

**DISTRICT OFFICE SERVER ROOM
MODIFICATIONS**

1305 E. Vine St., Lodi, CA 95240

3431009000

Lodi Unified School District



November 21, 2025

DISTRICT OFFICE SERVER ROOM MODIFICATIONS
Lodi Unified School District
Lodi, California

November 21, 2025
HMC #3431009000

HMC ARCHITECTS
Architect

Capital Engineering Consultants
Fire Sprinkler Engineer

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PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Work included.
 - 2. Work by others.
 - 3. Dimensional tolerances for accessibility.
 - 4. Contractor's use of premises.
 - 5. Work sequence.
 - 6. Extended liquidated damages.
 - 7. Owner occupancy.
 - 8. Existing utilities.
 - 9. Asbestos.

1.2 WORK INCLUDED

- A. Under a single contract, construct modifications to the District Office Server Room for Lodi Unified School District located in Lodi, CA. Work includes:
 - 1. Removal of existing wet fire sprinkler system and replacement with dry system,
 - 2. Sealing of penetrations at perimeter of the room,
 - 3. Signage upgrades for ADA,
 - 4. Other work as shown in the documents and as required for a complete an operational project.

1.3 WORK BY OTHERS

- A. Work on the Project which will be executed prior to start of Work of this Contract, and which is excluded from this Contract, is as follows:
 - 1. Removal of server room wall shown on 1/G0.11
 - 2. Owner will remove furniture, supplies, drapes and salvageable items. Owner will not remove finishes or expose structure in support of Contractor's work.
- B. Work in the Project which will be executed after completion of Work of this Contract, and which is excluded from this Contract, as follows:
 - 1. NONE
- C. Work on this Project which will be executed during the Work of this Contract which the Contractor shall coordinate with and facilitate:
 - 1. NONE

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1.4 DIMENSIONAL TOLERANCES FOR ACCESSIBILITY

- A. While it is recognized that construction practices generally permit a level of reasonable dimensional tolerance, the installation of any items subject to compliance with the Americans with Disabilities Act Accessibility Guidelines and Chapter 11B of the California Building Code (CBC), which are not shown with dimensional tolerances, on the drawings or in the CBC, shall be considered absolute. These dimensions will be strictly enforced. Items found to be out of tolerance may require modification and/or replacement at contractor's expense.

1.5 CONTRACTOR'S USE OF PREMISES

- A. Specific roads for access to and from building sites will be agreed on with the Owner. All traffic and materials delivery shall be confined to these roads.
- B. Specific areas for storage of materials and site fabrication will be agreed upon. Contractor's activities shall be confined to these areas.
- C. Work shall proceed in such manner as to not interfere with Owner's activities in and about nearby facilities. Exceptions will be made only after previous agreement between Owner, Architect and Contractor.
- D. Fire alarm, intercom, intrusion alarm and other such tests shall be conducted outside of business hours and shall be coordinated with site personnel, if such tests occur after occupancy.

1.6 WORK SEQUENCE

- A. Construct work in stages to accommodate Owner's use of premises during construction period; coordinate construction schedule and operations with Owner's Representative.
 - 1. Do not close off use of existing facilities until completion of addition will permit alternative usage of new facilities, unless otherwise directed by Owner.
 - 2. Please reference project schedule in Division 0 documents.

1.7 EXTENDED LIQUIDATED DAMAGES

- A. At the conclusion of the Punch List Work Completion date, all items are to be 100% finalized. Should work remain uncompleted beyond this date, the Owner may re-instate liquidated damages until all such work has been accepted. In addition, work uncompleted may, at the Owner's option, be completed by others and charged against the contract amount.

1.8 OWNER OCCUPANCY

- A. Owner will occupy nearby premises during construction.
- B. Refer to General Conditions for requirements for partial occupancy by Owner.

1.9 EXISTING UTILITIES

- A. It is recognized by the District and the Contractor that the location of existing utility facilities as shown on contract drawings and specifications are approximate; their exact location is unknown.
- B. Recognition is given to the fact there may be additional utilities existing on the property unknown to either party to the Contract. Location of utilities as shown on drawings and specifications represent the best information obtainable from utility maps and other information furnished by the various agencies involved. The Owner warrants neither the accuracy nor the extent of actual installations as shown on the drawings and specifications.
- C. The Contractor agrees and is required to coordinate and fully cooperate with the Owner and utility owners for the location, relocation, and protection of utilities. The Contractor's attention is directed to the existence of utilities, underground and overhead, necessary for all buildings within the area of work.
- D. In accordance with Section 4215 of the Government Code of the State of California, the Owner shall make provisions to compensate the Contractor for the costs of locating, repairing damage not due to the failure of the Contractor to exercise reasonable care, and removing or relocating such main and trunk line utility facilities not indicated in the plans and specifications with reasonable accuracy, and for equipment on the project necessarily idled during such work. Compensation will be in accordance with the provisions of these specifications providing for change orders. Nor shall the Contractor be assessed liquidated damages for delay in completion of the project, when such delay was caused by the failure of the Owner or owner of the utility to provide for removal or relocation of such utility facilities.
- E. Nothing herein shall be deemed to require compensation to the Contractor or to relieve him from being assessed liquidated damages for such delay when the presence of unidentifiable utilities can be inferred from the presence of other visible facilities, such as buildings, meter and junction boxes, on or adjacent to the site of construction, and the damage to existing utilities or delay was caused in whole or in part by a failure of the Owner to indicate the presence of such service laterals or appurtenances.
- F. In the event the Contractor discovers utilities not identified in the Contract plans or specifications, the Contractor shall immediately notify the Architect and the utility owner by the most expeditious means available and later confirm in writing.
- G. Existing building utilities shall not be interrupted during normal operating hours.

1.10 ASBESTOS OR HAZARDOUS MATERIALS

- A. Should asbestos or hazardous materials outside of the scope of work be discovered during construction operations, the contractor shall immediately notify the Project Inspector and Architect and shall suspend work in the area until necessary identification, testing and abatement (if required) is completed.

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END OF SECTION

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of work.docx*
Last Updated: December 16, 2021

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Pre-construction Meeting.
 - 2. Regular project meetings.
 - 3. Pre-installation meetings.

1.2 GENERAL

- A. The Architect shall make arrangements for meetings, prepare agenda with copies for participants, preside at meetings, record minutes, and distribute copies to the Owner, Project Inspector, Contractor, participants, and others affected by the decisions made.
- B. Attendance required: Project Superintendent, Project Manager (if any), major Subcontractors (as requested), Architect, Project Inspector, and others as appropriate to the meeting topics.

1.3 PRE-CONSTRUCTION MEETING

- A. Upon issuing a notice of intent to award the contract, the Architect will schedule a pre-construction meeting.
- B. Agenda: Architect and Contractor shall prepare an agenda and distribute copies at least one week in advance of the Pre-Construction meeting.
- C. Architect's agenda may include, but not limited to, discussion of the following items:
 - 1. Project description and scope of work.
 - 2. Legal and code requirements.
 - 3. Designation of personnel representing the parties to the contract; lines of communication.
 - 4. Communication and responsibilities.
 - 5. Submittal procedures in accordance with Section 01 3300.
 - 6. Construction schedule and critical path.
 - 7. Schedule of values.
 - 8. Record drawings.
 - 9. Progress payments.
 - 10. Change orders and time extensions (related to critical path).
 - 11. Inspection.
 - 12. Project closeout.

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1.4 PROJECT MEETINGS

- A. The Architect will schedule and run regular project meetings throughout the project to review the short-term project schedule and to discuss issues requiring resolution. It is the duty of the Contractor to attend, participate in, and comply with the agreements reached and direction set at these meetings.

1.5 SPECIAL MEETINGS

- A. The Architect may occasionally schedule special meetings for the purpose of discussing work requiring a significant coordination effort or for resolving issues which require more attention than they can be given in the regularly scheduled meetings. The Contractor shall attend these meetings along with representatives of subcontractors, suppliers, and/or manufacturers when appropriate for the subject matter to be discussed.

END OF SECTION

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PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Project schedule requirements.
 - 2. Project schedule updates.

1.2 DEFINITIONS

- A. Critical Path: Longest continuous path of dependent activities and measuring the time required for completion to successfully conclude the project, from start to finish.
- B. Slack Time: Length of time that the start of an activity can be delayed without delaying the finish date of a subsequent activity.
- C. Float Time: Length of time that the completion of an activity can be delayed without delaying the finish date of subsequent tasks or the entire project completion.

1.3 GENERAL STATEMENT

- A. It is the intent of this specification to provide a means by which to insure timely completion of the Work of the Contract.
- B. The Contractor shall be responsible for planning, scheduling and reporting the progress of the Work. Planning, scheduling and reporting will incorporate the input of the various Subcontractors, Suppliers, Manufacturers, etc., that are responsible to the Contractor of the Work.
- C. This Schedule is defined as the network diagram, or diagrams and includes the various reports, narratives and charts required by this specification. Each is considered to be part of the Schedule. Submittal of one without the other shall constitute non-compliance of contract requirements unless previously approved or directed by the Architect in writing.
- D. Float or slack time is not for the exclusive use or benefit of either the Owner or the Contractor, but is a resource available to both parties. To this end it is considered both responsible and reasonable that the schedule contain no more than fifteen (15) percent of the activities to be critical or near-critical. Near-critical is defined as float or slack time for one (1) to ten (10) work days.
- E. The schedule shall be submitted within fifteen (15) calendar days after the date of the Notice to Proceed (Start Letter) and shall include a complete critical path schedule with detailed network diagrams or sub-network diagrams for all the work. Interdependencies between the various detailed network diagrams shall be clearly indicated.
- F. The schedule shall include the following features:

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1. Each diagram shall show the activities, order and interdependence of the activities, and the sequence of work, as planned by the Contractor.
 2. The Schedule shall include, in addition to construction activities, such tasks as mobilization, demobilization, submittal, and approval of samples of materials and shop drawings, procurement of significant materials and equipment, fabrication of special items as well as installation and testing.
 3. The Activities shall be described and organized so as to conform to the Payment Schedule.
- G. Upon the Architect's request, the Contractor shall participate in the review and evaluation of his submissions. Any revisions deemed necessary or desirable as a result of this review shall be resubmitted within ten (10) calendar days after the review. The Schedule, as revised, shall be used by the contractor for planning, organizing, and directing the work and for reporting of progress.
- H. Acceptance by the Owner and/or Architect of the reasonableness of the Contractor's scheduling and cost allocations shall be a condition for authorization of monthly payments to the Contractor.
- I. Update: The Contractor shall update the Schedule and Payment request under the following circumstances or as requested by the Architect:
1. If the Contractor desires to make significant changes in his method of proceeding, or major changes are required due to changes or delays to the work or any part thereof, he is to notify the Architect in writing of his intent and state reasons for making the change. A change may be considered to be of a significant or major nature if the activity or activities of the logic sequence of activities is varied from his prior submittal to a degree that there is reasonable doubt as to the effect on the contract completion date or dates. Delays requiring an update schedule include rain delays, only as approved by Owner and Architect.
 2. The Contractor shall submit for review by the Architect at each regular progress meeting an update of the Schedule by marking in red on a current print of the network diagram the actual progress to date. The detailed network diagrams shall require re-plotting if the time frame shown for the activities on the diagram are more than ten (10) working days out of phase with the time frame for the same activities indicated in the updated schedule report or if for any reason the sequences or duration of work are revised.
- J. Approval and/or acceptance of the schedule by the Owner and Architect is not to be construed as approval of the contractor's methods nor shall it relieve the contractor from full responsibility for the proper scheduling and sequencing of the work.

1.4 ADMINISTRATION

- A. Each diagram and report submitted under this section shall be furnished in three (3) copies. After review of each successive monthly update the Contractor shall revise the original diagram and resubmit within seven (7) calendar days.
- B. Submissions of the Contractor's schedule is not to be construed as granting, rejecting, or in any other way acting on the Contractors' requests for time extensions. Such

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requests shall be processed in strict compliance with all relevant provisions of the Contract Documents.

- C. Failure of the Contractor to comply with the requirements of this Section may be grounds for a determination by the Architect that no further progress payments are to be made until the Contractor is in compliance.
- D. The Contractor and Architect shall meet monthly to review progress, the updated network diagram and payment request. Agreements reached at this meeting shall be recorded and shall, as they affect progress and/or payment, be incorporated into the updated reports.
- E. The monthly update of the Schedule shall be an integral part and basic element of the estimate upon which progress payments shall be made pursuant to the General Conditions of the Contract. The Contractor shall be entitled to progress payments only upon approval of the estimate as determined from the currently approved updated Schedule.
- F. The Contractor agrees that whenever it becomes apparent from the current monthly progress evaluation and updated schedule data that any milestone interface completion date and/or contract completion date will not be met, he will take some or all of the following actions (and any others he may deem necessary) at no additional cost to the Owner:
 - 1. Increase construction manpower in such quantities and crafts as will substantially eliminate the lag in schedule progress.
 - 2. Increase the number of shifts per work day, work days per week, or amount of construction equipment, or any combination of the foregoing, sufficient to substantially eliminate the lag in scheduled progress.
 - 3. Re-schedule activities to achieve maximum practical concurrency of accomplishment.
 - 4. Those actions determined necessary to re-establish the original scheduled progress shall be incorporated into the next schedule update. Should the results of the planned corrective actions prove insufficient, additional corrective actions shall be taken.
 - 5. The submission of an amended schedule will not relieve the Contractor of the responsibility to notify the Architect in writing of all experienced or anticipated delays in the prosecution of the work.

END OF SECTION

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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. Deferred Approvals.
 - i. Record Drawings.
 - j. Certifications including those required for material VOC content.
 - k. Maintenance/Operating Manuals.
 - l. Warranties and Extended Guarantees.
 - m. Extra Stock.
 - n. Delegated Design.
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. Section 01 7700, Closeout Procedures.
- C. Section 01 7836, Warranties; guarantee/warranty forms.
- D. Section 01 8113, Sustainable Design Requirements, for CAL-Green general requirements and procedures.

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- E. Test reports: Pertinent Specification Sections (by testing lab).
- 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:

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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.
 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.

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- 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 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. The fire protection drawings require submittal to the City of Lodi for permitting. The Contractor shall be responsible for preparing, submitting, and obtaining this permit.

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 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 \$10,000.
 - 1. Mobilization/Start-up.
 - 2. Caulking and Sealants.
 - 3. Finish Hardware.
 - 4. Signage.
 - 5. Fire Sprinklers.
 - 6. Labor/Supervision.
 - 7. Cleanup.
 - 8. Contract Closeout.

2.3 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.

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- C. Dates on "Submittal Schedule" shall be agreed upon by both Architect and Contractor.

2.4 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.

2.5 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.

2.6 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.

2.7 SAMPLES

- A. Samples: Physical examples to illustrate materials, equipment or workmanship, 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. After review, samples may be used in construction of project.
- C. Field samples and mockups:
1. Erect at project site at location acceptable to Architect.
 2. Construct each sample or mockup complete, including work of trades required in finished work.

2.8 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 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.

2.9 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.
- B. Certifications for this project shall also include:
1. Fire Alarm System Certification:
 - a. As specified in Division 28.

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2. Certificate of Compliance for Building Materials:
 - a. Submit completed Certification of Compliance for Building Materials (included with this section).

2.10 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.

2.11 WARRANTIES AND GUARANTEES

- A. Contractor Standard Guarantee:
 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 Contractor 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.
- 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.

2.12 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.

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3. The final location of mechanical equipment, ducts, outlets, structural members, walls, partitions, and other significant features. Note both vertical and horizontal dimensions of concealed installations.
 4. 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.
 5. 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 draftsperson 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.

2.13 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.
 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. 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.

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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).

E. 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.

F. Number of Copies Required - Contractor shall submit following number of copies:

1. Subcontractor List: electronic PDF format.
2. Progress Schedule: electronic PDF format.
3. Schedule of Values: electronic PDF format.
4. Shop Drawings: electronic PDF format.
5. Product Data/Material Lists: electronic PDF format.
6. Samples for Color/Pattern Selection: One set of manufacturer's complete range for initial selection; and 4 samples as requested of selected color/pattern 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.
7. Substitution Request: electronic PDF format.
8. Request for Information: electronic PDF format.
9. Electronic Transfer: electronic PDF format.
10. Deferred Approvals: as needed per City of Lodi requirements.
11. Certifications: electronic PDF format.
12. Maintenance/Operations Manuals: After approved via Newforma submittal, 1-hard copy plus 1-electronic copy in format acceptable to the Owner.

13. 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.
 14. Record Drawings: After approved via Newforma submittal, 1-hard copy plus 1-electronic copy in format acceptable to the Owner.
- G. 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. Relation to adjacent structure or material.
 6. Field dimensions, clearly identified as such.
 7. Specification section number.
 8. A blank space for Architect's stamp.
 9. 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.
- H. 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.
- 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.

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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 DELEGATED DESIGN SUBMITTALS

- A. Delegated Design submittals shall first be submitted to the Architect through the specified web based access system. If the Architect reviews the submittal with corrections noted, those corrections must be addressed and the submittal returned to the Architect. Once the Architect has no comments on a submittal, it will be returned and shall be resubmitted with approval by all government agencies having jurisdiction.
- B. The Contractor shall then submit to these agencies and make revisions required by these agencies until approval by all government agencies having jurisdiction is obtained.
- C. When approval has been obtained by all governing agencies having jurisdiction, the approved submittal shall be resubmitted to the Architect for final approval. It is the responsibility of the Contractor to verify acceptability of government agency required revisions with the Architect. If the resubmittal to the Architect includes revisions that had not been previously approved by the Architect in writing, the Architect has the right to reject these revisions. It is then the Contractor's responsibility to resubmit to government agencies having jurisdiction to obtain approval of the Architect's noted corrections.

3.5 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.

3.6 FORMS

- A. The following submittal forms are included as part of this Section.
 - 1. Submittal Transmittal.

SUBMITTAL PROCEDURES
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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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procedures.docx
Last Updated: June 17, 2020*

Project Name:	HMC Project Number:
Submittal Number:	Date:
TO: HMC Architects	Attn:
FROM:	Contact:
List of Attachments:	
Specification Section:	Article and Paragraph(s):
Description:	

This submittal has been reviewed and coordinated with all trades with respect to means, methods, techniques, procedures of construction, safety precautions, and program incidentals. This submittal complies with the contract documents and comprises no variations thereeto, unless a separate Substitution Request has been submitted and approved.

Contractor's Signature:

FOR ARCHITECT'S USE

Additional Comments:

PLACE
SUBMITTAL
STAMP HERE



SUBSTITUTION REQUEST (DURING CONSTRUCTION)

Project Name:	HMC Project Number:
Substitution Request Number:	Date:
TO: HMC Architects	Attn:
FROM:	Contact:
Re (General Description):	
Specification Section:	Article and Paragraph(s):

Contractor hereby requests acceptance of the following product or system as a substitution in accordance with Section 012500 - Substitution Procedures.

Specified Item:

Proposed Substitution:

REASON FOR SUBSTITUTION (select one of the following):

- | | |
|--|---|
| ☐ FOR CAUSE: Unavailability of Product | Explanation: |
| ☐ FOR CAUSE: Unavailability of Required Warranty | |
| ☐ FOR CAUSE: Regulatory Change | |
| ☐ FOR CAUSE: Other | |
| ☐ FOR CONVENIENCE: | Provide Explanation of Benefit to Owner |

PROPOSED CHANGES TO COST & TIME (if any)

Cost (Dollar Amount):	Time (Days):
Signature:	
Printed Name:	

FOR ARCHITECT'S USE

- | | |
|---|--------------|
| ☐ Incomplete Submission | Explanation: |
| ☐ Accepted | |
| ☐ Not Accepted | |

Reviewed By:	Date:
--------------	-------

OWNER ACCEPTANCE

Reviewed By:	Date:
--------------	-------

END OF FORM



SUBSTITUTION REQUEST (DURING PROCUREMENT)

Project Name:	HMC Project Number:
Substitution Request Number:	Date of Request:
TO: HMC Architects	Attn:
FROM:	Contact:
Re (General Description):	
Specification Section:	Article and Paragraph(s):

Contractor hereby requests acceptance of the following product or system as a substitution in accordance with Section 002600 - Substitution Procedures.

Specified Item:

Proposed Substitution:

Signature: _____
Printed Name: _____

FOR ARCHITECT'S USE

☐ Incomplete Submission	Explanation:
☐ Accepted	
☐ Not Accepted	

Reviewed By: _____ Date: _____

OWNER ACCEPTANCE

Reviewed By: _____ Date: _____

END OF FORM



REQUEST FOR INFORMATION

Project Name:	HMC Project Number:
RFI Number:	Date:
TO: HMC Architects	Attn:
FROM:	Contact:
Drawing Reference(s):	
Specification Section:	Article and Paragraph(s):

Contractor hereby requests additional information, clarification, or interpretation of the Contract Documents in accordance with Section 013100 - Project Management and Coordination.

