

PROJECT MANUAL

MARSHALL FUNDAMENTAL SCHOOL TOILET ROOMS MODERNIZATION AND ADA UPGRADES

990 Allen Ave, Pasadena, CA 91104

At

Pasadena Unified School District

DSA 03-125519; File No. 19-H19

Flewelling & Moody, Inc. Project#: 3189.0000

August 19, 2025

Prepared by:

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**PROJECT MANUAL
FOR
MARSHALL FUNDAMENTAL SCHOOL
TOILET ROOMS MODERNIZATION & ADA UPGRADES
for
PASADENA UNIFIED SCHOOL DISTRICT
Pasadena, California**

Prepared by
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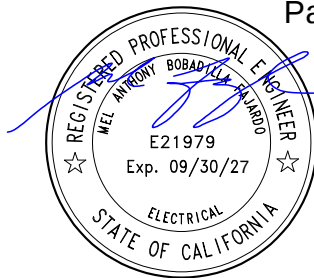
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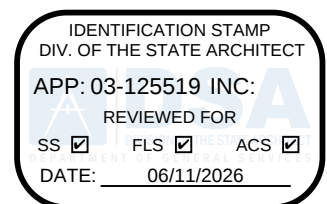
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Flewelling & Moody, Inc.
Project No. 3189.0000

SECTION 00 00 08
PROJECT DIRECTORY
Marshall Fundamental School
Toilet Rooms Modernization & ADA Upgrades

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NOT USED

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**SECTION 01 10 00
SUMMARY OF WORK**

PART 1 – GENERAL

1.01 SUMMARY

A. Section includes:

1. Project information.
2. Work covered by Contract Documents.
3. Work under separate contracts.
4. Access to site.
5. Coordination with occupants.
6. Work restrictions.
7. Specification and drawing conventions.

B. Related Section:

1. Division 01 50 00 Section "Temporary Facilities & Control" for limitations and procedures governing temporary use of Owner's facilities.

1.02 PROJECT INFORMATION

A. Project Identification: Marshall Fundamental School.

1. Project Location: 990 Allen Avenue, Pasadena, CA 91104

B. Owner: Pasadena Unified School District.

C. Architect: Flewelling & Moody, Inc.

1.03 WORK COVERED BY CONTRACT DOCUMENTS

A. The Work of the Project is defined by the Contract Documents and consists of the following:

1. Modernization of existing toilet rooms, ADA upgrades and associated utilities.

B. Type of Contract.

1. Project will be constructed under a single prime contract.

1.04 WORK UNDER SEPARATE CONTRACTS

- A. General: Cooperate fully with separate contractors so work on those contracts may be carried out smoothly, without interfering with or delaying work under this Contract or other contracts. Coordinate the Work of this Contract with work performed under separate contracts.

1.05 ACCESS TO SITE

- A. General: Contractor shall have full use of Project site for construction operations during construction period. Contractor's use of Project site is limited only by Owner's right to perform work or to retain other contractors on portions of Project.
- B. Use of Site: Limit use of Project site to areas within the Contract limits indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.

Retain first subparagraph below for greenfield sites if reduced site disturbance is required for LEED-NC Credit SS 5.1. See Evaluations.

- 1. Limits: Limit site disturbance, including earthwork and clearing of vegetation, to 40 feet (12.2 m) beyond building perimeter; 10 feet (3 m) beyond surface walkways, patios, surface parking, and utilities less than 12 inches (300 mm) in diameter; 15 feet (4.5 m) beyond primary roadway curbs and main utility branch trenches; and 25 feet (7.6 m) beyond constructed areas with permeable surfaces (such as pervious paving areas, storm water detention facilities, and playing fields) that require additional staging areas in order to limit compaction in the constructed area.
- 2. Driveways, Walkways and Entrances: Keep driveways loading areas, and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
 - a. Schedule deliveries to minimize use of driveways and entrances by construction operations.
 - b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

1.06 COORDINATION WITH OCCUPANTS

- A. Partial Owner Occupancy: Owner will not occupy the premises during entire construction period. Adjacent site is elementary school and residential area. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's operations. Maintain existing exits unless otherwise indicated.
 - 1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and authorities having jurisdiction.
 - 2. Provide not less than 72 hours' notice to Owner of activities that will affect Owner's operations.
- B. Owner Limited Occupancy of Completed Areas of Construction: Owner reserves the right to occupy and to place and install equipment in completed portions of the Work, prior to Substantial Completion of the Work, provided such occupancy does not interfere with completion of the Work. Such placement of equipment and limited occupancy shall not constitute acceptance of the total Work.

1. Architect will prepare a Certificate of Substantial Completion for each specific portion of the Work to be occupied prior to Owner acceptance of the completed Work.
2. Obtain a Certificate of Occupancy from authorities having jurisdiction before limited Owner occupancy.
3. Before limited Owner occupancy, mechanical and electrical systems shall be fully operational, and required tests and inspections shall be successfully completed. On occupancy, Owner will operate and maintain mechanical and electrical systems serving occupied portions of Work.
4. On occupancy, Owner will assume responsibility for maintenance and custodial service for occupied portions of Work.

1.07 WORK RESTRICTIONS

- A. Work Restrictions, General: Comply with restrictions on construction operations.
 1. Comply with limitations on use of public streets and other requirements of authorities having jurisdiction.
- B. On-Site Work Hours: Limit work in the existing building to normal business working hours as regulated by the City of Sierra Madre.
- C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated:
 1. Notify Owner not less than two days in advance of proposed utility interruptions.
 2. Obtain Owner's written permission before proceeding with utility interruptions.
- D. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise and vibration, odors, or other disruption to Owner occupancy with Owner.
 1. Notify Owner not less than two days in advance of proposed disruptive operations.
 2. Obtain Owner's written permission before proceeding with disruptive operations.
- E. Nonsmoking Building: Smoking is not permitted within the building or within 25 feet (8 m) of entrances, operable windows, or outdoor air intakes.
- F. Controlled Substances: Use of tobacco products and other controlled substances on the Project site is not permitted.

1.08 SPECIFICATION AND DRAWING CONVENTIONS

- A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
 1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.

2. Specification requirements are to be performed by Contractor unless specifically stated otherwise.
- B. Division 1 General Requirements: Requirements of Sections in Division 1 apply to the Work of all Sections in the Specifications.
- C. Drawing Coordination: Requirements for materials and products identified on the Drawings are described in detail in the Specifications. One or more of the following are used on the Drawings to identify materials and products:
1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
 2. Abbreviations: Materials and products are identified by abbreviations published as part of the U.S. National CAD Standard and scheduled on Drawings.
 3. Keynoting: Materials and products are identified by reference keynotes referencing Specification Section numbers found in this Project Manual.

PART 2 – PRODUCTS

NOT USED

PART 3 – EXECUTION

NOT USED

END OF SECTION

**SECTION 01 10 45
CUTTING AND PATCHING**

PART 1 – GENERAL

1.01 SUMMARY

- A. This Section establishes general requirements pertaining to cutting (including excavating), fitting, and patching of the Work required to:
 - 1. Make the several parts fit properly;
 - 2. Uncover work to provide for installing, inspecting, or both, of ill-timed work;
 - 3. Remove and replace work not conforming to requirements of the Contract Documents; and
 - 4. Remove and replace defective work.
- B. Related work:
 - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
 - 2. In addition to other requirements specified, upon the District's request uncover work to provide for inspection by the District of covered work, and remove samples of installed materials for testing.
 - 3. Do not cut or alter work performed under separate contracts without the District's written permission.

1.02 SUBMITTALS

- A. Request for District's consent:
 - 1. Prior to cutting which affects structural safety, submit written request to the Project Manager for permission to proceed with cutting.
 - 2. Should conditions of the Work, or schedule, indicate a required change of materials or methods for cutting and patching, so notify the Project Manager and secure his written permission and the required Change Order prior to proceeding.
- B. Notices to the Project Manager:
 - 1. Prior to cutting and patching performed pursuant to the District's instructions, submit cost estimate to the Project Manager. Secure the Project Manager's approval of cost estimates and type of reimbursement before proceeding with cutting and patching.
 - 2. Submit written notice to the Project Manager designating the time the Work will be uncovered, to provide for the District's observation.

1.03 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workmen thoroughly trained and experienced in the necessary crafts and completely familiar with the specified requirements and methods needed for proper performance of the work of this Section.

PART 2 – PRODUCTS

2.01 MATERIALS

- A. For replacement of items removed, use materials complying with pertinent Sections of these Specifications.

2.02 PAYMENT FOR COSTS

- A. The Owner will reimburse the Contractor for cutting and patching performed pursuant to a written Change Order, after claim for such reimbursement is submitted by the Contractor. Perform other cutting and patching needed to comply with the Contract Documents at no additional cost to the Owner.

PART 3 – EXECUTION

3.01 SURFACE CONDITIONS

- A. Inspection:
 - 1. Inspect existing conditions, including elements subject to movement or damage during cutting, excavating, patching, and backfilling.
 - 2. After uncovering the work, inspect conditions affecting installation of new work.
- B. Discrepancies:
 - 1. If uncovered conditions are not as anticipated, immediately notify the Architect and secure needed directions.
 - 2. Do not proceed until unsatisfactory conditions are corrected.

3.02 PREPARATION PRIOR TO CUTTING

- A. Provide required protection including, but not necessarily limited to, shoring, bracing, and support to maintain structural integrity of the Work.

3.03 PERFORMANCE

- A. Perform required excavating and backfilling as required under pertinent other Sections of these Specifications and OSHA standards for such work.
 - 1. Perform cutting and demolition by methods which will prevent damage to other portions of the Work and provide proper surfaces to receive installation of repair and new work.

2. Perform fitting and adjusting of products to provide finished installation complying with the specified tolerances and finishes.
3. Typically chip back existing adjoining plaster surfaces to expose the lath and building paper to permit proper lapping on new infill materials.

END OF SECTION

SECTION 01 31 00
PROJECT MANAGEMENT AND COORDINATION

PART 1 – GENERAL

1.01 SUMMARY

- A. Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
 - 1. Coordination drawings.
 - 2. Requests for Information (RFIs).
 - 3. Project meetings.

1.02 DEFINITIONS

- A. RFI: Request from Owner, Architect, or Contractor seeking information from each other during construction.

1.03 COORDINATION

- A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections that depend on each other for proper installation, connection, and operation.
 - 1. Schedule construction operations in sequence required obtaining the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
 - 2. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.
 - 3. Make adequate provisions to accommodate items scheduled for later installation.
- B. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
 - 1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.
- C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
 - 1. Preparation of Contractor's construction schedule.
 - 2. Preparation of the schedule of values.

3. Installation and removal of temporary facilities and controls.
4. Delivery and processing of submittals.
5. Progress meetings.
6. Pre-installation conferences.
7. Project closeout activities.
8. Startup and adjustment of systems.
9. Project closeout activities.

1.04 COORDINATION DRAWINGS

- A. Coordination Drawings, General: Prepare coordination drawings in accordance with requirements in individual Sections, where installation is not completely shown on Shop Drawings, where limited space availability necessitates coordination, or if coordination is required to facilitate integration of products and materials fabricated or installed by more than one entity.
1. Content: Project-specific information, drawn accurately to a scale large enough to indicate and resolve conflicts. Do not base coordination drawings on standard printed data. Include the following information, as applicable:
 - a. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.
 - b. Indicate dimensions shown on the Drawings. Specifically note dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternate sketches to Architect indicating proposed resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.
- B. Coordination Drawing Organization: Organize coordination drawings as follows:
1. Floor Plans and Reflected Ceiling Plans: Show architectural and structural elements, and mechanical, plumbing, fire protection, fire alarm, and electrical Work. Show locations of visible ceiling-mounted devices relative to acoustical ceiling grid.
 2. Plenum Space: Indicate subframing for support of ceiling and wall systems, mechanical and electrical equipment, and related Work. Locate components within ceiling plenum to accommodate layout of light fixtures indicated on Drawings.
 3. Mechanical Rooms: Provide coordination drawings for mechanical rooms showing plans and elevations of mechanical, plumbing, fire protection, fire alarm, and electrical equipment.
 4. Structural Penetrations: Indicate penetrations and openings required for all disciplines.

5. Slab Edge and Embedded Items: Indicate slab edge locations and sizes and locations of embedded items for metal fabrications, sleeves, anchor bolts, bearing plates, angles, door floor closers, slab depressions for floor finishes, curbs and housekeeping pads, and similar items.
6. Review: Architect will review coordination drawings to confirm that the Work is being coordinated, but not for the details of the coordination, which are the Contractor's responsibility.

1.05 REQUESTS FOR INFORMATION (RFIs)

- A. General: Immediately on discovery of the need for additional information or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.
 1. Architect will return RFIs submitted to Architect by other entities controlled by Contractor with no response.
 2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.
- B. Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:
 1. Project name.
 2. Project number.
 3. Date.
 4. Name of Contractor.
 5. Name of Architect.
 6. RFI number, numbered sequentially.
 7. RFI subject.
 8. Specification Section number and title and related paragraphs, as appropriate.
 9. Drawing number and detail references, as appropriate.
 10. Field dimensions and conditions, as appropriate.
 11. Contractor's suggested resolution. If Contractor's solution(s) impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
 12. Contractor's signature.
 13. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.
- C. RFI Forms: AIA Document G716 or Software-generated form with substantially the same content as indicated above, acceptable to Architect.

- D. Architect's Action: Architect will review each RFI, determine action required, and respond. Allow seven working days for Architect's response for each RFI. RFIs received by Architect after 1:00 p.m. will be considered as received the following working day.
1. The following RFIs will be returned without action:
 - a. Requests for approval of submittals.
 - b. Requests for approval of substitutions.
 - c. Requests for coordination information already indicated in the Contract Documents.
 - d. Requests for adjustments in the Contract Time or the Contract Sum.
 - e. Requests for interpretation of Architect's actions on submittals.
 - f. Incomplete RFIs or inaccurately prepared RFIs.
 2. Architect's action may include a request for additional information, in which case Architect's time for response will date from time of receipt of additional information.
 3. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Division 1 Section "Contract Modification Procedures."
 - a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect and Owner's Project Manager in writing within 10 days of receipt of the RFI response.
- E. On receipt of Architect's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect and Owner's Project Manager within seven days if Contractor disagrees with response.
- F. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log weekly.
1. Project name.
 2. Name and address of Contractor.
 3. Name and address of Architect.
 4. RFI number including RFIs that were dropped and not submitted.
 5. RFI description.
 6. Date the RFI was submitted.
 7. Date Architect's response was received.
 8. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.

9. Identification of related Field Order, Work Change Directive, and Proposal Request, as appropriate.

1.06 PROJECT MEETINGS

- A. General: Architect will schedule and conduct meetings and conferences at Project site, unless otherwise indicated.
 1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times.
 2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
 3. Minutes: Entity responsible for conducting meeting will record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner, and Architect, within three days of the meeting.
- B. Preconstruction Conference: Architect will schedule and conduct a preconstruction conference before starting construction, at a time convenient to Owner and Architect, but no later than 15 days after execution of the Agreement.
 1. Attendees: Authorized representatives of Owner, Architect, Contractor and its superintendent. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
 2. Agenda: Discuss items of significance that could affect progress, including the following:
 - a. ntative construction schedule.
 - b. Phasing.
 - c. Critical work sequencing and long-lead items.
 - d. Designation of key personnel and their duties.
 - e. Procedures for processing field decisions and Change Orders.
 - f. Procedures for RFIs.
 - g. Procedures for testing and inspecting.
 - h. Procedures for processing Applications for Payment.
 - i Distribution of the Contract Documents.
 - i. Submittal procedures.
 - k Sustainable design requirements.
 - l Preparation of record documents.

- m. Use of the premises and existing building.
- n. Work restrictions.
- o. Working hours.
- p. Owner's occupancy requirements.
- q. Responsibility for temporary facilities and controls.
- r. Procedures for moisture and mold control.
- s. Procedures for disruptions and shutdowns.
- t. Construction waste management and recycling.
- u. Parking availability.
- v. Office, work, and storage areas.
- w. Equipment deliveries and priorities.
- x. First aid.
- y. Security.
- z. Progress cleaning.

- 3. Minutes: Entity responsible for conducting meeting will record and distribute meeting minutes.

C. Preinstallation Conferences: Conduct a preinstallation conference at Project site before each construction activity that requires coordination with other construction.

- 1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Architect, and Owner's Project Manager, of scheduled meeting dates.
- 2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:
 - a. Contract Documents.
 - b. Options.
 - c. Related RFIs.
 - d. Related Change Orders.

- e. Purchases.
 - f. Deliveries.
 - g. Submittals.
 - h. Review of mockups.
 - i. Possible conflicts.
 - j. Compatibility problems.
 - k. Time schedules.
 - l. Weather limitations.
 - m. Manufacturer's written recommendations.
 - n. Warranty requirements.
 - o. Compatibility of materials.
 - p. Acceptability of substrates.
 - q. Temporary facilities and controls.
 - r. Space and access limitations.
 - s. Regulations of authorities having jurisdiction.
 - t. Testing and inspecting requirements.
 - u. Installation procedures.
 - v. Coordination with other work.
 - w. Required performance results.
 - x. Protection of adjacent work.
 - y. Protection of construction and personnel.
3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
 4. Reporting: Distribute minutes of the meeting to each party present and to other parties requiring information.
 5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.

D. Progress Meetings: Architect will conduct progress meetings at weekly intervals.

1. Attendees: Representative of Owner, Architect and Contractor. All participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
 - a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
 - 1) Review schedule for next period.
 - b. Review present and future needs of each entity present, including the following:
 - 1) Interface requirements.
 - 2) Sequence of operations.
 - 3) Status of submittals.
 - 4) Deliveries.
 - 5) Off-site fabrication.
 - 6) Access.
 - 7) Site utilization.
 - 8) Temporary facilities and controls.
 - 9) Progress cleaning.
 - 10) Quality and work standards.
 - 11) Status of correction of deficient items.
 - 12) Field observations.
 - 13) Status of RFIs.
 - 14) Status of proposal requests.
 - 15) Pending changes.
 - 16) Status of Change Orders.
 - 17) Pending claims and disputes.

- 18) Documentation of information for payment requests.
- 3. Minutes: Entity responsible for conducting the meeting will record and distribute the meeting minutes to each party present and to parties requiring information.
 - a. Schedule Updating: Revise Contractor's construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

PART 2 – PRODUCTS

NOT USED

PART 3 – EXECUTION

NOT USED

END OF SECTION

**SECTION 01 33 00
SUBMITTAL PROCEDURES**

PART 1 – GENERAL

1.01 SUMMARY

- A. Section includes requirements for the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.
- B. Related Sections:
 - 1. Division 1 Section "Operation and Maintenance Manuals" for submitting operation and maintenance manuals.

1.02 DEFINITIONS

- A. Action Submittals: Written and graphic information and physical samples that require Architect's responsive action.
- B. Informational Submittals: Written and graphic information and physical samples that do not require Architect's responsive action. Submittals may be rejected for not complying with requirements.

1.03 ACTION SUBMITTALS

- A. Submittal Schedule: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or modifications to submittals noted by the Architect and additional time for handling and reviewing submittals required by those corrections.

1.04 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

- A. All submittals to be provided by Contractor within 15 days of award of bid.
- B. Architect's Digital Data Files: Electronic copies of CAD Drawings of the Contract Drawings will not be provided by Architect for Contractor's use in preparing submittals.
- C. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
 - 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that requires sequential activity.
 - 2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
 - a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

- D. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
1. Initial Review: Allow 18 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
 2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
 3. Resubmittal Review: Allow 15 days for review of each resubmittal.
 4. DSA Deferred Approval: In addition to the review periods indicated above allow 90 days for DSA review and approval.
- E. Identification and Information: Place a permanent label or title block on each paper copy submittal item for identification.
1. Indicate name of firm or entity that prepared each submittal on label or title block.
 2. Provide a space approximately 6 by 8 inches (150 by 200 mm) on label or beside title block to record Contractor's review and approval markings and action taken by Architect.
 3. Include the following information for processing and recording action taken:
 - a. Project name.
 - b. Date.
 - c. Name of Architect.
 - d. Name of Construction Manager.
 - e. Name of Contractor.
 - f. Name of subcontractor.
 - g. Name of supplier.
 - h. Name of manufacturer.
 - i. Submittal number or other unique identifier, including revision identifier.
 - 1) Submittal number shall use Specification Section number followed by a decimal point and then a sequential number (e.g., 06 10 00.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., 06 10 00.01.A).
 - j. Number and title of appropriate Specification Section.
 - k. Drawing number and detail references, as appropriate Location(s) where product is to be installed, as appropriate.

- I. Other necessary identification.
- F. Identification and Information: Identify and incorporate information in each electronic submittal file as follows:
- 1. Assemble complete submittal package into a single indexed file with links enabling navigation to each item.
 - 2. Name file with submittal number or other unique identifier, including revision identifier.
 - a. File name shall use project identifier and Specification Section number followed by a decimal point and then a sequential number (e.g., LNHS-06 10 00.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., LNHS-06 10 00.01.A).
 - 3. Provide means for insertion to permanently record Contractor's review and approval markings and action taken by Architect.
 - 4. Include the following information on an inserted cover sheet:
 - a. Project name.
 - b. Date.
 - c. Name and address of Architect.
 - d. Name of Construction Manager.
 - e. Name of Contractor.
 - f. Name of firm or entity that prepared submittal.
 - g. Name of subcontractor.
 - h. Name of supplier.
 - i. Name of manufacturer.
 - j. Number and title of appropriate Specification Section.
 - k. Drawing number and detail references, as appropriate.
 - l. Location(s) where product is to be installed, as appropriate.
 - m. Related physical samples submitted directly.
 - n. Other necessary identification.
- G. Options: Identify options requiring selection by the Architect.
- H. Deviations: Identify deviations from the Contract Documents on submittals.
- I. Additional Paper Copies: Unless additional copies are required for final submittal, and unless Architect observes noncompliance with provisions in the Contract Documents, initial submittal may serve as final submittal.

1. Submit one copy of submittal to concurrent reviewer in addition to specified number of copies to Architect.
- J. Transmittal: Assemble each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Architect will return submittals, without review, received from sources other than Contractor.
1. On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Architect on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same identification information as related submittal.
- K. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
1. Note date and content of previous submittal.
 2. Note date and content of revision in label or title block and clearly indicate extent of revision.
 3. Resubmit submittals until they are marked with approval notation from Architect's action stamp.
- L. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, and authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- M. Use for Construction: Use only final submittals that are marked with approval notation from Architect's action stamp.

PART 2 – PRODUCTS

2.01 SUBMITTAL PROCEDURES

- A. General Submittal Procedure Requirements:
1. Action Submittals: Submit Six paper copies of each submittal, unless otherwise indicated. Architect through owner's project manager will return at least two copies.
 2. Informational Submittals: Submit Four paper copies of each submittal, unless otherwise indicated. Architect and owner's project manager will not return copies.
 3. Closeout Submittals and Maintenance Material Submittals: Comply with requirements specified in Division 1 Section "Closeout Procedures."
 4. Certificates and Certifications Submittals: Provide a 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.
 - a. Provide a digital signature with digital certificate on electronically submitted certificates and certifications where indicated.

