-ceiling mounted detectors. Provide laminated phenolic engraved nameplate with white letters on yellow background attached to door. To read, "Detector located above ceiling." On lay-in ceilings, provide nameplate on ceiling tile directly below detector.
- J. Circuits shall be terminated on screw terminals. Terminal blocks shall be Allen-Bradley Bulletin 1492 with 600 volt screw terminals for #22 to #10 conductors, mounted to type N22 channel, or approved equal. Submittal shall show internal elevation of terminal cabinets with equipment laid out.
- K. All cables shall be run through fanning strip to terminals of terminal blocks.

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- L. All cables entering terminal cabinet shall be identified with T&B Vinyl, Brady Permashield mylar markers, or equal. Upon completion of installation, six (6) copies of one-line "as-built" wiring diagram shall be furnished to Architect.
- M. Each cable run on wiring diagram shall be identified with exact wire marker code (numerical or alphabetical) as appears in terminal cabinets.
- N. Detector locations shown on drawings are approximate only. Exact locations shall be coordinated with lighting and mechanical equipment and shall be placed in accordance with manufacturer's recommendations (with respect to supply air diffusers, etc.).
- O. Detectors, strobes, speakers and speaker/strobes in MP rooms student toilet rooms and where shown on plans shall be provided with wire guards.
- P. Station locations shall be identified by school's actual room numbers and system shall be programmed accordingly. Coordinate actual room numbers with District. Coordinate final programming with District. Contractor shall furnish a printed copy of final programming to District.
- Q. End-of-line resistors shall be installed at locations readily accessible, not above an elevation of 10 feet above finish floor or grade, or as shown on Drawings.
- R. No splices shall occur in underground pullboxes. System wiring shall be continuous, without splices, from terminal cabinet to terminal cabinet and control panel to devices. All interior pullboxes shall be accessible and locations shall be recorded on "As-Built" drawings.

3.2 DUCT DETECTOR REMOTE TEST STATIONS

- A. Each duct detector shall be provided with a key-activated remote test station. If not shown on plans, locate test switch approximately below duct detector and 6" below ceiling (at ceilings or roof structures higher than 10', install test station at +9'-6". Provide 3/4" conduit with cable as required by manufacturer to connect test station to detector.

3.3 DIGITAL COMMUNICATOR

- A. From communicator in FACP, provide a 1" conduit with two 4-wire, 22 gauge telephone cables to the main telephone terminal backboard. Connect at communicator and at telephone backboard on surface mounted RJ31X jacks.
- B. Contractor shall program the communicator to transmit alarm and trouble per device and module.
- C. Contractor shall provide communicator zone/point information and other items listed hereinbefore to District's central station. Coordinate with District.

3.4 CONSTRUCTION MEETINGS

- A. A. The Contractor shall schedule construction meetings at the jobsite as follows:

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1. Pre-rough-in meeting shall occur before installation of any boxes, raceways, etc. Exact locations of all detectors shall be established as recommended by the Intrusion Alarm System subcontractor.
 2. Prewire meeting shall occur after raceways are installed and prior to pulling of any wire or cable.
 3. Pre-termination meeting shall occur after wire and cable has been installed and prior to termination.
- B. Meetings shall be scheduled by the Contractor on a building by building basis and shall include the Project Inspector, School's Representative, the electrical subcontractor, and the Intrusion Alarm System subcontractor as a minimum.
- C. One-half to three-quarters of the way through project, District Facilities will set up a meeting (preferably at the school site) with decision makers from Facilities, Police Services, Maintenance, Maintenance Alarm Tech, General Contractor, Alarm Subcontractor, and School Administrator to review the alarm protocol and to identify responsible personnel and timelines.

3.5 TESTS

- A. After all equipment specified herein has been installed and is in operating condition, performance tests shall be conducted to determine that installation and components comply with these specifications.
1. Testing shall be scheduled by the Contractor and shall be conducted at time least disruptive to school activities and as approved by District. Contractor shall provide technicians to conduct all testing (from same firm preparing submittals and performing intrusion alarm work). Testing shall be coordinated to include the Project Inspector and a representative from Engineer's office.
 2. At time of testing, Contractor shall insure that his submittal will reflect all materials and work necessary to make new equipment function properly with existing.
 3. Contractor shall furnish all instruments and personnel required for tests.
 4. Conduct tests for following:
 - a. Verify that the system is free of grounds or open circuits. The central control board shall indicate when a ground or open circuit exists.
 - b. Verify that notification devices, pull stations, transmitters, automatic detectors and supervisory devices are functioning as specified. Criteria for testing shall be as follows:
 - 1) Audibles shall deliver the sound pressure levels (decibels) of the specified device.
 - 2) Pull stations shall close the circuits specified and deliver specified alarm signal.

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- 3) Automatic detectors shall actuate the specified zones when the appropriate fire or smoke conditions are generated.
 - a) Calibrate and adjust all photoelectric detectors to manufacturer's standards in place and under dynamic field operating conditions using testing equipment built by manufacturer specifically for this purpose.
 - c. Panels and supervisory devices shall display and control functions as specified.
5. The "End of Line Resistance" for each circuit shall be tested in the presence of the project inspector and shall not exceed a maximum of 10% of the 24 volt system. Each component in the circuit shall not exceed the listed manufacturer's minimum operating voltages. See NFPA 72, loop resistance. This section requires that all initiating and indicating (notification appliance) circuits to be measured and recorded.
6. The actual fire alarm notification circuit voltage drop shall be witnessed and recorded by the project inspector during the testing of the circuit under full load.
- B. Testing shall be performed under the supervision of Fire Alarm System supplier's qualified representative.
- C. Testing shall be reconducted to verify correction of any defect found in initial testing.
- D. Upon completion of detector installation and system tests, certified technician shall submit three (3) copies of written report on manufacturer's Inspection and Test Forms to indicate system has been fully tested in supervision, trouble and alarm modes, and is fully operational conforming to letter of these Specifications.
 1. Test report shall contain, but is not limited to, the following:
 - a. A complete test of equipment installed and wired.
 - b. Indication that all equipment is properly installed.
 - c. Tests of individual zones as applicable.
 - d. Serial numbers, locations by zone and model number for each installed detector.
 - e. Voltage (sensitivity) settings for each photoelectric detector as measured in place with the air conditioning system operating.
 - f. Technician's name, certificate number, and date.
 - g. Written certification by manufacturer stating that system and its component parts are as listed and approved by California State Fire Marshal and that installation conforms in all respects to requirements of applicable Codes.
- E. After system is completely tested, the Contractor shall take the following actions with the Owner:

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1. The Contractor will schedule a meeting with the Alarm Sub-contractors and Owner's Representatives to determine alarm zone and device nomenclature. The Contractor shall insure that the alarm zone and device nomenclature matches the actual building and door or room numbers used by the school. Architectural numbering shall not be used. Once confirmed, the Contractor shall demonstrate this to Owner's Representatives.

3.6 FIRE ALARM SYSTEM CERTIFICATION

- A. Fire Alarm System Certification: Written certification on the form found in Figure 10.18.2.1.1, NFPA 72 shall be submitted by the Contractor to Project Inspector stating for himself and the equipment manufacturer that component parts are as LISTED AND APPROVED BY State Fire Marshal, that the installation conforms in all respects to requirements as set forth in the California Electrical Code, that acceptance testing has been performed in the presence of the Project Inspector. Contractor shall complete and sign form and submit to Project Inspector.

- END OF SECTION -