Request:

Suggested Resolution:

☐

EXPEDITED RESPONSE REQUESTED*

*Requests for expedited response are considered an accommodation to the Contractor and should be reserved for critical path construction information. Requests will be accommodated at the discretion of the Architect. Responses must be complete before submission to the Architect, and the Contractor is not relieved of its obligations by an expedited response.

Contractor's Signature:

Architect/Engineer Response:

Reviewed By:

Date:

Response is not an authorization to proceed with work involving additional cost, time, or both.

Entity Requesting Content "Receiving Party":

Receiving Party Representative Name:

Project Number:

Project Name:

Client:

Date:

This Digital Content Use Agreement (herein referred to as the Agreement) is a legal agreement between _____ (herein referred to as the Receiving Party) and HMC Group (herein referred to as HMC) of the Digital Content (herein referred to as "Libraries" or "Content"), which includes Building Information Modeling Content, Templates, and derivatives (exports or prints) from the Models and Content, and may include associated media, instructional manuals, printed materials, specifications, and "online" or electronic documentation ("File Transmissions"), for use by the Receiving Party only.

Reproduction and Distribution: You may not reproduce and/or distribute copies of the Content to any party other than HMC Group.

Assignment of Rights: You may not sublicense, lease, rent, or assign your rights to the Content or associated materials to any other Company or individual, except for the specific purposes of transmitting Receiving Party deliverables, which may include parts of the Content. Where other companies and/or individuals ("Third Parties") will make use of the Content (associate partnerships, etc.), HMC shall be notified in advance and afforded an opportunity to approve or object to such use. By written contract, Receiving Party shall require any such Third Parties to be bound by the terms of this Agreement in the same manner that Receiving Party is bound.

Indemnity: The Content is provided as-is, in the computer formats used by HMC and its design consultants in the course of business. The files are provided without warranty or guaranty of compatibility with Receiving Party software or hardware systems. Any use of the content by Receiving Party shall be at its sole risk and without liability or legal exposure to HMC and its design consultants. Receiving Party agrees to make no claim and hereby waives, to the fullest extent permitted by law, any claim or cause of action of any nature against HMC and its design consultants that may arise out of or in connection with Receiving Party use of the Content and agrees to indemnify, defend, and hold harmless HMC and its design consultants from and against damages, losses, and judgments arising from claims by third parties, including reasonable attorney's fees and expenses, arising from or related to Receiving Party use of the Content.

Copyright: All common law and statutory law title, copyrights, and other rights in and to the Content (including but not limited to any BIM Components, Images, photographs, clipart, libraries, and examples incorporated into the Libraries), and the accompanying printed materials, shall remain with HMC and its design consultants. The Content is protected by copyright laws and international treaty provisions. Use of the Content under this Agreement shall not be construed as transferring any title, copyright, or other intellectual property rights to Receiving Party. The Receiving Party may only use functions, examples, components, exports, schedules and symbols in the Content to create new work products specifically for HMC.



Termination: Without prejudice to any other rights, HMC may terminate this Agreement immediately if Receiving Party fails to comply with the terms and conditions of this Agreement. HMC may also terminate this Agreement for its convenience upon 15 days' notice to Receiving Party. Within 15 days of termination, Receiving Party shall destroy or return to HMC all copies of the Content and all of its components, derivatives and exports, and printed documentation.

Amendments to this Agreement: HMC reserves the right, at its sole discretion, to modify or replace this Agreement at any time. If a revision is material, HMC will provide 30 days' notice prior to any new terms taking effect. If Receiving Party does not accept any new term or revision within 15 days, this Agreement may be terminated at HMC's sole discretion. What constitutes a material revision will be determined at HMC's sole discretion.

Agreed by Receiver:

Print Name:

Title:

Date Signed:

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 **DISTRICT OFFICE SERVER ROOM MODIFICATIONS** for the **Lodi 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

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Alteration requirements for modernizations, remodels, and additions.

1.2 RELATED REQUIREMENTS

- A. Section 01 1100, Summary of Work.
- B. Section 01 5000, Temporary Facilities and Controls.
- C. Section 01 7329, Cutting and Patching.
- D. Section 02 4119, Selective Demolition.

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).

1.4 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Contractor to coordinate and conduct a meeting with the demolition contractor to verify which systems, if any, are to be protected and maintained. Such systems shall be clearly identified and marked to avoid unnecessary damage or removal.
 - 2. Coordinate work of alterations and renovations to expedite completion sequentially and to accommodate Owner occupancy.

1.5 QUALITY ASSURANCE

- A. Manufacturer and Installer Qualifications: As specified in the product specifications.
- 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 Inspector of Record. Work not so inspected is subject to uncovering and replacement.

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1.6 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.

PART 2 - PRODUCTS

2.1 PRODUCTS FOR PATCHING AND EXTENDING WORK

- A. New Materials: As specified in product Sections; match existing products and work for patching and extending work.
- B. Type and Quality of Existing Products: Determine by inspection and testing products where necessary, referring to existing work as a standard.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Inspect conditions of uncovered work affecting installation of products or performance work.
- B. Verify that specified items may be installed in accordance with the approved design.
- C. Beginning of restoration work means acceptance of existing conditions.
- D. In event of discrepancy, immediately notify Architect. Do not proceed in discrepant areas until discrepancies have been fully resolved.

3.2 PREPARATION

- A. Close openings in exterior surfaces to protect existing work and salvage items for weather and extremes of temperature and humidity. Insulate ductwork and piping to prevent condensation in exposed areas.
- B. Cut, move or remove items as necessary for access to alterations and renovation work.
- C. Remove debris and abandoned items from area and from concealed spaces.
- D. Remove unsuitable material not marked for salvage, such as rotted wood, corroded metals, and deteriorated masonry and concrete.
- E. Prepare surface, and remove surface finishes to provide for proper installation of new work and finishes including blocking, framing, insulation, etc.
- F. Replace materials as specified for finished work.

3.3 INSTALLATION

- A. Complete Project in all respects including operational mechanical and electrical work.

- B. Remove, cut and patch work in a manner to minimize damage and to provide a means of restoring products and finishes to original condition, and installation of concealed work, as specified in Section 01 7329, Cutting and Patching,
- C. Refinish visible existing surfaces to remain in renovated rooms and spaces, to specified condition for each material, with a neat transition to adjacent finishes.
- D. Install products as specified in individual specifications Sections.
- E. Where materials or equipment are removed, but no new finish is scheduled, patch and repair any damage to match existing wall surface.

3.4 TRANSITIONS

- A. Where new work abuts or aligns with existing, perform a smooth and even transition. Patched work is to 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, terminate existing surface along a straight line at a natural point of division and make recommendation to Architect.

3.5 ADJUSTMENTS

- A. Where removal of partitions or walls results in adjacent spaces becoming one, rework floors, walls and ceilings to a smooth plane without breaks, steps or bulkheads.
- B. Where a change of plane of 1/8" or more occurs, submit recommendation for providing a smooth transition for Architect review.
- C. Trim existing doors as necessary to clear new floor finish. Refinish trim as required.
- D. Fit work at penetrations of surfaces as specified in Section 01 7329.

3.6 FINISHES

- A. Finish surfaces as specified in individual Product Sections.
- B. Finish patches to produce uniform finish and texture over entire area. When finish cannot be matched, refinish entire surface to nearest intersections.

3.7 REPAIR OF DAMAGED SURFACES

- A. Patch or replace portions of existing surfaces which are damaged, lifted, discolored, or showing other imperfections.
- B. Repair substrate prior to patching finish.
- 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.

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3.8 CLEANING

- A. Upon completion of installation, remove manufacturer's temporary labels and marks of identification. Thoroughly clean surfaces and remove foreign material. Leave entire work in neat, orderly, clean and acceptable condition.

3.9 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. Exposed finishes shall be free from scratches, dents, permanent discolorations and other defects in workmanship or material.

END OF SECTION

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project procedures.docx
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PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: Special environmental, sustainable, and “green” building practices related to indoor air quality, resource efficiency supplementing the Pollutant Control requirements specified under Section 01 8113.10, Sustainable Design Requirements, and to ensure healthy indoor air quality in final Project.
- B. Contractor is required to comply with sustainable building practices during construction and when considering materials for substitutions. Refer to Article “Design Requirements.”

1.2 RELATED REQUIREMENTS

- A. Section 01 6116, Volatile Organic Compound (VOC) Restrictions.
- B. Section 01 7419, Construction Waste Management and Disposal.
- C. Section 01 8113, Sustainable Design Requirements.
- D. Section 01 9113, General Commissioning Requirements.
- E. Section 01 9114, Commissioning Plan.
- F. Division 23, Mechanical General Conditions.
- G. Division 23, Packaged Air Conditioning Units.

1.3 ADMINISTRATIVE REQUIREMENTS

- A. Submittal Procedures:
 - 1. 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.

1.4 DESIGN REQUIREMENTS

- A. Owner has established general environmental goals for design and for construction of the Project.
 - 1. In addition to the Contractor, the Contractor’s construction team, including subcontractors, suppliers, and manufacturers, are encouraged to participate where possible to realize the Owner’s environmental goals.

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2. Intent is for environmental goals to be achieved in a manner which ultimately provides a safe and healthy environment for building occupants with minimal impact on the local, regional and global environment.

B. Environmental Goals:

1. Refer to specific Specifications Sections for more detailed construction requirements related to specific materials and systems.

1.5 INFORMATIONAL SUBMITTALS

A. Indoor Air Quality (IAQ) Data:

1. Environmental Issues: Submit emission test data produced by acceptable testing laboratory, listed in this Specification Article "Quality Assurance," for materials as required in each specific Specification Section.
 - a. Laboratory reports shall contain emissions test data on Volatile Organic Compounds (VOCs) including Total Volatile Organic Compounds (TVOC), specific individual VOCs, formaldehyde and other aldehydes as described in this Section.
 - b. Identify VOCs emitted by each material as required in these Specifications, and demonstrate compliance with the California Green Building Standards Code, edition current as of the date of this Contract.
 - c. Specific test conditions and requirements are set forth in the Specifications. For required tests, submit documentation of sample acquisition, handling, and test specimen preparation, as well as test conditions, methods, and procedures. The tests consist of a 10-day conditioning period followed by a 96-hour test period.
 - 1) Samples collected during the test period at 24, 48, and 96-hours shall be analyzed for TVOC and formaldehyde.
 - 2) VOC samples collected at 96 hours shall be identified and quantified for compounds that are found on the list of Chemicals of Concern. The Chemicals of Concern list is based on the California OEHHA list as of September 2002 (The most recent list shall be used for this Specification as published at:
 - a) http://www.oehha.org/air/chronic_rels/allChrels.html.
2. Cleaning and Maintenance Products: Provide data on manufacturers' recommended maintenance, cleaning, refinishing and disposal procedures for materials and products. These procedures are for final Contractor cleaning of the project prior to Substantial Completion and for provided materials and products as required by the specific Specification Sections.
 - a. Where chemical products are recommended for these procedures, provide documentation to indicate that no component present in the cleaning product at more than 1 percent of the total mass of the cleaning product is a carcinogen or reproductive toxicant as identified in the Chemicals of Concern list referenced above.
 - b. Avoid cleaning products containing alpha-pinene, d-limonene or other unsaturated carbon double bond alkenes due to chemical reactions with

ozone to form aldehydes, acidic aerosols, and ultra-fine particulate matter in indoor air.

B. Certificates:

1. Prior to Final Completion, submit a certificate signed by corporate office holder of Contractor, subcontractor, supplier, vendor, installer or manufacturer primarily responsible for the manufacturing of the product, indicating materials provided are essentially the same, and contain essentially the same components as products and materials tested.
2. Comply with requirements specified in Specification Section 01 7700, Closeout Procedures.

1.6 CLOSEOUT SUBMITTALS

A. Submit data relating to Environmental Issues.

1. Submit environmental product certifications, in two forms:
 - a. Two CD-ROMs organized by CSI Division Format.
 - b. Three three-ring binders organized by CSI Division Format with Table of Contents and with dividers for each Division.

1.7 QUALITY ASSURANCE

A. Environmental Project Management and Coordination: Contractor to identify one person on Contractor's staff to be responsible for environmental issues compliance and coordination.

1. Experience: Environmental project manager shall have experience relating to sustainable building construction.
2. Responsibilities: Carefully review the Contract Documents for environmental issues, coordinate work of trades, subcontractors, and suppliers; instruct workers relating to environmental issues; and oversee Project Environmental Goals.
3. Meetings: Discuss Environmental Goals at following meetings.
 - a. Pre-construction meeting.
 - b. Pre-installation meetings.
 - c. Regularly scheduled job-site meetings.
 - d. Special sustainability issues meetings.

B. Environmental Issues Criteria: Comply with requirements listed in the Specification Sections.

C. Acceptable Indoor Air Emissions Testing Laboratories:

1. Selection of testing laboratories shall include assessment of prior experience in conducting indoor source emissions tests.
2. The proposed laboratory shall be an independent company or organization not related to the manufacturer of the products to be tested.
3. Submit documentation on proposed laboratory for review and approval by Owner.

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1.8 DELIVERY, STORAGE, AND HANDLING

- A. Packaging: Deliver materials in recyclable or in reusable packaging such as cardboard, wood, paper, or reusable blankets, which will be reclaimed by supplier or manufacturer for recycling.
 - 1. Minimize packaging materials to maximum extent possible while still ensuring protection of materials during delivery, storage, and handling.
 - 2. Unacceptable Packaging Materials: Polyurethane, polyisocyanate, polystyrene, polyethylene, and similar plastic materials such as “foam” plastics and “shrink-fit” plastics.
 - 3. Reusable Blankets: Deliver and store materials in reusable blankets and mats reclaimed by the manufacturers or suppliers for reuse where the reclamation program exists or where a program can be developed for such reuse.
 - 4. Pallets: Where pallets are used, suppliers shall be responsible to ensure pallets are removed from site for reuse or for recycling.
 - 5. Corrugated Cardboard and Paper: Where paper products are used, recycle as part of the construction waste management recycling program, or return to the material’s manufacturer for use by the manufacturer or supplier.
 - 6. Sealants, Paint, Primers, Adhesives, and Coating Containers: Return to the supplier or manufacturer for reuse where such program is available.
- B. Comply with the additional requirements specified in Section 01 7419, Construction Waste Management and Disposal.

1.9 FIELD CONDITIONS

- A. No smoking will be permitted in indoor Project site locations, in accordance with California Labor Code (Section 400-6413.5).
- B. Environmental Product Certification:
 - 1. Include certification that indicates cleaning materials comply with requirements of these Specifications.
- C. Construction Ventilation and Preconditioning:
 - 1. Temporary Construction Ventilation: Maintain sufficient temporary ventilation of areas where materials are being used that emit VOCs. Maintain ventilation continuously during installation, and until emissions dissipate following installation. If continuous ventilation is not possible utilizing the building’s HVAC system(s) then ventilation shall be supplied using open windows and temporary fans, sufficient to provide no less than three air changes per hour.
 - a. Period after installation shall be sufficient to dissipate odors and elevated concentrations of VOCs. Where no specific period is stated in these Specifications, a time period of 72 hours shall be used.
 - b. Ventilate areas directly to outside; ventilation to other enclosed areas is not acceptable.

2. During dust producing activities, including drywall installation and finishing, turn ventilation system off, and openings in supply and return HVAC system shall be protected from dust infiltration. Provide temporary ventilation as required.
 3. Preconditioning: Prior to installation, allow products which have odors and significant VOC emissions to off-gas in dry, well-ventilated space for 14 calendar days to allow for reasonable dissipation of odors and emissions prior to delivery to Project site and installation.
 - a. Condition products without containers and packaging to maximize off-gassing of VOCs
 - b. Condition products in ventilated warehouse or other building. Comply with substitution requirements for consideration of other locations.
- D. Protection:
1. Moisture Stains: Materials with evidence of moisture damage, including stains, are not acceptable, including both stored and installed materials; immediately remove from site and properly dispose.
 - a. Take special care to prevent an accumulation of moisture on installed materials and within packaging during delivery, storage, and handling to prevent development of molds and mildew on packaging and on products
 - b. Immediately remove from site and properly dispose of materials showing signs of mold and signs of mildew, including materials with moisture stains.
 - c. Replace moldy materials with new, undamaged materials.
 2. Ducts: Seal ducts during transportation, delivery, and construction to prevent accumulation of construction dust and construction debris inside of ducts.

PART 2 - PRODUCTS

2.1 SUBSTITUTIONS

- A. Requests for substitutions shall comply with requirements specified in Specification Section 01 3300, Submittals, and with the following additional information required where environmental issues are specified:
1. Indicate how each proposed substitution complies with requirements for VOCs.
 2. Owner, in consultation with Architect reserve the right to reject proposed substitutions where data for VOCs is not provided or where emissions of individual VOCs are higher than for the specified materials.
 3. Comply with the specified recycled content and other environmental requirements.

PART 3 - EXECUTION

3.1 FIELD QUALITY CONTROL

- A. Sequencing:

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1. On-Site Application: Where odorous and/or high VOC emitting products are applied on-site, apply prior to installation of porous and fibrous materials. Where this is not possible, protect porous materials with polyethylene vapor retarders.
 2. Complete interior finish material installation no less than 14 days prior to Substantial Completion to allow for Building Flush Out as described in Paragraph 3.1B.
- B. Building Flush Out: Just prior to Substantial Completion, flush out building air continuously using maximum tempered outside air, or maximum amount of outside air while achieving reasonable indoor temperature, for at least 14 calendar days. Continuously is defined as 24 hours per day, 7 days a week. If interruptions of more than a few hours are required for testing and balancing purposes, extend flush out period accordingly in order to achieve the minimum 14 calendar day building flush out period.
1. When Contractor is required to perform touch-up work, provide temporary construction ventilation during installation and extend building flush-out by a minimum of 4 calendar days after touch-up installation is complete with maximum tempered outside air for 24 hours per day.
 2. If construction schedule permits, extend flush-out period beyond minimum building flush out period for an additional 15 days.
 3. Return ventilation system to normal operation following flush-out period to minimize energy consumption.

3.2 CLEANING

- A. Clean interior and exterior surfaces exposed to view; remove temporary labels, stains, and foreign substances; polish transparent and glossy surfaces using cleaning and maintenance products that conform to standards as described in Part 1 of this Section.
- B. Clean equipment and fixtures to sanitary condition using cleaning and maintenance products that conform to standards as described in Part 1 of this Section.
- C. Products used for cleaning shall comply with Proposition 65 and the additional restrictions for volatile organic compounds specified in Section 01 6116.
- D. Vacuum carpeted and soft surfaces with high efficiency particulate arrestor (HEPA) vacuum.
- E. If ducts were not sealed during construction, and contain dust or dirt, clean ducts using HEPA vacuum immediately prior to Substantial Completion and prior to using ducts to circulate air. Oil film on sheet metal shall be removed before shipment to site. Ducts shall be inspected to confirm that no oil film is present. Remove oil film.
- F. Replace air filters, both pre and final filters, just prior to Substantial Completion.
- G. Remove and properly dispose of recyclable materials using construction waste management program described in Section 01 7419, Construction Waste Management and Disposal.

3.3 PROTECTION

- A. Protect interior materials from water intrusion or penetration where interior products are not intended for wet applications and are exposed to moisture.
- B. Protect installed products using methods that do not support growth of mold and mildew.
 - 1. Immediately remove from site materials with mold or mildew.

END OF SECTION

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PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Standard reference abbreviations use in the Project Manual.
 - 2. Requirements for standard references use in the various Specification Sections.

1.2 STANDARD SPECIFICATIONS

- A. The contract Documents contain references to various standard specifications, codes, practices, and requirements for materials, work quality, installation, inspections and tests published and issued by the organizations, societies, and associations. Such references are hereby made part of the Contract Documents to the extent required.
- B. When standard specifications are included by abbreviation and number only, it is assumed that the Contractor is familiar with and has ready access to the specified standards.
- C. When the effective date of a reference standard is not given, it shall be understood that the current edition or latest revision thereof and any amendments or supplements thereto in effect on the date of original issue of these Contract Documents, as indicated on the cover, shall govern the Work.
- D. Reference standards are not furnished with the contract Documents, because the Contractor, subcontractors, manufacturers, suppliers, and the trades involved are assumed to be familiar with their requirements
- E. Contractor shall obtain its own copies of required specified referenced publications.
- F. The specification or standard referred to shall have full force and effect as though printed in these specifications.
- G. In addition to those standards specifically referenced in the Specifications, comply with the accepted industry standards and trade association recommendations for the respective portions of Work.
- H. In the case of difference between referenced standards and the Contract Documents, the most stringent requirements prevail.