- b. Provide a notarized statement on original paper copy certificates and certifications where indicated.
 - 5. Test and Inspection Reports Submittals: Comply with requirements specified in Division 1 Section "Quality Requirements."
- B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
 - 1. If information must be specially prepared for submittal because standard published data are not suitable for use, submit as Shop Drawings, not as Product Data.
 - 2. Mark each copy of each submittal to show which products and options are applicable.
 - 3. Include the following information, as applicable:
 - a. Manufacturer's catalog cuts.
 - b. Manufacturer's product specifications.
 - c. Standard color charts.
 - d. Statement of compliance with specified referenced standards.
 - e. Testing by recognized testing agency.
 - f. Application of testing agency labels and seals.
 - g. Notation of coordination requirements.
 - h. Availability and delivery time information.
 - 4. For equipment, include the following in addition to the above, as applicable:
 - a. Wiring diagrams showing factory-installed wiring.
 - b. Printed performance curves.
 - c. Operational range diagrams.
 - d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.
 - 5. Submit Product Data before or concurrent with Samples.
 - 6. Submit Product Data in the following format:
 - a. Six paper copies of Product Data, unless otherwise indicated. Architect, through owner's project manager, will return two copies.
- C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.

1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
 - a. Identification of products.
 - b. Schedules.
 - c. Compliance with specified standards.
 - d. Notation of coordination requirements.
 - e. Notation of dimensions established by field measurement.
 - f. Relationship and attachment to adjoining construction clearly indicated.
 - g. Seal and signature of professional engineer if specified.

Revise first subparagraph below to establish a standard sheet size and format.

1. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches (215 by 280 mm) but no larger than 30 by 42 inches (750 by 1067 mm)].

Retain subparagraph below unless default submittal format specified elsewhere in this article applies.

- D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
 1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
 2. Identification: Attach label on unexposed side of Samples that includes the following:
 - a. Generic description of Sample.
 - b. Product name and name of manufacturer.
 - c. Sample source.
 - d. Number and title of applicable Specification Section.
 3. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
 - a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
 - b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.

4. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
 - a. Number of Samples: Submit four full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect, through Owner's Project Manager, will return one submittal with options selected.
5. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
 - a. Number of Samples: Submit four sets of Samples. Architect and Owner will retain two Sample sets; remainder will be returned.
 - 1) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three sets of paired units that show approximate limits of variations.
- E. Contractor's Construction Schedule: Comply with requirements specified in Division 1 Section "Project Record Documents."
- F. Application for Payment: Comply with requirements specified in Division 1 Section "Payment Procedures."
- G. Schedule of Values: Comply with requirements specified in Division 1 Section "Payment Procedures."
- H. Coordination Drawings: Comply with requirements specified in Division 1 Section "Project Management and Coordination."
- I. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.
- J. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification and Procedure Qualification Record on American Welding Society (AWS) forms. Include names of firms and personnel certified.
- K. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
- L. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.

- M. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
- N. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
- O. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
- P. Product Test Reports: Submit written reports indicating current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
- Q. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project.
- R. Schedule of Tests and Inspections: Comply with requirements specified in Division 1 Section "Quality Controls."
- S. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
- T. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.
- U. Field Test Reports: Submit reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
- V. Maintenance Data: Comply with requirements specified in Division 1 Section "Operation and Maintenance Manuals."
- W. Design Data: Prepare and submit written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

2.02 DELEGATED-DESIGN SERVICES

- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
 - 1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.

- B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit digitally-signed PDF electronic file and three paper copies of certificate, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.
 - 1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

PART 3 – EXECUTION

3.01 CONTRACTOR'S REVIEW

- A. Action and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.
- B. Project Closeout and Maintenance/Material Submittals: Refer to requirements in Division 1 Section "Project Closeout."
- C. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.02 ARCHITECT'S ACTION

- A. General: Architect will not review submittals that do not bear Contractor's approval stamp and will return them without action.
- B. Action Submittals: Architect will review each submittal, make marks to indicate corrections or modifications required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action.
- C. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.
- D. Incomplete submittals are not acceptable, will be considered nonresponsive, and will be returned without review.
- E. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

END OF SECTION

**SECTION 01 42 00
REFERENCES**

PART 1 – GENERAL

1.01 DEFINITIONS

- A. General: Basic Contract definitions are included in the Conditions of the Contract.
- B. "Approved": When used to convey Architect's action on Contractor's submittals, applications, and requests, "approved" is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.
- C. "Directed": A command or instruction by Architect. Other terms including "requested," "authorized," "selected," "required," and "permitted" have the same meaning as "directed."
- D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."
- E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.
- F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.
- G. "Install": Operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.
- H. "Provide": Furnish and install, complete and ready for the intended use.
- I. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

1.02 INDUSTRY STANDARDS

- A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.
- B. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.
- C. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.
 - 1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.

1.03 ABBREVIATIONS AND ACRONYMS

- A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Thomson Gale's "Encyclopedia of Associations" or in Columbia Books' "National Trade & Professional Associations of the U.S."
- B. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list.

AA	Aluminum Association, Inc. (The)
AAADM	American Association of Automatic Door Manufacturers
AABC	Associated Air Balance Council
AAMA	American Architectural Manufacturers Association
AASHTO	American Association of State Highway and Transportation Officials
AATCC	American Association of Textile Chemists and Colorists
ABAA	Air Barrier Association of America
ABMA	American Bearing Manufacturers Association
ACI	American Concrete Institute
ACPA	American Concrete Pipe Association
AEIC	Association of Edison Illuminating Companies, Inc. (The)
AF&PA	American Forest & Paper Association
AGA	American Gas Association
AGC	Associated General Contractors of America (The)
AHA	American Hardboard Association (Now part of CPA)
AHAM	Association of Home Appliance Manufacturers
AI	Asphalt Institute
AIA	American Institute of Architects (The)
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AITC	American Institute of Timber Construction

ALCA Associated Landscape Contractors of America

	(Now PLANET - Professional Landcare Network)
ALSC	American Lumber Standard Committee, Incorporated
AMCA	Air Movement and Control Association International, Inc.
ANSI	American National Standards Institute
AOSA	Association of Official Seed Analysts, Inc.
APA	Architectural Precast Association
APA	APA - The Engineered Wood Association
APA EWS	APA - The Engineered Wood Association; Engineered Wood Systems (See APA - The Engineered Wood Association)
API	American Petroleum Institute
ARI	Air-Conditioning & Refrigeration Institute
ARMA	Asphalt Roofing Manufacturers Association
ASCE	American Society of Civil Engineers
ASCE/SEI	American Society of Civil Engineers/Structural Engineering Institute (See ASCE)
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers
ASME	ASME International (American Society of Mechanical Engineers International)
ASSE	American Society of Sanitary Engineering
ASTM	ASTM International (American Society for Testing and Materials International)
AWCI	Association of the Wall and Ceiling Industry
AWCMA	American Window Covering Manufacturers Association (Now WCMA)
AWI	Architectural Woodwork Institute
AWPA	American Wood Protection Association (Formerly: American Wood Preservers' Association)
AWS	American Welding Society
AWWA	American Water Works Association
BHMA	Builders Hardware Manufacturers Association
BIA	Brick Industry Association (The)

BICSI	BICSI, Inc.
BIFMA	BIFMA International (Business and Institutional Furniture Manufacturer's Association International)
BISSC	Baking Industry Sanitation Standards Committee
BWF	Badminton World Federation (Formerly: IBF - International Badminton Federation)
CCC	Carpet Cushion Council
CDA	Copper Development Association
CEA	Canadian Electricity Association
CEA	Consumer Electronics Association
CFFA	Chemical Fabrics & Film Association, Inc.
CGA	Compressed Gas Association
CIMA	Cellulose Insulation Manufacturers Association
CISCA	Ceilings & Interior Systems Construction Association
CISPI	Cast Iron Soil Pipe Institute
CLFMI	Chain Link Fence Manufacturers Institute
CRRC	Cool Roof Rating Council
CPA	Composite Panel Association
CPPA	Corrugated Polyethylene Pipe Association
CRI	Carpet and Rug Institute (The)
CRSI	Concrete Reinforcing Steel Institute
CSA	Canadian Standards Association
CSA	CSA International (Formerly: IAS - International Approval Services)
CSI	Cast Stone Institute
CSI	Construction Specifications Institute (The)
CSSB	Cedar Shake & Shingle Bureau
CTI	Cooling Technology Institute (Formerly: Cooling Tower Institute)
DHI	Door and Hardware Institute

EIA	Electronic Industries Alliance
EIMA	EIFS Industry Members Association
EJCDC	Engineers Joint Contract Documents Committee
EJMA	Expansion Joint Manufacturers Association, Inc.
ESD	ESD Association (Electrostatic Discharge Association)
ETL SEMCO	Intertek ETL SEMCO (Formerly: ITS - Intertek Testing Service NA)
FIBA	Federation Internationale de Basketball (The International Basketball Federation)
FIVB	Federation Internationale de Volleyball (The International Volleyball Federation)
FM Approvals	FM Approvals LLC
FM Global	FM Global (Formerly: FMG - FM Global)
FMRC	Factory Mutual Research (Now FM Global)
FRSA	Florida Roofing, Sheet Metal & Air Conditioning Contractors Association, Inc.
FSA	Fluid Sealing Association
FSC	Forest Stewardship Council
GA	Gypsum Association
GANA	Glass Association of North America
GRI	(Part of GSI)
GS	Green Seal
GSI	Geosynthetic Institute
HI	Hydraulic Institute
HI	Hydronics Institute
HMMA	Hollow Metal Manufacturers Association (Part of NAAMM)
HPVA	Hardwood Plywood & Veneer Association
HPW	H. P. White Laboratory, Inc.

IAS	International Approval Services (Now CSA International)
IBF	International Badminton Federation (Now BWF)
ICEA	Insulated Cable Engineers Association, Inc.
ICRI	International Concrete Repair Institute, Inc.
IEC	International Electrotechnical Commission
IEEE	Institute of Electrical and Electronics Engineers, Inc. (The)
IESNA	Illuminating Engineering Society of North America
IEST	Institute of Environmental Sciences and Technology
IGCC	Insulating Glass Certification Council
IGMA	Insulating Glass Manufacturers Alliance
ILI	Indiana Limestone Institute of America, Inc.
ISO	International Organization for Standardization Available from ANSI
ISSFA	International Solid Surface Fabricators Association
ITS	Intertek Testing Service NA (Now ETL SEMCO)
ITU	International Telecommunication Union
KCMA	Kitchen Cabinet Manufacturers Association
LMA	Laminating Materials Association (Now part of CPA)
LPI	Lightning Protection Institute
MBMA	Metal Building Manufacturers Association
MFMA	Maple Flooring Manufacturers Association, Inc.
MFMA	Metal Framing Manufacturers Association, Inc.
MH	Material Handling (Now MHIA)
MHIA	Material Handling Industry of America
MIA	Marble Institute of America
MPI	Master Painters Institute

MSS	Manufacturers Standardization Society of The Valve and Fittings Industry Inc.
NAAMM	National Association of Architectural Metal Manufacturers
NACE	NACE International (National Association of Corrosion Engineers International)
NADCA	National Air Duct Cleaners Association
NAGWS	National Association for Girls and Women in Sport
NAIMA	North American Insulation Manufacturers Association
NBGQA	National Building Granite Quarries Association, Inc.
NCAA	National Collegiate Athletic Association (The)
NCMA	National Concrete Masonry Association
NCPI	National Clay Pipe Institute
NCTA	National Cable & Telecommunications Association
NEBB	National Environmental Balancing Bureau
NECA	National Electrical Contractors Association
NeLMA	Northeastern Lumber Manufacturers' Association
NEMA	National Electrical Manufacturers Association
NETA	InterNational Electrical Testing Association
NFHS	National Federation of State High School Associations
NFPA	NFPA (National Fire Protection Association)
NFRC	National Fenestration Rating Council
NGA	National Glass Association
NHLA	National Hardwood Lumber Association
NLGA	National Lumber Grades Authority
NOFMA	NOFMA: The Wood Flooring Manufacturers Association (Formerly: National Oak Flooring Manufacturers Association)
NOMMA	National Ornamental & Miscellaneous Metals Association
NRCA	National Roofing Contractors Association
NRMCA	National Ready Mixed Concrete Association

NSF	NSF International (National Sanitation Foundation International)
NSSGA	National Stone, Sand & Gravel Association
NTMA	National Terrazzo & Mosaic Association, Inc. (The)
NTRMA	National Tile Roofing Manufacturers Association (Now TRI)
NWWDA	National Wood Window and Door Association (Now WDMA)
OPL	Omega Point Laboratories, Inc. (Now ITS)
PCI	Precast/Prestressed Concrete Institute
PDCA	Painting & Decorating Contractors of America
PDI	Plumbing & Drainage Institute
PGI	PVC Geomembrane Institute
PLANET	Professional Landcare Network (Formerly: ACLA - Associated Landscape Contractors of America)
PTI	Post-Tensioning Institute
RCSC	Research Council on Structural Connections
RFCI	Resilient Floor Covering Institute
RIS	Redwood Inspection Service
SAE	SAE International
SDI	Steel Deck Institute
SDI	Steel Door Institute
SEFA	Scientific Equipment and Furniture Association
SEI/ASCE	Structural Engineering Institute/American Society of Civil Engineers (See ASCE)
SGCC	Safety Glazing Certification Council
SIA	Security Industry Association
SIGMA	Sealed Insulating Glass Manufacturers Association (Now IGMA)
SJI	Steel Joist Institute
SMA	Screen Manufacturers Association

SMACNA	Sheet Metal and Air Conditioning Contractors' National Association
SMPTE	Society of Motion Picture and Television Engineers
SPFA	Spray Polyurethane Foam Alliance (Formerly: SPI/SPFD - The Society of the Plastics Industry, Inc.; Spray Polyurethane Foam Division)
SPIB	Southern Pine Inspection Bureau (The)
SPRI	Single Ply Roofing Industry
SSINA	Specialty Steel Industry of North America
SSPC	SSPC: The Society for Protective Coatings
STI	Steel Tank Institute
SWI	Steel Window Institute
SWRI	Sealant, Waterproofing, & Restoration Institute
TCA	Tile Council of America, Inc. (Now TCNA)
TCNA	Tile Council of North America, Inc.
TIA/EIA	Telecommunications Industry Association/Electronic Industries Alliance
TMS	The Masonry Society
TPI	Truss Plate Institute, Inc.
TPI	Turfgrass Producers International
TRI	Tile Roofing Institute
UL	Underwriters Laboratories Inc.
UNI	Uni-Bell PVC Pipe Association
USAV	USA Volleyball
USGBC	U.S. Green Building Council
USITT	United States Institute for Theatre Technology, Inc.
WASTEC	Waste Equipment Technology Association
WCLIB	West Coast Lumber Inspection Bureau
WCMA	Window Covering Manufacturers Association

WCSC	Window Covering Safety Council (Formerly: WCMA - Window Covering Manufacturers Association)
WDMA	Window & Door Manufacturers Association (Formerly: NWWDA - National Wood Window and Door Association)
WI	Woodwork Institute (Formerly: WIC - Woodwork Institute of California)
WIC	Woodwork Institute of California (Now WI)
WMMPA	Wood Moulding & Millwork Producers Association
WSRCA	Western States Roofing Contractors Association
WWPA	Western Wood Products Association
C. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list.	
IAPMO	International Association of Plumbing and Mechanical Officials
ICC	International Code Council
ICC-ES	ICC Evaluation Service, Inc.
UBC	Uniform Building Code (See ICC)
D. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.	
CE	Army Corps of Engineers
CPSC	Consumer Product Safety Commission
DOC	Department of Commerce
DOD	Department of Defense
DOE	Department of Energy
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
FCC	Federal Communications Commission
FDA	Food and Drug Administration
GSA	General Services Administration

HUD	Department of Housing and Urban Development
LBL	Lawrence Berkeley National Laboratory
NCHRP	National Cooperative Highway Research Program (See TRB)
NIST	National Institute of Standards and Technology
OSHA	Occupational Safety & Health Administration
PBS	Public Buildings Service (See GSA)
PHS	Office of Public Health and Science
RUS	Rural Utilities Service (See USDA)
SD	State Department
TRB	Transportation Research Board
USDA	Department of Agriculture
USPS	Postal Service

- E. Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

ADAAG	Americans with Disabilities Act (ADA) Architectural Barriers Act (ABA) Accessibility Guidelines for Buildings and Facilities Available from U.S. Access Board
CFR	Code of Federal Regulations Available from Government Printing Office
DOD	Department of Defense Military Specifications and Standards Available from Department of Defense Single Stock Point
DSCC	Defense Supply Center Columbus (See FS)
FED-STD	Federal Standard (See FS)
FS	Federal Specification Available from Department of Defense Single Stock Point

Available from Defense Standardization Program

Available from General Services Administration

Available from National Institute of Building Sciences

FTMS Federal Test Method Standard
(See FS)

MIL (See MILSPEC)

MIL-STD (See MILSPEC)

MILSPEC Military Specification and Standards
Available from Department of Defense Single Stock Point

UFAS Uniform Federal Accessibility Standards
Available from Access Board

F. State Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

CBHF State of California, Department of Consumer Affairs Bureau of Home Furnishings and Thermal Insulation

CCR California Code of Regulations

CPUC California Public Utilities Commission

TFS Texas Forest Service
Forest Resource Development

PART 2 – PRODUCTS NOT USED

PART 3 – EXECUTION NOT USED

END OF SECTION

**SECTION 01 43 00
QUALITY CONTROL**

PART 1 – GENERAL

1.01 SUMMARY

- A. Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
 - 1. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.
 - 2. Requirements for Contractor to provide quality-assurance and -control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.
- C. Related Sections:
 - 1. Divisions 2 through 33 Sections for specific test and inspection requirements.

1.02 DEFINITIONS

- A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.
- B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Architect.
- C. Mockups: Full size physical assemblies that are constructed on-site. Mockups are constructed to verify selections made under sample submittals; to demonstrate aesthetic effects and, where indicated, qualities of materials and execution; to review coordination, testing, or operation; to show interface between dissimilar materials; and to demonstrate compliance with specified installation tolerances. Mockups are not Samples. Unless otherwise indicated, approved mockups establish the standard by which the Work will be judged.
- D. Preconstruction Testing: Tests and inspections performed specifically for the Project before products and materials are incorporated into the Work to verify performance or compliance with specified criteria.
- E. Product Testing: Tests and inspections that are performed by a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.
- F. Source Quality-Control Testing: Tests and inspections that are performed at the source, i.e., plant, mill, factory, or shop.

- G. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.
- H. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.
- I. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.
 - 1. Use of trade-specific terminology in referring to a trade or entity does not require that certain construction activities be performed by accredited or unionized individuals, or that requirements specified apply exclusively to specific trade or trades.
- J. Experienced: When used with an entity or individual, "experienced" means having successfully completed a minimum of five previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

1.03 CONFLICTING REQUIREMENTS

- A. Referenced Standards: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer conflicting requirements that are different, but apparently equal, to Architect for a decision before proceeding.
- B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

1.04 INFORMATIONAL SUBMITTALS

- A. Contractor's Statement of Responsibility: When required by authorities having jurisdiction, submit copy of written statement of responsibility sent to authorities having jurisdiction before starting work on the following systems.
 - 1. Seismic-force resisting system, designated seismic system, or component listed in the designated seismic system quality assurance plan prepared by the Architect.
 - 2. Main wind-force resisting system or a wind-resisting component listed in the wind-force-resisting system quality assurance plan prepared by the Architect.
- B. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.

1.05 REPORTS AND DOCUMENTS

- A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:
1. Date of issue.
 2. Project title and number.
 3. Name, address, and telephone number of testing agency.
 4. Dates and locations of samples and tests or inspections.
 5. Names of individuals making tests and inspections.
 6. Description of the Work and test and inspection method.
 7. Identification of product and Specification Section.
 8. Complete test or inspection data.
 9. Test and inspection results and an interpretation of test results.
 10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
 11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
 12. Name and signature of laboratory inspector.
 13. Recommendations on retesting and reinspecting.
- B. Manufacturer's Field Reports: Prepare written information documenting tests and inspections specified in other Sections. Include the following:
1. Name, address, and telephone number of representative making report.
 2. Statement on condition of substrates and their acceptability for installation of product.
 3. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
 4. Results of operational and other tests and a statement of whether observed performance complies with requirements.
 5. Other required items indicated in individual Specification Sections.
- C. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.06 QUALITY ASSURANCE

- A. General: Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.
- B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- C. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- D. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.
- E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar to those indicated for this Project in material, design, and extent.
- F. Specialists: Certain Specification Sections require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.
 - 1. Requirements of authorities having jurisdiction shall supersede requirements for specialists.
- G. Testing Agency Qualifications: An independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to **ASTM E 329**; and with additional qualifications specified in individual Sections; and where required by authorities having jurisdiction, that is acceptable to authorities.
- H. Manufacturer's Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- I. Preconstruction Testing: Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following:
 - 1. Contractor responsibilities include the following:
 - a. Provide test specimens representative of proposed products and construction.
 - b. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
 - c. When testing is complete, remove test specimens, assemblies, mockups; do not reuse products on Project.
 - 2. Testing Agency Responsibilities: Submit a certified written report of each test, inspection, and similar quality-assurance service to Architect, with copy to Con-

tractor. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.

- J. Mockups: Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:
1. Build mockups in location and of size indicated or, if not indicated, as directed by Architect.
 2. Notify Architect **seven** days in advance of dates and times when mockups will be constructed.
 3. Demonstrate the proposed range of aesthetic effects and workmanship.
 4. Obtain Architect's approval of mockups before starting work, fabrication, or construction.
 - a. Allow **seven** days for initial review and each re-review of each mockup.
 5. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
 6. Demolish and remove mockups when directed, unless otherwise indicated.

1.07 QUALITY CONTROL

- A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.
1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform.
 2. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor, **and the Contract Sum will be adjusted by Change Order.**
- B. Contractor Responsibilities: Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Perform additional quality-control activities required to verify that the Work complies with requirements, whether specified or not.
1. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.
 - a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.
 2. Notify testing agencies at least **48** hours in advance of time when Work that requires testing or inspecting will be performed.
 3. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.

4. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
 5. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
- C. Manufacturer's Field Services: Where indicated, engage a manufacturer's representative to observe and inspect the Work. Manufacturer's representative's services include examination of substrates and conditions, verification of materials, inspection of completed portions of the Work, and submittal of written reports.
- D. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.
- E. Testing Agency Responsibilities: Cooperate with Architect and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
1. Notify Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
 2. Determine the location from which test samples will be taken and in which in-situ tests are conducted.
 3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
 4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
 5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
 6. Do not perform any duties of Contractor.
- F. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
1. Access to the Work.
 2. Incidental labor and facilities necessary to facilitate tests and inspections.
 3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
 4. Facilities for storage and field curing of test samples.
 5. Delivery of samples to testing agencies.
 6. Preliminary design mix proposed for use for material mixes that require control by testing agency.

7. Security and protection for samples and for testing and inspecting equipment at Project site.
- G. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
 1. Schedule times for tests, inspections, obtaining samples, and similar activities.

1.08 SPECIAL TESTS AND INSPECTIONS

- A. Special Tests and Inspections: Owner will engage a qualified testing agency and/or special inspector to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner, as indicated in Statement of Special Inspections attached to this Section, and as follows:
- B. Special Tests and Inspections: Conducted by a qualified testing agency or special inspector as required by authorities having jurisdiction, as indicated in individual Specification Sections, and as follows:
 1. Verifying that manufacturer maintains detailed fabrication and quality-control procedures and reviewing the completeness and adequacy of those procedures to perform the Work.
 2. Notifying Architect and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
 3. Submitting a certified written report of each test, inspection, and similar quality-control service to Architect with copy to Contractor and to authorities having jurisdiction.
 4. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
 5. Interpreting tests and inspections and stating in each report whether tested and inspected work complies with or deviates from the Contract Documents.
 6. Retesting and reinspecting corrected work.

PART 2 – PRODUCTS

NOT USED

PART 3 – EXECUTION

3.01 REPAIR AND PROTECTION

- A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
 1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Division 1 Section "Execution Requirements."

- B. Protect construction exposed by or for quality-control service activities.
- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION

**SECTION 01 45 29
TESTING AND INSPECTION**

PART 1 – GENERAL

1.01 SUMMARY

- A. Section Includes: Cooperate with the Owner's selected testing agency, the Project Inspector, and others responsible for testing and inspecting the Work, and assist the Owner by coordinating such testing and inspecting services as specified in this Section and/or elsewhere in the Contract Documents including the attached Division of State Architect Structural Tests and Inspections sheet (enclosed).
- B. Related Work Specified Elsewhere:
 - 1. Requirements for testing may be required in other Sections of these Specifications.
 - 2. Where no testing requirements are specified or required by reference standards or authorities having jurisdiction, the Owner may require such testing to be performed under current pertinent standards for testing. Payment for such testing will be made as described herein.
- C. Work Not Included:
 - 1. The Owner will select a pre-qualified independent testing laboratory and Inspector as approved by the Division of the State Architect, Office of Regulation Services.
 - 2. The Owner will pay for initial services of the testing laboratory as further described hereinafter.

1.02 QUALITY ASSURANCE

- A. The Owner will select an independent testing laboratory to conduct the tests. Selection of the material required to be tested shall be by the laboratory or the Owner's representative and not by the Contractor.
- B. Qualifications of Testing Laboratory: The testing laboratory shall be qualified to the Owner's acceptance in accordance with ASTM E 329. The testing laboratory shall be qualified by the Division of State Architect in accordance with Interpretation of Regulation No. 1R1-1.
- C. Codes and Standards: Testing, when required, will be in accordance with pertinent codes and regulations and with selected standards of the American Society for Testing and Materials and other organizations or agencies which publish recognized codes, standards, or tests. Refer to Article 3.04 – Required Testing of this Section.
- D. The project specifications shall be in accordance with the provisions of the Standard Specifications for Public Works Construction (SSPWC) 2012 Edition.

1.03 TEST REPORT DISTRIBUTION

- A. Promptly process and distribute required copies of test reports and related instructions to ensure necessary retesting and/or replacement of materials with the least possible delay in progress of the Work.

- B. One copy of test reports shall be forwarded to the Division of the State Architect, AOR, IOR and District by the testing agency. Such reports shall include tests made, regardless of whether such tests indicate that the material is satisfactory or unsatisfactory. Samples taken but not tested shall also be reported. Records of special sampling operations as required shall also be reported. The reports shall show that the material or materials were sampled and tested in accordance with the requirements of Title 24 and with the approved specifications. Test reports shall show the specified design strength. They shall also state definitely whether or not the material or materials tested comply with requirements.
- C. Each testing agency shall submit to the Division of the State Architect a verified report in duplicate covering tests which are required to be made by that agency during the progress of the project. Such report shall be furnished each time that work on the project is suspended, including tests up to that time, and at the completion of the project.

1.04 PAYMENT FOR TESTING SERVICES

- A. Initial Services: The Owner will pay for initial testing and inspection except as specifically modified herein-after or as specified otherwise in technical sections. Provided the results of inspection indicating compliance with the Contract Documents.
- B. Retesting: When initial tests or inspection indicate noncompliance with the Contract Documents, subsequent retesting or re-inspection occasioned by the noncompliance shall be performed by the same testing laboratory or Inspector and the costs thereof will be deducted by the Owner from the Contract Sum. Retesting and re-inspection will continue until test or inspection results indicate compliance.
- C. Code Compliance Testing: Inspections and tests required by codes or ordinances, or by authorities having jurisdiction and made by a legally constituted authority, shall be the responsibility of and shall be paid for by the Owner, but back charged to the Contractor in case of retesting due to noncompliance.
- D. Specified Inspections and Tests: Tests and inspections specified in the Specifications, directly or by reference, shall be coordinated by the Contractor at his expense and paid for by the Owner. Corrections of noncompliance and test failures shall be paid for by the Owner, but shall be back charged to the Contractor. Re-inspection and retesting shall be in accordance with paragraph 1.04-B.
- E. Contractor's Convenience Testing: Inspecting or testing performed exclusively for the Contractor's convenience shall be the sole responsibility of and at the expense of the Contractor.

1.05 INSPECTION BY THE OWNER

- A. The Owner and his representatives will have access, for the purpose of inspection, to parts of the work and to the shops wherein the work is in preparation, and the Contractor shall maintain proper facilities and provide safe access for such inspection.
- B. The Owner shall have the right to reject materials and workmanship which are defective, and to require their correction. Rejected workmanship shall be satisfactorily corrected and rejected materials shall be removed from the premises without charge to the Owner. If the Contractor does not correct such rejected within a reasonable time, fixed by written notice, the Owner may correct rejected work and charge the expense to the Contractor.

- C. Should it be considered necessary or advisable by the Owner at any time before final acceptance of the entire work to make an examination of work already completed by removing or tearing out the same, the Contractor shall on request promptly furnish necessary facilities, labor and materials. If such work is found to be defective in respect due to fault of the Contractor or his subcontractor, he shall defray expenses of such examinations and of satisfactory reconstruction. If, however, such work is found to meet the requirements of the contract, the additional cost of labor and material necessarily involved in the examination and replacement will be allowed the Contractor.

1.06 PROJECT INSPECTOR

- A. An Inspector employed by the Owner in accordance with the requirements of State of California Building Code, Title 24, Part 1, and qualified in accordance with Division of State Architect will be assigned to the work. His duties are specifically defined in Title 24, Part 1, Section 4-342, reprinted herein:

42. Duties of the Project Inspector.

- a. General: The Project Inspector shall act under the direction of the A/E/Engineer.
- b. Duties: The general duties of the Project Inspector in fulfilling his or her responsibilities are as follows:
 - 1) Inspection: He or she must have actual personal knowledge, obtained by his personal inspection of the work of construction in stages of its progress, that the requirements of the approved plans and specifications are being completely executed.

Inspection means complete inspection of every part of the work. Work, such as concrete work or brick work which can be inspected only as it is placed, shall require the constant presence of the Project Inspector. Other types of work which can be completely inspected after the work is installed may be carried on while the Inspector is not present. In any case, the Project Inspector must personally inspect every part of the work. In no case shall the Project Inspector have or assume duties which will prevent him or her from providing inspection.

The Project Inspector may obtain personal knowledge of the work of construction, either on-site or off-site, performed under the inspection of a Special Inspector or Assistant Inspector from the reporting of others on testing or inspection of materials and workmanship for compliance with the plans, specifications and applicable standards. The exercise of reasonable diligence to obtain the facts shall be required.

- 2) Relations with A/E/Engineer: The Project Inspector shall work under the general direction of the A/E/Engineer. Inconsistencies or seeming errors in the A/E/Engineer for his interpretation and instructions. In no case, however, shall the instruction of the A/E/Engineer be construed to cause work to be done which is not in conformity with the approved plans, specifications, and change orders.

- 3) Job File: The Project Inspector shall keep a file of approved plans and specifications (including approved addenda or change orders) on the job, and shall immediately return unapproved documents to the A/E for proper action. The Project Inspector, as a condition of his employment, shall have and maintain on the job, codes and documents referred to in the plans and specifications.
- 4) Project Inspector's Semi-Monthly Reports: The Project Inspector shall keep the A/E/Engineer thoroughly informed as to the progress of the work by making semi-monthly reports in writing as required in Section 37.
- 5) Not Used.
- 6) Construction Procedure Records: The Project Inspector shall keep a record of certain phases of construction procedure.

All such records of construction procedure shall be kept on the job until the completion of the work. These records shall be made a part of the permanent school records.

- 7) Deviations: The Project Inspector shall notify the Contractor, in writing, of deviations from the approved plans and specifications which are not immediately corrected by the Contractor when brought to his or her attention. Copies of such notice shall be forwarded immediately to the A/E/Engineer.

Failure on the part of the Project Inspector to notify the Contractor of deviations from the approved plans and specifications shall in no way relieve the Contractor of responsibility to complete the work covered by his or her contract in accordance with the approved plans and specifications and laws and regulations.

- 8) Verified Reports: The Project and Special Inspectors shall each make and submit to the Division of the State Architect verified reports.

The Project Inspector shall prepare and deliver to the Division of the State Architect detailed statements of fact regarding materials, operations, etc., when requested.

Violations: Failure, refusal, or neglect on the part of the Inspector to notify the Contractor of work which does not comply with the requirements of the approved plans and specifications, or failure, refusal, or neglect to report immediately, in writing, such violation to the A/E/Engineer, to the School Board, and to the Division of the State Architect shall constitute a violation of the act and shall be cause for the Division of the State Architect to take action.

Note: Authority cited: Section 39152 and 81142, Education Code. Reference: Sections 39151, 39153, 81141 and 81143, Education Code."

- B. The work of construction in stages of progress shall be subject to the personal continuous observation of the Project Inspector as continuous observation is defined by Title 24. He shall have free access to all parts of the work at any time. The Contractor shall furnish the Project Inspector reasonable facilities for obtaining such information as may be necessary to keep him fully informed respecting the progress and manner of the work and the character of the materials. Inspection of the work shall not relieve the Contractor from obligation to fulfill this Contract.

1.07 OWNER'S OTHER PERSONNEL

- A. From time to time, other personnel in the employ of the Owner may inspect the Work when the Work is in progress but shall have no authority to direct the Contractor or request changes in the Work except as may be provided elsewhere in the Contract Documents.

1.08 REPRESENTATIVE OF THE DIVISION OF THE STATE ARCHITECT

- A. Architect shall have access to the site in accordance with Title 24, Part 1, 4-333.
- B. Field Engineers and Inspectors from D.S.A. Structural Safety Section, Fire & Life Safety Review and Access Compliance shall have access to the site in accordance with Title 24, Part 1, 4-334.

PART 2 – PRODUCTS

NOT USED

PART 3 – EXECUTION

3.01 COOPERATION WITH TESTING LABORATORY AND INSPECTORS

- A. Inspectors and representatives of the testing laboratory shall have access to the work. Provide facilities for such access in order that the testing, inspection, and the obtaining of samples may be done properly.
- B. Contractor shall deliver material specimens to the Owner's testing lab, which must by terms of the Contract be tested prior to inclusion in the Project, at least 45 days prior to scheduled delivery to the job site.
- C. Material shipped by the Contractor from the source of supply prior to having satisfactorily passed such testing and inspection or prior to the receipt of notice from said representative that such testing and inspection will not be required shall not be incorporated in the job.

3.02 TAKING SPECIMENS

- A. Field specimens and samples for testing, unless otherwise provided in these Contract Documents, shall be selected and taken by the Testing Laboratory or Project Inspector and not the Contractor. Sampling equipment and personnel will be provided by the testing laboratory. Deliveries of specimens and samples to the testing laboratory will be performed by the testing laboratory. Soil samples for approval of import fill shall be picked-up by the Testing Laboratory.

3.03 SCHEDULES FOR TESTING

- A. Establishing Schedule:
 - 1. By advance discussion with the testing laboratory selected by the Owner, determine the time required for the laboratory to perform its tests and to issue each of its findings.
 - 2. Provide required time within the construction schedule.
- B. Revising Schedule: When changes of construction schedule are necessary during construction, coordinate such changes of schedule with the testing laboratory as required.
- C. Adherence to Schedule: When the testing laboratory is ready to test according to the determined schedules, but is prevented from testing or taking specimens due to incompleteness of the work, extra charges for testing attributable to the delay may be back-charged to the Contractor and will be deducted by the Owner from the Contract Sum.

3.04 REQUIRED TESTING

Tests and inspections for the following items, where applicable, will be required in accordance with referenced Sections/Chapters of California Building Code, 2022 Edition, Title 24, Part 2:

- A. CONCRETE (Chapter 19A)
 - 1. MATERIALS:
 - a. Portland Cement 1704A.4.1;
1916A.1
 - b. Concrete Aggregates 1704A.4.1;
1903A.3
 - c. Reinforcing Bars 1704A.4.1;
1916A.2
 - d. Pre-stressing Steel & Anchorage 1704A.4.1;
1916A.3
 - 2. QUALITY:
 - a. Proportions of Concrete 1905A.2;
1905A.3;
1905A.4
 - b. Strength Tests of Concrete 1905A.1.1;
1905A.6

3. INSPECTION:

- a. Job Site 1905A.7
- b. Reinforcing Bar Welding 1903A.7;
Table 1704A.3
- c. Post-Installed Anchors in Concrete 1916A.7

F. WOOD

1. MATERIALS:

- a. Lumber and plywood 2303.1

2. INSPECTION:

- a. Timber Connectors 1704A.6.4

END OF SECTION

**SECTION 01 50 00
TEMPORARY FACILITIES AND CONTROLS**

PART 1 – GENERAL

1.01 SUMMARY

- A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.
- B. Related Section:
 - 1. Division 1 Section "Summary" for limitations on work restrictions and utility interruptions.

1.02 USE CHARGES

- A. General: Installation and removal of and use charges for temporary facilities shall be included in the Contract Sum unless otherwise indicated. Allow other entities to use temporary services and facilities without cost, including, but not limited to, Owner's construction forces, Architect, occupants of Project, testing agencies, and authorities having jurisdiction.
- B. Water and Sewer Service from Existing System: Water from Owner's existing water system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.
- C. Electric Power Service from Existing System: Electric power from Owner's existing system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.

1.03 INFORMATIONAL SUBMITTALS

- A. Site Plan: Show temporary facilities, utility hookups, staging areas, and parking areas for construction personnel.
- B. Erosion- and Sedimentation-Control Plan: Show compliance with requirements of EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent.

1.04 QUALITY ASSURANCE

- A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.
- B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.
- C. Accessible Temporary Egress: Comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines and ICC/ANSI A117.1.

1.05 PROJECT CONDITIONS

MARSHALL FUNDAMENTAL SCHOOL
TOILET ROOMS MODERNIZATION & ADA UPGRADES
PASADENA UNIFIED SCHOOL DISTRICT
FLEWELLING & MOODY PROJECT NO. 3189.0000

TEMPORARY FACILITIES AND CONTROLS
01 50 00-1
DSA# 03-125519
FILE# 19-H19

- A. Temporary Use of Permanent Facilities: Engage installer of each permanent service to assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.

PART 2 – PRODUCTS

2.01 MATERIALS

- A. Chain-Link Fencing: Minimum 2-inch (50-mm), 0.148-inch- (3.8-mm-) thick, galvanized steel, chain-link fabric fencing; minimum 6 feet (1.8 m) high with galvanized steel pipe posts; minimum 2-3/8-inch- (60-mm-) OD line posts and 2-7/8-inch- (73-mm-) OD corner and pull posts, with 1-5/8-inch- (42-mm-) OD top rails.
- B. Portable Chain-Link Fencing: Minimum 2-inch (50-mm), 0.148-inch- (3.8-mm-) thick, galvanized steel, chain-link fabric fencing; minimum 6 feet (1.8 m) high with galvanized steel pipe posts; minimum 2-3/8-inch- (60-mm-) OD line posts and 2-7/8-inch- (73-mm-) OD corner and pull posts, with 1-5/8-inch- (42-mm-) OD top and bottom rails. Provide galvanized steel bases for supporting posts.

2.02 TEMPORARY FACILITIES

- A. Field Offices, General: Required.
- B. Common-Use Field Office: Required.
- C. Inspector Office: Contractor to provide 20'-0" X 8'-0" prefabricated or mobile unit with serviceable finishes, temperature controls, power, data, phone service and foundations adequate for normal loading. Office to be used exclusively by Inspector of Record during construction. Access to trailer shall be through gate in temporary fencing.

2.03 EQUIPMENT

- A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.

PART 3 – EXECUTION

3.01 INSTALLATION, GENERAL

- A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.
 - 1. Locate facilities to limit site disturbance as specified in Division 1 Section "Summary."
- B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.02 TEMPORARY UTILITY INSTALLATION

- A. General: Install temporary service or connect to existing service.
 - 1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.
- B. Water Service: Install water service and distribution piping in sizes and pressures adequate for construction.
- C. Water Service: Connect to Owner's existing water service facilities. Clean and maintain water service facilities in a condition acceptable to Owner. At Substantial Completion, restore these facilities to condition existing before initial use.
- D. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities. Contractor not to use adjacent school toilet facilities.
- E. Heating and/or Cooling: Provide temporary heating and cooling required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed.
- F. Ventilation and Humidity Control: Provide temporary ventilation required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce ambient condition required and minimize energy consumption.
- G. Electric Power Service: Connect to Owner's existing electric power service. Maintain equipment in a condition acceptable to Owner.
- H. Electric Power Service: Provide electric power service and distribution system of sufficient size, capacity, and power characteristics required for construction operations.
 - 1. Install electric power service overhead or underground, unless otherwise indicated.
 - 2. Connect temporary service to Owner's existing power source, as directed by Owner.
- I. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.
 - 1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.
- J. Telephone Service: Provide temporary telephone service in common-use facilities for use by all construction personnel. Install one telephone line(s) for each field office.
 - 1. Provide additional telephone lines for the following:
 - a. Provide a dedicated telephone line for each facsimile machine in each field office.
 - 2. At each telephone, post a list of important telephone numbers.
 - a. Police and fire departments.

- b. Ambulance service.
 - c. Contractor's home office.
 - d. Architect's office.
 - e. Engineers' offices.
 - f. Owner's office.
 - g. Principal subcontractors' field and home offices.
3. Provide superintendent with cellular telephone or portable two-way radio for use when away from field office.

3.03 SUPPORT FACILITIES INSTALLATION

A. General: Comply with the following:

- 1. Provide construction for temporary offices, shops, and sheds located within construction area or within 30 feet (9 m) of building lines that is noncombustible according to ASTM E 136. Comply with NFPA 241.
- 2. Maintain support facilities until Architect schedules Substantial Completion inspection. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.

B. Temporary Use of Permanent Roads and Paved Areas: Locate temporary roads and paved areas in same location as permanent roads and paved areas. Construct and maintain temporary roads and paved areas adequate for construction operations. Extend temporary roads and paved areas, within construction limits indicated, as necessary for construction operations.

- 1. Coordinate elevations of temporary roads and paved areas with permanent roads and paved areas.
- 2. Prepare subgrade and install subbase and base for temporary roads and paved areas according to Division 2 Section "Earthwork."
- 3. Recondition base after temporary use, including removing contaminated material, regrading, proofrolling, compacting, and testing.
- 4. Delay installation of final course of permanent hot-mix asphalt pavement until immediately before Substantial Completion. Repair hot-mix asphalt base-course pavement before installation of final course according to Division 2 Section "Asphalt Paving."

C. Traffic Controls: Comply with requirements of authorities having jurisdiction.

- 1. Protect existing site improvements to remain including curbs, pavement, and utilities.

2. Maintain access for fire-fighting equipment and access to fire hydrants.
- D. Parking: Street parking is available as posted.
- E. Dewatering Facilities and Drains: Comply with requirements of authorities having jurisdiction. Maintain Project site, excavations, and construction free of water.
1. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining properties nor endanger permanent Work or temporary facilities.
 2. Remove snow and ice as required to minimize accumulations.
- F. Project Signs: Provide Project signs as indicated. Unauthorized signs are not permitted.
1. Identification Signs: Provide Project identification signs as indicated on Drawings.
 2. Temporary Signs: Provide other signs as indicated and as required to inform public and individuals seeking entrance to Project.
 - a. Provide temporary, directional signs for construction personnel and visitors.
 3. Maintain and touchup signs so they are legible at all times.
- G. Waste Disposal Facilities: Comply with requirements specified in Division 1 Section "Construction Waste Management."
- H. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. Comply with Division 1 Section "Execution Requirements" for progress cleaning requirements.
- I. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.
1. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.
- J. Temporary Elevator Use: Use of elevators is not permitted.
- K. Temporary Stairs: Until permanent stairs are available, provide temporary stairs where ladders are not adequate.
- L. Existing Stair Usage: Use of Owner's existing stairs will be permitted, provided stairs are cleaned and maintained in a condition acceptable to Owner. At Substantial Completion, restore stairs to condition existing before initial use.
1. Provide protective coverings, barriers, devices, signs, or other procedures to protect stairs and to maintain means of egress. If stairs become damaged, restore damaged areas so no evidence remains of correction work.
- M. Temporary Use of Permanent Stairs: Use of new stairs for construction traffic will be permitted, provided stairs are protected and finishes restored to new condition at time of Substantial Completion.

3.04 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
- B. Temporary Erosion and Sedimentation Control: Comply with requirements of the latest SWRCB Construction General Permit or authorities having jurisdiction, whichever is more stringent and requirements specified in Division 2 Section "Site Clearing."
- C. Temporary Erosion and Sedimentation Control: Provide measures to prevent soil erosion and discharge of soil-bearing water runoff and airborne dust to undisturbed areas and to adjacent properties and walkways, according to requirements of the latest SWRCB Construction General Permit or authorities having jurisdiction, whichever is more stringent.
- D. Stormwater Control: Comply with requirements of authorities having jurisdiction. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of stormwater from heavy rains.
- E. Tree and Plant Protection: Comply with requirements specified in Division 2 Section "Tree Protection and Trimming."
- F. Tree and Plant Protection: Install temporary fencing located as indicated or outside the drip line of trees to protect vegetation from damage from construction operations. Protect tree root systems from damage, flooding, and erosion.
- G. Pest Control: Engage pest-control service to recommend practices to minimize attraction and harboring of rodents, roaches, and other pests and to perform extermination and control procedures at regular intervals so Project will be free of pests and their residues at Substantial Completion. Obtain extended warranty for Owner. Perform control operations lawfully, using environmentally safe materials.
- H. Site Enclosure Fence: Before construction operations begin, furnish and install site enclosure fence in a manner that will prevent people and animals from easily entering site except by entrance gates.
 - 1. Extent of Fence: As required to enclose entire Project site or portion determined sufficient to accommodate construction operations.
 - 2. Maintain security by limiting number of keys and restricting distribution to authorized personnel.
- I. Security Enclosure and Lockup: Install temporary enclosure around partially completed areas of construction. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security. Lock entrances at end of each work day.
- J. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.
- K. Temporary Egress: Maintain temporary egress from existing occupied facilities as indicated and as required by authorities having jurisdiction.
- L. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.