1.3 STANDARD SPECIFICATION ABBREVIATIONS

- A. In addition to abbreviations indicated on the Drawings, references in the Project Manual to trade associations, technical societies, recognized authorities, and other institutions may include the following organizations, which are sometimes referred to by only the corresponding abbreviations. Not all abbreviations are listed, and not all listed abbreviations are used.
- B. Initialisms and Acronyms:

ABBREVIATIONS AND ACRONYMS

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1.	AA	Aluminum Association
2.	AAMA	American Architectural Manufacturers Association
3.	AASHTO	American Association of State Highway and Transportation Officials
4.	AATCC	American Association of Textile Chemists and Colorists
5.	ABAA	Air Barrier Association of America
6.	ACI	American Concrete Institute
7.	ACS	Access Compliance Section (DSA)
8.	ACSE	American Society of Civil Engineers
9.	ADA	American with Disabilities Act
10.	AGA	American Galvanizers Association
11.	AIA	American Insurance Association (successor to NBFU)
12.	AISC	American Institute of Steel Construction
13.	AISI	American Iron and Steel Institute
14.	AITC	American Institute of Timber Construction
15.	ALSC	American Lumber Standards Committee
16.	ANSI	American National Standards Institute
17.	APA	The Engineered Wood Association
18.	ASHRAE	American Society of Heating, Refrigerating, and Air Conditioning
19.	ASTM	ASTM International
20.	AWI	Architectural Woodwork Institute
21.	AWPA	American Wood Protection Association
22.	AWS	American Welding Society
23.	BHMA	Builders Hardware Manufacturers Association
24.	CALGreen	California Green Building Standards Code
25.	CBC	California Building Code
26.	CEC	California Electrical Code
27.	CFC	California Fire Code
28.	CLFMI	Chain Link Fence Manufacturing Institute
29.	CMC	California Mechanical Code
30.	CPC	California Plumbing Code
31.	CRA	California Redwood Association
32.	CRI	Carpet and Rug Institute
33.	CRSI	Concrete Reinforcing Steel Institute
34.	CS	Commercial Standard of National Bureau of Standards (US Dept of Commerce)
35.	DHI	Door and Hardware Institute
36.	DSA	Division of the State Architect
37.	DTSC	Department of Toxic Substances Control
38.	EPA	Environmental Protection Agency
39.	FDA	U.S. Food and Drug Administration

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40.	FLS	Fire & Life Safety (DSA)
41.	FM	Factory Mutual
42.	FS	Federal Specification of General Services Administration
43.	FSC	Forest Stewardship Council
44.	GA	Gypsum Association
45.	HMMA	Hollow Metal Manufacturers Association
46.	ICC-ES	International Code Council Evaluation Service
47.	ISO	International Organization for Standards
48.	MIA	Masonry Institute of America
49.	MMPA	Moulding and Millwork Producers Association
50.	MPI	Master Painters Institute
51.	NAAMM	National Association of Architectural Metal Manufactures
52.	NAAWS	North American Architectural Woodwork Standards
53.	NBFU	National Board of Fire Underwriters (See AIA)
54.	NBHA	National Builders Hardware Association
55.	NEC	National Electric Code of NFPA
56.	NEMA	National Electrical Manufacturers Association
57.	NFPA	National Fire Protection Association
58.	NFSHSA	National Federation of State High School Associations
59.	NRCA	National Roofing Contractors Association
60.	OSHA	Occupational Safety and Health Administration
61.	PCA	Portland Cement Association
62.	PCI	Precast Concrete Institute
63.	PI	Project Inspector
64.	PLIB	Pacific Lumber Inspection Bureau
65.	RIS	Redwood Inspection Service (Grading Rules)
66.	SCAQMD	South Coast Air Quality Management District
67.	SEI	Structural Engineering Institute
68.	SDI	Steel Door Institute
69.	SJI	Steel Joist Institute
70.	SMACNA	Sheet Metal and Air Conditioning Contractors National Association
71.	SMF	Office of the State Fire Marshal
72.	SPR	Simplified Practice Recommendation (US Dept. of Commerce)
73.	SSMA	Steel Stud Manufacturers Association
74.	SSPC	The society for Protective Coatings
75.	SWPPP	Storm Water Pollution Prevention Plan
76.	TCNA	Tile Council of North America
77.	Title 19	California Code of Regulations - Public Safety
78.	Title 24	California Code of Regulations - Building Codes
79.	TMS	The Masonry Institute

ABBREVIATIONS AND ACRONYMS

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| 80. | UL | Underwriter's Laboratories, Inc. |
| 81. | WCLIB | West Coast Lumber Inspection Bureau (successor to WCLA) |
| 82. | WDMA | Window and Door Manufacturers Association |
| 83. | WI | Woodwork Institute |
| 84. | WRCLA | Western Red Cedar Lumber Association |
| 85. | WWPA | Western Wood Products Association |

END OF SECTION

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Last Updated: December 16, 2021

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Definitions of terms and requirements pertaining to the contract documents,

1.2 RELATED REQUIREMENTS

- A. Drawings and general provisions of Contract, including General and other Division 1 Specification Sections, apply to work of this section.

1.3 DESCRIPTION OF REQUIREMENTS

- A. General Explanation: A substantial amount of specification language consists of definitions for terms found in other contract documents, including the drawings. (Drawings must be recognized as diagrammatic in nature and not completely descriptive of the requirements indicated thereon.) Certain terms used in contract documents are defined in this Section. Definitions and explanations contained in this section are not necessarily either complete or exclusive, but are general for the work to the extent that they are not stated more explicitly in another element of the Contract Documents.
- B. General Requirements: The provisions or requirements of Division 1 sections apply to entire work of Contract and, where so indicated, to other elements which are included in project.
- C. Governing Regulations: Refer to General for requirements related to compliance with governing regulations.
- D. Abbreviations: The language of specifications and other contract documents is of the abbreviated type in certain instances, and implies words and meanings which will be appropriately interpreted. Specific abbreviations have been established, principally for lengthy technical terminology and primarily in conjunction with coordination of specification requirements with notations on drawings and in schedules. These are frequently defined in sections at first instance of use. Trade association names and titles of general standards are frequently abbreviated.

1.4 DEFINITIONS

- A. Approve: Where used in conjunction with Architect's/ Engineer's response to submittals, requests, applications, inquiries, reports and claims by Contractor, the meaning of term "approved" will be held to limitations of Architect's/Engineer's responsibilities and duties as specified in General. In no case will "approval" by Architect/Engineer be interpreted as a release of Contractor from responsibilities to fulfill requirements of contract documents.
- B. Directed, Requested, etc.: Where not otherwise explained, terms such as "directed", "requested", "authorized", "selected", "approved", "required", "accepted", and

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"permitted" mean "directed by Architect", "requested by Architect", and similar phrases. However, no such implied meaning will be interpreted to extend the Architect's responsibility into the Contractor's area of construction supervision.

- C. Furnish: Except as otherwise defined in greater detail, term "furnish" is used to mean supply and deliver to project site, unloaded, ready for assembly, installation, etc., as applicable in each instance. See Also "Provide".
- D. Indicated: The term "indicated" is a cross-reference to graphic representations, notes or schedules on drawings, to other paragraphs or schedules in the specification, and to similar means of recording requirements in contract documents. Where terms such as "shown", "noted", "scheduled", and "specified" are used in lieu of "indicated", it is for purpose of helping reader locate cross-reference, and no limitation of location is intended except as specifically noted.
- E. Install: Except as otherwise defined in greater detail, term "install" is used to describe operations at project site including unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning and similar operations, as applicable in each instance. See also "Provide".
- F. Installer: The term "installer" is defined as the entity (person or firm) engaged by the Contractor, its subcontractor or sub-subcontractor for performance of a particular unit of work at the project site, including installation, erection, application and similar required operations. It is a general requirement that such entities (installers) be expert in the operations they are engaged to perform.
- G. Minimum Quality/Quantity: In every instance, the quality level or quantity shown or specified is intended to be the minimum for the work to be performed or provided. Except as otherwise specifically indicated, the actual work may either comply exactly with that minimum (within specified tolerances), or may exceed that minimum within reasonable limits. In complying with these requirements, indicated numeric values are either minimums or maximums as noted, or as appropriate for context of the requirements. Refer instances of uncertainty to Architect for decision before proceeding.
- H. Project Site: The term "project site" is defined as the space available to the Contractor for performance of the work, either exclusively of or in conjunction with others performing other work as part of the project. The extent of the project site is shown on the drawings, and may or may not be identical with the description of the land upon which the project is to be built.
- I. Provide: Except as otherwise defined in greater detail, term "provide" means furnish and install, complete and ready for intended use, as applicable in each instance.
- J. Specialists, Assignments: In certain instances, specification test requires (or implies) that specific work is to be assigned to specialists or expert entities, who must be engaged for the performance of that work. Such assignments shall be recognized as special requirements over which the Contractor has no choice or option. These requirements should not be interpreted so as to conflict with the enforcement of building codes and similar regulations governing the work; they are also not intended to interfere with local union jurisdiction settlements and similar conventions. Such assignments are intended

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to establish which party or entity involved in a specific unit of work is recognized as "expert" for the indicated construction processes or operations. Nevertheless, the final responsibility for fulfillment of the entire set of contract requirements remains with the Contractor.

- K. Testing Laboratory: The term "testing laboratory" is defined as an independent entity engaged to perform specific inspections or tests of the work, either at the project site or elsewhere, and to report, and (if required) interpret results of those inspections or tests.
- L. Trades: Except as otherwise indicated, the use of titles, such as "carpentry" in specification text, implies neither that the work must be performed by an accredited or unionized tradesperson of corresponding generic name (such as "carpenter"), nor that specified requirements apply exclusively to work by tradespersons of that corresponding generic name.

1.5 DRAWING SYMBOLS:

- A. General: Except as otherwise indicated, graphic symbols used on drawings are those symbols recognized in the construction industry for purposes indicated.
- B. Mechanical/Electrical Drawings: Graphic symbols used on mechanical and electrical drawings are generally aligned with symbols recommended by more specific symbols as recommended by other recognized technical associations including ASME, ASPE, IEEE and similar organizations. Refer instances of uncertainty to the Architect/Engineer for clarification before proceeding.

1.6 INDUSTRY STANDARDS:

- A. General Applicability of Standards: Except to the extent that more explicit or more stringent requirements are written directly into the contract documents, applicable standards of the construction industry have the same force and effect (and are made a part of the contract documents by reference) as if copied directly into the contract documents, or as if published copies were bound herewith. Refer to other contract documents for resolution of overlapping and conflicting requirements which result from the application of several different industry standards to the same unit of work. Refer to individual unit of work sections for indications of which specialized codes and standards the Contractor must keep at the project site, available for reference.
- B. Referenced Standards (referenced directly in contract documents or by governing regulations) have precedence over non-referenced standards which are recognized in industry for applicability to work.
- C. Non-referenced Standards are hereby defined as having no particular applicability to the work, except as a general requirement of whether the work complies with standards recognized in the construction industry.
- D. Publication Dates: Except as otherwise indicated, where compliance with an industry standard is required, comply with standard in effect as of date of contract documents.

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- E. Copies of Standards: The contract documents require that each entity performing work be experienced in that part of the work being performed. Each entity is also required to be familiar with recognized industry standards applicable to that part of the work. Copies of applicable standards are not bound with the contract documents.
1. Where copies of standards are needed for proper performance of the work, the Contractor is required to obtain such copies directly from the publication source.
 2. Although a certain number of copies of these standards may be required as a part of the submittal, the Architect/Engineer reserves the right to require the Contractor to submit additional copies of these standards as necessary for enforcement of the requirements.
- F. Acronyms: Where acronyms are used in the specifications or other contract documents they are defined to mean the industry recognized name of the trade association, standards generating organization, governing authority or other entity applicable to the context of the test provision.

1.7 GOVERNING REGULATIONS/AUTHORITIES

- A. General: The procedure followed by Architect/Engineer has been to contact governing authorities where necessary to obtain information needed for the purpose of preparing contract documents; recognizing that such information may or may not be of significance in relation to Contractor's responsibilities for performing the work. Contact governing authorities directly for necessary information and decisions having a bearing on performance of the work.
- B. "Regulations" is defined to include laws, statutes, ordinances and lawful orders issued by governing authorities, as well as those rules, conventions and agreements within the construction industry which effectively control the performance of the work regardless of whether they are lawfully imposed by governing authority or not.

1.8 SUBMITTALS

- A. Permits, Licenses, and Certificates: For the Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipt for fee payments, judgments, and similar documents, correspondence and records established in conjunction with compliance with standards and regulations bearing upon performance of the work.

END OF SECTION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Included: Except as otherwise specified, temporary facilities and controls required for performance of the Contract including, but not necessarily limited to:
 - 1. Field offices.
 - 2. Temporary utilities.
 - 3. Sanitary facilities.
 - 4. Construction equipment.
 - 5. Enclosures, fencing and barricades.
 - 6. Temporary signs.
 - 7. Site access and parking.
 - 8. Temporary controls.
 - 9. Winterization.
 - 10. Fire alarm, intrusion alarm and fire sprinkler systems.
 - 11. Existing conditions.

1.2 RELATED REQUIREMENTS

- A. Section 01 7419, Construction Waste Management and Disposal.
- B. Section 01 7700, Closeout Procedures; final cleaning.
- C. Permanent Utilities: As specified under other Specification Sections.

1.3 REQUIREMENTS OF REGULATORY AGENCIES

- A. General:
 - 1. Temporary facilities and controls shall be approved by local, state and federal authorities and regulatory agencies having jurisdiction, including insurance companies, with regard to safety precautions, operation and fire hazard.
 - 2. Contractor shall contact local authorities prior to start of work to coordinate local requirements.
- B. Comply with applicable standards referenced in Section 01 4216, Definitions and Standards.
- C. Contractor shall:
 - 1. Take suitable steps to ensure that public utilities encountered in connection with the Work will not be damaged.

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2. Send notices, make necessary arrangements and provide services required for the care of gas mains, water pipes, sewer pipes, conduits, cables, and other equipment or property.
3. Arrange with utility companies for fees required to move or remove their meters, poles, cables, guy wires, or equipment in or set under the property which will interfere with the construction work or which will not be required in the new construction.

1.4 PRODUCT HANDLING

- A. Protection: Use all means necessary to protect and maintain temporary facilities and controls in proper and safe condition throughout progress of work.
- B. Replacements: In event of loss or damage, immediately make necessary repairs and replacements; as approved by Architect at no additional cost to Owner.

PART 2 - TEMPORARY FACILITIES AND CONTROLS

2.1 MATERIALS

- A. General: Materials may be new or used but shall be adequate in capacity for the required usage, shall not create unsafe conditions, and shall not violate requirements of applicable codes and standards.
- B. Tools, extension cords, and electrical equipment shall conform to Underwriters' Laboratory standards and OSHA requirements and shall be in proper working order to preclude hazard to occupants and premises.

2.2 CONTRACTOR'S FIELD OFFICE

- A. A space within the existing Buildings will be designated by the Owner for use by the Contractor as a field office.
- B. Provide additional facilities as agreed upon by Owner and Contractor.

2.3 TEMPORARY UTILITIES

- A. General: Provide water, electricity, gas, fire protection and other specified utility services required during construction and extend temporary service lines to construction areas to allow use by all trades and subcontractors.
- B. Telephone:
 1. In addition to requirements for phones in Field Offices, Contractor and its Superintendent shall have a cell phone for communication with the Architect and Owner when at the Project site.
- C. Temporary Water:

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1. Owner will provide source and pay for water for construction purposes from existing available source(s) on site. This does not include use of hydrants or off-site sources. If necessary provide and pay for these services.
- D. Temporary Electrical Facilities:
1. Electrical Service: Provide such temporary electrical power and facilities as necessary to supply lighting for work operations and power for portable power driven tools and for testing.
 2. Owner will provide temporary power free of charge from existing outlets. If existing sources are insufficient, provide and pay for temporary service from off-site.
- E. Trash Removal:
1. Store trash or rubbish resulting from construction within the Contract work area.
 2. Provide the necessary on-site containers for the collection of recycling materials, waste materials and debris.
 3. Remove recycling materials, waste materials and debris from the site regularly and dispose of at recycling centers or legal disposal sites.
 4. Keep the work area clean at all times. Increase frequency of trash removal when requested by the Owner to conform to this requirement.
 5. Waste material and debris shall not be buried or burned at the site.
 6. See additional requirement in Section 01 7419, Construction Waste Management and Disposal.

2.4 SANITARY FACILITIES

- A. Toilet Facilities: Provide sufficient suitably enclosed chemical toilets with urinal for use workers on project.
1. Toilets shall be in place at the time work starts and maintained until the permanent toilet facilities are in operation if approved for use by the Owner.
 2. Temporary toilets shall be of the chemical type.
 3. The number and maintenance of temporary toilets shall meet the requirements of State and local health regulations and ordinances.
 4. Locate on the site so as not to be visually offensive and in locations acceptable to the Owner.
 5. Sanitary waste from the portable toilets shall be collected as required but not more than weekly.
- B. Washing Facilities: Provide properly mounted and adequate wash sinks connected to water supply; in location as approved by Owner.

2.5 CONSTRUCTION AIDS

- A. General: Erect, equip, operate, and maintain all construction equipment in strict accordance with applicable statutes, laws, ordinances, rules, and regulations of

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authorities having jurisdiction; including insurance companies, with regard to safety, operation and fire hazard.

- B. Provide and maintain scaffolding, staging, runways and similar equipment, as needed. Coordinate use and furnishing with subcontractors.

2.6 ENCLOSURES, FENCING AND BARRICADES

- A. General: Provide and maintain barricades, fencing, shoring, pedestrian walkways including attached lights, other lights, and other safety precautions to properly guard against personal injury and property damage as prescribed by authority having jurisdiction; including insurance companies.
- B. Attention is directed to Safety Orders issued by State of California, Division of Industrial Safety. Contractor shall obtain copies of such Safety Orders as are applicable to type of work to be performed, shall be governed by requirements thereof in all construction operations, and shall fully inform subcontractors and material suppliers as to the requirements of applicable Safety Orders.
- C. Contractor's Corporation Yard: Locate where shown or agreed on with Owner and Architect. Enclose with fence and gates as required for security, and as approved.
- D. The Architect, the Owner, and field inspectors are not hired to review or approve safety procedures followed by the Contractor.

2.7 TEMPORARY SIGNS

- A. Signs or advertising are not permitted, except Contractor's name may be placed on his field office and equipment, unless otherwise approved by the architect.

2.8 SITE ACCESS AND PARKING

- A. Parking: On-site parking after occupancy may be limited or may not be permitted during the school year due to limited existing conditions. Check with District office to ascertain parking availability and do not park on-site if not permitted.
- B. Entrance to Work Site: Contractor and his employees shall use certain access roads or entrance ways as indicated on Drawings or as agreed to by Architect and Owner. Access shall not interfere with on-going operations, if any. Maintain these roads in satisfactory condition during the Contract time, and repair damages attributable to work of this project at intervals as needed. At completion of Contract, roads and entrance ways shall be left in condition at least equal to that existing at start of Contract, except as may be otherwise required by Contract Documents.
- C. Site Storage and Work Areas: Owner will allocate available on-site storage and work areas to Contractor, subject to change as may be necessary by job progress, such as site development or other intervening work. If necessary, Contractor shall obtain off-site facilities for storage at his expense. No storage will be allowed beyond the designated construction boundary, or within designated Fire Lane.

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- D. Regulations: Observe and comply with rules and regulations in effect at occupied campuses or other facilities, including, but not restricted to, parking and traffic regulations, security restrictions, and hours of access.
- E. Use of public Sidewalks and Streets (if applicable): Make arrangements with public authorities for temporary use of streets and sidewalks for offices, shops, storage, etc.. Abide by rules, regulations, and ordinances, obtain permits, and pay fees therefor.

2.9 TEMPORARY CONTROLS

- A. Debris Control: Keep work and storage areas clean and free of debris. Dispose of debris off premises, as it accumulates. Pay all fees required for use of public dumps. Burning on premises is prohibited.
- B. Dust Controls:
 - 1. Indoor Operations: Control dust resulting from indoor construction operations by localizing it to greatest practicable extent using temporary partitions, curtains, or other means which will prevent spread of dust beyond immediate work area. Duct openings and other openings communicating with other parts of building shall have effective temporary closures.
- C. Security: Contractor is responsible for security of areas of its work during entire time of Contract. Make good all damages to the work and loss of materials due to vandalism or theft, within this responsibility. This includes damages due to construction activities caused to existing facilities.
- D. Contractor may wish to provide a security force at its expense. The Owner will not provide any monitoring for security purposes.
- E. Use and Storage of Hazardous or Flammable Materials:
 - 1. Use and store hazardous or flammable chemicals, liquids, or gases brought into the Project site in approved containers, conforming to local, state, and national fire codes.
 - 2. Use hazardous materials in a manner that will prevent their accidental release into other areas.
 - 3. Do not discard hazardous materials into the jobsite waste-disposal facilities.
 - 4. Remove empty containers from the premises immediately, and disposed of in a legal manner.
- F. Welding: There shall be at the jobsite adequate shields, guards, or covering placed so as to protect adjacent persons or property during the progress of work requiring welding and cutting equipment including heat, flame, or spark-producing devices.