1. Where heating or cooling is needed and permanent enclosure is not complete, insulate temporary enclosures.
- M Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241.
1. Prohibit smoking in construction areas.
 2. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to requirements of authorities having jurisdiction.
 3. Develop and supervise an overall fire-prevention and -protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.
 4. Provide temporary standpipes and hoses for fire protection. Hang hoses with a warning sign stating that hoses are for fire-protection purposes only and are not to be removed. Match hose size with outlet size and equip with suitable nozzles.

3.05 MOISTURE AND MOLD CONTROL

- A. Contractor's Moisture Protection Plan: Avoid trapping water in finished work. Document visible signs of mold that may appear during construction.
- B. Exposed Construction Phase: Before installation of weather barriers, when materials are subject to wetting and exposure and to airborne mold spores, protect materials from water damage and keep porous and organic materials from coming into prolonged contact with concrete.
- C. Partially Enclosed Construction Phase: After installation of weather barriers but before full enclosure and conditioning of building, when installed materials are still subject to infiltration of moisture and ambient mold spores, protect as follows:
1. Do not load or install drywall or other porous materials or components, or items with high organic content, into partially enclosed building.
 2. Keep interior spaces reasonably clean and protected from water damage.
 3. Discard or replace water-damaged and wet material.
 4. Discard, replace or clean stored or installed material that begins to grow mold.
 5. Perform work in a sequence that allows any wet materials adequate time to dry before enclosing the material in drywall or other interior finishes.
- D. Controlled Construction Phase of Construction: After completing and sealing of the building enclosure but prior to the full operation of permanent HVAC systems, maintain as follows:
1. Control moisture and humidity inside building by maintaining effective dry-in conditions.

2. Remove materials that can not be completely restored to their manufactured moisture level within **48** hours.

3.06 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
- B. Maintenance: Maintain facilities in good operating condition until removal.
 1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
- C. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.
- D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. 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.
 1. Materials and facilities that constitute temporary facilities are property of Contractor. Owner reserves right to take possession of Project identification signs.
 2. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Division 1 Section "Closeout Procedures."

END OF SECTION

**SECTION 01 77 00
CLOSEOUT PROCEDURES**

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. Closeout Procedures.
- B. Final Cleaning.
- C. Pest Control.
- D. Adjusting.
- E. Demonstration and Instructions.
- F. Project Record Documents.
- G. Operation and Maintenance Data.
- H. Warranties.
- I. Spare Parts and Maintenance Materials.

1.02 CLOSEOUT PROCEDURES

- A. Submit written certification that Contract Documents have been reviewed, Work has been inspected, and that Work is complete in accordance with Contract Documents and ready for Architect's review.
- B. Prepare and submit to Architect a list of items to be completed or corrected, the value of the items on the list, and reasons why the Work is not complete.
- C. Submit written request to Architect for review of Work.
- D. Submit warranties, bonds, service agreements, certifications, record documents, maintenance manuals, receipt of spare parts and similar closeout documents.
- E. Make final changeover of permanent locks and deliver keys to Owner.
- F. Terminate and remove temporary facilities from Project site.
- G. Advise Owner of change over in heat and other utilities.
- H. Provide submittals to Architect that are required by governing or other authorities.
- I. Submit final Application for Payment identifying total adjusted Contract Sum, previous payments, and sum remaining due.
- J. Submit affidavit of payment of debts and claims, AIA Document G706.
- K. Submit affidavit of release of liens, AIA Document G706A.
- L. Submit consent of contractor's surety to final payment, AIA Document G707.

M. Owner will occupy all portions of the building as specified in Section 01110.

1.03 FINAL CLEANING

- A. Execute final cleaning prior to final review by Architect.
- B. Employ experienced professional cleaners for final cleaning.
- C. Clean interior and exterior glass and surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces.
- D. Vacuum carpeted and soft surfaces. Shampoo if visible stains exist.
- E. Clean equipment and plumbing fixtures to a sanitary condition.
- F. Clean exposed surfaces of grilles, registers and diffusers.
- G. Replace filters of operating mechanical equipment.
- H. Clean debris from roofs, gutters, downspouts, and drainage systems.
- I. Clean site; sweep paved areas, rake clean landscaped surfaces.
- J. Remove waste and surplus materials, rubbish, and construction facilities from the site.
- K. Clean light fixtures and replace burned out lamps and bulbs.
- L. Relamp all lamps and bulbs in lighting fixtures.
- M. Replace defective and noisy ballasts and starters in fluorescent fixtures.
- N. Leave project clean and ready for occupancy by Owner.

1.04 PEST CONTROL

- A. Engage an experienced, licensed exterminator to make final inspection and rid Project of rodents, insects, and other pests. Submit final report to Architect.

1.05 ADJUSTING

- A. Adjust operating Products and equipment to ensure smooth and unhindered operation.

1.06 DEMONSTRATION AND INSTRUCTIONS

- A. Demonstrate operation and maintenance of products, systems, and equipment to Owner's personnel two weeks prior to date of final review.
- B. For each demonstration submit list of participants in attendance.
- C. Provide two copies of video tape of each demonstration and instructions session.
- D. For equipment or systems requiring seasonal operation, perform demonstration for other season within six months.

- F. Utilize operation and maintenance manuals as basis for instruction. Review contents of manual with Owner's personnel in detail to explain all aspects of operation and maintenance.
- G. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of each item of equipment at agreed-upon times, at equipment location.
- H. Prepare and insert additional data in operations and maintenance manuals when need for additional data becomes apparent during instruction.

1.07 PROJECT RECORD DOCUMENTS

- A. Maintain on site, one set of the following record documents; record actual revisions to the Work in contrasting color.
 - 1. Contract Drawings.
 - 2. Specifications.
 - 3. Addenda.
 - 4. Change Orders and other Modifications to the Contract.
 - 5. Reviewed shop drawings, product data, and samples.
- B. Store Record Documents separate from documents used for construction.
- C. Record information concurrent with construction progress.
- D. Specifications: Legibly mark and record at each Product Section in contrasting color ink, description of actual Products installed, including the following:
 - 1. Manufacturer's name and product model and number.
 - 2. Supplier and installer's name and contact information.
 - 3. Changes made by Addenda and Modifications.
- E. Contract Drawings and Shop Drawings: Legibly mark each item in contrasting color ink to record actual construction including:
 - 1. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 - 2. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
 - 3. Field changes of dimension and detail.
 - 4. Details not on original Contract Drawings.
 - 5. Revisions to electrical circuitry and locations of electrical devices and equipment.

6. Note change orders, alternate numbers, and similar information, where applicable.
 7. Identify each record drawing with the written designation of A¹RECORD DRAWING@ located in prominent location.
- F. Record Digital Data Files: Immediately before inspection for Substantial Completion, review marked-up record prints with Architect. When authorized, prepare a full set of corrected digital data files of the Contract Drawings, as follows:
1. Format: Same digital data software program, version, and operating system as the original Contract Drawings.
 2. Format: Annotated PDF electronic file with comment function enabled.
 3. Incorporate changes and additional information previously marked on record prints. Delete, redraw, and add details and notations where applicable.
 4. Refer instances of uncertainty to Architect for resolution.
 5. Architect will furnish Contractor one set of digital data files of the Contract Drawings for use in recording information.
 - a. Refer to Section 01 33 00 A¹Submittal Procedures@ for requirements related to use of Architect's digital data files.
 - b. Architect will provide data file layer information. Record markups in separate layers.
- G. Final Property Survey: Under the provisions of Section 01 78 00.
- H. Record Construction Schedule: Under the provisions of Section 01 32 17.
- I. Submit documents to Architect at time of Substantial Completion.

1.08 OPERATION AND MAINTENANCE DATA

- A. Summary:
1. Organize operation and maintenance data with directory.
 2. Provide operation and maintenance manuals for products, systems, subsystems, and equipment.
 3. Refer to Divisions 2 thru 16 for specific operation and maintenance manual requirements for the Work in those Divisions.
- B. Submit two sets prior to final review, bound in 8-1/2 inch x 11 inch, three ring D size binders with durable vinyl covers.
- C. Prepare binder covers with printed title "OPERATION AND MAINTENANCE INSTRUCTIONS", title of project, and subject matter of binder when multiple binders are required.

- D. Internally subdivide the binder contents with permanent page dividers, logically organized as described below; with laminated plastic tabs.
- E. Part 1: Directory, listing names, addresses, and telephone numbers of Architect, Engineers, Contractor, subcontractors, and major equipment suppliers and manufacturers.
- F. Part 2: Operation and maintenance instructions, arranged by specification section. For each category, identify names, addresses, and telephone numbers of Subcontractors and suppliers. Identify the following:
 - 1. Performance and design criteria.
 - 2. List of equipment.
 - 3. Parts list for each component.
 - 4. Start-up procedures.
 - 5. Shutdown instructions.
 - 6. Normal operating instructions.
 - 7. Wiring diagrams.
 - 8. Control diagrams.
 - 9. Maintenance instructions for equipment and systems.
 - 10. Maintenance instructions for finishes, including recommended cleaning methods and materials.
- G. Part 3: Project documents and certificates, including the following:
 - 1. Shop drawings and product data.
 - 2. Air and water balance reports.
 - 3. Certificates.
 - 4. Warranties.

1.09 WARRANTIES

- A. Commencement of warranties shall be date of Substantial Completion.
- B. For items of Work delayed beyond date of Substantial Completion, provide updated submittal within ten days after acceptance, listing date of acceptance as start of warranty period.
- C. Provide duplicate notarized copies in operation and maintenance manuals.
- D. Execute and assemble documents from subcontractors, suppliers, and manufacturers.
- E. Provide Table of Contents and assemble in binder with durable plastic cover.

- F. Submit prior to final Application for Payment.
- G. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of warranty on the work that incorporates the products.
- H. Manufacturer's disclaimer and limitations on product warranties do not relieve suppliers, manufacturer's, and subcontractors required to countersign special warranties with Contractor.
- I. When correcting failed or damaged warranted construction, remove and replace construction that has been damaged as a result of such failure or must be removed and replaced to provide access for correction of warranted construction.
- J. When work covered by warranty has failed and has been corrected, reinstate warranty by written endorsement. Reinstated warranty shall be equal to original warranty with equitable adjustment for depreciation.
- K. Upon determination that Work covered by warranty has failed, replace or repair Work to an acceptable condition complying with requirements of the Contract Documents.

1.10 SPARE PARTS AND MAINTENANCE MATERIALS

- A. Provide products, spare parts, maintenance and extra materials in quantities specified in individual specification Sections.
- B. Deliver to Project site and place in location as directed.
- C. Obtain signed receipt for delivery of materials and submit prior to request for final review by Architect.

PART 2 – PRODUCTS

NOT USED

PART 3 – EXECUTION

NOT USED

END OF SECTION

**SECTION 01 77 01
PROJECT CLOSEOUT**

PART 1 – GENERAL

1.01 REFERENCE

- A. Requirements in Addenda, Alternates, Conditions, and Division 1 collectively apply to this work.

1.02 GENERAL

- A. As a prerequisite for final payment, Contractor to complete the work of this Section.
- B. Comply with requirements stated in Conditions Of The Contract and in Specifications for administrative procedures in closing out the Work.
- C. Related Work Specified Elsewhere:
 - 1. Guarantee Form: See General Conditions.
 - 2. Close-out Submittals: See Respective Spec. Sections.

1.03 PRE-FINAL INSPECTION; SUBSTANTIAL COMPLETION

- A. Pre-final Inspection:
 - 1. Upon "substantial completion" of the Work, Contractor shall notify Architect and request a "prefinal inspection" of the Work.
 - 2. If Architect concurs that "substantial completion" has been reached, he will review the Work and list items to be completed or corrected. List will be amended as required to include items subsequently observed.
- B. Substantial Completion Defined: "Substantial Completion" of the Work is the status, as approved by the Architect, when construction is sufficiently complete, in accordance with the Contract Documents, so District can occupy or utilize the Work for the use for which it is intended, without incomplete work scope items either interior or exterior.

1.04 FINAL INSPECTION

- A. Reference: See General and Supplementary Conditions, titled "Final Adjustment And Completion".
- B. Final Inspection: When Contractor has complied with above Article, Architect will review the Work and list any items to be completed or corrected.
- C. Contractor shall correct and/or complete the Work.

1.05 GUARANTEES

- A. General: Contractor shall guarantee in writing to District that:

- B. "Contractor will repair or replace any and all work, together with any other work which may be displaced, damaged or marred in so doing, that may prove defective in workmanship and/or materials, or fail to conform to contract provisions and requirements within the period cited below, such period to begin on date of acceptance of work by District, without any expense whatsoever to District, ordinary wear and tear, and unusual abuse or neglect excepted."
- C. Format: Contractor shall submit guarantees typed in the format indicated in "Guarantee Form", See General Conditions Exhibit K.
- D. Number Of Copies: Submit in duplicate to Architect.
- E. Required Guarantees:
 - 1. General: Submit all guarantees listed herein or required by various Spec. Sections; more stringent shall apply. Guarantee periods begin at the date of acceptance written on the "Notice Of Completion" as accepted by the School District Board of Education.
 - 2. General Guarantee:
 - a. By General Contractor; For The Entire Work: 1 Year

1.06 WARRANTIES

- A. General: Submit all warranties required by various Spec. Sections.

1.07 CERTIFICATES

- A. General: Submit all certificates and Verified Reports required by various Spec. Sections or listed herein, notarized as required.

1.08 OPERATION & MAINTENANCE DATA

- A. General: Submit all manuals required by various General Conditions, Spec. Sections or listed herein; two copies each.

1.09 PROJECT RECORD DOCUMENTS

- A. See Section 01 77 20.
- B. Additional Information Required: In addition to the requirements in Section 01720, provide the following:
 - 1. By measured dimensions (vertical and horizontal) from permanent improvements or buildings, locate the following new underground utilities, piping systems, and their appurtenances; and existing systems when known, uncovered, in work areas, adjacent to work areas, or modified as part of the work of this Project:
 - a. Site drainage systems piping and cleanouts.
 - b. Landscape sprinkler systems: Complete system, except non-pressure branch lines from automatic control valves to heads.
 - c. All fire protection systems.

- d. All plumbing systems.
 - e. All electrical systems.
 - f. All pool systems.
- 2. For gravity flow lines such as sewers and storm drains, locate all cleanouts, and indicate invert elevations at building lines, changes in direction, intersections, and property lines.
 - 3. Electrical Underground: In addition to locations, state number and sizes of conduits and wires, and provide invert elevations.
 - 4. Work Concealed Within Building Construction: Indicate by dimension the locations of Plumbing Systems, HVAC Systems, and Fire Protection Systems.
 - 5. Show any work performed that deviates from original Contract Documents.
 - 6. Show all work authorized by Change Order(s) and number of that Change Order.

PART 2 – PRODUCTS
NOT USED

PART 3 – EXECUTION
NOT USED

END OF SECTION

**SECTION 01 77 20
PROJECT RECORD DOCUMENTS**

PART 1 – GENERAL

1.01 SUMMARY

- A. Throughout progress of the Work of this Contract, maintain an accurate record of all changes in the Contract Documents, as described in 3.1 below.
- B. Contractor shall periodically transfer the recorded changes to a set of “as-built” documents, as described in Article 3.02 below, and submit such “as-built” documents” to Architect for Architect’s use as required.
- C. The Project Manager shall verify that “as-built” documents are current, on a monthly basis, prior to the processing of pay requests. Pay Requests WILL NOT be processed unless the “as-built” documents updates have been verified.
- D. Related work described elsewhere: Section 01 33 00, Submittal Procedures.

1.02 QUALITY ASSURANCE

- A. General: Delegate the responsibility for maintenance of Record Documents to one person on the Contractor’s staff as approved in advance by the Architect.
- B. Accuracy of records: Thoroughly coordinate all changes within the Record Documents, making adequate and proper entries on each page of a clean set of Specifications and each sheet of Drawings and other Documents where such entry is required to properly show the change. Accuracy of records shall be such that future search for items shown in the Contract Document may reasonably rely on information obtained from the approved Record Documents.
- C. Timing of entries: make all entries within 24 hours after receipt of information.

1.03 SUBMITTALS

- A. General: The Architect’s approval of the current status of Record Documents will be a prerequisite to the Architect’s approval of requests for progress payment and request for final payment under the Contract.
- B. Progress submittals: Prior to submitting each request for progress payment, secure the Architect’s approval of the Record Documents as currently maintained.
- C. Final submittals: Prior to submitting request for final payment, submit the Final Record Documents to the Architect and secure his approval.

1.04 PRODUCT HANDLING

- A. Use all means necessary to maintain the job set of Record Documents completely protected from deterioration and from loss and damage until completion of the work and transfer of the recorded data to the Final Record Documents. In the event of loss of recorded data, use all means necessary to secure the data to the Architect’s approval; such means shall include, if necessary in the opinion of the Architect, removal and replacement of concealing materials and, in such case, all replacements shall be to the standards originally specified in the record Documents.

PART 2 – PRODUCTS

2.01 RECORD DOCUMENTS

- A. Promptly following award of Contract, mark one set of documents (blueines) as “RECORD DOCUMENTS-JOB SET”. All Addenda, issued during the Bid, shall be “cut and pasted” onto the appropriate sheets or pages of the Plans and Specifications.
 - 1. In addition to the requirements set forth, directing the Contractor to transfer all the information above to a reproducible set of mylars and CAD disk, the Contractor shall provide the actual JOB SET (“marked-up blueines”) referenced above to the District at the completion of construction, which will remain the District’s property.

PART 3 – EXECUTION

3.01 MAINTENANCE OF JOB SET

- A. Preservation:
 - 1. Considering the Contract completion time, the probable number of occasions upon which the job set must be taken out for new entries and for examination, and the conditions under which these activities will be performed devise a suitable method for protecting the “RECORD DOCUMENTS-JOB SET” to the approval of the Architect.
 - 2. Do not use the Job Set for any purpose except entry of new data and for review by the Architect, until start of transfer of data to Final Record Documents.
 - 3. Maintain the Job Set at the site of work where designated by the Architect.
- B. Making entries on drawings: Using an erasable colored pencil (not ink or indelible pencil) clearly describe the change by note and by graphic line, as required. Date all entries. Call attention to the entry by a “cloud” around the area or areas affected. In the event of overlapping changes, different colors may be used for each of the changes.
- C. Making entries on other documents:
 - 1. Where changes are caused by directives issued by the Architect, clearly indicate the change by note in ink, colored pencil, or rubber stamp.
 - 2. Where changes are caused by Contractor-originated proposals approved by the Architect, including inadvertent errors by the Contractor that have been accepted by the Architect, clearly indicate the change by note in erasable colored pencil.
 - 3. Make entries in the pertinent documents as approved by the Architect.
- D. Conversion of schematic layouts:
 - 1. In most cases on the Drawings, arrangement of conduits and circuits, piping, ducts, and other similar items is shown schematically and is not intended to portray precise physical layout. Final physical arrangement is as determined by the Contractor subject to the Architect’s approval. However, design of future modifications of the facility may require accurate information as to the final physical arrangement of items that are shown only schematically on the Drawings.

2. Show on the job set of Record Drawings, by dimension accurate to within 1", the centerline of each run of items such as are described in Paragraph 3.1 D.1 above. Clearly identify the item by accurate note such as "CAST-IRON DRAIN," "GALV. WATER" etc. Show by symbol or note the vertical location of the item ("under slab," "in ceiling plenum" "exposed," etc.). Make all identification sufficiently descriptive that it may be related reliably to the Specifications.
 3. The Architect may waive the requirements for conversion of schematic data where, in the Architect's judgment, such conversion serves no beneficial purpose. However, do not rely upon waivers being issued except as specifically issued in writing by the Architect.
 4. Timing of entries: Be alert to changes in the work from how it is shown in the Contract Documents. Promptly, and in no case later than 24 hours after the change has occurred and been made known to the Contractor, make the entry or entries required.
- E. Accuracy of entries: Use all means necessary, including the proper tools for measurement, to determine actual locations of the installed items.

3.02 FINAL RECORD DOCUMENTS

- A. General: The purpose of the Final Record Documents is to provide factual information regarding all aspects of the work, both concealed and visible, to enable future modification of design to proceed without lengthy and expensive site measurement, investigation, and examination.
- B. Approval of recorded data prior to transfer: Using the CAD disk and sepia vellums described in Section 01030, and prior to start of transfer of recorded data thereto, secure a review by the Architect and Project Manager of all recorded data. Make all required revisions.
- C. Transfer of data to drawings: Carefully transfer all change data shown on the job set of Record Drawings to the CAD disk and corresponding sepias, coordinating the changes as required, and clearly indicating at each affected detail and other drawing the full description of all changes made during construction and the actual location of items described in Paragraph 3.1 E. above. Call attention to each entry by drawing a "cloud" around the area or areas affected. Make all change entries on the sepias neatly, consistently, and in ink or crisp black pencil.
- D. Transfer of data to other Documents: If the documents other than Drawings have been kept clean successfully during progress of the work, and if entries have been sufficiently orderly thereon to the approval of the Architect, the job set of those Documents (other than Drawings) will be accepted by the Architect as Final Record Documents for those documents. If any such document is not so approved by the Architect, secure a new copy of that document from the Architect at the Architect's usual charge for reproduction; carefully transfer the change data to the new copy and to the approval of the Architect.
- E. Review and approval: Submit the completed total set of Record Documents to the Architect as described in Paragraphs 1.3 C. and 2.1 A , above. Participate in review meeting or meetings as required by the Architect, make all required changes in the Record Documents, sign and date Record Documents, and promptly deliver the Final Record Documents to the Architect.

3.03 CHANGES SUBSEQUENT TO ACCEPTANCE

- A. The Contractor shall have no responsibility for recording changes in the work subsequent to acceptance of the work by the District, except for changes resulting from replacements, repairs, and alterations made by the Contractor as part of his guarantee.

END OF SECTION

**SECTION 01 77 40
WARRANTIES**

PART 1 – GENERAL

1.01 SUBMITTAL REQUIREMENTS

- A. Assemble Warranties and Service and Maintenance Contracts, executed by each of the respective Manufacturers, Suppliers, and Subcontractors.