2.10 FIRE ALARM, INTRUSION ALARM AND FIRE SPRINKLER SYSTEMS

- A. Existing Systems:

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1. Prior to start of demolition, the Contractor shall fully test the fire and intrusion alarms systems in the presence of district personnel to determine the working status of the systems. The test results shall be coordinated with the Owner's Project Inspector, documented and provided to the Owner and Architect.
2. During construction, the Contractor shall protect and maintain the fire and intrusion alarm systems and the fire sprinkler protection systems of the existing and completed buildings. Failure to provide such protection and maintenance shall result in the Contractor assuming full responsibility for all existing and new unprotected buildings and property - whether a part of the Contract or not.

B. Fire Protection During Construction:

1. General: Comply with NFPA 241, "Standard for Safeguarding Construction, Alteration, and Demolition Operations" and any additional temporary fire protection requirements of Owner's Insurance Representative and governing authorities.
2. During demolition and construction phases, the Contractor shall provide fire safety precautions as described in and required by the California Fire Code, Chapter 33 – Fire Safety during Construction and Demolition. Safety measures include but are not limited to maintaining fire department access, cutting and welding precautions and maintaining water supplies for firefighting purposes.
3. In the event the Contractor discovers utilities not identified in the Contract Drawings or specifications, the Contractor shall immediately notify the Architect and the utility owner by the most expeditious means available and later confirm in writing.
4. Existing building utilities shall not be interrupted during normal operating hours.
5. Fire Extinguishers:
 - a. During the progress of work, there shall be at the jobsite an adequate number and type of fire extinguishers accessible for use.
 - b. Provide Type A extinguishers at locations of low-potential hazard for either electrical or grease-oil-flammable liquids fires; provide Type ABC dry chemical extinguishers at other locations; comply with recommendations of NFPA No. 10.
 - c. Post warning and quick-instructions at each extinguisher location, and instruct personnel at Project site, at time of their first arrival, on proper use of extinguishers and other available facilities at Project site.
6. Provide temporary, battery operated, heat detectors until permanent detection and alarm system is activated. Locate based on area layout including separation of spaces.

C. Smoking:

1. Contractor shall prohibit smoking in all areas of the Project and shall use due diligence to see that such prohibition is enforced.
2. No Smoking signs shall be furnished and posted in accordance with governing fire regulations.

2.11 EXISTING CONDITIONS

- A. Before commencement of work on the site, take digital photographs of Project site and surrounding properties, including existing items to remain during construction, from different vantage points, as directed by Architect.
- B. Show existing conditions of adjoining construction and site improvements, including finish surfaces that might be misconstrued as cracking or other damage caused by site preparation, earthwork, and building construction operations.
- C. Submit digital file and prints as specified for periodic construction photographs.
- D. Submit before Work begins.

PART 3 - EXECUTION

3.1 USE OF PERMANENT SYSTEMS FOR CONSTRUCTION PURPOSES

- A. Obtain Owner's prior written authorization of use of permanent systems. Authorization will indicate:
 - 1. Reason for use.
 - 2. Condition of use.
 - 3. Which parts of system may be used.
 - 4. Disconnection from source, restoration, and cleaning of system.

3.2 MAINTENANCE AND REMOVAL

- A. Maintain all temporary facilities and controls as long as needed for safe and proper completion of Work; remove all such temporary facilities and controls as rapidly as progress of Work will permit.
- B. Non-compliance with requirements within this Section may result in payment being withheld and/or deductive change orders for lack of proper facilities and controls. If necessary, the Owner will provide such facilities and controls required and back-charge the Contractor.

3.3 ADJUSTING

- A. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
- B. Repair or replace street paving, curbs, and sidewalks at temporary entrances, as required by authorities having jurisdiction.
- C. Restore existing facilities used for temporary services to specified or to original condition.

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3.4 CLEAN UP

- A. Contractor shall be responsible for controlling, containing and cleaning up of all construction debris throughout construction period.
- B. Full compensation for cleanup shall be included in the Contract. No separate compensation will be allowed for work pertaining to cleanup or disposal of material.

END OF SECTION

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Last Updated: November 13, 2018

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.
- 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).

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.

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- 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.

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. Adhesives, Including Carpet and Cushion Adhesives: Comply with CALGreen Section 5.504 and Table 5.504.4.1.
 - 1. Verification of Compliance: Acceptable types are:

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- 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. Aerosol Adhesives: Comply with Table 5.504.4.1 of CalGreen Section 5.504, and California Code of Regulations Title 17, Section 94507.
 - a. Verification of Compliance: Acceptable types are:
 - 1) Current GreenSeal Certification.
 - 2) Report of laboratory testing performed in accordance with GreenSeal GS-36 requirements.
 - 3) Published product data showing compliance with requirements.
3. Products used shall comply with the following limits.

Table 5.504.4.1 ADHESIVE VOC LIMIT	
Architectural Applications	Current VOC Limit
Indoor Carpet Adhesives	50
Carpet Pad Adhesives	50
Outdoor Carpet Adhesives	150
Wood Flooring Adhesive	100
Rubber Floor Adhesives	60
Subfloor Adhesives	50
Ceramic Tile Adhesives	65
VCT and Asphalt Tile Adhesives	50
Dry Wall and Panel Adhesives	50
Cove Base Adhesives	50
Multipurpose Construction Adhesives	70
Structural Glazing Adhesives	100
Single Ply Roof Membrane Adhesives	250
Other adhesives not specifically listed	250
VOC Limits and Effective Dates**	
Specialty Applications	Current VOC Limit
PVC Welding	510
CPVC Welding	490
ABS Welding	325
Plastic Cement Welding	250
Adhesive Primer for Plastic	550
Contact Adhesive	80
Special Purpose Contact Adhesive	250
Structural Wood Member Adhesive	140
Top and Trim Adhesive	250
** The specified limits remain in effect unless revised limits are listed in the current governing edition of CalGreen.	

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Table 5.504.4.1 ADHESIVE VOC LIMIT	
For adhesives, adhesive bonding primers, or any other primer not regulated by the above two Tables and applied to the following substrates, the following limits shall apply:	
Substrate Specific Applications	Current VOC Limit
Metal to Metal	30
Plastic Foams	50
Porous Material (except wood)	50
Wood	30
Fiberglass 80	80
Note: If an adhesive is used to bond dissimilar substrates together the adhesive with the highest VOC content shall be allowed.	

- C. 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	
Non-Porous	250
Porous	775
Modified Bituminous	500
Marine Deck	760
Other	750
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.	

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- D. 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. Aerosol Paints and Coatings: Comply with CALGreen 5.504.4.3.1 and, for projects in the jurisdiction of BAAQMD, comply with VOC by weight of product limits of regulation 8, Rule 49.
 4. 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
Dry Fog Coatings	150
Faux Finishing Coatings	350
Fire Resistive Coatings	350
Floor Coatings	100
Form-Release Compounds	250

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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
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.	

5. 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.

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- 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:
 - 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].

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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: _____

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END OF SECTION

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organic compound (voc) restrictions.docx
Last Updated: January 18, 2022*

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Cutting and patching:
 - a. For construction that is defective, or as required to install incomplete work shown in the Contract Documents.
 - b. **[To extend work or restore existing construction to its original condition, unless otherwise specified or shown on the drawings.]**

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 01 3516, Alteration Project Procedures.

1.3 REFERENCES

- 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).

1.4 ADMINISTRATION 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. Manufacturer's Data: For products not included in the specifications, submit list and complete descriptive data of all products proposed for use. Include manufacturer's specifications, and installation instructions.
- B. Samples: As requested by the Architect.

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C. Request for Cutting and Patching:

1. Submit a written request to Architect well in advance of executing any cutting or alteration which affects:
 - a. Work of the Owner or any separate contractor.
 - b. Structural value or integrity of any element of the Project.
 - c. Integrity or effectiveness of weather-exposed or moisture-resistant elements or systems.
 - d. Efficiency, operational life, maintenance or safety of operational elements.
 - e. Visual qualities of sight-exposed elements.
 - f. No cutting of structural elements is allowed unless shown on the Division of the State Architect's approved drawings
2. Request shall include:
 - a. Project identification.
 - b. Description of affected work.
 - c. Necessity for cutting, alteration or excavation.
 - d. Effect on work of Owner or any separate contractor, or on structural or weatherproof integrity of Project.
 - e. Description of proposed work:
 - 1) Scope of cutting, patching, alteration, or excavation.
 - 2) Trades who will execute the work.
 - 3) Products proposed to be used.
 - 4) Extent of refinishing to be done.
 - f. Alternatives to cutting and patching.
 - g. Cost proposal, when applicable.
 - h. Written permission of any separate contractor whose work will be affected.

D. Should conditions of work or schedule indicate change of products from original installation, Contractor shall submit request for substitution.

E. Submit written notice to Architect designating date and time work will be uncovered.

1.6 INFORMATIONAL SUBMITTALS

A. Sample of manufacturer's warranty, where applicable.

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.

1.7 CLOSEOUT SUBMITTALS

- A. Warranty/Guarantee: Submit executed warranties and Subcontractors' guarantees for products not included in the specifications.

1.8 QUALITY ASSURANCE

- A. Qualifications for Installers:
 - 1. General: As specified in the product specifications.
 - 2. Employ specially qualified installers or fabricators to perform cutting and patching for:
 - a. Weather-exposed or moisture-resistant elements.
 - b. Sight-exposed finished surfaces.
- 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.

1.9 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.

1.10 WARRANTY

- A. Manufacturer: In addition to the Contractor's and Subcontractor's Guarantee, furnish Owner with manufacturers' available fully executed written warranties for products not included in the specifications against defects in materials and workmanship

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. VOC emissions for field-applied paints and coatings must comply with limits specified in Section 01 6116.

CUTTING AND PATCHING
SECTION 01 7329
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2.2 MATERIALS

- A. Comply with these specifications, standards and manufacturer's recommendations for each specific product involved.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Inspect conditions of Project, including elements subject to damage or to movement during cutting and patching.
- B. After uncovering work, inspect conditions affecting installation of products, or performance of work.
- C. Verify that specified items may be installed in accordance with the approved design.
- D. In event of discrepancy, immediately notify Architect. Do not proceed in discrepant areas until discrepancies have been fully resolved.

3.2 PREPARATION

- A. Provide adequate temporary support as necessary to assure structural value or integrity of affected portion of work.
- B. Provide devices and methods to protect other portions of Project from damage.
- C. Provide protection from elements for that portion of Project which may be exposed by cutting and patching work, and maintain excavations free from water.

3.3 INSTALLATION

- A. Execute cutting and demolition by methods which will prevent damage to other work and will provide proper surfaces to receive installation of repairs.
- B. Execute fitting and adjustment of products to provide finished installation to comply with specified products, functions, tolerances and finishes.
- C. Restore work which has been cut or removed; install new products to provide completed work in accord with requirements of Contract Documents.
- D. Fit work airtight to pipe, sleeves, ducts, conduit and other penetrations through surfaces.

3.4 CLEANING AND ADJUSTING

- A. In the event of damage, make all repairs and replacements necessary to the approval of the Architect at no additional cost to the Owner.
- B. Upon completion of installation, thoroughly wash surfaces and remove foreign material. Leave entire work in neat, orderly, clean and acceptable condition.

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. 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: December 16, 2021

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes: Requirements and procedures for ensuring optimal diversion of construction waste materials generated by the Work from landfill disposal within the limits of the Construction Schedule and Contract Sum.
 - 1. The Work of this Contract requires that a minimum of **[65%]** by weight of the construction and demolition materials generated in the Work is diverted from landfill disposal through a combination of re-use and recycling activities.
 - 2. CAL-Green: Alternate waste reduction methods developed in cooperation with local agencies if diversion or recycle facilities capable of compliance with CAL-Green requirements do not exist within the haul boundary of the jobsite (California Code of Regulations, Title 24, Part 11, 5.408).
 - 3. Requirements for submittal of Contractor's Construction Waste and Recycling Plan prior to the commencement of the Work.
 - 4. Contractor's quantitative reports for construction waste materials as a condition of approval of progress payments submitted to the Architect.

1.2 RELATED REQUIREMENTS

- A. Section 01 3516, Alteration Project Procedures.
- B. Section 01 5000, Temporary Facilities & Controls.
- C. Section 01 7329, Cutting and Patching.
- D. Section 01 8113, Sustainable Design Requirements, for CAL-Green general requirements and procedures.

1.3 REFERENCES AND STANDARDS

- A. California Green Building Standards Code (CALGreen), edition as noted on the drawings, as adopted by the California Division of the State Architect (DSA).

1.4 DEFINITIONS

- A. Class III Landfill: A landfill that accepts non-hazardous resources such as household, commercial, and industrial waste, resulting from construction, remodeling, repair, and demolition operations. A Class III landfill must have a solid waste facilities permit from the California Integrated Waste Management Board (CIWMB) and is regulated by the Enforcement Agency (EA).
- B. Construction and Demolition Debris: Building materials and solid waste resulting from construction, remodeling, repair, cleanup, or demolition operations that are not hazardous as defined in California Code of Regulations, Title 22, Section 66261.3 et seq. This term includes, but is not limited to, asphalt concrete, Portland cement concrete, brick, lumber, gypsum wallboard, cardboard and other associated packaging, roofing

CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL
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material, ceramic tile, carpeting, plastic pipe, and steel. The debris may be commingled with rock, soil, tree stumps, and other vegetative matter resulting from land clearing and landscaping for construction or land development projects.

- C. C&D Recycling Center: A facility that receives only construction and demolition debris material that has been separated for reuse prior to receipt, in which the residual (disposed) amount of waste in the material is less than 10% of the amount separated for reuse by weight.
- D. Disposal: Final deposition of construction and demolition or inert debris into land, including stockpiling onto land of construction and demolition debris that has not been sorted for further processing or resale, if such stockpiling is for a period of time greater than 30 days; and construction and demolition debris that has been sorted for further processing or resale, if such stockpiling is for a period of time greater than one year, or stockpiling onto land of inert debris that is for a period of time greater than one year.
- E. Enforcement Agency (EA): Enforcement agency is the authority having jurisdiction within the Project location.
- F. Inert Disposal Facility or Inert Waste Landfill: A disposal facility that accepts only inert waste such as soil and rock, fully cured asphalt paving, uncontaminated concrete (including fiberglass or steel reinforcing rods embedded in the concrete), brick, glass, and ceramics, for land disposal.
- G. Mixed Debris: Loads that include commingled recyclable and non-recyclable materials generated at the construction site.
- H. Mixed Debris Recycling Facility: A processing facility that accepts loads of commingled construction and demolition debris for the purpose of recovering re-usable and recyclable materials and disposing the non-recyclable residual materials.
- I. Recycling: The process of sorting, cleansing, treating and reconstituting materials for the purpose of using the altered form in the manufacture of a new product. Recycling does not include burning, incinerating or thermally destroying solid waste.
- J. Reuse. The use, in the same or similar form as it was produced, of a material which might otherwise be discarded.
- K. Separated for Reuse. Materials, including commingled recyclables, that have been separated or kept separate from the solid waste stream for the purpose of additional sorting or processing those materials for reuse or recycling in order to return them to the economic mainstream in the form of raw material for new, reused, or reconstituted products which meet the quality standards necessary to be used in the marketplace, and includes materials that have been "source separated".
- L. Solid Waste: All putrescible and nonputrescible solid, semisolid, and liquid wastes, including garbage, trash, refuse, paper, rubbish, ashes, industrial wastes, demolition and construction wastes, abandoned vehicles and parts thereof, discarded home and industrial appliances, dewatered, treated, or chemically fixed sewage sludge which is not hazardous waste, manure, vegetable or animal solid and semisolid wastes, and other

CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL
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discarded solid and semisolid wastes. "Solid waste" does not include hazardous waste, radioactive waste, or medical waste as defined or regulated by State law.

- M. Source-Separated: Materials, including commingled recyclables, that have been separated or kept separate from the solid waste stream at the point of generation, for the purpose of additional sorting or processing of those materials for reuse or recycling in order to return them to the economic mainstream in the form of raw materials for new, reused, or reconstituted products which meet the quality standards necessary to be used in the marketplace.
- N. Waste Hauler: A company that possesses a valid permit from the local waste management authority having jurisdiction to collect and transport solid wastes from individuals or businesses for the purpose of recycling or disposal.

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 requirements of Section 01 8113, Sustainable Design Requirements.

1.6 ACTION SUBMITTALS

- A. Contractor's Construction Waste and Recycling Plan:
 - 1. Review Contract Documents and estimate the types and quantities of materials under the Work that are anticipated to be feasible for on-site processing, source separation for re-use or recycling. Indicate the procedures that will be implemented in this program to effect jobsite source separation, such as, identifying a convenient location where dumpsters would be located, putting signage to identify materials to be placed in dumpsters, etc.
 - 2. Prior to commencing the Work, submit Contractor's Construction Waste and Recycling Plan. Submit in format provided with this specification section. The Plan must include, but is not limited to the following:
 - a. Contractor's name and project identification information;
 - b. Procedures to be used;
 - c. Materials to be re-used and recycled;
 - d. Estimated quantities of materials;
 - e. Names and locations of re-use and recycling facilities/sites;
 - f. Tonnage calculations that demonstrate that Contractor will re-use and recycle a minimum of **[65%]** by weight of the construction waste materials generated by the Work.
 - 3. Contractor's Construction Waste and Recycling Plan must be approved by the Architect prior to the start of Work.

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4. Contractor's Construction Waste and Recycling Plan will not otherwise relieve the Contractor of responsibility for adequate and continuing control of pollutants and other environmental protection measures

1.7 INFORMATIONAL SUBMITTALS

A. Contractor's Reuse, Recycling, and Disposal Report:

1. Submit Contractor's Reuse, Recycling, and Disposal Report on the form provided with this specification section with each Application & Certificate for Payment. Failure to submit the form and its supporting documentation will render the Application & Certificate for Payment incomplete and delay progress payments. If applicable, include manifests, weight tickets, receipts, and invoices specifically identifying the Project for re-used and recycled materials:
 - a. Reuse of building materials or salvage items on site (i.e. crushed base or red clay brick).
 - b. Salvaging building materials or salvage items at an offsite salvage or reuse center (i.e. lighting, fixtures).
 - c. Recycling source separated materials on site (i.e. crushing asphalt/concrete for base course, or grinding for mulch).
 - d. Recycling source separated material at an offsite recycling center (i.e. scrap metal or green materials).
 - e. Use of material as Alternative Daily Cover (ADC) at landfills.
 - f. Delivery of soils or mixed inerts to an inert landfill for disposal (inert fill).
 - g. Disposal at a landfill or transfer station (where no recycling takes place).
 - h. Other (describe).
2. Contractor's Reuse, Recycling, and Disposal Report must quantify all materials generated in the Work, disposed in Class III landfills, or diverted from disposal through recycling. Indicate zero (0) if there is no quantity to report for a type of material. As indicated on the form:
 - a. Report disposal or recycling either in tons or in cubic yards. If scales are available at disposal or recycling facility, report in tons; otherwise, report in cubic yards. Report in units for salvage items when no tonnage or cubic yard measurement is feasible.
 - b. Indicate locations to which materials are delivered for reuse, salvage, recycling, accepted as daily cover, inert backfill, or disposal in landfills or transfer stations.
 - c. Provide legible copies of weight tickets, receipts, or invoices that specifically identify the project generating the material. Said documents must be from recyclers and/or disposal site operators that can legally accept the materials for the purpose of re-use, recycling, or disposal.
 - 1) Indicate project title, project number, progress payment number, name of the company completing the Contractor's Report and compiling backup documentation, the printed name, signature, and daytime phone number of the person completing the form, the beginning and ending dates of the period covered on the Contractor's Report, and the date that the Contractor's Report is completed.

CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL
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3. Demonstrate compliance with California Code of Regulations, Title 24, Part 11 California Green Building Standards Code, "CAL-Green" 5.408.2, to the satisfaction of the enforcing agency.
 - a. 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.
 - b. Recycling and Processing Facility Records: Indicate receipt and acceptance of recyclable waste by recycling and processing facilities licensed to accept

PART 2 - PRODUCTS-NOT USED

PART 3 - EXECUTION

3.1 WASTE MANAGEMENT PLAN

- A. Implement procedures for disposal of materials, as specified in Contractor's Construction Waste and Recycling Plan, which are not diverted for re-use, salvage or recycling.
 1. Identify materials to be diverted from disposal by efficient usage, recycling, reuse on the project, or salvage for future use or sale.
 2. Determine if materials will be sorted on-site or mixed.
 3. Identify diversion facilities where material collected will be taken.
 4. Specify that quantities of diverted material will calculated by weight or volume, but not both.

3.2 SALVAGE, RE-USE, RECYCLING AND PROCEDURES

- A. Re-use, Salvage, and Recycling Facilities: As specified in Contractor's Construction Waste and Recycling Plan.
- B. Develop and implement procedures to re-use, salvage, and recycle new construction and excavation materials, based on the Contract Documents, the Contractor's Construction Waste and Recycling Plan, estimated quantities of available materials, and availability of recycling facilities. Procedures may include on-site recycling, source separated recycling, and/or mixed debris recycling efforts.
 1. Identify materials that are feasible for salvage, determine requirements for site storage, and transportation of materials to a salvage facility.
 2. Source separate new construction, excavation and demolition materials including, but not limited to the following types.
 - a. Asphalt.
 - b. Concrete, concrete block, slump stone (decorative concrete block), and rocks.
 - c. Drywall.
 - d. Green materials (i.e. tree trimmings and land clearing debris).
 - e. Metal (ferrous and non-ferrous).

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- f. Miscellaneous Construction Debris.
 - g. Paper or cardboard.
 - h. Red Clay Brick.
 - i. Reuse or Salvage Materials
 - j. Soils.
 - k. Wire and Cable.
 - l. Wood.
 - m. Other (describe)
3. Miscellaneous Construction Debris: Develop and implement a program to transport loads of mixed (commingled) new construction materials that cannot be feasibly source separated to a mixed materials recycling facility

3.3 DISPOSAL OPERATIONS AND WASTE HAULING

- A. Legally transport and dispose of materials that cannot be delivered to a source separated or mixed recycling facility to a transfer station or disposal facility that can legally accept the materials for the purpose of disposal.
- B. Use a permitted waste hauler or Contractor's trucking services and personnel. To confirm valid permitted status of waste haulers, contact the local solid waste authority having jurisdiction.
- C. Become familiar with the conditions for acceptance of new construction, excavation and demolition materials at recycling facilities, prior to delivering materials.
- D. Deliver to facilities that can legally accept new construction, excavation and demolition materials for purpose of re-use, recycling, composting, or disposal.
- E. Do not burn, bury or otherwise dispose of solid waste on the project job-site.

3.4 RE-USE AND DONATION OPTIONS

- A. Implement a re-use program to the greatest extent feasible. Options may include:
 - 1. California Materials Exchange (CAL-MAX) Program is sponsored by the California Integrated Waste Management Board. CAL-MAX is a free service provided by the California Integrated Waste Management Board, designed to help businesses find markets for materials that traditionally would be discarded. The premise of the CAL-MAX Program is that material discarded by one business may be a resource for another business. To obtain a current Materials Listings Catalog, call CAL-MAX/California Integrated Waste Management Board at (916) 255-2369 or send a FAX to (916) 255-2200. The CALMAX Catalog is available through the Internet Site at <http://www.ciwmb/ca.gov/calmax>.

3.5 REVENUE

- A. Revenues or other savings obtained from recycled, re-used, or salvaged materials shall accrue to Contractor unless otherwise noted in the Contract Documents

CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL
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END OF SECTION

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SECTION 01 7419A
CONTRACTOR'S CONSTRUCTION WASTE AND RECYCLING PLAN
(Submit After Award of Contract and Prior to Start of Work)

Project Title:		
Contract or Work Order No.:		
Contractor's Name:		
Street Address:		
City:	State:	Zip:
Phone: ()	Fax: ()	
E-Mail Address:		
Prepared by: (Print Name)		

Date Submitted:		
Project Period:	From:	TO:

Reuse, Recycling or Disposal Processes To Be Used

Describe the types of recycling processes or disposal activities that will be used for material generated in the project. Indicate the type of process or activity by number, types of materials, and estimated quantities that will be recycled or disposed in the sections below:

- 01 - Reuse of building materials or salvage items on site (i.e. crushed base or red clay brick)
- 02 - Salvaging building materials or salvage items at an off site salvage or re-use center (i.e. lighting, fixtures)
- 03 - Recycling source separated materials on site (i.e. crushing asphalt/concrete for reuse or grinding for mulch)
- 04 - Recycling source separated materials at an off site recycling center (i.e. scrap metal or green matls)
- 05 - Recycling commingled loads of C&D matls at an off site mixed debris recycling center or transfer station
- 06 - Recycling material as Alternative Daily Cover at landfills
- 07 - Delivery of soils or mixed inerts to an inert landfill for disposal (inert fill).
- 08 - Disposal at a landfill or transfer station.
- 09 - Other (please describe) _____

Types of Material To Be Generated

Use these codes to indicate the types of material that will be generated on the project

A = Asphalt	C = Concrete	M = Metals	I = Mixed Inert	G = Green Matls
D = Drywall	P/C=Paper/Cardboard	W/C = Wire/Cable	S= Soils (Non Hazardous)	
M/C = Miscellaneous Construction Debris	R = Reuse/Salvage	W = Wood	O = Other (describe)	

Facilities Used: Provide Name of Facility and Location (City)

Total Truck Loads: Provide Number of Trucks Hauled from Site During Reporting Period

Total Quantities: If scales are available at sites, report in tons. If not, quantify by cubic yards. For salvage/reuse items, quantify by estimated weight (or units).

SECTION I - RE-USED/RECYCLED MATERIALS

Include all recycling activities for source separated or mixed material recycling centers where recycling will occur.

Type of Material	Type of Activity	Facility to be Used/Location	Total Truck Loads	Total Quantities		
(ex.) M	04	ABC Metals, Los Angeles	24	Tons	Cubic YD	Other Wt.
a. Total Diversion			0	0	0	0

[PROJECT TITLE]
[DATE]

Contractor's Construction Waste and Recycling Plan
Section 01 7419A-1

SECTION 01 7419A
CONTRACTOR'S CONSTRUCTION WASTE AND RECYCLING PLAN
Continued

SECTION II - DISPOSED MATERIALS						
<i>Include all disposal activities for landfills, transfer stations, or inert landfills where no recycling will occur.</i>						
Type of Material	Type of Activity	Facility to be Used/Location	Total Truck Loads	Total Quantities		
				Tons	Cubic YD	Other Wt.
(ex.) D	08	DEF Landfill, Los Angeles	2	35		
b. Total Disposal				0	0	0

SECTION III - TOTAL MATERIALS GENERATED						
<i>This section calculates the total materials to be generated during the project period (Reuse/Recycle + Disposal = Generation)</i>						
				Tons	Cubic YD	Other Wt.
a. Total Reused/Recycled				0	0	0
b. Total Disposed				0	0	0
c. Total Generated				0	0	0

SECTION IV - CONTRACTOR'S LANDFILL DIVERSION RATE CALCULATION						
<i>Add totals from Section I + Section II</i>						
	Tons	Cubic Yards	Other Wt.			
a. Materials Re-Used and Recycled	0					
b. Materials Disposed	0					
c. Total Materials Generated (a. + b. = c.)	0	0	0			
d. Landfill Diversion Rate (Tons Only)*	#DIV/0!					

* Use tons only to calculate recycling percentages: Tons Reused/Recycled/Tons Generated = % Recycled

Contractor's Comments (Provide any additional information pertinent to planned reuse, recycling, or disposal activities):						

Notes:

1. Suggested Conversion Factors: From Cubic Yards to Tons (Use when scales are not available)

Asphalt: .61 (ex. 1000 CY Asphalt = 610 tons. Applies to broken chunks of asphalt)

Concrete: .93 (ex. 1000 CY Concrete = 930 tons. Applies to broken chunks of concrete)

Ferrous Metals: .22 (ex. 1000 CY Ferrous Metal = 220 tons)

Non-Ferrous Metals: .10 (ex. 1000 CY Non-Ferrous Metals = 100 tons)

Drywall Scrap: .20

Wood Scrap: .16

SECTION 01 7419B
CONTRACTOR'S REUSE, RECYCLING, AND DISPOSAL REPORT
(Submit With Each Progress Payment)

Project Title:		
Contract or Work Order No.:		
Contractor's Name:		
Street Address:		
City:	State:	Zip:
Phone: ()	Fax: ()	
E-Mail Address:		
Prepared by: (Print Name)		

Date Submitted:		
Period Covered:	From:	To:

Reuse, Recycling or Disposal Processes Used

Describe the types of recycling processes or disposal activities used for material generated in the project. Indicate the type of process or activity by number, types of materials, and quantities that were recycled or disposed in the sections below:

- 01 - Reuse of building materials or salvage items on site (i.e. crushed base or red clay brick)
- 02 - Salvaging building materials or salvage items at an off site salvage or re-use center (i.e. lighting, fixtures)
- 03 - Recycling source separated materials on site (i.e. crushing asphalt/concrete for reuse or grinding for mulch)
- 04 - Recycling source separated materials at an off site recycling center (i.e. scrap metal or green matls)
- 05 - Recycling commingled loads of C&D matls at an off site mixed debris recycling center or transfer station
- 06 - Recycling material as Alternative Daily Cover at landfills
- 07 - Delivery of soils or mixed inerts to an inert landfill for disposal (inert fill).
- 08 - Disposal at a landfill or transfer station.
- 09 - Other (please describe) _____

Types of Material Generated

Use these codes to indicate the types of material that were generated on the project

A = Asphalt	C = Concrete	M = Metals	I = Mixed Inert	G = Green Matls
D = Drywall	P/C=Paper/Cardboard	W/C = Wire/Cable	S= Soils (Non Hazardous)	
M/C = Miscellaneous Construction Debris	R = Reuse/Salvage	W = Wood	O = Other (describe)	

Facilities Used: Provide Name of Facility and Location (City)

Total Truck Loads: Provide Number of Trucks Hauled from Site During Reporting Period

Total Quantities: If scales are available at sites, report in tons. If not, quantify by cubic yards. For salvage/reuse items, quantify by estimated weight (or units).

SECTION I - RE-USED/RECYCLED MATERIALS

Include all recycling activities for source separated or mixed material recycling centers where recycling occurred.

Type of Material	Type of Activity	Facilities Used/Location	Total Truck Loads	Total Quantities		
				Tons	Cubic YD	Other Wt.
(ex.) M	04	ABC Metals, Los Angeles	24	355		
a. Total Diversion			0	0	0	0

[PROJECT TITLE]
[DATE]

Contractor's Reuse, Recycling, and Disposal Report
Section 01 7419B-1

SECTION 01 7419B
CONTRACTOR'S REUSE, RECYCLING, AND DISPOSAL REPORT
Continued

SECTION II - DISPOSED MATERIALS						
<i>Include all disposal activities for landfills, transfer stations, or inert landfills where no recycling occurred.</i>						
Type of Material	Type of Activity	Facilities Used/Location	Total Truck Loads	Total Quantities		
				Tons	Cubic YD	Other Wt.
(ex.) D	08	DEF Landfill, Los Angeles	2	35		
b. Total Disposal				0	0	0

SECTION III - TOTAL MATERIALS GENERATED						
<i>This section calculates the total materials generated during the project period (Reuse/Recycle + Disposal = Generation)</i>						
				Tons	Cubic YD	Other Wt.
a. Total Reused/Recycled				0	0	0
b. Total Disposed				0	0	0
c. Total Generated				0	0	0

SECTION IV - CONTRACTOR'S LANDFILL DIVERSION RATE CALCULATION						
<i>Add totals from Section I + Section II</i>						
		Tons	Cubic Yards	Other Wt.		
a. Materials Re-Used and Recycled		0				
b. Materials Disposed		0				
c. Total Materials Generated (a. + b. = c.)		0	0	0		
d. Landfill Diversion Rate (Tons Only)*		#DIV/0!				

* Use tons only to calculate recycling percentages: Tons Reused/Recycled/Tons Generated = % Recycled

Contractor's Comments (<i>Provide any additional information pertinent to planned reuse, recycling, or disposal activities</i>):						

Notes:

1. Suggested Conversion Factors: From Cubic Yards to Tons (Use when scales are not available)

Asphalt: .61 (ex. 1000 CY Asphalt = 610 tons. Applies to broken chunks of asphalt)

Concrete: .93 (ex. 1000 CY Concrete = 930 tons. Applies to broken chunks of concrete)

Ferrous Metals: .22 (ex. 1000 CY Ferrous Metal = 220 tons)

Non-Ferrous Metals: .10 (ex. 1000 CY Non-Ferrous Metals = 100 tons)

Drywall Scrap: .20

Wood Scrap: .16

1.1 SUMMARY

- A. Section Includes: Administrative and procedural requirements for Contract closeout.
- B. These requirements supplement those included in the General Conditions and are subject to modification upon mutual agreement between the Architect, Owner, and Contractor.

1.2 FINAL CLEANING

- A. Immediately prior to completion and occupancy, remove marks, stains, fingerprints, dust, dirt and paint drippings resulting from work of this project, both interior and exterior including roofs, walls, floors, sidewalks, paving and other finished surfaces.
- B. Contractor shall engage the services of an independent, professional cleaning service to perform final cleaning after Contractor's final clean-up is completed.
- C. Materials:
 - 1. Use only those cleaning materials that will neither create hazards to health or property, damage surfaces, and are in compliance with Proposition 65.
 - 2. Use only those cleaning materials and methods recommended by manufacturer of the surface material to be cleaned.
 - 3. Use cleaning materials only on surfaces recommended by cleaning material manufacturer.
 - 4. Use only environmentally acceptable "green" cleaning products.
- D. Wash tile, plumbing and other fixtures clean.
- E. Clean and polish hardware and other unpainted metals.
- F. Remove temporary labels, tags and paper covering.
- G. Glass, both interior and exterior, and mirrors shall be cleaned to the level expected by a professional window washer.

1.3 REQUIREMENTS PREPARATORY TO FINAL ACCEPTANCE

- A. Temporary facilities shall be removed from site.
- B. Plumbing, mechanical and electrical equipment shall operate quietly and free from vibration. Properly adjust, repair, balance, or replace equipment producing objectionable noise or vibration in occupied areas of building. Provide additional brackets, bracing, etc., to prevent objectionable noise or vibration. Systems shall operate without humming, surging, or rapid cycling.
- C. Operating instructions for equipment shall be properly mounted and posted.

CLOSEOUT PROCEDURES
SECTION 01 7700
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- D. Training: Provide training and orientation of Owner's operating staff in proper care and operation of equipment, systems and controls including:
 - 1. Fire protection systems.
 - 2. Other systems as required in the specifications or needed to properly instruct Owner's representatives.
 - 3. Three copies of certificate, signed by the Owner's representative, attesting to their having been instructed.
- E. The following shall be submitted in accordance with Section 01 3300, Submittal Procedures.
 - 1. Completed Record Drawings signed by Contractor and Inspector.
 - 2. Maintenance and Operating instructions and manuals.
 - 3. Certifications completed and signed.
 - 4. Guarantees and warranties as specified and required by the General Conditions.
- F. Contractor's Final Verified Report (Form DSA 6-C) and other Reports and Affidavits required by Division of State Architect shall be submitted; originals and one copy.
- G. Extra Stock shall be delivered and acknowledged by the Owner in quantities specified.

1.4 PUNCH LIST

- A. Prior to Architect's punch list, Contractor shall prepare and address initial deficiencies list for all work. Upon completion, this list shall be sent to the Architect.
- B. Contractor shall notify Architect when Contractor, with concurrence of Inspector, feels project is complete enough for preparation of Architect's punch list.
- C. Architect will then notify appropriate consultants including civil, mechanical and electrical engineers, landscape architect, food service designer and others as needed, to make their inspections and prepare "punch lists". Consultant "punch lists" will be completed before Architect will make its "punch list".
- D. Architect will prepare a "punch list".
- E. Punch lists will be published within 14 days of Architect's walk through.
- F. Work on the punch list, except minor items as determined by the Architect, shall be completed prior to completion and occupancy.

1.5 FINAL ACCEPTANCE

- A. After requirements preparatory to Final Acceptance have been completed as hereinbefore specified, Contractor shall notify Architect to perform acceptance tour. Notice shall be given at least three days in advance of the time the acceptance tour is to be performed.

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- B. Contractor or its principal superintendents authorized to act in behalf of Contractor, shall accompany Architect and Inspector on acceptance tour, as well as any principal subcontractors that Architect may request to be present.
- C. If work has been completed in accordance with Contract Documents, and no further corrective measures are required, Architect will recommend Final Acceptance to the Owner and initiate the filing of the Notice of Completion.
- D. If work has been substantially completed in accordance with Contract Documents, and only minor corrective measures are required, Architect will recommend that Owner conditionally accept Project and file Notice of Completion based upon Contractor's assurance that corrective measures will be completed within shortest practicable time period (but absolutely not later than 30 days).
- E. If work has not been substantially completed in accordance with Contract Documents, and several or many corrective measures are still required, Architect will recommend one or the other of the following:
 - 1. That Owner accept Project and file Notice of Completion only upon receiving from Contractor a Cashier's Check in amount sufficient to account for corrective measures still required, in the event that Owner had to have others complete the work.
 - 2. That Owner not accept project and not file Notice of Completion. Instead, based on information gathered from acceptance tour, Contractor will be required to complete all corrective measures and then call for another project acceptance tour following procedure outlined above.
- F. Should any corrective measures remain incomplete at time final payment is due, Contractor shall provide Owner with Money Order(s) or Cashier's Check in exchange for retention. Money Order(s) or Cashier's Check shall be in an amount one and one-half times the agreed estimated cost as determined by the Architect.
- G. Upon Final Acceptance of Project by Owner, Contractor shall submit his request for final payment, less retention. Retention payment will not be made by Owner until 35 days after board acceptance and filing of Notice of Completion with County Recorder, as specified in General Conditions.
- H. Retention payment will not be made until Contractor has filed the required Form DSA 6-C with DSA with two original copies to the Architect.

1.6 CLOSEOUT CHECKLIST

- A. The following items are to be fully completed and/or submitted as a condition for final acceptance of the project (as applicable)
 - 1. Specifications and Plans Review for Closeout
 - 2. Fire Alarm System Certification
 - 3. Certificate of Compliance for Building Materials
 - 4. Contractor's Reuse, Recycling and Disposal Report

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5. Environmental Product Certification as required under Section 01 3543
6. Indoor Air Quality Report (Section 01 3543)
7. Certifications as required under Section 01 3300.
8. Operation & Maintenance Manuals
9. Guarantees/Warranties
10. Training
11. Record Drawings
12. Punch List Items Completed
13. Extra Stock of Specified Items, delivered to Owner (including documents)
14. Back charges Resolved
15. Removal of Stop Notices
16. Contractor's Final Verified Reports (DSA 6-C)

END OF SECTION

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Last Updated: July 13, 2018

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Requirements for explicit warranties, guarantees, bonds, and service and maintenance contracts specified in the individual Sections and supplementing the requirements included in the General Conditions.
 - 2. Guarantee and warranty period inspections.
 - 3. Forms for Guarantees/Warranties.

1.2 RELATED REQUIREMENTS

- A. Section 01 3300, Submittal Procedures; additional requirements and submittal procedures for guarantees/warranties.

1.3 DEFINITIONS

- A. General: The following definitions apply to the language used in these Specifications.
- B. Warranty: A representation or affirmative covenant that the work will be performed in accordance with certain standards stated in the Contract, such as in "a good and workmanlike manner," and otherwise be free of defects and in conformity with the Contract Documents for the duration noted or, if a duration is not indicated, the statute of limitations period for contract breaches will constitute the time frame for enforcement.
- C. Guarantee: A provision of the warranty which becomes operative after completion of the work under the Contract and requires replacement of defective or non-conforming materials or equipment, or remedy improper workmanship, at the guarantors own cost and expense, for the duration noted under the General Conditions of the Contract or in the Specifications.
- D. Standard Product Guarantees/Warranties: Preprinted written documents published by individual manufacturers for particular products and specifically endorsed by the manufacturer to the Owner.
- E. Contractor Standard Guarantee: The Contractor's guarantee for the term included in the General Conditions.
- F. Subcontractor Standard Guarantee: A Subcontractor's guarantee period that coincides with the term of the Contractor's guarantee included in the General Conditions.
- G. Special Guarantees/Warranties: Written guarantees/warranties required by or incorporated in the Contract Documents to be provided by the Contractor or its Subcontractors to either extend time limits of the Standard Guarantees/Warranties included in the General Conditions or to provide greater rights for the Owner.

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1.4 GENERAL REQUIREMENTS

- A. Guarantees/warranties between Contractor and manufacturers and between Contractor and suppliers shall not affect those issued to the Owner.
- B. Contractor shall not be held responsible for defects due to misuse, negligence, willful damage, improper maintenance, or accident caused by others nor shall it be responsible for damaged parts whose replacement is necessitated by failure of Owner's maintenance forces to properly clean and service them, provided that Contractor has furnished complete operating and maintenance instructions to Owner.
- C. By terms of each guarantee/warranty, unless otherwise specified or stipulated, also agree to remove and replace other work, as required, that has been connected to or superimposed on substrate material to be replaced.
- D. In addition to other requirements specified:
 - 1. Compile specified service and maintenance contracts.
 - 2. Coexecute submittals when specified.
 - 3. Review submittals to verify compliance with Contract Documents.
 - 4. Submit to Architect for review and transmittal to Owner.
- E. In case of items remaining incomplete after date of filing of the Notice of Completion, the guarantee/warranty period shall run from the date of acceptance of such items.
- F. Special guarantees/warranties applicable to definite parts of the Work and as specifically stipulated in the respective Sections of the Specifications or other Contract Documents shall be subject to the terms of this Section.
- G. If repairs or changes are required in connection with the work within a guarantee/warranty period, the Contractor shall, promptly upon receipt of notice from the Owner and without expense to the Owner, comply with the following:
 - 1. Correct defects and place in satisfactory condition the work covered by the respective guarantee/warranty.
 - 2. Repair, to the satisfaction of the Owner, damage to the Buildings and/or site that is the result of the cause for said repairs and changes.
 - 3. Repairs and corrective work shall be made to the satisfaction of the Owner including the equipment and contents of the Buildings and/or site disturbed during performance of the guarantee/warranty work.
- H. The Owner may, at its sole discretion, proceed with the correction work at Contractor's expense if Contractor does not proceed with the corrective work within a reasonable time fixed by a written notice from the Owner.
 - 1. As part of the corrective work, the Owner reserves the right to remove and store or dispose of defective equipment or material at Contractor's expense.
 - 2. If Contractor does not pay the costs of such removal and storage within ten days thereafter, the Owner may, upon ten additional days' written notice, sell such

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defective items and shall account for the net proceeds after deducting all the costs that should have been borne by the Contractor, including compensation for the Architect's additional services.