Number of original signed copies required: Four (4) each.

Table of Contents: Neatly typed in orderly sequence.

Provide complete information for each one of the following items:

1. Product or Work Item.
2. Firm with name of principal, address, and telephone number.
3. Beginning date of Warranty or Service and Maintenance Contract.
4. Duration of Warranty or Service and Maintenance Contract.
5. Provide the following information for the District's Personnel:
 - a. Procedures in case of failure of malfunction.
 - b. Instances which affect Warranty.
6. Contractor, name of responsible principal, address, and telephone number.

1.02 SUBMITTAL FORM

- A. The list identifies the submittal form requirements for WARRANTIES:
1. Punch sheets for standard 3-ring binder.
 2. Size: 8-1/2 x 11 inches.
 3. Fold larger sheets to fit into binder.
 4. Cover: Identify each packet with typed or printed title "WARRANTIES". List:
 - a. Title of Project.
 - b. Name of Contractor.

PART 2 – PRODUCTS

NOT USED

PART 3 – EXECUTION

NOT USED

END OF SECTION

SECTION 01 78 23
OPERATION AND MAINTENANCE MANUALS

PART 1 – GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Compilation of product data and related information appropriate for the District's maintenance and operation of products and equipment furnished under the Contract.
 - 2. Instruction of the District's personnel in the maintenance of products and in the operation of equipment and systems.
- B. Contractor shall comply with the requirements of this Specification Section, except where individual Specification Sections requirements are more stringent.

1.02 SUBMITTAL PROCEDURES

- A. Preliminary: Submit one copy of proposed manuals to the Project Manager at least fifteen (15) days prior to final inspection or acceptance.
- B. Final: Following the indoctrination and instruction of the District's operating and maintenance personnel, review proposed revisions to the manual with the Project Manager.
 - 1. Submit three copies of accepted data in final form 10 days after final inspection. Approval of submittal is a pre-requisite at Substantial Completion prior to the District's agendaizing project for acceptance by the Governing Board.

PART 2 – PRODUCTS

2.01 FORMAT

- A. Size: minimum 4 inch three-ring binders for 8-1/2 inch by 11 inch punched pages, completely clear plastic covered for insertion of labels on spines and covers.
- B. Provide identifying tabbed pages. Classify by Division and by Section. All tabbing shall be in numerical order.
- C. Drawings:
 - 1. Provide reinforced punched binder tab. Bind drawings with text.
 - 2. Fan fold larger drawings to size of text pages, for easy foldout.
- D. Cover: Identify each volume with typed or printed label, List:
 - 1. Title of Project
 - 2. Identify of separate structures as applicable.
 - 3. Identify of general subject matter covered in the manual.

- E. Spine: Identify each volume with typed or printed label stating OPERATING AND MAINTENANCE INSTRUCTIONS, GUARANTEES AND SERVICE CONTRACTS and the following information:
 - 1. Title of Project.
 - 2. Divisions and Sections included within volume.
 - 3. Volume number (i.e. "1 of 4).

PART 3 – EXECUTION

3.01 CONTENT OF MANUAL

- A. Table of Contents:
 - 1. List of each product indexed to the content of the volume.
 - 2. List with each product the name, address, and the telephone number of:
 - a. Subcontractor and installer.
 - b. Maintenance contractor, as appropriate.
 - c. Local sources of supply for parts and replacement.
- B. Product Data: Annotate each sheet to clearly identify the data applicable to the installation. Delete references to inapplicable information
- C. Drawings:
 - 1. Supplement product data with Drawings as necessary to illustrate the following:
 - a. Relationship of component parts of equipment and systems.
 - b. Control and flow diagrams.
 - 2. Do not include Project Record Drawings as maintenance drawings.
- D. Instructions: Provide written text, as required to supplement product data for the particular installation.
- E. Warranties, Guaranties, Bonds, and Service Contracts: Include a copy of each warranty, guarantee, bond and service contract issued.
 - 1. Provide information sheet for the District's personnel describing the following:
 - a. Propose procedures in the event of failure or emergencies.
 - b. Circumstances under which the validity of warranties, guaranties, or bonds might be compromised.

3.02 MANUAL FOR MATERIALS AND FINISHES

- A. Instructions for Care and Maintenance: Include manufacturer's data as follows:
 - 1. Recommendations for types of cleaning agents and methods.
 - 2. Cautions against cleaning agents and methods which are detrimental to the product.
 - 3. Recommended schedule for cleaning and maintenance.

3.03 MANUAL FOR EQUIPMENT AND SYSTEMS

- A. Content, for each unit of mechanical equipment and system, as appropriate:
 - 1. Description of Unit and Component Parts:
 - a. Function, normal operating characteristics, and limiting conditions.
 - b. Performance curves, engineering data, and tests.
 - c. Complete nomenclature and commercial number of replacement parts.
 - 2. Operating Procedures:
 - a. Start-up, break-in, routine, and normal operating instructions.
 - b. Regulation, control, stopping, shut-down, and emergency instructions.
 - c. Summer and winter operation instructions.
 - 3. Maintenance Procedures:
 - a. Routine operations.
 - b. Guide to "trouble-shooting."
 - c. Disassembly, repair, and reassemble.
 - d. Alignment, adjusting, and checking.
 - 4. Servicing and lubrication schedule including list of lubricants required.
 - 5. Manufacturer's printed operating and maintenance Instructions.
 - 6. Description of sequence of operation by control manufacturer.
 - 7. Original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance, including:
 - a. Predicted life of parts subject to wear.
 - b. Items recommended to be stocked as spare parts.
 - 8. Control diagrams by manufacturer of controls as installed in project.
 - 9. Coordination Drawings and color coded piping diagrams.

10. Charts of valve tag numbers, with the location and function of each valve.
- B. Content, for each electric and electronic system as appropriate:
1. Description of System and Component Parts:
 - a. Function, normal operating characteristics, and limiting conditions.
 - b. Performance curves, engineering data, and tests.
 - c. Complete nomenclature and commercial number of replaceable parts.
 2. Circuit directories of panelboards:
 - a. Electrical service.
 - b. Controls.
 - c. Communication.
 3. As-installed color coded wiring diagrams.
 4. Operating Procedures:
 - a. Routine and normal operating instructions.
 - b. Sequences required.
 - c. Special operating instructions.
 5. Maintenance Procedures:
 - a. Routine operations.
 - b. Guide to "trouble-shooting."
 - c. Disassembly, repair and re-assembly.
 - d. Adjustment and checking.
 6. Manufacturer's printed Operating and Maintenance Instructions.
 7. List of original manufacturer's spare parts, manufacturer's current prices, and recommended quantities to be maintained in storage.

3.04 INSTRUCTION OF THE DISTRICT'S PERSONNEL

- A. Prior to final inspection or acceptance, fully instruct the District's designated operating and maintenance personnel in the operation, adjustment and maintenance of all products, equipment, and systems installed in project.
1. Provide services of factory trained instructors from the manufacturer of each major item of equipment or system.
- B. Operating and maintenance manual shall constitute the basis of instruction.

1. Review contents of manual with personnel in full detail to explain all aspects of operation and maintenance.
2. Review instruction on how to efficiently use state required energy conservation features, materials, components. and mechanical device.

END OF SECTION

SECTION 02 41 19 DEMOLITION

PART 1 – GENERAL

1.01 SUMMARY

- A. Provisions of the General and Supplementary Conditions and Division One apply to this section.
- B. Section Includes: Furnishing all labor, materials and equipment necessary for demolition, dismantling, cutting and alterations as indicated, specified, and required for completion of the Contract, as applicable. Includes items such as the following:
 - 1. Protecting existing work to remain.
 - 2. Cleaning soiled materials that are to remain.
 - 3. Disconnecting and capping utilities.
 - 4. Removing debris and equipment.
 - 5. Removal of items indicated on Drawings.
 - 6. Salvageable items to be retained by the District – To be verified with District PM Prior to disposal.
- C. Related Sections:
 - 1. Section 01 50 00: Temporary Facilities and Controls

1.02 QUALITY ASSURANCE

- A. Comply with the following:
 - 1. Applicable codes, ordinances, regulations of local, municipal, state and federal authorities having jurisdiction.
 - 2. Obtain necessary permits and notices, post where required.
 - 3. Comply with safety requirements of the local fire department.
 - 4. Comply with ANSI A10.6.
 - 5. Comply with Standard Specification for Public Works Const.
- B. Demolition Firm Qualifications: Engage an experienced, licensed firm having a minimum of (5) years full time satisfactory experience in demolition work of similar scope and complexity to that indicated for this Project.
- C. Notify affected utility companies before starting Work and comply with their requirements.
- D. Carefully perform demolition work, by skilled workers experienced in building demolition procedures, using appropriate tools and equipment. Perform work, at all times, under the direct supervision of a supervisor approved by the Owner Inspector.
- E. Coordinate demolition with other trades to ensure correct sequence, limits, and methods of proposed demolition. Schedule work to create least possible inconvenience to the

public and to facility operations.

- F. Pre-Demolition: Conduct conference at Project site 7 days prior to scheduled installation.
1. Conference agenda shall include review and discussion of requirements of authorities having jurisdiction, instructions and requirements of serving utilities, sequencing and interface considerations and Project conditions.
 2. Conference shall be attended by supervisory and quality control personnel of Contractor and all subcontractors performing this and directly related work. Submit minutes of meeting to Owner's Representative for Project record purposes.

1.03 DEFINITIONS

- A. Remove: Remove and legally dispose of items except those indicated to be reinstalled, salvaged, or to remain the Owner's property.
- B. Remove and Salvage: Items indicated to be removed and salvaged remain the Owner's property. Remove, clean, and pack or crate items to protect against damage. Identify contents of containers and deliver to location as directed by Owner's Representative.
- C. Remove and Reinstall: Remove items indicated; clean, service, and otherwise prepare them for reuse; store and protect against damage. Reinstall items in locations indicated.
- D. Existing to Remain: Protect construction indicated to remain against damage and soiling during demolition. When permitted by the Owner's Representative, items may be removed to a suitable, protected storage location during demolition and then cleaned and reinstalled in their original locations.

1.04 OWNERSHIP OF MATERIALS

- A. Ownership of Materials: Except for items or materials indicated to be reused, salvaged, or otherwise indicated to remain the Owner's property, demolished materials shall become the Contractor's property and shall be removed from the site with further disposition at the Contractor's option.

1.05 PROJECT CONDITIONS

- A. Drawings may not indicate in detail all demolition work to be carried out. Carefully examine existing conditions to determine full extent of demolition required. All utilities, whether shown on the drawings or not, to be capped at the property line U.N.O.
- B. Repair damage due to demolition activities to existing improvements to remain at no additional cost to the Owner. Repair or replace as directed by the Owner Inspector.
- C. Take measures to avoid excessive damage from inadequate or improper means and methods, or improper shoring, bracing or support. Repair or replace any resulting damage at no additional cost to the owner as directed by the Owner Inspector.
- D. If conditions are encountered that vary from those indicated, notify the Owner Inspector for instructions prior to proceeding. Owner assumes no responsibility for actual condition of structures to be demolished.
- E. Inform Owner immediately upon discovery of asbestos products, radioactive materials, toxic wastes or other hazardous materials. Do not remove hazardous materials without Owner authorization.

- F. Adjacent roadways/passageways:
 - 1. Maintain fire department access through all phases of the project.
 - 2. Obstruction of streets, walks or other adjacent facilities will not be allowed.

1.06 DIG ALERT NOTIFICATION

- A. Before any excavation in or near the public right-of-way, the Contractor must contact the Underground Service Alert of Southern California (Dig Alert) at 811 for information on buried utilities and pipelines.
- B. Delineation of the proposed excavation site is mandatory. Mark the area to be excavated with water soluble or chalk based white paint on paved surfaces or with other suitable markings such as flags or stakes on unpaved areas.
- C. Call at least Two (2) full working days prior to digging.
- D. If the members (utility companies) have facilities within the work area, they will mark them prior to the start of your excavation and if not, they will let you know there is no conflict. A different color is used for each utility type (electricity is marked in red, gas in yellow, water in blue, sewer in green, telephone and cable TV in orange).
- E. The Law requires you to hand expose to the point of no conflict 24" (inches) on either side of the underground facility, so you know its exact location before using power equipment.
- F. If caught digging without a Dig Alert ticket you can be fined as much as \$50,000 per California government code 4216.

PART 2 – PRODUCTS

2.01 SOIL MATERIALS

- A. Satisfactory Soil Materials: Soils approved by the testing geotechnical engineer and free of rock or gravel larger than 4 inches in any dimension, debris, waste, vegetation and other deleterious matter and as approved by the Geotechnical Engineer. Rocks or hard lumps larger than approximately 4 inches in diameter should be broken into smaller pieces or should be removed from the site. It is anticipated that most of the on-site soils may be reusable as engineered fill after any vegetation, construction debris, oversized material and deleterious material is removed from the site.
- B. Backfill & Native Fill Materials: The on-site soils may be reused as compacted engineered fill provided they comply to the requirements of "Satisfactory Soil Materials", as described above.
- C. Borrow / Imported Fill Material: Soil excavated from site or imported conforming to requirements for fill material.
 - 1. Materials for the fill shall be free from vegetable matter and other deleterious substances, shall not contain rocks or lumps of a greater dimension than is recommended by the geotechnical consultant, and shall be approved by the geotechnical consultant.
 - 2. Imported materials should have a Plasticity Index (PI) not less than 5 nor greater than 15, as determined by ASTM D 4318; and expansion index not exceeding 10, as determined by ASTM D 4829; and a particle size not exceeding 3 inches as determined by ASTM D 422.

- D. Engineered Fill: Satisfactory Soil Materials / Borrow Fill Material, as described above, placed in lifts no greater than 8 inches thick (loose measurements), and compacted to a minimum of 90% of the soil's maximum dry unit weight.
- E. Backfill Material for Trenches:
 - 1. The on-site soils may be used for backfilling utility trenches from one foot above the top of pipe to the surface, provided the material is free of organic matter and deleterious substances. Any soft and/or loose materials or fill encountered at pipe invert should be removed and replaced with properly compacted fill or adequate bedding material. Also, rocks larger than 6 inches and boulders should not be used as backfill.

2.02 HANDLING OF MATERIALS

- A. Items scheduled for salvage by the Owner shall be delivered to a location designated by the Owner's Authorized Representative. Items shall be cleaned, packaged and labeled for storage.
- B. Items scheduled for reuse shall be stored on site and protected from damage, soiling and theft.

PART 3 – EXECUTION

3.01 GENERAL

- A. Protection:
 - 1. Do not begin demolition until safety partitions, barricades, warning signs and other forms of protection are installed.
 - 2. Provide safeguards, including warning signs, lights and barricades, for protection of occupants and the general public during demolition.
 - 3. Provide and maintain fire extinguishers. Comply with requirements of governing authorities.
 - 4. Maintain existing utilities which are to remain in service and protect from damage during operations.
- B. Safety: If at any time safety of existing construction appears to be endangered, take immediate measures to correct such conditions; cease operations and immediately notify the Owner Inspector. Do not resume demolition until directed by the Owner Inspector.
- C. Noise and Dust Abatement: Exercise all reasonable and necessary means to abate dust, dirt rising and undue noise. Perform necessary sprinkling and wetting of construction site to allay dust as required by applicable codes and ordinances.
- D. Dust Control: Use water mist, temporary enclosures, and other suitable methods to limit the spread of dust and dirt. Comply with governing environmental protection regulations. Do not create hazardous or objectionable conditions, such as flooding and pollution, when using water.

- E. Water for Dust Control: Contractor shall obtain and pay for all water required for his dust control operations. This may include, but is not limited to, payment of deposits to utility for construction meter, and payment of all monthly service and water charges. Construction meter shall be in place throughout construction period unless alternative arrangements are made with the Water Department to provide construction water for all purposes. Contractor shall be aware of water moratoriums and restrictions, and shall immediately advise Owner of effects on construction schedules.
- F. An 8 foot high, chain link fence, with visual screen and gates, shall be erected prior to any demolition operations at the construction limits perimeter. Coordinate the exact location with Owner. Comply with specification section 32 31 13: Chain Link Fence.
- G. Debris Removal: Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level.
- H. Progress Cleaning: Clean adjacent buildings and improvements of dust, dirt, and debris caused by demolition operations. Return adjacent areas to condition existing before start of demolition.

3.02 PREPARATION

- A. Prevent movement or settlement of adjacent structures. Provide bracing and shoring as necessary.
- B. Utilities:
 - 1. The Drawings do not purport to show all below-grade conditions and objects on the site. Contractor shall perform field investigations as necessary to establish location of underground utility services and other features affecting earthwork.
 - 2. Mark location of underground utilities on asphalt pavement with paint
 - 3. Disconnect and cap utility services; comply with requirement of governing authorities.
 - 4. Contractor shall arrange and notify utility company in advance of date and time when service needs to be disconnected.
 - 5. Do not commence demolition operations until associated disconnections have been completed.
 - 6. Should utilities and other below-grade conditions be encountered which adversely affect the Work, discontinue affected Work and notify Owner's Representative and Architect and request direction. Unforeseen conditions will be resolved in accordance with provisions of the General Conditions of the Contract.
 - 7. Should a utility line or structure be damaged, immediately notify the responsible utility company or agency and notify Owner's Representative and Architect.
 - a. Repair or replace all damaged utility lines and structures as directed by the responsible utility company or agency.
 - b. Repair or replacement of damaged utility lines and structures whose location or existence has been made known to the Contractor shall be at no change in the Contract Time and Contract Price.

- C. Structures to be demolished shall be inspected for hazardous materials. Such materials shall be removed and disposed of before general demolition begins.
- D. Do not interrupt existing utilities serving occupied or operating facilities, except when authorized in writing by Owner's Representative and Authority Having Jurisdiction (AHJ). Provide temporary services during interruptions to existing utilities, as acceptable to Owner's Representative and to Authority Having Jurisdiction (AHJ).

3.03 EXPLOSIVES

- A. Explosives: Use of explosives will not be permitted.

3.04 DEMOLITION

A. Demolition, General:

1. With certain exceptions, the Contractor shall raze, remove and dispose of all buildings and foundations, structures, paving, fences and other obstructions that lie wholly or partially within the construction limits identified on Drawings. The exceptions are utility-owned equipment and any other items the Owner/Documents may direct the Contractor to leave intact or re-use onsite. Cease demolition immediately if adjacent structures appear to be in danger.
2. Conduct demolition operations and remove debris to ensure minimum interference with roads, streets, walks, and other adjacent occupied and used facilities.
3. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner's Representative and Authority Having Jurisdiction (AHJ). Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.
4. Conduct demolition operations to prevent injury to people and damage to adjacent buildings and facilities to remain. Ensure safe passage of people around demolition area.
 - a. Erect temporary protection, such as walks, fences, railings, canopies, and covered passageways, where required by authorities having jurisdiction.
 - b. Protect existing site improvements, appurtenances, and landscaping to remain.
 - c. Erect a plainly visible fence around drip line of individual trees or around perimeter drip line of groups of trees to remain.
5. Structural Stability: Provide and maintain interior and exterior shoring, bracing, or structural support to preserve stability and prevent movement, settlement, or collapse of buildings to be demolished and adjacent buildings to remain. Strengthen or add new supports when required during progress of demolition.
6. Below-Grade Construction: Demolish foundation walls and other below-grade construction, as follows:
 - a. Remove below-grade construction, including foundation walls and footings, to at least 18-inches below grade, but at least to bottom of footing or foundation wall.

- b. Completely remove below-grade construction, including foundation walls and footings.
- 7. Filling Below-Grade Areas: Completely fill below-grade areas and voids resulting from demolition of buildings and pavements with soil materials according to requirements specified in Section 31 20 00 - Earthwork.
- 8. Damages: Promptly repair damages to adjacent facilities caused by demolition operations.
- 9. Unless otherwise indicated on the plans, remove all demolished material from the site and dispose of at approved disposal sites. Comply with all requirements for recycling of demolished material as called for in Division 1 of this Specification. The contractor shall obtain necessary permits for the transportation of material from the site.

3.05 REMOVAL OF EXISTING PLUMBING AND ELECTRICAL EQUIPMENT AND SERVICES

- A. Remove existing plumbing and electrical equipment fixtures and services not indicated for reuse and not necessary for completion of work. Remove abandoned lines and cap unused portions of existing lines. The Contractor is responsible for completely surveying the site and locating all existing utilities, above and below ground, before contracting to perform the work.
- B. Asbestos – Cement (A-C) Pipe Removal and Disposal: The plans for the project may indicate that existing asbestos-cement pipe is to be removed from the ground. Where so indicated the Contractor shall excavate with care, expose the pipeline and remove the A-C pipe to the nearest joint. Should the plans not call out the removal of the A-C pipe and A-C pipe is encountered, the Contractor shall obtain approval from the Owner as to whether or not the A-C pipe is to be removed or can be left in place. Cutting of the pipe shall only be done if absolutely there is no other way to expose the length of pipe to the nearest joint that be separated and the Owner approves the cutting of the pipe. Cutting of the pipe shall be done with a mechanical saw with a pressure water source to dampen the pipe and the dust from the cutting. To remove a coupling, the coupling may have to be broken in the trench. The pipe once removed from the trench may be broken for handling. The breaking shall be done within a plastic bagging or sheeting material to minimize the release of asbestos fibers into the atmosphere. Once removed and broken, if necessary, the A-C material shall be bagged and disposed of legally with the Owner to be given a copy of all Contractor paperwork as to the legal disposal of the material. If the A-C pipe section(s) are removed intact the pipe can be removed by the Contractor from the project site and become the property and responsibility of the Contractor.

3.06 CLEANING

- A. Clean existing materials to remain, using appropriate tools and materials.
- B. Protect adjacent materials and equipment during cleaning operations.

3.07 PATCHING AND RESTORATION

- A. Patching: Where removals leave holes and damaged surfaces that will be exposed in the completed construction, such holes and damaged surfaces shall be patched and restored to match adjacent finished surfaces.
 - 1. Where new finish construction is applied over existing holes and damaged surfaces, patching and restoration shall be performed to the extent to make the

substrate suitable for the provision of new finish construction.

2. Surfaces of patched and restored areas shall be flush with the adjacent existing surfaces and shall closely match existing adjacent surfaces in texture and finish.

B. Restoration of Site Finishes:

1. Concrete paving: Where it is necessary to excavate a trench across make a cut in concrete paved areas, cut concrete cutting saw, full depth of paving.
2. Bituminous paving: Where it is necessary to excavate a trench across make a cut in bituminous paved areas, either first score paving with a concrete cutting saw, in neat straight lines, prior to removing paving or make straight cuts with pneumatic spade.
3. Restoration of paving: Restore all paved areas to their original condition using material of like type and quality as the removed paving. Paving in public ways shall conform to applicable requirements of authorities having jurisdiction. Repaired surfaces shall match existing adjacent paving except minimum depth shall be 3-1/2 inches where existing paving is less than 3-1/2 inches.
4. Restoration of landscape planting: Restore soil and plant materials to match original condition, including additional topsoil, topsoil grading and preparation, new plant materials and plant maintenance during establishment period.