3. If the proceeds from the sale are insufficient to cover all amounts chargeable to Contractor, Contractor shall pay the difference to the Owner.
- I. If repairs or changes are required in connection with guarantee/warranty work and notice is given within the guarantee/warranty period, the warranty shall continue until the corrective work has been completed, regardless of the termination of the specified guarantee/warranty period.
- J. In case of work performed by subcontractors and where a special guarantee/warranty is required, guarantees/warranties addressed to and in favor of the Owner shall be secured from said subcontractors.
- K. No provision in the Contract Documents or in any special or general guarantee/warranty shall be held to limit, as to time or scope of liability, the Contractor's liability for defects or the liability of its sureties to less than the legal limit of liability under laws having jurisdiction.
- L. The delivery of any guarantees/warranties shall not relieve the Contractor from any obligation assumed under any other provision of the Contract Documents.
- M. The obligation of the Contractor under this Section shall survive the termination of the Contract.

1.5 SUBMITTAL REQUIREMENTS

- A. Assemble guarantees/warranties, bonds, and service and maintenance contracts executed by each of the respective manufacturers, suppliers, and subcontractors.
- B. Format:
 1. Size: 8-1/2-inch-by 11-inch sheets, punched for three-ring binder. Fold larger sheets to fit into binders.
 2. Binders: Commercial quality, three-ring, "View" type, with durable and cleanable plastic covers.
 3. Cover: Identify each packet with typed or printed title, "GUARANTEES/WARRANTIES," and list the title of Project and name of Contractor.
- C. Contents:
 1. Neatly typed, in orderly sequence.
 2. Provide complete information for each item including:
 - a. Product or work item.
 - b. Firm name with name of principal, address, and telephone number.
 - c. Beginning date and duration of warranty, bond, or service and maintenance contract.

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3. Provide the following information for Owner's personnel:
 - a. Proper procedure in case of failure.
 - b. Circumstances that might affect the validity of guarantee/warranty or bond.
 4. Contractor's name, name of responsible principal, address, and telephone number.
- D. Refer to Section 01 3300, Submittal Procedures, for additional requirements.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 TIME OF SUBMITTALS

- A. Typical: Within 30 days after filing date of Notice of Completion.
- B. Equipment or component parts of equipment put into service during progress of construction; submit documents within 10 days after inspection and acceptance.
- C. Items of work, where acceptance is delayed materially beyond date of filing date of Notice of Completion; provide updated submittal within 14 days after acceptance, listing date of acceptance as start of guarantee/warranty period.

3.2 GUARANTEE PERIOD INSPECTIONS

- A. Contractor and subcontractors performing the construction work are required to guarantee workmanship and materials for the period noted in the Contract. Within a month of the end of such guarantee period, Contractor's agent shall prepare an inspection report indicating the condition of the Owner's facility and related common facility, itemizing the work to be completed, performed and/or corrected. Such guarantee period shall be continued in effect and extended until such time as Owner submits to Contractor written confirmation of the satisfactory completion of the itemized work, which confirmation shall be submitted within a reasonable period of time.

3.3 GUARANTEE/WARRANTY FORMS

- A. Contractor Standard Guarantee: Submit the following written Standard Guarantee/Warranty form for the overall Work against defects in materials and workmanship for the period of guarantee/warranty required under the Contract after the filing of the Notice of Completion (included with this section).
- B. Subcontractor Standard Guarantee: Submit the following written Standard Guarantee/Warranty form for Subcontracted Work against defects in materials and workmanship for the period of guarantee/warranty required under the Contract after the filing of the Notice of Completion (included with this section).
- C. Subcontractor Special or Extended Guarantee/Warranty: Contractor shall have its Subcontractor submit the following Special Extended Written Guarantee/Warranty, typed

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on Subcontractor's letterhead, when required by a Specification Section for a period in excess of 2 years (included with this section).

END OF SECTION

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Last Updated: February 13, 2019*

(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)

(Signature)

(Company Name)

(Address)

(License Number) _____ (Date of Signing)

COUNTERSIGNED (General Contractor)

(Signature)

(Company Name)

(Address)

(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)

COUNTERSIGNED (General Contractor)

(Name)

(Address)

(License Number)

(Date of Signing)

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. Divisions 21 through 28: Infrastructure systems work requiring firestopping.

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.

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.

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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.
 - 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.

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- 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 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

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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 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.

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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-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.

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- 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:
 - 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:

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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.

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- 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.

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.

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- 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. Access doors.

1.2 RELATED REQUIREMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. This Section is part of each Division 21 Section.

1.3 ADDITIONAL REQUIREMENTS

- A. Furnish and install incidental work not shown or specified necessary to provide a complete and workable system.
- B. Make temporary connections required to maintain services during the course of the Contract without additional cost to Owner. Notify Owner seven days in advance before interrupting services.

1.4 REFERENCES AND STANDARDS

- A. Where material or equipment is specified to conform to referenced standards, it shall be assumed that the most recent edition of the standard in effect at time of bid shall be used.
 1. ANSI - American National Standards Institute.
 2. ASME - American Society of Mechanical Engineers.
 3. ASTM - American Society for Testing and Materials.
 4. CCR - California Code of Regulations.
 - a. Title 8 - Division of Industrial Safety, Subchapter 7; General Industry Safety Orders, Articles 31 through 36.
 5. NCPWB - National Certified Pipe Welding Bureau.
 6. CEC - California Electrical Code.
 7. NEMA - National Electrical Manufacturers' Association.
 8. NFPA - National Fire Protection Association, as amended by the CBC.
 9. OSHA - Occupational Safety and Health Act.
 10. UL - Underwriters' Laboratories, Inc.
- B. Requirements of Regulatory Agencies:

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1. The publications listed below form part of this Specification. Comply with provisions of these publications except as otherwise shown or specified.
 - a. California Building Code, 2019.
 - b. California Electrical Code, 2019.
 - c. California Energy Code, 2019.
 - d. California Fire Code, 2019.
 - e. California Green Building Standards Code, 2019.
 - f. California Mechanical Code, 2019.
 - g. California Plumbing Code, 2019.
 - h. California Code of Regulations, Title 24.
 - i. California Health and Safety Code.
 - j. CAL-OSHA.
 - k. California State Fire Marshal, Title 19 CCR.
 - l. DSA - Division of the State Architect. Interpretive Regulations (IR's).
 - m. National Fire Protection Association, as amended by the CBC.
 - n. Occupational Safety and Health Administration.
 - o. Other applicable state laws.
2. Nothing in Drawings or Specifications shall be construed to permit work not conforming to these codes, or to requirements of authorities having jurisdiction. It is not the intent of Drawings or Specifications to repeat requirements of codes except where necessary for clarity.

1.5 DRAWINGS

- A. Examine Contract Documents prior to bidding of Work and report discrepancies in writing to Architect.
- B. Drawings showing location of equipment and materials are diagrammatic and job conditions will not always permit installation in location shown. The fire protection Drawings show general arrangement of equipment and materials, etc., and shall be followed as closely as existing conditions, actual building construction, and work of other trades permit.
 1. Architectural and structural Drawings are part of the Work. These Drawings furnish Contractor with information relating to design and construction of the Project. Architectural Drawings take precedence over fire protection Drawings.
 2. Because of the small scale of fire protection Drawings, not all offsets, fittings, and accessories required are shown. Investigate structural and finish conditions affecting the Work and arrange Work accordingly. Provide offsets, fittings, and accessories required to meet conditions. Inform Architect immediately when job conditions do not permit installation of equipment and materials in locations shown. Obtain Architects' approval prior to relocation of equipment and materials.

3. Relocate equipment and materials installed without prior approval of Architect. Remove and relocate equipment and materials at Contactors' expense upon Architects' direction.
 4. Minor changes in locations of equipment, piping, ducts, etc., from locations shown shall be made when directed by the Architect at no additional cost to the Owner providing such change is ordered before such items of work, or work directly connected to same are installed and providing no additional material is required.
- C. Execute work mentioned in Specifications and not shown on Drawings, or vice versa, the same as if specifically mentioned or shown in both.

1.6 FEES AND PERMITS

- A. Obtain and pay for permits and service required in installation of the Work. Arrange for required inspections and secure approvals from authorities having jurisdiction. Comply with the requirements of Division 01.
- B. Arrange for utility connections and pay charges incurred, including excess service charges.
1. Bear the cost of construction related to utility services, from point of connection to utility services shown on Contract Documents. This includes piping, excavation, backfill, meters, boxes, check valves, backflow prevention devices, general service valves, concrete work, and the like, whether or not Work is performed by Contractor, local water/sanitation district, public utility, other governmental agencies or agencies' assigns.

1.7 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
1. General:
 - a. Coordinate Work in this Section with trades covered in other Specification Sections to provide a complete and operable installation of highest quality workmanship.
 2. Electrical Coordination:
 - a. Refer to the Electrical Drawings and Specifications, Division 26, for service voltage and power feed wiring for equipment specified in this Section. Contractor has full responsibility for the following items of work:
 - 1) Review the Electrical Drawings and Division 26 Specifications to verify that electrical services provided are adequate and compatible with equipment requirements.
 - 2) If additional electrical services are required above that indicated on Electrical Drawings and in Division 26, such as more control interlock conductors, larger feeder, or separate 120 volt control power source,

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include cost to furnish and install additional electrical services as part of bid.

- 3) Prior to proceeding with installation of additional electrical work, submit detailed drawings indicating exact scope of additional electrical work.

3. Mechanical Coordination:

- a. Arrange for pipe spaces, chases, slots and openings in building structure during progress of construction, to accommodate mechanical system installation.
- b. Coordinate installation of supporting devices. Set sleeves in poured-in-place concrete and other structural components during progress of construction.
- c. Coordinate requirements for access panels and doors for mechanical items requiring access where concealed behind finished surfaces. Access panels and doors are specified in Division 08 Section "Access Doors and Frames."

1.8 SUBMITTALS - GENERAL

- A. Refer to Division 01 Submittals Section(s) for additional requirements.
- B. Provide submittal of materials proposed for use as part of this Project. Product names in Specifications and on Drawings are used as standards of quality. Furnish standard items on specified equipment at no extra cost to the Contract regardless of disposition of submittal data. Other materials or methods shall not be used unless approved in writing by Architect. Architect's review will be required even though "or equal" or synonymous terms are used.
 1. Partial or incomplete submittals will not be reviewed.
 2. Quantities are Contractor's responsibility and will not be reviewed.
 3. Provide materials of same brand or manufacturer for each class of equipment or material.
 4. Identify each item by manufacturer, brand, trade name, number, size, rating, or other data necessary to properly identify and review materials and equipment. Words "as specified" are not sufficient identification.
 5. Identify each submittal item by reference to items' Specification Section number and paragraph, by Drawing and detail number, and by unit tag number.
 6. Organize submittals in same sequence as in Specification Sections.
 7. Show physical arrangement, construction details, finishes, materials used in fabrications, provisions for piping entrance, access requirements for installation and maintenance, physical size, mechanical characteristics, foundation and support details, and weight.
 - a. Submit shop drawings, performance curves, and other pertinent data, showing size and capacity of proposed materials.
 - b. Specifically indicate, by drawn detail or note, that equipment complies with each specifically stated requirement of Contract Documents.

- c. Drawings shall be drawn to scale and dimensioned (except schematic diagrams). Drawings may be prepared by vendor but must be submitted as instruments of Contractor, thoroughly checked and signed by Contractor before submission to Architect for review.
 - d. Catalog cuts and published material may be included with supplemental scaled drawings.
- C. Review of submittals will be only for general conformance with design concept and general compliance with information given in Contract Documents. Review will not include quantities, dimensions, weights or gauges, fabrication processes, construction methods, coordination with work of other trades, or construction safety precautions, which are sole responsibility of Contractor. Review of a component of an assembly does not indicate acceptance of an assembly. Deviations from Contract Documents not clearly identified by Contractor are Contractor's responsibility and will not be reviewed by Architect.
- D. Within reasonable time after award of contract and in ample time to avoid delay of construction, submit to Architect shop drawings or submittals on all items of equipment and materials provided. Provide submittal in at least seven copies and in complete package.
 - 1. Shop drawings and submittals shall include Specification Section, Paragraph number, and Contract Drawing unit symbol or detail number for reference. Organize submittals into booklets for each Specification section and submit in loose-leaf binders with index. Deviations from Contract Documents shall be clearly identified and appear at the beginning of submittal package and shall be referenced to applicable Contract Documents requirements.
- E. Furnish to Project Inspector complete installation instructions on material and equipment before starting installation.

1.9 ACTION SUBMITTALS

- A. Product Data: Submit manufacturer's technical product data and installation instructions for fire protection systems materials and products.
- B. Shop Drawings.
- C. Provide product data for insulation products, including insulation, insulation facings, jackets, adhesives, sealants, and coatings, indicating compliance with requirement that these products contain less than 0.1 percent (by mass) polybrominated diphenyl ethers (PBDEs) in penta, octa, or deca formulations.
- D. Product Data for California Green Building Standards Code Compliance: For adhesives and sealants, including primers, documentation of compliance including printed statement of VOC content and chemical components.

1.10 INFORMATIONAL SUBMITTALS

- A. Provide coordination drawings for fire protection systems in accordance with the requirements of Specification Section 21 1000.

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- B. Provide layouts for fire protection systems, for inclusion in coordinated layout specified in Section 23 8000. Comply with requirements for layouts specified in Section 23 8000.

1.11 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data:

- 1. Refer to Division 01 for complete instructions.
- 2. Furnish three complete sets of Operating and Maintenance Manual bound in hardboard binder, and one compact disc containing complete Operating and Maintenance Manual in searchable PDF format. Provide Table of Contents. Provide index tabs for each piece of equipment in binder and disc. Start compiling data upon approval of submittals.

- a. Sets shall incorporate the following:

- 1) Product Data.
- 2) Shop Drawings.
- 3) Record Drawings.
- 4) Service telephone number, address and contact person for each category of equipment or system.
- 5) Complete operating instructions for each item of fire sprinkler system.
 - a) Original manual of NFPA-25 for fire sprinkler system.
- 6) Copies of guarantees/warranties for each item of equipment or systems.
- 7) Test data as specified.
- 8) Typewritten maintenance instructions for each item of equipment listing lubricants to be used, frequency of lubrication, inspections required, adjustment, etc.
- 9) Manufacturers' bulletins with parts numbers, instructions, etc., for each item of equipment.
- 10) Check test and start reports for each piece of fire protection equipment provided as part of the Work.
- 11) Commissioning and Preliminary Operation Tests required as part of the Work.

- b. Post service telephone numbers and addresses in an appropriate place designated by Architect.

- B. Record Drawings:

- 1. Refer to Division 01, Record Documents, for requirements governing Work specified herein.
- 2. Upon completion of the work, deliver to Architect the following:
 - a. Originals of drawings showing the Work exactly as installed.

- b. One complete set of reproducible drawings showing the Work exactly as installed.
- c. One compact disc with complete set of drawings in PDF format showing the Work exactly as installed.
- d. Provide Contractor's signature, verifying accuracy of record drawings.
- e. Obtain the signature of the Project Inspector for all record drawings.

1.12 SUBSTITUTIONS

- A. Refer to Division 01 for complete instructions. Requirements given below are in addition to or are intended to amplify Division 01 requirements. In case of conflict between requirements given in this Section and those of Division 01, Division 01 requirements shall apply.
- B. It is the responsibility of Contractor to assume costs incurred because of additional work and or changes required to incorporate proposed substitute into the Project. Refer to Division 01 for complete instructions.
- C. Substitutions will be interpreted to be manufacturers other than those specifically listed in Contract Documents by brand name, model, or catalog number.
- D. Only one request for substitution will be considered for each item of equipment or material.
- E. Substitution requests shall include the following:
 - 1. Reason for substitution request.
 - 2. Complete submittal information as described herein; see "Submittals."
 - 3. Coordinated scale layout drawings depicting position of substituted equipment in relation to other work, with required clearances for operation, maintenance and replacement.
 - 4. List optional features required for substituted equipment to meet functional requirements of the system as indicated in Contract Documents.
 - 5. Explanation of impact on connected utilities.
 - 6. Explanation of impact on structural supports.
- F. Installation of reviewed substitution is Contractors' responsibility. Any mechanical, electrical, structural, or other changes required for installation of substituted equipment or material must be made by Contractor without additional cost to Owner. Review by Architect of substituted equipment or material, will not waive these requirements.
- G. Contractor may be required to compensate Architect for costs related to substituted equipment or material.

1.13 DELIVERY, STORAGE AND HANDLING

- A. Protect equipment and materials delivered to Project site from weather, humidity and temperature variations, dirt, dust and other contaminants.

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1.14 FIELD CONDITIONS

- A. Contractor shall visit Project site and examine existing conditions in order to become familiar with Project scope. Verify dimensions shown on Drawings at Project site. Bring discrepancies to the attention of Architect. Failure to examine Project site shall not constitute basis for claims for additional work because of lack of knowledge or location of hidden conditions that affect Project scope.
- B. Information on Drawings relative to existing conditions is approximate. Deviations from Drawings necessary during progress of construction to conform to actual conditions shall be approved by Architect and shall be made without additional cost to Owner. The Contractor shall be held responsible for damage caused to existing services. Promptly notify Architect if services are found which are not shown on Drawings.

1.15 WARRANTY

- A. Refer to Division 01 for warranty requirements, and duration and effective date of Contractor's Standard Guarantee.
- B. Repair or replace defective work, material, or part that appears within warranty period, including damage caused by leaks.
- C. On failure to comply with warranty requirements within a reasonable length of time after notification is given, Architect/Owner shall have repairs made at Contractor's expense.

PART 2 - PRODUCTS

2.1 GENERAL

- A. Materials or equipment of the same type shall be of the same brand wherever possible. All materials shall be new and in first class condition.
- B. All sizes, capacities, and efficiency ratings shown are minimum.
- C. Refer to Section 21 1000 for specific system piping materials.

2.2 MATERIALS

- A. No material installed as part of this Work shall contain asbestos.
- B. California Green Building Code Compliance:
 - 1. Fire protection equipment shall not contain CFCs.
 - 2. Fire protection equipment shall not contain Halons.

2.3 ACCESS DOORS

- A. Where floors, walls, or ceilings must be penetrated for access to fire protection equipment or devices, provide access doors, 14 inch by 14 inch minimum size in usable opening. Where entrance of a serviceman may be required, provide 20 inch by

30 inch minimum usable opening. Locate access doors/panels for non-obstructed and easy reach.

1. Access doors less than 7'-0" above floors and exposed to public access shall have keyed locks.
- B. Access doors shall match those supplied in Division 08, except as noted in this Section.
- C. Provide stainless steel access doors for use in toilet rooms, shower rooms, kitchens and other damp areas. Provide steel access doors with prime coat of baked-on paint for other areas.
- D. Do not locate access doors in highly visible public areas such as lobbies, waiting areas, and primary entrance areas. Coordinate with Architect when access is required in these areas.
- E. Where specific information or details relating to access panels different from the above is shown or given on Drawings or other Divisions of work, that information shall supersede this specification.
- F. Manufacturers: Subject to compliance with requirements, available manufacturers offering products which may be incorporated into the Work include Milcor, Karp, Nystrom, or Cesco, equal to the following:
 1. Milcor:
 - a. Style K (plaster)
 - b. Style DW (gypsum board)
 - c. Style M (masonry)
 - d. Style "Fire Rated" where required

2.4 EQUIPMENT IDENTIFICATION

- A. Identify each piece of equipment with a permanently attached engraved bakelite plate, 1/2 inch high white letters on black background.
- B. Text of Signs: Provide identification of equipment unit number, and room or area served. Coordinate name of area served with final room names and numbers for the facility. In addition, provide lettering to distinguish between multiple units, inform operator of operational requirements, indicate safety and emergency precautions, and warn of hazards and improper operations.