3.08 MAINTENANCE

- A. Install and maintain all erosion control devices, including sandbag and gravel bag dikes, silt fences, de-silting basins, inlet barricades, vehicle wash traps, and other features as required per Specification Section 01060.

3.09 CLEAN-UP/DISPOSAL

- A. Coordinate building access with the Owner Inspector. Review and schedule waste storage and removal, include truck access to site.
- B. Debris shall be dampened by fog water spray prior to transporting by truck.
- C. Debris pick-up area shall be kept broom-clean and shall be washed daily with clean water.
- D. Remove waste and debris, other than items to be salvaged. Turn over salvaged items to Owner, or store and protect for reuse where scheduled. Continuously clean-up and remove items as demolition work progresses. Do not allow waste and debris to accumulate in building or on site.

END OF SECTION

**SECTION 02 41 26
MINOR ELECTRICAL DEMOLITION**

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Electrical demolition.

PART 2 - PRODUCTS

2.1 MATERIALS AND EQUIPMENT

- A. Materials and equipment for patching and extending work: As specified in individual Sections.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify field measurements and circuiting arrangements are as shown on Drawings.
- B. Verify that abandoned wiring and equipment serve only abandoned facilities.
- C. Demolition Drawings are based on casual field observation and existing record drawings. Report discrepancies to Architect before disturbing existing installation.
- D. Beginning of demolition means installer accepts existing conditions.

3.2 PREPARATION

- A. Disconnect electrical systems in walls, floors, and ceilings scheduled for removal.

- B. Provide temporary wiring and connections to maintain existing systems in service during construction. When work must be performed on energized equipment or circuits, use personnel experienced in such operations.

3.3 DEMOLITION AND EXTENSION OF EXISTING ELECTRICAL WORK

- A. Demolish and extend existing electrical work under provisions of Division 1, Division 2, and this Section.
- B. Remove, relocate, and extend existing installations to accommodate new construction.
- C. Remove abandoned wiring to source of supply.
- D. Remove exposed abandoned conduit, including abandoned conduit above accessible ceiling finishes. Cut conduit flush with walls and floors, and patch surfaces.
- E. Disconnect abandoned outlets and remove devices. Remove abandoned outlets if conduit servicing them is abandoned and removed. Provide blank cover for abandoned outlets that are not removed.
- F. Disconnect and remove abandoned panelboards and distribution equipment.
- G. Disconnect and remove electrical devices and equipment serving utilization equipment that has been removed.
- H. Disconnect and remove abandoned luminaires. Remove brackets, stems, hangers, and other accessories.
- I. Repair adjacent construction and finishes damaged during demolition and extension work.
- J. Maintain access to existing electrical installations which remain active. Modify installation or provide access panel as appropriate.
- K. Extend existing installations using materials and methods compatible with existing electrical installations, or as specified.

3.4 CLEANING AND REPAIR

- A. Clean and repair existing materials and equipment which remain or are to be reused.
- B. Panelboards: Clean exposed surfaces and check tightness of electrical connections. Replace damaged circuit breakers and provide closure plates for vacant positions. Provide typed circuit directory showing revised circuiting arrangement.
- C. Luminaires: Remove existing luminaires for cleaning. Use mild detergent to clean all exterior and interior surfaces; rinse with clean water and wipe dry. Replace lamps, ballasts, and broken electrical parts.

3.5 INSTALLATION

- A. Install relocated materials and equipment under the provisions of Division 1.

END OF SECTION

**SECTION 05 55 00
MISCELLANEOUS METALS**

PART 1 - GENERAL

- A. Requirements of Division 1 apply to this Section.

1.01 WORK INCLUDED

- A. Shapes, sleeves, anchors, connectors, plates, backing plates, supports, and fastenings required but which are not specified in other Sections.
- B. Other metal fabrications indicated.

1.02 GENERAL REQUIREMENTS

- A. Field conditions: Verify drawing dimensions with actual field conditions. Inspect related work and adjacent surfaces. Report all conditions which prevent proper execution of this work.
- B. Shop Drawings: Submit in accordance with Section 01340 showing incomplete detail all information required for fabrication, finishing and installation of this work.
- C. Codes: Materials and work shall conform to the governing Building Code. In case of conflict between these specifications and the Building Code, the more stringent shall govern.
- D. General: Examine all drawings and specifications and include all miscellaneous metal that is not required to be furnished by another trade. Provide all connections, anchors, bolts, and other fastenings as required. Do all cutting, punching, drilling and tapping required for proper assembly of the work.
- E. Delivery: Insure that items to be set in concrete are delivered at the proper time.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Steel shapes: Conform to ASTM A36.
- B. Structural pipe columns: Conform to ASTM A53, Grade B.
- C. Pipe for railings: Conform to ASTM A53 or A120.
- D. Cast iron: Conform to ASTM A48, soft gray iron.
- E. Malleable iron castings: Conform to ASTM A47.
- F. Welding rods: Conform to requirements of AWS for intended use.
- G. Galvanizing: Conform to ASTM A123.
- H. Bolts, nuts, screws: Conform to ASTM A307, Grade A.
- I. Steel plate: Conform to ASTM A283, Grade A.

- J. Steel tubing: Conform to ASTM A501 or A500.
- K. Bars, flats, rounds: Conform to ASTM A36, standard grade mild steel.
- L. Primer: Conforming to FS-TT-P-86, Type I.
- M. Touch-up for galvanized surfaces: All State #321 Galvanizing Powder (30% tin, 30% zinc, 40% lead and flux), "Galvalloy", "Galvover", or approved equal.
- N. Miscellaneous material: As indicated or specified.

2.02 SHOP PRIME COAT

- A. Ferrous metal: Properly clean and prepare for painting in compliance with the paint manufacturer's instructions and apply one shop coat of material of the type specified. Thoroughly and completely cover all exposed surfaces as well as surfaces concealed after assembly. Apply paint by brush or spray gun, as best adapted to the paint material and surface conditions. Allow paint to become dry and hard before handling.
 - 1. Apply primer to 2 mil minimum dry coat thickness and touch up after installation and leave in proper condition to receive finish coats.

2.03 GALVANIZING

- A. Galvanize all items to be exposed on the exterior and those interior items so specified. Use the hot dip process, conforming to ASTM A123.
- B. Average weight of zinc coating per square foot of actual surface: Not less than 2.0 ounces, with no individual specimen showing less than 1.8 ounces. (One oz. of zinc corresponds to a coating thickness of 0.0017".)

2.04 FABRICATION

- A. Using skilled mechanics, form and fabricate items of work as indicated and as required to meet installation conditions. Make provisions to connect with or receive the work of other trades.
- B. Unless otherwise indicated, weld or bolt connections between members. Where possible, conceal connections in the finished work. Where exposed screw fastenings are required, use Phillips ovalhead screws to match parent material. Fit or miter exposed joints to hairline tolerance or use welded joints. On finished surfaces, grind all welds smooth and flush with base metal.
- C. Bend pipe or tubing without collapsing or deforming the walls, and so as to provide a smooth uniform curved section and maintain uniform sectional shape.
- D. Where items are to be embedded in concrete, provide welded-on anchors or lugs as indicated or required.

PART 3 – EXECUTION

3.01 ITEMS EMBEDDED IN CONCRETE OR MASONRY

- A. Provide bolts, eyebolts, dowels, anchors, plates, inserts, and other miscellaneous items that are to be installed in forms before concrete pouring, or for building into masonry, as indicated. Examine and check the drawings for the number, type and location of such items.

3.02 INSTALLATION

- A. Install all items plumb, level and square, securely and rigidly attached to supporting construction and as detailed.

3.03 DESCRIPTION OF ITEMS:

- A. Those items which are of standard or stock design or which are sufficiently detailed or described on the drawings to permit their fabrication and installation, are not covered herein even though they may be included in the Scope.
- B. Backing plates in connection with studs and furring necessary for engaging and fastening of stair rail brackets, lavatories and fixtures, etc., shall be provided in locations indicated, or as necessary. Securely fasten backing plates to studs supporting members in required position. Dap into wood studs. Weld between steel studs. Finish with rust inhibitive prime coat.
- C. Pipe handrails (if shown): Fabricate from 1 1/4" standard steel pipe to shapes and dimensions indicated. Make joints flush with concealed seamless fittings. Accurately cut, miter, weld and grind smooth to flush surfaces. Make bends to preserve the contour of the pipe. All railings shall meet all disabled access requirements. Install as follows:
 - 1. To masonry walls: Provide cast brackets providing 1 1/2" min. or indicated clearance between railing and wall. Secure to wall with screws into expansion shields.
 - 2. To stud walls: Provide cast brackets providing 1 1/2" min. or indicated clearance between railing and wall. Provide proper backing at studs at proper locations before application of gypsum board. Provide collar, flush metal filler, and secure to backing.
- D. Pipe guards and bollards: standard steel pipe as shown. Galvanized after fabricated.
- E. Wrought Iron Fence and Gates: Fabricate from wrought steel square tubes as shown and to match existing. Provide all necessary operating hardware for the gates. Reinstall salvaged fence and gates as required. Fence and gates to be hot dip galvanized. Provide factory applied architectural coating over hot-dip galvanized steel "Colorgalv" by Duncan Galvanizing. Primer coat shall be factory applied prime coating. Apply primer within 12 hours after galvanizing at the same facility where the galvanizing is done. Finish coat shall be factory-applied high performance architectural finish. Apply finish coating at the galvanizer's plant, in a controlled environment as recommended by the finish coating manufacturer. Color to match existing steel fencing to remain at campus. Submit two 3 inch by 6 inch samples of factory applied coatings and colors proposed for use for approval prior to coating application. Provide 20 year warranty against rust.
- F. Other miscellaneous metal work as indicated.

END OF SECTION

**SECTION 06 10 00
ROUGH CARPENTRY**

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. Supply and install Rough Carpentry work as indicated.

1.02 RELATED SECTIONS

- A. Section 01 43 00: Quality Control.
- B. Section 01 45 29: Testing and Inspection.
- C. Section 09 25 00: Gypsum Board.

1.03 SUBMITTALS

- A. Submittals: Submit in accordance with Section 01 30 00.

1.04 QUALITY ASSURANCE

- A. All work shall be performed in accordance with the local codes and the most current DSA requirements. Where there is a question between the specifications, Architect/Contractor shall conform to the most constrictive requirement.
- B. Douglas fir, larch or hemlock structural and framing lumber shall be graded in accordance with the "Standard Grading Rules" of the West Coast Lumber Inspection Bureau (WCLIB) or the "Western Lumber Grading Rules" of the Western Wood Products Association (WWPA) latest editions.
- C. Redwood structural and framing lumber shall be graded in accordance with "Standard Specifications for Grades of California Redwood Lumber" of the Redwood Inspection Service, latest edition.
- D. Each piece of lumber shall bear official grade mark of the association under whose rules it was graded, or official grade mark of another recognized grading agency using grading rules herein specified.
- E. All 2x structural and framing members shall be air-dried to a moisture content not to exceed 19% before use.
- F. Work of this Section shall comply with provisions of current edition of UBC and Title 24, see Section 01 45 29: Testing and Inspection.
- G. Plywood shall conform to requirements of "Product Standard PS 1 issued by the U.S. Department of Commerce, and shall be grade marked by a recognized grading agency (APA and PTL).
- H. Each piece of preservative treated lumber shall be identified by the Quality Mark of an approved inspection agency in accordance with Title 24, see Section 01 45 29: Testing and Inspection.

PART 2 – PRODUCTS

2.01 MATERIALS

- A. Lumber: Structural and framing lumber shall be of the following species and grades unless noted otherwise on the drawings:

	<u>USE</u>	<u>SPECIES</u>	<u>GRADE</u>
1.	Subfloor, wall sheathing, roof sheathing and ceiling stripping.	Douglas Fir	"Construction" Board, Structural #1 only WCLIB; WWPA
2.	Beams, girders and truss members (5" and thicker, rectangular, width more than 2" greater than thickness) where exposed as finish members.	Douglas Fir WWPA	Select Structural
3.	Joists, rafters, lintels, posts, mullions and members (2" to 4" thick, 2" to 4" wide)	Douglas Fir	"Structural No. 1 Structural Light Framing, WCLIB;
4.	Other lumber (2" to 4" thick, 2" to 4" wide) not specified in subparagraph 5 above.	Douglas Fir	"Structural No. 1" and Framing WCLIB; WWPA
5.	Framing lumber (2" to 4" thick, 5" and wider).	Douglas Fir	"No. 1" and better Joists and Planks, WCLIB; WWPA.
6.	Mudsills and plates in contact with soil. treated	Douglas Fir	Same as subparagraphs 5 and 6.
7.	Sills or plates resting on concrete or masonry surfaces 6" or less above soil or finish grade.	Douglas Fir treated	Same as subparagraphs 5 and 6.
8.	Sills, foundations plates & sleepers which rest on concrete, masonry foundations, or are laid on concrete on concrete slab in direct contact with soil.	Douglas Fir treated	Same as subparagraphs 4 and 5.
9.	Miscellaneous nailing strips and blocks embedded in concrete or masonry.	Douglas Fir treated	Same as subparagraphs 4 and 5.

- B. Plywood: Plywood used for structural purposes, shall be APA grade Structural I plywood. Other plywood used for non-structural purposes shall be exterior type, or Exposure 1.

- C. Preservative Treated Wood:

1. Wood and plywood specified as treated wood shall be pressure treated wood in accordance with CBC 2303.1.8."
2. Seasoning: Treated lumber shall be air seasoned after treatment, for a minimum of 2 weeks before use.

3. Creosote shall not be used for treating wood in contact with painted or plastered surfaces.
 4. When treated wood member has been notched, dapped, drilled or in any way cut into, such newly cut surfaces shall be painted with a heavy coat of same preservative material used in treatment of wood member.
- D. Fire Retardant Protection: Wood and plywood specified as "Fire Retardant Protected Wood" shall be treated by approved methods and materials, and shall be dried, following treatment, to a maximum moisture content as follows: Solid sawn lumber 2" in thickness or less to 19%; and plywood to 15%.
- E. Plywood subflooring shall be "Underlayment", Group 1, Exposure 1; of thickness indicated.
- F. Mineral Fiber Panels: Shall be asbestos free, thickness as indicated.
- G. Reused Materials: Sound lumber and timber which has been used for formwork may not be reused for stress carrying or non-stress carrying members. May not be used in any construction other than formwork.

PART 3 – EXECUTION

3.01 FASTENINGS

- A. Nails and Spikes:
1. Use only common wire nails or spikes.
 2. Whenever necessary to prevent splitting, holes shall be pre-bored for nails and spikes.
 3. Nails in plywood shall not be overdriven.
 4. Machine Applied Nailing: Use of machine nailing is subject to a satisfactory jobsite demonstration for each project and approval by the Project Architect or Structural Engineer and the Division of the State Architect Field Representative. Approval is subject to continued satisfactory performance. Machine nailing will not be approved in 5/16" plywood. If nail heads penetrate outer ply more than would be normal for a hand hammer or if minimum allowable edge distances are not maintained, performance will be deemed unsatisfactory and material may be scrapped.
- B. Lag Screws:
1. When placing lag screws in a wood member, pre-bore lead hole as recommended in CBC Title 24 Sec 23.
 2. Lag screws which bear on wood shall be fitted with standard steel plate washers under head. Lag screws shall be screwed and not driven into place.
 3. Lag screws applied in moisture rich environments or "wet" timber shall be galvanized to prevent degradation of both the lag screw and the material.

C. Bolts:

1. Lumber and timber to be fastened together with bolts shall be clamped together and holes for bolts bored true to line.
2. Bolts shall be fitted with steel plates or standard cut washers under heads and nuts. Bolts shall be tightened when installed and again just before completion of work.
3. Bolts applied in moisture rich environments or "wet" timber shall be galvanized to prevent degradation of both the bolt and the material.

D. Wood Screws: When placing wood screws, lead holes shall be pre-bored as recommended in CBC Title 24. Wood screws shall be appropriately selected for the application and treated as necessary to prevent corrosion

E. Framing Anchors: Framing anchors, joist hangers, ties and other mechanical fastenings shall be galvanized or have a rust-inhibitive coating. Nails and fastenings shall be of type recommended by manufacturer.

3.02 ERECTION

A. Stud Walls, Partitions and Furring:

1. Wood stud walls, partitions and vertical furring shall be constructed of members of size and spacing indicated. Provide single plate at bottom and double plate at top unless otherwise indicated. Interior, nonbearing non-shear partitions may be capped with a single top plate, installed to provide overlapping at corners and at intersections with other wall and partitions or by metal ties as detailed.
2. Walls and partitions shall have horizontal staggered blocking not less than 2" nominal thickness and same width as studs, fitted snugly, and nailed into studs. Blocking shall be at mid-height of partition or not more than 7'-0" on center vertically. Install wood backing on top of top plate wherever necessary for nailing of lath or gypsum board.
3. Walls, partitions and furred spaces shall have 2" nominal thickness wood firestops, same width as space to be fire stopped, at ceiling line, mid-height of partition and at floor line. Firestops at floor line are not required when floor is concrete. If width of opening is such that more than one piece of lumber is necessary, provide 2 thicknesses of 1" nominal material laid with staggered joints.
4. Firestops shall be placed in all stud walls and partitions, including furred spaces, so that maximum dimension of any concealed space is not over 10'-0".
5. Corners, and where wood stud walls and wood vertical furring meet, shall be formed of triple studs. Openings in stud walls and partitions shall have headers as indicated and a minimum of 2 studs at jambs, one stud of which may be cut to support header in bearing.
6. Where wood masonry or concrete walls intersect, end stud shall be fastened at top, bottom and mid-height with one 1/2" diameter bolt through stud and embedded in masonry or concrete a minimum of 4". Bolts shall have washers under nuts.

7. Sills under bearing, exterior or shear walls shall be bolted to concrete with 5/8" rd. by 12" long bolts spaced not more than 4'-0" on center. There shall be a bolt within 9" of each end of each piece of sill. Sills shall be placed and leveled with shims and washers placed and nuts tightened to level bearing after which space between sill and concrete shall be dry packed with cement grout. Non-bearing interior plates may be fastened to concrete with low velocity powder driven fasteners provided Structural Engineer's approval is obtained in writing, prior to use.
- B. Beams, Girders and Joists:
1. Ends of wood beams, girders and joists which are 2'-0" or less above finished outside grade and which abut, but do not enter concrete or masonry walls, as well as wood blocking used in connection with ends of those members shall be treated with wood preservative.
 2. Where wood beams, girders and joists enter masonry or concrete walls 2'-0" or less above outside wall, metal wall boxes or equivalent moisture barriers shall be provided between wood and masonry or concrete.
- C. Furring: Where metal furring is not indicated or specified, provide wood furring at all points indicated and required for concealing conduit, piping, structural framing or other unfinished materials. Wood furring shall be 2x studs of required width. Vertical members contacting concrete or masonry shall be attached as specified for anchoring interior wood stud partitions.
- D. Nailing Strips and Plates:
1. Provide wood nailing strips, plates and blocking indicated or required. Nailing strips in connection with metal work shall be bolted to metal. Wood nailing blocks for securing grounds shall be built into concrete, or masonry.
 2. Nailing schedule shall comply to Title 24, see Section 01 45 29: Testing and Laboratory Services.
- E. Wood Backing: Provide wood backing as indicated and as required to receive plumbing, electrical fixtures and equipment, cabinets, door stop plates and other fixed equipment.

END OF SECTION

**SECTION 06 41 00
CUSTOM CASEWORK**

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. Special fabricated cabinet units.
- B. Countertops.
- C. Cabinet hardware.

1.02 REFERENCES

- A. ANSI A135.4 – Basic Hardboard.
- B. ANSI A208.1 – Mat Formed Wood Particleboard.
- C. AWI (Architectural Woodwork Institute) – Quality Standards.
- D. BHMA A156.9 – Cabinet Hardware.
- E. FS MMM-A-130 – Adhesive, Contact.
- F. HPMa (Hardwood Plywood Manufacturer's Association) HP – American Standard for Hardwood and Decorative Plywood.
- G. NEMA (National Electric Manufacturers Association) LD3 – High Pressure Decorative Laminates.
- H. NHLA (National Hardwood Lumber Association).
- I. PS 1 –Construction and Industrial Plywood.
- J. PS 20 – American Softwood Lumber Standard.
- K. WI (Woodwork Institute of California) – Manual of Millwork.

1.03 SUBMITTALS FOR REVIEW

- A. Shop drawings shall indicate list of material and hardware, sized, sections, elevations, and details of construction and assembly as required by Section 1 "Millwork Shop Drawings of the May, 1955 edition Woodwork Institute of California, Manual of Millwork.

”

1.04 QUALITY ASSURANCE

- A. Perform work in accordance with WI Custom quality and obtain certification unless noted otherwise in the Contract Documents.

PART 2 – PRODUCTS

2.01 TYPE AND MANUFACTURE

- A. Cabinets shall be manufactured in accordance with WI Manual of Millwork, Section 15 Custom Grade typical modified as indicated in the drawings and specifications and herein specified. All units shall be factory finished. Provide Style A Frameless, Type I construction unless otherwise noted.

2.02 MATERIALS, FINISH AND CONSTRUCTION

- A. Exposed Portions:
 - 1. Material for exposed portions shall be faced with decorative high pressure laminated plastic.
 - a. Plastic laminate shall be Standard Grade, Matte finish, thermoplastic laminate surfacing, .050-inch thick, meeting the requirements of NEMA LD 3-85. Backing sheets shall be .020-inch thick conforming to the requirements of NEMA LD, latest edition. Use post forming grade where required by the drawing details, minimum thickness .042 inch +/- .004 inch.
 - b. Color and pattern as selected by Architect. Accepted manufacturers include Laminate, Formica, and Wilson Art Architect reserves the right to select more than one color and pattern from more than one manufacturer for use on any one cabinet. Architect may select colors from any of the listed manufacturers.
- B. Semi-Exposed Portions:
 - 1. Material for semi-exposed portions, except interior faces of hinged doors, shall be high pressure laminate cabinet liner meeting the requirements of NEMA LD-3-85.
 - 2. The interior faces of hinged doors shall be faced with 0.032-inch minimum thickness high pressure laminate plastic conforming to NEMA LD-3.
- C. Concealed Portions:
 - 1. Material for concealed portions may be sound, dry solid stock, plywood or particleboard, except where otherwise specified herein.
 - 2. Prime unfinished surfaces with primer coat or sealer.
- D. Visible Edges: All visible edges, exposed or semi-exposed, of ends, tops, bottoms, shelves (4 sides/edges), webs, stretchers, divisions, doors and drawer fronts shall be edged with melamine decorative paper tape matching adjacent color.
- E. Laminate Core Material shall be particleboard meeting the requirements of ANSI A 208.1-87, Table 1, Grade 1-M-3.
- F. Adhesive shall be Type II, water resistant.