2.5 PIPE IDENTIFICATION

- A. Identify each piping system and indicate the direction of flow by means of Seton, Inc., Marking Services Inc., Reef Industries, Inc., or equal, pre-tensioned, coiled semi-rigid plastic pipe labels formed to circumference of pipe, requiring no fasteners or adhesive for attachment to pipe.
- B. The legends and flow arrows shall conform to ASME A13.1.

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PART 3 - EXECUTION

3.1 EXISTING MATERIALS

- A. Remove existing equipment, piping, wiring, construction, etc., which interferes with Work of this Contract. Promptly return to service upon completion of work in the area. Replace items damaged by Contractor with new material to match existing.
- B. Removed materials which will not be reinstalled, and which are not claimed by Owner shall become property of Contractor and shall be removed from Project site. Consult Owner before removing any material from Project site. Carefully remove materials claimed by Owner to prevent damage and deliver to Owner-designated storage location.
- C. Existing piping and wiring not reused and are concealed in building construction may be abandoned in place and all ends shall be capped or plugged. Remove unused piping and wiring exposed in Equipment Rooms or occupied spaces. Material shall be removed from Project premises. Disconnect power, water, gas, pump or any other active energy source from piping or electrical service prior to abandoning in place.
- D. Existing piping and equipment modified or altered as part of this Work shall comply with the most recent applicable code requirements.

3.2 FRAMING, CUTTING AND PATCHING

- A. Special framing, recesses, chases and backing for Work of this Section, unless otherwise specified, are covered under other Specification Sections.
- B. Contractor is responsible for placement of pipe sleeves, hangers, inserts, supports, and location of openings for the Work.
- C. Cutting, patching, and repairing of existing construction to permit installation of equipment, and materials is responsibility of Contractor. Repair or replace damage to existing work with skilled mechanics for each trade.
- D. Cut existing concrete construction with a concrete saw. Do not utilize pneumatic devices.
- E. Core openings through existing construction for passage of new piping and conduits. Cut holes of minimum diameter to suit size of pipe and associated insulation installed. Coordinate with building structure, and obtain Structural Engineer's approval prior to coring through existing construction.

3.3 ELECTRICAL REQUIREMENTS

- A. Provide adequate working space around electrical equipment in compliance with the California Electrical Code. Coordinate the fire protection Work with the electrical Work to comply.
- B. Furnish necessary control diagrams and instructions for controls. Before permitting operation of equipment which is furnished, installed, or modified under this Section, Contractor shall review associated electrical work, including overload protection

devices, and assume complete responsibility for correctness of electrical connections and protective devices. Motors and control equipment shall conform to the Standards of the National Electrical Manufacturers' Association. Equipment and connections exposed to weather shall be installed in NEMA IIIR enclosures with factory wired strip heaters in each starter enclosure and temperature control panel where required to inhibit condensation.

- C. All line voltage and low voltage wiring and conduit associated with fire protection system are included in this Section. Wiring and conduit shall comply with Division 26.

3.4 PIPING SYSTEM REQUIREMENTS

- A. Drawing plans, schematic and diagrams indicate general location and arrangement of piping systems. Indicated locations and arrangements were used to size pipe and calculate friction loss, pump sizing, and other design considerations. Install piping as indicated unless deviations to layout are approved on coordination drawings.

3.5 PRIMING AND PAINTING

- A. Perform priming and painting on the equipment and materials as specified herein.
- B. See Division 09 Painting Section(s) for detailed requirements.
- C. Priming and Painting:
 - 1. Exposed ferrous metals, including piping, which are not galvanized or factory-finished shall be primed and painted.
 - a. Black Steel Piping:
 - 1) Primer: One coat gray Sherwin-Williams Pro Industrial Pro-Cryl Universal Primer, comparable products by Rust-Oleum, Kelly Moore, or equal.
 - 2) Topcoat: Two coats gray Sherwin-Williams Pro Industrial Waterbased Alkyd Urethane Enamel, comparable products by Rust-Oleum, Kelly Moore, or equal.
 - 2. Metal surfaces of items to be jacketed or insulated except piping shall be given two coats of primer unless furnished with equivalent factory finish. Items to be primed shall be properly cleaned by effective means free of rust, dirt, scale, grease and other deleterious matter and then primed with the highest grade zinc rich primer. After erection or installation, primed surfaces shall be properly cleaned of foreign or deleterious matter that might impair proper bonding of subsequent paint coatings. Abrasion or other damage to shop or field prime coat shall be properly repaired and touched up with same material used for original priming.
 - 3. Where equipment is provided with nameplate data, the nameplate shall be masked off prior to painting. When painting is completed, remove masking material.

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3.6 PIPING SYSTEMS INSTALLATION

- A. At time of final connection, and prior to opening valve to allow pressurization of water piping from existing systems, on site or off site, perform a pressure test to indicate static pressure of existing systems. If pressure on fire protection piping is greater than 175 psi, inform Architect immediately. Do not allow piping systems to be pressurized without written consent of the Architect.
- B. General:
1. Piping shall be concealed unless shown or otherwise directed. Allow sufficient space for ceiling panel removal.
 2. Installation of piping shall be made with appropriate fittings. Bending of piping will not be accepted.
 3. Install piping to permit application of insulation where required and to allow valve servicing.
 4. Where piping or conduit is left exposed within a room, the piping or conduit shall be run true to vertical, horizontal, or intended planes. Where possible, uniform margins are to be maintained between parallel lines and/or adjacent wall, floor, or ceiling surfaces.
 5. Horizontal runs of pipes and/or electrical conduit suspended from ceilings shall provide for maximum headroom clearance. The clearance shall not be less than 6'-6" without written approval from Architect.
 6. Close ends of pipe immediately after installation. Leave closure in place until removal is necessary for completion of installation.
 7. Each piping system shall be thoroughly flushed and proved clean before connection to equipment.
 8. Install exposed polished or enameled connections with special care showing no tool marks or threads at fittings.
 9. Install horizontal valves with valve stem above horizontal.
 10. Use reducing fittings; bushings shall not be allowed. Use eccentric reducing fittings wherever necessary to provide free drainage of lines and passage of air.
 11. Verify final equipment locations for roughing-in.
 12. Service Markers: Mark location of each plugged or capped pipe with 4 inch round by 30 inch long concrete marker, set flush with finished grade. Provide 2-1/2 inch diameter engraved brass plate as part of service marker.
 13. Where piping is installed in walls within one inch of face of stud, provide 16 gauge sheet metal shield plate on face of stud. The shield plate shall extend minimum 1-1/2 inches beyond outside diameter of pipe.
- C. Sleeves:
1. Install Adjus-to-Crete, Pipeline Seal and Insulator, or equal, pipe sleeves of sufficient size to allow for free motion of pipe, 24 gauge galvanized steel. The space between pipe and sleeves through floor slabs on ground, through outside walls above or below grade, through roof, and other locations, as directed, shall be caulked with oakum and mastic and made watertight. The space between pipe and sleeve and between sleeve and slab or wall shall be sealed watertight.

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2. At Contractor's option, Link-Seal, Metraflex Metraseal, or equal, casing seals may be used in lieu of caulking. Wrap pipes through slabs on grade with 1 inch thick fiberglass insulation to completely isolate pipe from concrete.

D. Floor, Wall, and Ceiling Plates:

1. Fit pipes, with or without insulation, passing through walls, floors, or ceilings, and hanger rods penetrating finished ceilings with chrome-plated or stainless escutcheon plates.

E. Firestopping:

1. Pack annular space between pipe sleeves and pipe through floors and walls with UL listed fire stop, and seal at ends. Pipe penetrations shall be UL listed, Hilti, 3M Pro-Set, or equal.
 - a. Install fire caulking behind fire protection services installed within fire rated walls, to maintain continuous rating of wall construction.
2. Provide SpecSeal Systems UL fire rated sleeve/coupling penetrators, or equal, for each pipe penetration or fixture opening passing through floors, walls, partitions or floor/ceiling assemblies. Penetrators shall comply with UL Fire Resistance Directory (Latest Edition), and with Chapter 7, CBC requirements.
3. Sleeve penetrators shall have built in anchor ring for waterproofing and anchoring into concrete pours or use special fit cored hole penetrator for cored holes.
4. Copper and steel piping shall have SpecSeal, or equal, plugs on both sides of penetrator to reduce noise and to provide waterproofing.
5. All above systems to be installed in strict accordance with manufacturer's instructions.
6. Alternate firestopping systems are acceptable if approved as equal. Contractor is responsible for determining suitability of alternate products for their intended use, and shall assume all risks and liabilities in connection with the use of alternate products.

F. Flashing:

1. Flashing for penetrations of metal or membrane roof for fire protection items shall be coordinated with roofing manufacturer and roofing installer for specific roofing type utilized. The work of this section shall include furnishing, layout, sizing, and coordination of penetrations required for fire protection work.
 - a. Furnish and install flashing and counterflashing in strict conformance with requirements of the roofing manufacturer. Submit shop drawing details for review prior to installation.
 - b. Furnish and install counterflashing above each flashing required. Elmdor/Stoneman Model 1540, or equal.
2. For other types of roofing systems, furnish and install around each pipe, where pipe passes through roof, a flashing and counterflashing. Flashing shall be made

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of four pound seamless sheet lead with 6 inch minimum skirt and steel reinforced boot. Counterflashing shall be cast iron. Elmdor/Stoneman Model 1100-4, or equal.

G. Hangers and Supports:

1. General: Support equipment and piping so that it is firmly held in place by approved iron hangers and supports and special hangers as required. Hangers and supports shall be UL listed for fire protection service. Components shall support weight of equipment, pipe, fluid, and pipe insulation based on spacing between supports with minimum factor of safety of five based on ultimate strength of material used. Do not exceed manufacturer's load rating. Pipe attachments or hangers, shall be of same size as pipe or tubing on which used, or nearest size available. Architect shall approve hanger material before installation. Do not support piping with plumbers' tape, wire rope, wood, or other makeshift devices. Where building structural members do not match piping support spacing, provide "trapeze" (bridging) support members attached to building structural members by methods approved by structural Engineer.
 - a. Materials, design, and type numbers per Manufacturers' Standardization Society (MSS), Standard Practice (SP)-58.
2. Hanger components shall be provided by one manufacturer. B-Line, Grinnell, Tolco, Afcon, Loos & Co., Uni-Strut, or equal.
3. Hanger and Supports:
 - a. Vertical Piping: Tolco Fig. 6, or equal, clamps attached to pipe above each floor to rest on floor. Provide intermediate support for vertical piping greater than 25 feet in length.
 - b. Individually Suspended Piping: Tolco Fig. 200 or Fig. 1 Clevis, complete with threaded rod, or equal.

<u>Pipe Size</u>	<u>Rod Size</u>
4" and Smaller	3/8"
5" to 6"	5/8"

- c. Trapeze Suspension: Sch-10 or Sch-40 steel pipe trapeze member in accordance with NFPA 13 published load ratings.
- d. Pipe Clamps and Straps: B-Line B2000 or B2400, Tolco, Fig. 200 or Fig. 1, or equal. Where used for seismic support systems, provide B-line B2400, Tolco fig. 69 series retainer pipe straps, or equal.
- e. Concrete Inserts: B-line B221 continuous insert or B2500 spot insert, or equal. Do not use actuated fasteners for support of overhead piping unless approved by Architect.
- f. Steel Connectors: Tolco Fig. 65 beam clamps with Fig. 69 retainer straps, or equal.

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- g. Deck Connectors: Afcon Fig. 610 steel ceiling plate, or equal, where approved by structural Engineer.

4. Support to Structure:

- a. Wood Structure: Provide and install wood blocking as required to suit structure. Provide lag screws or through bolts with length to suit requirements, and with size (diameter) to match the size of hanger rods required.

- 1) Do not install Lag screws in tension without written review and acceptance by Structural Engineer.

Side Beam Angle Clip	B-Line B3062--MSS Type 34
Side Beam Angle Clip	B-Line B3060
Ceiling Flange	B-Line B3199

- 2) Blocking for support of piping shall be not less than 2 inch thick for piping up to 2 inch size. Provide 3 inch blocking for piping up through 5 inch size, and 4 inch blocking for larger piping. Provide support for blocking in accordance with Structural Engineers requirements.

- 3) Where lag screws are used, length of screw shall be 1/2 inch less than the wood blocking. Pre-drill starter holes for each lag screw.

- b. Steel Structure: Provide and install additional steel bracing as required to suit structure. Provide through bolts with length to suit requirements of structural components. Burning or welding on structural member may only be done if approved by Architect.

5. Pipe hanger and support spacing: Locate hangers and supports at each change of direction, within one foot of elbow, and spaced per NFPA 13, and per pipe manufacturer's listing, except as noted below.
6. Provide support for piping through roof, arranged to anchor piping solidly in place at the roof penetration.
7. Provide rigid insulation and a 12 inch long, 18 gauge galvanized sheet iron shield between the covering and the hanger whenever hangers are installed on the outside of the pipe covering.
8. Insulate copper piping from ferrous materials and hangers with two layers of 3 inch wide, 10 mil polyvinyl tape wrapped around pipe.
9. Provide a support or hanger close to each change of direction of pipe either horizontal or vertical and as near as possible to concentrated loads.
10. Suspend rods from concrete inserts with removable nuts where suspended from concrete decks. Power actuated inserts will not be allowed.

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3.7 UNION AND FLANGE INSTALLATION

- A. Install Watts, Epco, Nibco, or equal, dielectric unions or flanges at points of connection between copper or brass piping or material and steel pipe or material. Bushings or couplings shall not be used.
- B. Install unions in piping NPS 2" and smaller and flanges in piping NPS 2-1/2" and larger whether shown or not at each connection to equipment and tanks, and at connections to automatic valves.
- C. Locate unions for easy removal of equipment, tanks, or valves.

3.8 ACCESS DOOR INSTALLATION

- A. Furnish and install access doors wherever required whether shown or not for easy maintenance of fire protection systems. Access doors shall provide for complete removal and replacement of equipment.

3.9 PIPE IDENTIFICATION

- A. Provide temporary identification of each pipe installed, at time of installation. Temporary identification shall be removed and replaced with permanent identification as part of the Work.
- B. Apply legend and flow arrow at valve locations; at points where piping enters or leaves a wall, partition, cluster of piping or similar obstruction, at each change of direction, and at approximately 20'-0" intervals on pipe runs. Variations or changes in locations and spacing may be made with approval of Architect. There shall be at least one marking in each room. Markings shall be located for maximum visibility from expected personnel approach.
- C. Wherever two or more pipes run parallel, markings shall be supplied in the same relative location on each.
- D. Apply markings after painting and cleaning of piping and insulation is completed.

3.10 EXPANSION ANCHORS IN HARDENED CONCRETE:

- A. Refer to Structural Drawings.
- B. Qualification Tests: The specific anchor shall have a current ICC-ES report and have been evaluated in cracked concrete in accordance with Acceptance Criteria AC193. The design shear and withdrawal load shall not be more than 80% of allowable load listed in the current ICC-ES report and manufacturer's recommendations for the specific anchor.
- C. Installation: The anchors must be installed in accordance with the requirements given in ICC Research Committee Recommendations for the specific anchor.
- D. Testing: Fifty percent of anchors shall be load-tested on each job to twice the allowable capacity in tension, except that if the design load is less than 75 pounds; only one

anchor in ten need be tested. If any anchor fails, all anchors must be tested. The load test shall be performed in the presence of the project inspector.

- E. The load may be applied by any method that will effectively measure tension in the anchor, such as direct pull with a hydraulic jack, a torque wrench calibrated using the specific anchor, or calibrated spring-loading devices. Anchors in which torque is used to expand the anchor without applying tension to the bolt may not be verified with a torque wrench.

3.11 TESTS AND ADJUSTMENTS

- A. Test installations in accordance with the following requirements and all applicable codes:
1. Project Inspector should witness tests of piping systems.
 2. Notify Architect at least seven days in advance of tests.
 3. Notify local fire department of time and date of fire systems testing.
 4. Piping shall be tested at completion of roughing-in, or at other times as directed by Architect.
 5. Furnish necessary materials, test pumps, gases, instruments and labor required for testing.
 6. Isolate from system equipment that may be damaged by test pressure.
 7. Make connections to existing systems with flanged connection. During testing of new work, provide a slip-in plate to restrict test pressure to new systems only. Remove plate and complete connection to existing system at completion of testing.
 - a. Project Inspector shall witness final connection to system.
- B. Test Schedule: No loss in pressure or visible leaks shall show after four hours at pressures indicated:

<u>System Tested</u>	<u>Test Pressure PSI</u>	<u>Test With</u>
Fire Sprinkler Piping	200	Water
Compressed Air	200	Air & Non-corrosive Leak Test Fluid
Dry Standpipes	300	Water
Wet Standpipes	200	Water

1. Piping, including underground piping, connected to fire sprinkler system shall be tested and certified in accordance with NFPA requirements, except where requirements listed in this Section exceed requirements of NFPA.
2. Non-corrosive leak test fluid shall be suitable for use with piping material specified, and with type of gas conveyed by piping system.

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- C. Should material or work fail in any of these tests, it shall be immediately removed and replaced with new material, and portion of work replaced shall again be tested by Contractor at his own expense.
- D. Lubricate each item of equipment, including motors, before operation.

3.12 TRACER WIRE INSTALLATION

- A. Provide tracer wire for non-metallic water pipe in ground outside of buildings. Use AWG #14 tracer wire with blue colored low density high molecular weight polyethylene insulation, and lay continuously on pipe so that it is not broken or stressed by backfilling operations. Secure wire to the piping with tape at 18 inch intervals. Solder all joints.
- B. Terminals: Precast concrete box and cast iron locking traffic cover, Brooks 3TL, or equal; cover marked with name of service; 6 inches of loose gravel below box. Plastic terminal board with brass bolts; identify line direction with plastic tags. Test for continuity between terminals, after backfilling, in presence of Inspector.
- C. Alternate: Use electronically detectable plastic tape with metallic core, Terra Tape D, manufactured by Reef Industries, Inc., Seton, Inc., Marking Services, Inc., or equal; tape 2 inches wide, continuously imprinted "CAUTION WATER LINE BELOW". Install, with printed side up, directly over pipe, 18 inches below finish grade. Backfill material shall be as previously specified for the particular condition where pipe is installed, but avoid use of crushed rock or of earth with particles larger than 1/2 inch within the top 12 inches of backfill. Take precautions to ensure that tape is not damaged or misplaced during backfill operations. Terminal boxes not required.

3.13 CHECK, TEST AND START REQUIREMENTS

- A. An authorized representative of the equipment manufacturer shall perform check, test and start of each piece of fire protection equipment. The representative may be an employee of the equipment manufacturer, or a manufacturer-certified contractor. Submit written certification from the manufacturer stating that the representative is qualified to perform the check test and start of the equipment.
 - 1. As part of the submittal process, provide a copy of each manufacturer's printed startup form to be used.
 - 2. Some items of specified equipment may require that check, test and start of equipment must be performed by the manufacturer, using manufacturer's employees. See specific equipment Articles in these Specifications for this requirement.
 - 3. Provide all personnel, test instruments, and equipment to properly perform the check, test and start work.
 - 4. When work has been completed, provide copies of reports for review, prior to final observation of work.
- B. Provide copies of the completed check, test and start report of each item of equipment, bound with the Operation and Maintenance Manual.

- C. Upon completion of the work, provide a schedule of planned maintenance for each piece of equipment. Indicate frequency of service, recommended spare parts and methods for adjustment and alignment of all equipment components. Provide a copy of the schedule with each operating and maintenance manual. Provide a copy of certification from the Owner's representative indicating that they have been properly instructed in maintenance requirements for the equipment installed.

3.14 COMMISSIONING AND PRELIMINARY OPERATIONAL TESTS

- A. Prior to observation to determine final acceptance, put fire protection systems into service and check that work required has been done, including but not limited to the following condensed check list. Provide indexed report to tabulating the results of tests.
 - 1. Equipment has been started, checked, lubricated and adjusted in accordance with manufacturer's recommendations.
 - 2. Correct rotation of motors and ratings of overload heaters are verified.
 - 3. All manufacturers' certificates of start-up specified have been delivered to Owner.
 - 4. All equipment has been cleaned, and damaged painted finishes touched up.
 - 5. Missing or damaged parts have been replaced.
 - 6. Flushing of piping systems has been completed and water treatment equipment, where specified, is completed.
 - 7. Equipment labels, pipe marker labels, ceiling markers and valve tags are installed.
 - 8. Valve tag schedules, corrected control diagrams, sequence of operation lists and start-stop instructions have been posted.
 - 9. Maintenance manuals have been delivered and Owner training has been completed.
- B. Review of Contractor's Tests:
 - 1. Tests made by Contractor or manufacturers' representatives are subject to observation and review by Owner. Provide timely notice prior to start of each test, in order to allow for observation of testing. Upon completion of tests, provide letter to confirm that testing has been successful.
- C. Test Logs:
 - 1. Maintain test logs listing the tests on mechanical systems showing dates, items tested, inspectors' names, remarks on success or failure of tests.

END OF SECTION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Sprinkler heads.
 - 2. Pipe and Fittings.