2.03 TOPS AND BOTTOMS

- A. Tops and bottoms shall be particleboard or plywood with 0.050" high pressure laminated plastic on exposed portions or cabinet liner on semi-exposed portions, net thickness shall be 0.735 inch.
- B. Plywood bottoms of upper cabinets with spans 4'0 inches or over in length between vertical members of the cabinet body shall be a minimum of 1 inch in thickness.

2.04 ENDS AND DIVISIONS

- A. Cabinet ends and divisions shall be particleboard or plywood as detailed in the Drawings with 0.050" thick high pressure laminated plastic on exposed faces or high pressure laminate cabinet liner on semi-exposed portions, net thickness shall be .0735 inch. Visible edges shall be .050" high pressure laminated plastic.

- B. Cabinet ends shall be lockjointed, securely glued, and blind nailed or screwed to the tops, web frames, and bottoms at not to exceed 4" on center. Doweled construction is acceptable.

2.05 WEB FRAMES AND STRETCHERS

- A. Web frames and stretchers shall be a minimum of 0.735 inch in thickness and 2-1/2 inches in width, and shall be solid stock or plywood. A solid piece of plywood or particleboard a minimum of 0.735 inch in thickness, the full length and depth of the cabinet opening, may be used in lieu of a web frame or stretchers.
- B. Web frames shall be furnished under countertops; or a continuous stretcher front and rear may be furnished in lieu of the frame, and shall be attached by means of a dado, tenon or metal angle bracket. A continuous stretcher at the front shall be furnished at the approximate mid-height of all drawer cabinets over 2 feet-6 inches in drawer opening height and shall be attached by means of a dado, tenon or metal angle bracket.

2.06 BACKS

- A. Semi-exposed backs shall be 1/4-inch thick plywood or tempered and sealed hardboard with high pressure laminate cabinet liner. Exposed backs shall be 1/2-inch thick plywood with 0.050 inch high pressure laminated plastic.
- B. Color shall match adjacent semi-exposed or exposed portions as applicable.
- C. Backs shall be securely nailed, doweled or dadoed to the case body, divisions, or fixed shelves.

2.07 SHELVES

- A. Shelves shall be plywood or particleboard with 0.050 inch thick high pressure laminate cabinet plastic when shelves are exposed and high pressure laminate cabinet liner when shelves are semi-exposed. Minimum net thickness shall be 0.735 inch. Exposed edges shall be bound in .0550 inch thick high pressure laminated plastic.
- B. Adjustable shelves with unsupported spans in excess of 3 feet-6 inches between vertical members of the case body for plywood, and in excess of 3 feet-0 inches for particle board, shall be minimum of 1-inch thickness; and, shall be mounted on surface or recessed metal shelf standards with clips adjustable at 1/2-inch center.

2.08 CABINET BASES AND SLEEPERS

- A. Cabinet bases may be constructed with either separate or integral bases. All bases and sleepers shall be 0.735 inch solid stock or as indicated in drawings if more stringent. Sleepers shall be provided at a maximum of 3 feet-0 inches on center.

2.09 ANCHOR STRIPS

- A. Anchor strips or solid stock or plywood shall be a minimum of 1/2 inch in thickness and a minimum of 2-1/2 inches in width, and shall be provided at the wallside of the cabinet back on both top and bottom of wall hung cabinets and at top only of base cabinets unless otherwise shown on the Drawings.

2.10 COUNTERTOPS

- A. LG Hausys, Hi-Macs engineered stone countertops.
 - 1. 90-93 percent hard aggregates (quartz granite or mirror) boded with 7-10% resins and environmentally safe, color fast pigments.
 - 2. 3/4-inch Thickness.

3. 2-1/4 inches Bullnose edge.
4. 4 inches High square butt backsplash with 1/4 inch beveled top edge.
5. Polished finish.
6. Color as selected by District.
7. Seams in countertop treated in same manner as for granite.

2.11 HARDWARE

- A. All hardware shall be jig fitted at the factory by trained craftsman only. Provide U.S. 26D Dull Chrome finish.
 1. Hinges – Blum Clip 125# 74M5558 – 3 on doors over 42 inches high; 2 on doors under 42 inches high.
 2. Pulls – Shall be U shaped or looped wire pulls (3-3/4 inches long by 1-1/4 inches high by 3/4 inch deep).
 3. Catches – Shall be Amerock #T-9798-AW three-plate magnetic catch manufactured by Amerock Corporation, or accepted equal.
 4. Elbow Catches – Amerock #3675 on companion doors where locks are specified.
 5. Door Locks – National C8102.6 – masterkeyed to other casework.
 6. Drawer Locks – National C8108 – masterkeyed to other casework.
 7. Drawer Guides – Shall be Blum 430E series or accepted equal.
 8. Shelf Standards – Shall be Knap & Vogt #255 mounted with four Knap & Vogt #237 clips for each shelf, or accepted equal.
 9. Grommets – Hafele #429.99; provide at all locations where electrical, computer, telephone, etc. Receptacle are below countertop. Color as selected by Architect.

2.12 FABRICATION - GENERAL

- A. All units shall be completely fabricated and finished in the factory, except as otherwise specified or indicated for modified units. All doors and all hardware shall be jig fitted and ready for site installation.

PART 3 – EXECUTION

3.01 SURFACE CONDITIONS

- A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the work. Do not proceed until unsatisfactory conditions are corrected.

3.02 PREPARATION FOR INSTALLATION

- A. Make necessary measurements in the field to assure proper fit of shop fabricated items.

3.03 INSTALLATION

- A. Install the work of this Section in accordance with the accepted Shop Drawings and Section 26, WI "Manual of Millwork: using factory trained craftsman.
 1. Scribe units to wall, floor, and other surfaces as appropriate, with not more than 1/32 inch clear between the cabinet or fixture and the abutting permanent surface, and with no change of clearance in excess of 0.01 inch in any 4 inches.

2. Set each unit square, level, plumb, and aligned within a tolerance of one on 1000 vertically and horizontally, and within 1/4 inch of the designated location for freestanding work.
- B. Upon completion of installation, thoroughly clean each item by use of only such cleaning materials as are recommended by the manufacturer of the item being cleaned.
- C. Touch up scratches and abrasions to be completely invisible to the unaided eye from a distance of five feet.

END OF SECTION

**SECTION 07 90 00
JOINT SEALERS**

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SECTION INCLUDES

- A. Preparing substrate surfaces.
- B. Sealant and joint backing.
- C. Work includes interior and exterior caulking and sealing, in not less than the following circumstances:
 - 1. Wherever expansion and contraction occurs.
 - 2. Between materials and products where infiltration of moisture, water, light or air blown particles may occur.
 - 3. Between materials and products in, or penetrating sound insulated walls, portion and related construction.
 - 4. Between exposed dissimilar materials.

1.03 REFERENCES

- A. ASTM C790 – Use of Latex Sealing Compounds.
- B. ASTM C804 – Use of Solvent-Release Type Sealants.
- C. ASTM C834 – Latex Sealing Compounds.
- D. ASTM C919 - Use of Sealants in Acoustical Applications.
- E. ASTM C920 – Elastomeric Joint Sealants.
- F. ASTM D41056 – Flexible Cellular Materials – Sponge or Expanded Rubber.
- G. ASTM D1565 – Flexible Cellular Materials – Vinyl Chloride Polymers and Copolymers (Open-Cell Foam).
- H. SWRI (Sealant, Waterproofing and Restoration Institute) – Sealant and Caulking Guide Specification.

1.04 SUBMITTALS

- A. Submit under provisions of Section 01 33 00.
- B. Product Data: Provide data indicating sealant chemical characteristics, performance criteria, substrate preparation, limitations and color availability.

- C. Samples: Submit two samples, illustrating sealant colors for selection. Custom colors maybe required.
- D. Manufacturer's Installation Instructions: Indicate special procedures, surface preparation, perimeter conditions requiring special attention.

1.05 QUALITY ASSURANCE

- A. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.
- B. Perform acoustical sealant application work in accordance with ASTM C919 and C1193.
- C. Comply with applicable codes and regulations of governmental agencies with ASTM C919 and C1193.
- D. Where provisions of applicable codes, regulations and standards conflict with the requirements of this Specification, comply with the more stringent provisions.
- E. Tests: Material for which physical characteristics have been stipulated shall have such characteristics independently confirmed by laboratory tests employing industry-recognized procedures. Both the laboratory performing the tests and the test methods employed will be subject to the approval of the Architect.

1.06 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing the products specified in this section with minimum three years of experience.
- B. Applicator: Company specializing in performing the work of this section with a minimum five (5) years of experience.

1.07 ENVIRONMENTAL REQUIREMENTS

- A. Maintain temperature and humidity recommended by the sealant manufacturer during and after installation.

1.08 COORDINATION

- A. Coordinate the work with all sections referencing this section.

1.09 WARRANTY

- A. Provide five (5) year warranty under provisions of Section 01 77 40.
- B. Warranty: Include coverage for installed sealants and accessories which fail to achieve air tight seal and water tight seal, and exhibit loss of adhesion or cohesion, or do not cure.

PART 2 – PRODUCTS

2.01 SEALANT MATERIALS

- A. Polysulfide Sealant:

1. Polysulfide base sealing compound. Sealant shall conform to performance standards of Thiokol Chemical Corp. and all containers of sealant delivered to project shall bear Thiokol "tested and approved" seal. Provide Type I (self-leveling) for joints in horizontal surfaces and Type II (non-sag) in joints vertical or overhead surfaces. Class A or Class B shall be used for structural movements subject to 25 percent or 50 percent joint elongation respectively.
 - a. Two-part: FS TT S 00227.
- B. Polyurethane Sealant: Multi-part, self-leveling, FS TT S-00227, Type I, Class A. Equivalent to THC-900 by Tremco.
- C. Acrylic Terpolymer Sealant: One-part non-sag, FS TT S-00230. Equal to "Mono" by Tremco. Use for structural movement up to 150 percent of joint width.
- D. Laytex Acrylic Caulk: Elastoseal Latex manufactured by Pacific Polymers, or equal.
- E. Silicon: One-part, primerless, paintable and highly flexible, shrink and stain resistant, as manufactured by U.S.C., or equal.
- F. Custom colors may be required as determined by the architect.

2.02 BACK ROD

- A. Materials: Open or expended polyurethane, open or closed cell as recommended by sealant manufacturer, compatible with sealant.
- B. Non-Staining Primer: Type as recommended by manufacturer of sealant material.
- C. Bond Breaker: Pressure sensitive adhesive polyethylene tape.
- D. Masking Tape: Pressure sensitive adhesive paper tape.

PART 3 – EXECUTION

3.01 EXAMINATION

- A. Verify that substrate surfaces and joint openings are ready to receive work.
- B. Verify that joint backing and release tapes are compatible with sealant.

3.02 PREPARATION

- A. Remove loose materials and foreign matter which might impair adhesion of sealant.
- B. Clean and prime joints in accordance with manufacturer's instructions.
- C. Perform preparation in accordance with manufacturer's instructions.
- D. Protect elements surrounding the work of this section from damage or disfiguration.
- E. Mask areas adjacent to joints.

3.03 PRODUCT USAGE

- A. Exterior:
 - 1. Horizontal Traffic Bearing Joints: Multi-part polyurethane, self-leveling type.
 - 2. Exterior Vertical Joint: Multi-component, polysulfide type.
- B. Interior:
 - 1. Interior Static Joints: Solvent release acrylic type.
 - 2. Ceramic Tile and Plumbing Fixture Conditions: One-part primerless silicone type.
- C. Standard or custom colors to match adjacent work as required by architect.
- D. Use only materials recommended by manufacturer for specific application.
- E. Acoustical sealant shall be provided in, around and between building construction members such as framing, panel boxes, cutouts for penetrations of other materials or equipment, etc. where walls and floors are designed to be sound attenuated or acoustically treated.
- F. Caulk around doors/windows, hollow metal frames where gypsum board inserts are behind the metal frame and hollow frame joints not fully welded interior and exterior.
- G. All window stops shall be set into clear sealant or the color sealant used to match the color of the window glass as selected by the architect.
- H. Insure that all windowsills and door thresholds have a continuous bead of sealant interior and exterior applied for water/weather tightness.
- I. Apply sealant around, at laps, and/or mitered corners of all exposed flashing, metal reveals, louvers, coping, etc. and color sealant used shall match color of adjacent color.

3.04 APPLICATION

- A. Install backing material in joints using blunt instruments to avoid puncturing. Do not twist rod while installing. Install backing so that joint depth is 50 percent of joint width, but a minimum of 1/4 inch deep.
- B. Install bond breaker where joint backing is not used.
- C. Apply sealant within recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.
- D. Apply sealant in joints using pressure gun with nozzle cut to fit joint width. Make sure sealant is deposited in uniform, continuous beads without gaps or air pockets. Replace where gaps or air pockets occur.
- E. Tool joints to required configuration within ten minutes of sealant application. If masking materials are used, remove immediately after tooling. Use an approved method of removing excess sealant where applies or where asked to have excess sealant removed by the Architect.

3.05 CLEANING

- A. Remove excess materials adjacent to joints by mechanical means or with xylol (xylene) or mineral spirits as work progresses to eliminate evidence of spillage or damage of adjacent surfaces.
- B. Leave finished work in neat, clean condition with no evidence of spill over onto adjacent surfaces.
- C. All exposed sealants used shall be of a type that can receive any of all paint as specified under the painting section if required.

3.06 PROTECTION OF FINISHED WORK

- A. Protect finished installation under provision of Section 01655.
- B. Protect sealants until cured.

END OF SECTION

**SECTION 08 11 13
HOLLOW METAL DOORS AND FRAMES**

PART 1 – GENERAL

1.01 SUMMARY

A. Section Includes:

1. Hollow metal doors and frames or hollow metal doors as indicated.

B. Related Requirements:

1. Division 01 - General Requirements.
2. Section 07 90 00 - Joint Sealers.
3. Section 08 20 00 - Flush Wood Doors.
4. Section 08 71 00 - Door Hardware.
5. Section 09 90 00 - Painting.

1.02 DESIGN REQUIREMENTS

- A. Door-and-frame assemblies or frames shall include reinforcing and provisions for hardware as shown and specified. Drawings indicate profile and general details of steel frame fabrication and installation.**

1.03 SUBMITTALS

- A. Shop Drawings:** Submit composite Shop Drawings indicating detailed relationships of installation including Work of adjacent construction, finish hardware, security, fire and life safety devices, glazing, sealing, and requirements for field installation. Include elevations of each hollow metal door type, details of each frame type, location schedule of doors and frames indicating same reference for details and openings as indicated on Drawings, conditions of openings of various wall sections and materials, typical and special details of construction, methods of assembling sections, location and installation requirements for hardware, material size, shape, and thickness, and joints and connections.
- B. Product Data:** Submit manufacturer's Product Data indicating composition and construction for each fabricated item including louvers, coatings, finishes, and other components demonstrating compliance with referenced standards.
- C. Certification:** Submit certification of compliance with referenced standards and specified criteria, including but not limited to fire ratings in accordance with UL 10C, Physical Endurance in accordance with ANSI A250.4 and Prime Paint performance in accordance with ANSI A250.10.
- D. Samples:**
1. Hollow Metal Frame: Corner section of typical exterior and interior frame, of sufficient composite size to illustrate corner joint construction, hinge reinforcement, closer reinforcement, floor anchor, dust cover, and jamb anchors, and showing galvanizing and prime coat finishes.

2. Hollow Metal Door: Section of typical interior door of sufficient composite size to illustrate edge, top, bottom, and core construction, hinge reinforcement and face stiffening, closer reinforcement and kick plate reinforcement, and corner of vision opening construction with glazing beads.

1.04 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Minimum documented experience of more than five years in work of this section.
- B. Installer Qualifications: Minimum documented experience of more than five years in work of this section
- B. Coordinate with hardware supplier for fabrication of doors and frames to receive hardware items.
- C. Coordinate with intrusion alarm supplier for fabrication of doors and frames to receive intrusion detection devices.
- D. References: Work shall comply with physical and performance requirements of following standards, including standards referenced in them, except for more stringent provisions specified herein or required by regulatory agencies:
 1. ANSI/SDI A250.8, SDI 100 Recommended Specifications for Standard Steel Doors and Frames.
 2. ANSI/NFPA 252, Fire Tests of Door Assemblies.
 3. ANSI/UL 10B, Fire Tests of Door Assemblies.
 4. ANSI/UL 10C, Positive-Pressure Fire Tests of Door Assemblies.
 5. ANSI/NFPA 80, Fire Doors and Fire Windows.
 6. HMMA, Guide Specifications for Commercial Hollow Metal Doors & Frames (Standard of National Association of Architectural Metal Manufacturers).
 7. ANSI/SDI A250.4, Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors, Frames, Frame Anchors and Hardware Reinforcings.
 8. ANSI A250.10, Test Procedure and Acceptance Criteria for Prime Painted Steel Doors and Frames.
 9. ANSI A250.6, Recommended Practice for Hardware Reinforcing on Standard Steel Doors and Frames.
- E. Standards of Fabrication and Installation:
 1. Finished Work shall be of uniform profile, accurately fabricated, rigid and strong, square and true, neat in appearance, smooth and free from dents, waves, warps, buckles, open joints, tool marks and/or other defects.
 2. Steel sheet shall be clean with smooth surfaces free of scale, pitting or other defects.

3. Construction joints shall be flush, tight and welded their full length, ground flush and smooth on exposed surfaces.
4. Frame and door reinforcing and hardware provisions shall be performed in fabrication shop. Provide cuts, welds, and other fabrications before galvanizing or shop priming.
5. Lines and molded members shall be straight and true with angles as sharp as practical for thickness involved, surfaces flat, and fastenings concealed.

1.05 DELIVERY, STORAGE AND HANDLING

- A. Frames: Before shipment, install temporary spreaders at bottom of bucks and do not remove until frames are installed.
- B. Doors: Provide protection as required to protect doors during shipping and storage. Damaged doors will be rejected.
- C. Inspect hollow metal Work upon delivery for damage. Remove and replace damaged items with new Work as required.
- D. Store doors and frames in an upright position at Project Site under cover and protected from weather-related elements. Store units on minimum 4-inch high wood blocking with ½ inch air spaces between stacked doors to provide circulation. Do not store doors and frames under plastic or canvas shelters that can create a humidity chamber. If shipping packaging becomes wet, immediately remove packaging.

1.06 WARRANTY

- A. Manufacturer shall provide a five year material warranty
- B. Installer shall provide a two year fabrication and installation warranty.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

- A. Doors and frames shall be products of a single manufacturer.
- B. The following are acceptable manufacturers, as are others that can demonstrate their products are equivalent in quality, performance and compliance with these specifications.
 1. Security Metal Products Corp.
 2. Curries Manufacturing, Inc.
 3. Steelcraft.
 4. Amweld Metal Doors and Frames.
 5. Stiles Custom Metal, Inc.
 6. Door Components Inc.
 7. CECO Door.

8. Equal.

C. Materials, fabrication and installation must comply with requirements of standards referenced in Section 1.04, Quality Assurance.

2.02 MATERIALS

A. Steel:

1. Exterior Doors and Frames: Galvanized Carbon Sheet Steel, Commercial Quality, A60 zinc coating (0.30 ounces per square foot per side), ASTM A653.
2. Interior Doors and Frames: Cold-Rolled Steel Sheets, Commercial Quality Carbon Steel, ASTM A1008.
3. Steel shall be free of scale, pitting, coil breaks or other surface blemishes, and free of buckles, waves or other defects.
4. Steel thicknesses expressed in steel gages (MSG) is for reference only. Actual steel thicknesses must meet minimum requirements of ASTM standards and as described in ANSI/SDI A250.8.

B. Supports and Anchors: Fabricate from a minimum 16 gauge galvanized sheet steel unless noted otherwise.

C. Fasteners: Provide as shown on Drawings and to suit conditions of secure installations. Furnish 304 Grade stainless steel types at exterior doors.

D. Door Louvers:

1. Louver free air flow shall be 50% free area.
2. Louvers for exterior doors shall be galvanized and furnished with not less than 12 gage frame and security grille welded to 18 gage steel blades, fully galvanized, with removable galvanized or bronze insect screen on inside. Install louver with tamperproof-head through-bolts. Anemostat PLSL, Air Louvers Inc. Model 1500-A, L & L Louvers, or equal.
3. Fusible link louvers: Listed by State Fire Marshal, UL labeled and installed with tamperproof fasteners.
4. Lightproof louvers (at dark rooms): DRDL by Anemostat, Air Louver Model 1000, L & L Louvers, or equal.
5. Louvers shall comply with SDI 111C and be furnished with factory primer.

E. Shop Paint:

1. Conform to Steel Structures Painting Council (SSPC) for steel components.
2. Pretreatment/priming coatings shall be compatible with Project site finish painting system in accordance with Section 09 90 00.
3. At frames to be grouted, surfaces that are inaccessible after installation shall be coated with bituminous or asphaltic base paint.

2.03 FABRICATION GENERAL

- A. General: Fabricate hollow metal units to be rigid, neat in appearance, and free from defects including warp or buckle.
1. Accurately form metal to required sizes and profiles. Fit and assemble units in manufacturer's plant. Where practical, factory or shop fit and assemble units for shipment.
 2. Weld joints continuously; grind, dress, and make smooth, flush, and invisible. Filler to conceal manufacturing defects or damage is not permitted.
 3. Corner Joints: Finish corner joints by mitering, or coping and butting, or a combination of both. Trim and backbend shall be continuous around corner.

Continuously weld joints for full depth and width of frame, trim, and backbends.

2.04 FRAMES

- A. General: Provide fully welded steel frames with integral stops and trim for doors, transoms, sidelights, borrowed lights, and other openings, and with details indicated for type and profile. Use concealed fastenings, unless otherwise indicated.
- B. Metal Thickness of Frames (minimum):
1. Interior hollow metal frames 16 gage
 2. Exterior hollow metal frames 14 gage
- C. Supports and Anchors: Fabricate from at least 16-gage, galvanized steel sheet. Frame anchors shall comply with fire rated label requirements of opening.
1. Floor Anchors:
 - a. Minimum thickness: 12 gage galvanized steel sheet or bent steel plate, securely fastened inside each jamb, with two holes in anchor at each jamb for 3/8 inch floor anchorage fasteners. For pre-framed wood stud walls provide and additional wood stud anchor located as close to the bottom of the jamb as is practical.
 - b. Where required at sloping and uneven floor conditions, or to coordinate adjustments for trim alignments, provide adjustable floor anchors, providing at least 2-inch height adjustments.
 2. Jamb Anchors:
 - a. Locate anchors near top and bottom and at intermediate points not to exceed 24 inches on center. Provide two anchors per head for openings up to 48 inches wide; over 48 inches wide provide anchors at 24 inches on center maximum.
 - b. Anchors in masonry construction: Provide manufacturers standard jamb anchors. Steel wire complying with ASTM A510, 0.177 inch in diameter, may be furnished.