1.2 RELATED REQUIREMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. Section 21 0050 Basic Fire Sprinkler Materials and Methods.

1.3 REFERENCES AND STANDARDS

- A. It is the intent of these Specifications to provide for complete and operating fire protection automatic sprinkler system in full compliance with the following standards:
 - 1. National Fire Protection Association (NFPA) Standard No. 13, 2016, as amended by the CBC.
 - 2. CBC Chapter 9.
- B. The work shall also be in accordance with local or state requirements that apply.

1.4 DESCRIPTION OF WORK

- A. Work of this section includes, but is not necessarily limited to, the following:
- B. An existing fire sprinkler system is in place, consisting of a fire sprinkler riser for each zone with the main supply line and zone control valve for each floor, branch lines, and tees to each sprinkler head. Extend and modify the existing system as required to properly protect the building in accordance with NFPA 13 criteria.

1.5 ADMINISTRATIVE REQUIREMENTS

- A. Sequencing:
 - 1. It is expected that the Project shall progress according to the following sequence of events:
 - a. Upon award of bid, Contractor shall begin preparing coordination drawings. See Coordination Article.
 - b. Completed coordination drawings shall be submitted to Architect for review. See Submittals Article in this Section and in Section 21 0050.
 - c. Engineer will determine need for Project re-submittal to DSA:

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- 1) No DSA re-submittal required: Coordination drawings will be returned to Contractor with comments noted and Contractor shall proceed with fabrication and erection of system in accordance with Contract Documents and reviewed submittal.
 - 2) DSA re-submittal required: Engineer will incorporate changes depicted in coordination drawings into Contract Drawings and hydraulic calculations for re-submittal to DSA. Upon DSA approval of re-submittal, Contractor shall proceed with fabrication and erection of system in accordance with modified Contract Documents.
- d. Contractor shall issue Request for Information (RFI) for each field change required after approval of coordination drawings or approval of DSA re-submittal has been obtained. Contractor shall not proceed with changes prior to RFI response.
 - e. Contractor shall inform Architect immediately if deviating from this sequence of events.
2. The coordination process may not be used to redesign an automatic fire sprinkler system by the Contractor. Only those changes required for coordination with the work of other trades will be allowed.

B. Coordination:

1. Coordinate Work in this Section with trades covered in other Sections of Specifications to provide a complete and operable installation of highest quality workmanship.
2. Coordinate location of fire protection piping, mains and branches, to avoid interference with work by other trades. Plumbing drainage piping and ductwork shall have right-of-way over fire protection piping. Wherever conflicts exist, fire protection piping shall be offset or rerouted at no additional cost to Owner. Provide locations of piping for use in Coordinated Layout called for in Specification Section 23 8000.
3. Piping shall be concealed, except where so indicated or where absolutely necessary to be exposed. Exposed piping shall be placed as approved by Architect prior to installation. Heads shall be fully coordinated with architectural reflected ceiling plan and placed in center of ceiling tiles.
4. On-site measurement of pipe will be required. Offsets, pipe, fittings, drains, etc., required to meet job conditions shall be furnished and installed at no extra cost to Owner.
5. Additional heads required by NFPA 13 regulations shall be provided at no extra cost, if required as a result of Contractors' coordination. Location of heads and mains shall not be changed unless approved by Architect.
6. Coordinate layout and installation of sprinklers with other construction penetrating ceilings, including light fixtures, HVAC equipment, and partition assemblies.
7. The Architect shall decide any differences or disputes concerning coordination, interference or extent of work, and his decision shall be final.

8. Contract Drawings are schematic. Rerouting of pipe and the addition, deletion or relocation of sprinkler heads may be necessary. Contractor shall prepare coordination drawings documenting changes. Contractor shall not proceed with fabrication or installation of fire protection system prior to approval of coordination drawings by Architect.
 - a. Re-submittal of revised Contract Drawings and calculations to DSA will be required when changes to the system design, made during Project coordination phase, alter parameters used in calculations furnished to DSA for permitting purposes. If re-submittal to DSA is required, mechanical Engineer shall prepare revised Drawings and hydraulic calculations. Contractor shall not proceed with fabrication or installation of fire protection system prior to approval of revised calculations by DSA.
 - b. Contractor-proposed changes to supports, anchorages, and seismic restraints for fire protection system shall conform to the following.
 - 1) Calculations performed for use in selection of supports, anchorages, and seismic restraints shall utilize criteria indicated in Structural Contract Documents.
 - 2) Supports, anchorage and seismic restraints for piping and equipment shall be an HCAI pre-approved system such as Tolco, Afcon, ISAT, Badger, Mason, or equal. Pipes and equipment shall be seismically restrained in accordance with requirements of current editions of California Building Code and NFPA 13. System shall have current OPM number and shall meet additional requirements of authority having jurisdiction. Provide supporting documentation required by the reviewing authority and the Architect and Engineer. Provide layout drawings showing piping and restraint locations.
 - a) Bracing of Piping and Equipment: Specifically state how bracing attachment to structure is accomplished. Provide shop drawings indicating seismic restraints, including details of anchorage to building. In-line equipment must be braced independently of piping, and in conformance with applicable building codes. Provide calculations to show that pre-approval numbers have been correctly applied in accordance with general information notes of pre-approval documentation.
 - 3) In lieu of the above or for non-standard installations not covered in the above pre-approved systems, Contractor shall provide layout drawings showing piping, equipment, and restraint locations, and detailing supports, attachments and restraints. Furnish supporting calculations and legible details sealed by a California registered structural engineer, in accordance with California Building Code, and NFPA 13.
 - 4) Additional Requirements: In addition to the above, conform to State and local requirements.

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1.6 DRAWINGS

- A. Contractor shall thoroughly examine architectural, structural, and other Drawings provided as part of this Contract.
- B. Number of sprinkler heads indicated on Contract Drawings shall not be reduced. Provide additional heads required for coordination and to obtain approvals. Coordinate suitable head locations and spacing with Architect.
- C. Installation Criteria: Provide complete fire protection systems as indicated and as required by authority having jurisdiction.
 - 1. When there is conflict between requirements of authority having jurisdiction or requirements of other agencies and these Drawings and Specifications, requirements of authority having jurisdiction and recommendations of standards agencies shall govern.
 - 2. Install entire system in accord with applicable codes, standards, and regulations.
 - 3. The automatic sprinkler system shall conform to requirements of the National Fire Protection Association, Standard No. 13, as amended by the CBC.
 - 4. FM Compliance: Comply with Factory Mutual "Approval Guide."
 - 5. Supply equipment and accessories in accordance with requirements of applicable national, state and local codes.
 - 6. Items of a given type shall be the products of the same manufacturer.
 - 7. Scheduled equipment performance is minimum capacity required.
 - 8. Scheduled electrical capacity shall be considered as maximum available.

1.7 ACTION SUBMITTALS

- A. For additional requirements, refer to Section 21 0050, Basic Fire Sprinkler Materials and Methods.
- B. Product Data: Submit manufacturer's technical product data and installation instructions for fire protection systems materials and products.
- C. Samples: Provide one sample of each sprinkler head type.

1.8 INFORMATIONAL SUBMITTALS

- A. For additional requirements, refer to Section 21 0050, Basic Fire Sprinkler Materials and Methods.
- B. Welding operator qualification certificates.
- C. Office of the State Fire Marshall (OSFM) certification cards for automatic fire extinguishing systems sprinkler pipefitters.
- D. Coordination Drawings: Submit in accordance with Division 01, and as follows:
 - 1. Provide minimum 1/4 inch equals one foot scaled coordination drawings showing plan and pertinent section or elevation views of fire protection piping, equipment,

and accessories. Drawings shall be reproducible and work represented shall be fully coordinated with structure, other disciplines, and with finishes. Drawings shall be presented on a single size sheet. Coordination drawings shall have title block, key plan, north arrow and sufficient grid lines to provide cross-reference to DSA approved Drawings.

2. Coordination drawings shall depict changes and additions to fire protection system required for coordination with work of other trades. Changes and additions shall be clouded.
 3. Note on coordination drawings piping which will project beyond finished surfaces of normally occupied rooms, exterior of building or other locations which will expose system to view.
 4. Coordination drawings shall be provided with note affirming that the fire sprinkler system shown has been coordinated with the HVAC Contractor for inclusion in Coordinated Layout specified in Section 23 8000. Provide signature of person responsible for information supplied and date of transmission.
- E. For proposed changes to supports, anchorage, and seismic restraints shown on DSA approved Contract Drawings, submit details and calculations prepared, sealed, and signed by a California registered structural engineer. Comply with requirements of Coordination Article in this Section.
- F. Test Reports: As indicated in paragraph "Tests."
1. Sprinkler pressure test.
 2. Standpipe pressure test.
 3. Alarm system test.
 4. Underground piping test.

1.9 CLOSEOUT SUBMITTALS

- A. For additional requirements, refer to Section 21 0050, Basic Fire Sprinkler Materials and Methods.
- B. Operation and Maintenance Manual:
1. Operation and Maintenance Manual in accordance with Section 21 0050. Include an original copy of NFPA 25, California edition, in Operation and Maintenance Manual for fire sprinkler system.
 2. Guarantees in accordance with Division 01.

1.10 TEMPORARY CONNECTIONS

- A. Temporary connections required to maintain services during the course of the Contract shall be made without additional cost to Owner. The normal function of the building must not be interrupted; notify Owner minimum seven days in advance before interrupting any service.

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1.11 QUALITY ASSURANCE

- A. Manufacturers: Firms regularly engaged in manufacture of fire protection products, of types, materials, and sizes required, whose products have been in satisfactory use in similar service for not less than 5 years.
- B. Installer Qualifications: A firm with at least five years of successful installation experience on projects with fire sprinkler piping systems similar to that required for this Project.
 - 1. A State of California Fire Protection Contractor's license (C-16) is required.
- C. Fire Sprinkler Fitter Certification:
 - 1. Automatic fire extinguishing systems sprinkler pipefitters shall be certified by Office of the State Fire Marshall (OSFM).

PART 2 - PRODUCTS

2.1 GENERAL

- A. The equipment to be furnished under this Specification shall be standard product of manufacturer. Where two or more units of the same class of equipment are required, these units shall be products of a single manufacturer; however, component parts of system need not be products of the same manufacturer.

2.2 MATERIALS AND EQUIPMENT

- A. Unless otherwise shown on Drawings, specified, or directed by Architect, materials and equipment used in installation of sprinkler systems shall be listed as approved by FM or UL for fire protection systems, and shall be the latest design of the manufacturer.

2.3 SPRINKLER HEADS

- A. Provide spray pattern type sprinkler heads, of ordinary degree temperature rating, except that sprinkler heads for installation in vicinity of heating equipment, and in other areas noted on Drawings, shall have temperature ratings required for such locations by NFPA 13.
- B. Sprinkler heads shall be upright, pendent or sidewall, as required.
 - 1. Heads in ceilings of occupied spaces with recessed lights shall be chrome plated, semi-recessed pendent type, with white escutcheon.
 - 2. Sprinkler heads in rooms with surface mounted lights shall be chrome plated pendant style, with two-piece white escutcheon.
 - 3. Provide head guards in equipment rooms and storage rooms and all other locations where subject to damage.
 - 4. Upright heads in areas with no ceilings shall be rough bronze finish.
 - 5. Provide quick response type heads in light and ordinary hazard occupancies.

6. Side wall heads may be used (except in extended coverage type) to cover special areas where overhead piping and heads are impractical or considered a visual problem by the Architect or Owner. Side wall heads shall be chrome finish.
 7. Outdoor heads, if required shall be dry or freeze resistant.
 8. Adjustable drop nipples are not acceptable.
- C. Recessed sprinkler heads shall have chrome finish and adjustable chrome finish escutcheons; exposed pendent heads in finished ceilings shall have chrome finish and white ceiling escutcheons. Concealed (flush) heads shall be all brass, with white cover plate.
1. Provide oversized escutcheons where required to meet the requirements of ASCE 7.
- D. Spare Heads: Furnish spare heads equal to one percent of total number of heads installed under Contract, but not less than twelve. Spare head types furnished shall be representative of types and temperature ratings of heads installed, and in proportion to number of each type and temperature rating of heads installed. Furnish not less than two sprinkler head wrenches, with at least one wrench for each type of sprinkler head installed. Place spare heads and wrenches in wall mounted box manufactured for this purpose.

2.4 PIPE AND FITTINGS

- A. For Installation Aboveground: Schedule 40 black steel pipe, ASTM A 53 with ductile or cast iron screwed fittings.
1. Schedule 10 black steel pipe, ASTM A 135 or ASTM A 795, with grooved fittings and associated couplings may be used for pipe sizes 2 inches through 5 inches. Provide NFPA 13-specified wall thickness for pipe sizes 6 inches through 10 inches. Threading of piping will not be accepted.
- B. Mechanical tees, saddle fittings, bushings and mechanical sprinkler head fittings shall not be used.

2.5 UNION AND FLANGES

- A. Size and Type:
1. Steel 2 inches and smaller: 150 pound screwed black or galvanized malleable iron, match pipe, ground joint, brass to iron seat.
 2. Steel 2-1/2 inches and larger: 150 pound black flange union, flat faced, full gasket.
- B. Gaskets: 1/16 inch thick rubber Garlock #122, Johns-Manville, or equal.
- C. Flange Bolts: Open hearth bolt steel, square heads, with cold pressed hexagonal nuts, cadmium plated when installed below ground. Provide copper plated steel bolts and nuts or brass bolts and nuts for brass flanges.

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2.6 GAUGES

- A. Marsh "Quality Gage", U.S. Gage, Danton 800, or equal, U.L. listed, with bronze bushed movement and front recalibration. Dials shall be white with black numerals, 3-1/2 inch dial face. Normal reading shall be at midscale. Provide a three-way valve on each gauge connection.

PART 3 - EXECUTION

3.1 GENERAL

- A. Installation of the sprinkler system shall not be started until complete plans and specifications (including water supply information and type of existing sprinkler system, if any) have been approved by DSA.
 - 1. Piping shall be concealed unless shown or otherwise directed.
 - 2. Where piping is left exposed within a room, it shall be run true to vertical, horizontal or intended planes. Where possible, uniform margins shall be maintained between parallel lines and/or adjacent wall, floor or ceiling surfaces.
 - 3. Horizontal runs of pipes and/or electrical conduit suspended from ceilings shall provide for maximum headroom clearance. This clearance shall not be less than 6'-6" without written approval from Architect.
 - 4. Minor changes in locations of equipment, piping, etc., from locations shown shall be made when directed by Architect at no additional cost to Owner, providing such change is ordered before such items of work, or work directly connected to same, are installed, and providing no additional material is required.
 - 5. Grade all piping as required by NFPA 13.
 - 6. Close ends of pipe immediately after installation; leave closure in place until removal is necessary for completion of installation.
 - 7. Piping systems shall be thoroughly flushed and proved clean before connection to equipment.
 - 8. Pipe discharge of each drain valve to floor sink or drain.

3.2 HANGER AND SUPPORT INSTALLATION

- A. General: Support piping so that it is firmly held in place by approved iron hangers and supports and by special hangers as required in accordance with NFPA 13. Hangers shall support loads specified in NFPA 13, and, in addition, shall support weight of pipe, fluid and pipe insulation, based on spacing between supports with minimum factor of safety of five based on ultimate strength of material used. Do not exceed manufacturer's load rating. Pipe attachments, or hangers, shall be of same size as pipe or tubing on which used, or nearest larger size available. Materials, design, and type numbers per Manufacturers' Standardization Society (MSS) Standard Practice SP-58, provide branch line restraints where hangers exceed 6 inches long, in accordance with NFPA 13. Install concrete anchors required. Hanger material shall be approved by Architect before installation. Do not support piping by plumbers' tape, wire, rope, wood or other makeshift devices.

- B. Suspend rods from angle clips, in accordance with Section 21 0050.

3.3 SEISMIC REQUIREMENTS

- A. Comply with CBC, Volume 2, Chapter 16A and CBC Chapter 9 and NFPA 13.
- B. Items of equipment shown or specified to be anchored shall maintain integrity at point of anchor after being subjected to accelerations equivalent to those established herein
- C. Anchors: Piping shall be provided with anchors for protection of piping against damage due to earthquakes, as required by CBC Chapter 16A, NFPA 13, and other sections of this Specification.

3.4 TESTS

- A. At various stages and upon completion, the system shall be tested in the presence of the enforcing agency.
- B. Upon completion and prior to acceptance of the installation, subject entire new system to tests required by NFPA 13, and furnish Owner with certificates as appropriate.

3.5 IDENTIFICATION

- A. Coordinate requirements with the authority having jurisdiction.
- B. Provide brass valve tags at each system valve, indicating valve service.
- C. Provide signage at each sprinkler valve, with sign indicating specific portion of system controlled by valve.
- D. Provide signage at each outdoor alarm device, with sign indicating which authority to call if device is activated.
- E. Provide hydraulic data signage permanently attached to risers, indicating location, basis of design, water supply and pressure requirements of system.

3.6 ELECTRICAL WIRING

- A. Coordination of wiring systems is part of this work. Contractor shall ensure that the following is completed.
 - 1. Work provided in other Specification Sections:
 - a. Supervised wiring to fire alarm control panel.
 - b. Supervised wiring from main waterflow indicator to fire alarm panel.
 - c. Supervised wiring from sprinkler flow switches to fire alarm panel.
 - d. Supervised wiring from valve water flow alarm switches to fire alarm panel.
 - 2. Work provided in this Specification Section:
 - a. Wiring diagrams for devices.

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- b. Other wiring not specified to provide an operating system.

3.7 SPRINKLER HEAD INSTALLATION

- A. Heads shall be placed upright where on exposed piping, unless otherwise noted, and in pendant position on concealed piping, unless noted otherwise, with deflectors parallel to the ceiling or roof slope. Clearance between deflectors and ceilings, electric, or heating equipment, or other obstruction shall be in accordance with the requirements of NFPA 13. Provide sprinkler head guards where heads are subject to mechanical damage, for example, at mechanical rooms, and storage rooms and gymnasiums.
- B. Mount box containing spare sprinkler heads and wrenches on wall in location selected by Owner.
- C. Do not install pendent sprinkler heads until flushing of piping has been completed.
- D. Provide return bend as illustrated in NFPA 13 (NFPA exceptions do not apply) for each sprinkler head installed in finished ceiling.

3.8 PIPING INSTALLATION

- A. Pipe shall be assembled in accordance with the applicable requirements of NFPA 13 and NFPA 24.
- B. Provide concrete thrust blocks for underground and underslab piping in accordance with NFPA 24 and CBC.

3.9 DRAIN INSTALLATION

- A. Auxiliary drains shall be installed on low points in each system.
 - 1. Five or fewer trapped gallons will not require a drain valve but may be drained through a plugged fitting. Drain valves shall be in accordance with requirements of NFPA 13.
- B. Install one inspector's test drain on sprinkler system. Extend drain to outside in location approved by Architect. Water discharge shall be positioned such that landscaping will not be damaged.
- C. Drain valves shall be piped to a safe place of discharge and discharge shall be visible either by open-end drainpipe or sight drain fitting.
- D. Provide flushing connections at ends of cross-mains.

3.10 SLEEVE INSTALLATION

- A. Install AMI Products, Adjus-to-Crete, or equal, pipe sleeves of sufficient size to allow for free motion of pipe, 24 gauge galvanized steel. The space between pipe and sleeves through floor slabs on ground, through outside walls above or below grade, through roof, and other locations as directed shall be caulked with oakum and mastic

and made watertight. The space between pipe and sleeve and between sleeve and slab or wall shall be sealed watertight.

- B. Holes through existing concrete walls or floors shall be core drilled. The space between pipe and hole through floor slabs on ground, through outside walls above or below grade, through roof and other locations as directed shall be made watertight.
- C. At walls below grade: Link-Seal casing seals, or equal, may be used in lieu of caulking. Pipes penetrating walls below grade shall be anchored at wall.

3.11 FLOOR, WALL, AND CEILING PLATE INSTALLATION

- A. Fit pipes with or without insulation passing through walls, floors, or ceilings, and hanger rods penetrating finished ceilings with chrome plated or stainless steel plates.

3.12 FIRESTOPPING

- A. The annular space between pipe sleeves and pipe passing through all floors and walls shall be packed with incombustible mastic or other suitable material, in accordance with U.L. Fire Resistance Directory.
- B. Penetrations in fire rated assemblies shall also be protected in accordance with CBC Chapter 7, Section 712, and UL Fire Resistance Directory.

3.13 UNION AND FLANGE INSTALLATION

- A. Install unions whether shown or not at each connection to equipment and at one connection to each valve or cock.
- B. Locate the unions for easy removal of the equipment or valve.

3.14 CLEANING

- A. Upon completion of tests, clean equipment, piping, etc., installed under this Section of the Specifications.

3.15 PIPING SYSTEM FLUSHING

- A. Entire system shall be flushed out and cleaned after completion of piping, and prior to installation of sprinkler heads. Flush shall be continued until water runs clear at drain connections.

END OF SECTION