- c. Anchors in Stud Partitions: Provide steel anchors, 16 gage minimum sheet steel, of design to suit partition construction, securely welded inside each jamb.
 - d. Through-Frame Anchors: At frames indicated to be anchored with bolts through frame, provide countersunk holes for bolts with 16 gauge minimum sheet steel stiffeners full thickness of frame, and securely welded inside each frame at each hole.
- D. Inserts, Bolts, and Fasteners: Provide manufacturer's standard units. Where zinc-coated items are to be built into exterior walls, comply with ASTM A153 Class C or D as required.
- E. Head Reinforcing: Refer to Detail #1 of this section. Reinforcing shall not act as lintel or load-carrying member and shall comply with fire rating requirements. Provide at frames regardless of whether a closer is called for.
- F. Hardware Reinforcement and Accessories:
 - 1. Butt Hinge: 7 gage minimum.
 - 2. Continuous hinge: 14 gage continuous strip reinforcing.
 - 3. Head assemblies: Reinforced internally with, full length, 10 gage angles on each side of frame and bar at bottom of stop for closer reinforcement in frames as shown in Detail #1 of this section.
 - 4. Reinforcing for other items of finish hardware shall be accomplished according to ANSI A250.6.
 - 5. Plaster Guards: Provide 26 gage galvanized steel plaster guards or dust cover boxes, welded to frame, at back of finish hardware cutouts where mortar or other materials might obstruct hardware operation and to close off interior of openings.
- G. Door Silencers: Except for exterior doors, drill and punch frames for three silencers at lock jamb of single swing doors or in double doors with astragal and one silencer per leaf in heads of doubled door frames.
- H. Where frames are installed in walls sitting on a concrete curb, provide a closure plate or extend backbends to provide closure where frame abuts concrete curb.

2.05 DOORS

- A. General: Custom-made, flush-panel "seamless type" with one-piece face panels; continuous weld, seamless edge construction with no visible seams or joints on faces or on vertical edges.
 - 1. Provide type and size of doors shown with louvers and openings for glazing where indicated.
 - 2. Door thickness: 1 ¾ inches.
 - 3. Face Sheet Minimum Gage: 16 gage.
 - 4. Stiffeners: Stiffen door face sheets with continuous vertical-formed steel (rib) sections or back to back hat sections, minimum 20 gage, full thickness of interior space

between door faces, spaced 6" on center maximum, and spot welded to both faces 4" on center maximum.

5. Acoustical Insulation: Provide sound deadening and insulating material through entire core of door (full height, width, and thickness of door). Provide STC ratings where indicated on Drawings, scheduled, or for partition ratings indicated on Drawings.

- a. Doors shall have a minimum STC of 28 as tested under ASTM E90 and ASTM E413, unless noted otherwise.

6. Labeled Doors: Where fire-rated openings and conditions are indicated.

- a. Labeled doors shall be provided with fire-resistance rating indicated and shall be constructed as tested and approved by Underwriters' Laboratories (UL) for installation in labeled frame and door assemblies.
 - b. Gaskets: Gaskets are supplied under Section 08 7100 - Door Hardware. Gaskets and installation shall conform to requirements of NFPA 105, "Installation of Smoke and Draft Control Door Assemblies."
 - c. Fabricate labeled doors with same finished appearance as specified for non-labeled hollow metal doors; with welded door edges, filled and ground smooth; with label affixed to door.
 - d. Where fire labels are required and continuous hinge is specified, install label on top of door within 6" of hinge side of door.

7. Door Edges: Join door face sheets at vertical edges of door with continuous weld full height of door. Grind, fill, and dress welds smooth to provide invisible seam with smooth, flush surface.

- a. Close ends of doors with continuous recessed channels, 16 gage steel minimum, spot welded to both face sheets. Close top and bottom edges of doors with an internal steel channel, screw attached into top and bottom of door. Channel shall be galvanized at exterior doors. No screws are allowed on visible faces of door. Provide openings in bottom closure of exterior doors to permit escape of entrapped moisture.

- b. Profile of Door Edges:

- 1) Single-acting swing doors: Bevel both vertical edges 1/8" in 2".
 - 2) Pairs of single-acting swing doors: Bevel hinge edge 1/8" in 2". Provide surface mounted astragals for labeled or unlabeled doors unless otherwise shown on Drawings or required.
 - 3) Double-acting swing doors: Round both vertical edges on 2" minimum radius.

8. Door Louvers: Install according to manufacturer's recommendations.

B. Hardware Reinforcement and Accessories:

1. Provide sheet steel or plate reinforcement for finish hardware items wherever necessary. Mortise, drill and tap to template requirements for mortise type hardware.

2. Butt reinforcing: 7 gage minimum, of length 4" longer than length of butt. Minimum 3 spot welds at top and bottom.
3. Door closer reinforcement: 14 gage minimum steel channel, 6" high on each side of door. Reinforcement to extend full width of door in accordance with Detail #1 of this section.
4. Other Hardware Requirements: Cut, reinforce, drill, and tap doors and frames for other hardware, including energy management switches or contacts and security devices, in accordance with furnished hardware templates for accessory items. Thickness and size of reinforcement shall be as required by ANSI A250.6.

2.06 SHOP PRIMING

- A. Exposed and concealed metal surfaces of hollow metal doors, frames and other hollow metal Work of this Section shall be bonderized and then shop primed.
- B. Exposed surfaces of doors, frames and accessories shall be filled, sanded smooth and cleaned before painting.
- C. Exposed surfaces shall be shop primed after assembly.

PART 3 – EXECUTION

3.01 FRAME INSTALLATION

- A. Install steel frames accurately in location, perfect alignment, plumb, straight and true. Brace frames to prevent displacement.
- B. Anchor frames in concrete and concrete unit masonry with galvanized anchor bolts; 3/8 inch diameter, counter-sunk at 24 inches on center at head and jamb unless noted otherwise.
- C. Anchor frames in steel and wood frame partitions with manufacturer recommended anchors.
- D. Install frame at fire rated openings in accordance with NFPA Standard No. 80.
- E. Furnish filler for anchor attachment screws, and sand smooth.

3.02 DOOR INSTALLATION

- A. Install steel doors in accordance with manufacturer's instructions and as indicated on Drawings and in Finish Hardware Specifications. Coordinate with Work of other trades.
- B. Ensure that door and jamb clearances comply with requirements of ANSI/NFPA 80. When wood doors are being installed in metal frames constructed pursuant to this section, allowable door and jamb clearances shall be as specified in Specification Section 08 1416.
- C. Adjust operable parts for correct function.
- D. Remove hardware, except primer-coated items, tag, box and install after finish painting has been completed.

3.03 PRIME COAT TOUCH-UP

- A. Immediately after installation, remove rust, repair damaged surfaces to new condition, sand smooth, and install touch-up primer.

3.04 CLEAN UP

- A. Remove rubbish, debris and waste materials and legally dispose of off Project site.

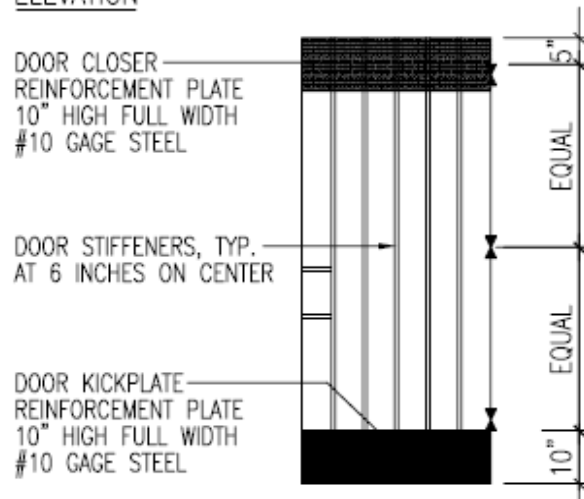
3.05 PROTECTION

- A. Protect Work of this section until Substantial Completion.

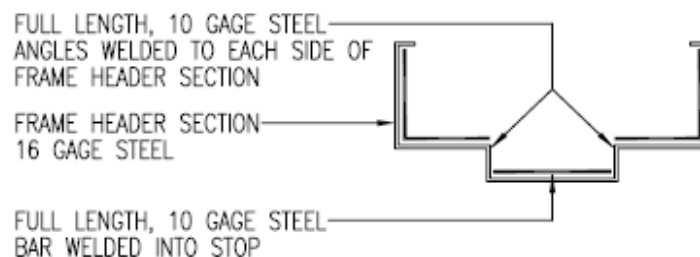
END OF SECTION

DETAIL # 1 - DOOR REINFORCEMENT

ELEVATION



DETAIL # 1 - DOOR HARDWARE REINFORCEMENT DOOR CLOSER REINFORCEMENT FOR ALL STEEL DOOR FRAMES



**SECTION 08 20 00
FLUSH WOOD DOORS**

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SCOPE: Furnish materials and perform labor required to execute this work as indicated on the drawings, as specified and as necessary to complete the Contract, including, but not limited to, these major items:

- A. Solid Core Wood Doors.
- B. U.L. Labeled Doors (where required).
- C. Louvers (where indicated).
- D. Provision for Glazing (where indicated).

1.03 RELATED WORK SPECIFIED ELSEWHERE AS REQUIRED

- A. Painting – Section 09 90 00

1.04 GENERAL REQUIREMENTS

- A. Shop Drawings: Submit in accordance with Section 01 33 00. Show locations and details of all cutouts.
- B. Samples: In accordance with Section 01 33 00, submit 8" samples of doors to receive transparent finish.
- C. Storage: Store in clean dry spaces in a manner to prevent damage from any cause. Lay all doors flat, above the floor, on level supports.
- D. Warranty: In accordance with General Conditions Division 0, submit written warranty, in approved form, that all defective materials or workmanship reported within a period of 2 years after final acceptance, will be promptly repaired or replaced to the satisfaction of the Owner. Cover the following items specifically.
 - 1. Delamination in any degree.
 - 2. Warp or twist of 1/4" or more.
 - 3. Telegraphing of core unit through face veneer to cause surface variation of 1/100" in any 3" span.
 - 4. Any defect which may affect performance or appearance.
- E. Labeled Openings: Where labeled openings are scheduled or are required by codes, construct doors in accordance with the requirements of UL and attach labels of the indicated classification. Attach labels to the hinge jamb only.

- F. Reference Standard: Provide materials and workmanship conforming to the Woodwork Institute of California "Manual of Millwork", Section 12 or 13 for Custom grade doors. Provide Certified Compliance grade stamp on every door.
- G. Approved Manufacturers: Mohawk, General Veneer Co., Weyerhaeuser, or Curtis Door Division of Georgia-Pacific.
- H. Reinforce tops of doors with steel edge protector.

PART 2 – PRODUCTS

2.01 SOLID CORE DOORS

- A. Core: Kiln-dried, low density, 2 1/2" wide, random length wood blocks edge-glued with joints well staggered.
- B. Cross Bands: 1/16" kiln-dried hardwood, full width of door, with grain perpendicular to face grain.
- C. Edge Bands: Kiln-dried hardwood, not less than 5/8" thick after trimming. Stile bands of same species as face veneer.
- D. Face Veneers: 1/28" thick kiln-dried Sound grade (Paint Grade) Beech or Birch, unselected for color where opaque finish is indicated; good grade Beech or Birch, uniform light or dark, for transparent finish. Exterior doors shall be factory finished medium density overlay - phenolic resin.
- E. Glue: Use CS35 Type II for bonding core blocks; use Type I (fully waterproof) for all other work.
- F. Acoustical Rating: STC 45

2.02 LABELED DOORS (Where Required)

- A. Core: Fiber reinforced mineral, 22 lbs./c.f. density, except 20 minute label - see paragraph 2.01,A.
- B. Cross-Bands, Edge-Bands and Face Veneers: As specified for solid core doors.
- C. Construction and labels. Construct doors to meet UL requirements for the fire-rating label required. Affix UL label as required by the drawings. Fire assembly per NFPA A80

2.03 NON-LABELED DOORS

- A. Solid lumber core staggered block core.

2.04 DOOR REINFORCEMENT

- A. Reinforce tops of doors with steel edge protectors.

2.05 CUTOUTS (Where Required)

- A. Openings for louvers and glass (where indicated): Fully frame cutouts in core prior to applying face veneers. Locate as indicated but not closer than 5" from any edge.

2.06 LOUVERS (Where Required)

- A. Anemostat, Model AFDL, with vandal proof screws, or other as approved. Construct of 20 gauge cold-rolled steel. Labelled assemblies- Anemostat, Model FLDL-UL.
- B. Finish: Factory applied rust-inhibitive prime coat.

PART 3 – EXECUTION

3.01 PREPARATION FOR SHIPMENT

- A. Separators: Doors intended for opaque finish may be shipped in individual cartons or may be packaged in properly protected bundles with heavy separators between doors.

END OF SECTION

**SECTION 08 31 00
ACCESS DOORS AND PANELS**

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. Section Includes:
 - 1. Access doors and panels not provided by other trades but required for access to concealed equipment and assemblies.
- B. Work Installed but Furnished in Other Sections:
 - 1. Access doors and panels furnished by other trades.
- C. Related Work:
 - 1. Finish Painting Access Doors and Panels, Except Stainless Steel Surfaces: Reference Section 09 90 00.
 - 2. Furnishing Access Doors and Panels as per Mechanical, Plumbing and Electrical Drawings

1.03 SUBMITTALS

- A. Procedure: In accordance with Section 01300.
- B. Manufacturer's Data: For access doors and panels, including compliance with Code requirements for those in fire-rated assemblies.
 - 1. Supplement with shop drawings where required to show special installation conditions.
- C. Closeout Submittals: Deliver keys properly tagged to District.

1.04 QUALITY ASSURANCE

- A. All access doors and panels for the Project shall be made by the same manufacturer.
- B. In fire-rated construction, provide fire-rated assemblies bearing the label of a testing agency acceptable to the Building Department for the fire resistance indicated.

PART 2 – PRODUCTS

2.01 ACCESS DOORS AND PANELS

- A. One of the following trimless, prime-coated units, except where stainless steel is specified, equipped with flush, key-operated cam lock, or equal by Elmdor Manufacturing Co., Karp Associates, Inc., JL Industries or Milcor.

1. In Gypsum Board Surfaces, except as Specified Below for Toilet Room Walls: Nystrom Type WB.
 - a. Material: Commercial grade cold-rolled steel with 16-gauge frame and 14-gauge door.
 - b. Finish Trim: 22-gauge steel drywall bead.
 2. In Plaster Surfaces: Nystrom Type RP where the door is plastered; Type PW where door is painted.
 - a. Material: Commercial grade cold-rolled steel with 16-gauge frame and 14-gauge door.
 - b. Finish Trim: 22-gauge steel plaster bead with expanded metal lath.
 3. Toilet Rooms Walls: Nystrom Type WB.
 - a. Material: Stainless steel, 16-gauge frame and 14-gauge door.
 - b. Finish Trim: 22-gauge steel drywall bead.
 4. Fire-Rated Access Doors: Nystrom Type FRW or FRP as required by surrounding material.
 - a. Material: Commercial grade cold-rolled steel with 16-gauge frame and 20-gauge door.
 - b. Insulation: 2 in. thick fire-rated insulation sandwiched between two pieces of 20-gauge steel.
 - c. Finish Trim: 22-gauge steel drywall bead.
- B. Size: Unless otherwise indicated on the Drawings, provide 24 in. square opening where a serviceman needs to enter the space accessible through the access door or panel; elsewhere not less than 12 in. square.

2.02 MATERIALS

- A. General:
1. Provide sheet metal selected for its surface flatness, smoothness and freedom from surface blemishes where exposed to view in the finished unit.
 2. Do not use materials whose exposed surfaces exhibit pitting, seam marks, roller marks, variations in flatness exceeding those permitted by referenced standards for stretcher-leveled metal sheet, stains, discoloration or other imperfections.
- B. Galvanized Steel Sheet: ASTM A 526 (commercial quality), or ASTM A 527 (lock-forming quality), Coating Designation G90, mill phosphatized, stretcher leveled.
- C. Steel Sheet: Commercial quality cold-rolled carbon steel sheet, stretcher-leveled, complying with the following requirements at the fabricator's option.
1. Electrolytic Zinc-Coated Steel Sheet: ASTM A 591, with Class C zinc coating;

- chemically treated in mill with phosphate solution and light chromate rinse.
 - 2. Uncoated Steel Sheet: ASTM A 366, Class I, matte finish.
- D. Stainless Steel Sheet: ASTM A 167, Type 302 or 304, stretcher-leveled.
- E. Hardware:
 - 1. Hinges: Concealed spring hinges or concealed continuous piano hinge set to open 175 deg. For fire-rated units, provide self-closing mechanism.
 - 2. Locking Device: Flush, screwdriver-operated cam lock of number required to hold door in flush, smooth plane when closed.
 - a. Where shown or scheduled, provide one-cylinder lock per access door. Furnish 2 keys per lock. Key all locks alike, unless otherwise noted.
 - b. For recessed panel doors, provide access sleeves for each locking device. Furnish plastic grommets and install in holes cut through finish.
 - c. Where lock is provided, provide panel with interior latch mechanism to allow door to be opened from the inside without a key.

2.03 FABRICATION

- A. Fabricate to profiles indicated without exposed cut edges. Produce flat, flush surfaces without cracking and grain separation at bends.
- B. Continuously weld exposed joints and seams; grind, fill, and dress welds to produce smooth flush exposed surfaces in which welds are invisible after final finishing is completed.
- C. Finish:
 - 1. When installed in ceramic tile surfaces, provide stainless steel access panels finished with an AISI No. 4 (brushed) finish.
 - 2. When installed in an exterior wall or soffit fabricate assemblies from commercial quality carbon steel sheets complying with ASTM A 526, hot-dip galvanized to comply with ASTM A 525, G 90, or hot-dip galvanize after fabrication to provide an equivalent zinc coating weight.
 - 3. Elsewhere provide access panels with a baked-on rust-inhibitive primer.

PART 3 – EXECUTION

3.01 INSPECTION

- A. Inspect adjacent construction and supports.
- B. Make sure that openings are within allowable tolerances, plumb, level, clean, will provide a solid anchoring surface, and that other conditions detrimental to the proper or timely completion of this work are corrected before proceeding with installation.

3.02 INSTALLATION

- A. Install at indicated locations, plumb, level, and square with adjacent construction.

1. Make sure that all openings are framed.
 2. Attach securely to supports.
 3. When installed in ceramic tile surfaces, coordinate panel location with the tilework so that the panel will align and fit within the tile module with no tile cutting, or a minimum of cutting.
- B. Adjust hardware so that panels operate freely, but not loosely, without sticking or hinge binding, with hardware adjusted and functioning properly.

END OF SECTION

**SECTION 09 25 00
GYPSUM BOARD**

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. Principal Work in this Section:
 - 1. Gypsum board.
 - 2. Metal suspension and furring assemblies.
 - 3. Fasteners, joint reinforcing and finishing compound.

1.03 QUALITY ASSURANCE

- A. Requirements of Regulatory Agencies:
 - 1. Comply with fire resistance ratings indicated and required by Code.
 - 2. Provide materials, accessories and application procedures listed by UL or tested in compliance with ASTM E 119 for the type of construction shown.
- B. Mock-Up:
 - 1. Where directed construct a mock-up of a gypsum board wall and ceiling inside the building. Make mock-up full height (minimum 8 ft. high x 8 ft. wide) with a 4 ft. return.
 - 2. Tape and finish joints, trim and screw heads as specified for Level 5 herein. Refer to Section 09900 for painting of the mock-up with a semi-gloss paint.
 - 3. The Architect will review the mock-up under various light conditions for defects and improperly finished joints, trim and screw heads. Provide a portable light for that purpose when so requested.
 - 4. Make corrections requested by the Architect, or remove and replace mock-up when the corrective work is not acceptable to the Architect.
 - 5. The approved mock-up shall remain in the building until its removal is directed, and will be used as a standard for the gypsum board work for the Project.

1.04 HANDLING

- A. Delivery:
 - 1. Coordinate delivery with installations to minimize storage periods at the site. When stored outdoors, place on skids off the ground, and cover with waterproof tarpaulins. Neatly stack gypsum panels flat to prevent sagging.
 - 2. Deliver fire-rated materials with UL label and required fire classification numbers clearly visible.

- B. Handling: Handle gypsum board to prevent damage to edges, ends, and surfaces. Do not bend or otherwise damage metal trim.
- C. Storage: Do not overload the floors with localized concentration of gypsum board.

1.05 JOB CONDITIONS

- A. Comply with the gypsum board manufacturer's recommendations for temperature limitations and ventilation before, during and after installation of gypsum board.
- B. Protect installed materials from drafts during hot, dry weather.
- C. Illuminate work areas during installation to provide the same or greater level of illumination, as required to properly perform the work, as will occur in the room or space after the building is in operation.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

- A. Goldbond Building Products/Div National Gypsum Co., US Gypsum Co., Georgia-Pacific Corp., Domtar Gypsum or Louisiana-Pacific.

2.02 MATERIALS

- A. Gypsum Board: Provide gypsum board in maximum lengths available to minimize end-to-end butt joints. Unless otherwise acceptable to the Architect, no end-to-end joints are permitted on walls or ceilings under 12 ft. in length or width.
 - 1. Exposed Gypsum Board Surfaces (5/8" Type 'X'): ASTM C 36, with paper face suitable to receive decorated finish, and long edges tapered to receive joint compound. Impact Resistant type typical unless noted otherwise.
- B. Suspended and Furring Products:
 - 1. Resilient Channel: 25-gauge 1/2" x 2-1/2". Secure with Type W or S 1-1/4" long drywall screws only.
 - 2. Furring Channel: 25-gauge x 7/8" x 2-3/4" hat section with 1-3/8" face width, with clips.
 - 3. Runner Channels: Cold rolled steel 1-1/2" x .12 pounds per foot – 1/8" thick.
 - 4. Tie Wire: Galvanized, annealed 18 gauge.
 - 5. Reinforcing Channel: Cold rolled steel 3/4" x .300 pounds per foot – 1/8" thick.
- C. Fasteners:
 - 1. Screws: ASTM C-1002 or ASTM C-954.
 - a. Type S for light gauge steel framing and furring.
 - b. Type S-12 for heavier gauge steel framing (to 12 gauge max). Buildex S-12 pan head for securing membrane.
 - c. Type G for attaching gypsum board to gypsum board.

- d. Note: Gypsum sheathing required item 2.03C.2. at all metal connections.
- 2. Adhesives:
 - a. Gypsum Board to Metal or to Gypsum Board: As recommended by the gypsum board manufacturer.
- D. Joint Tape, Compound and Laminating Adhesive: ASTM C 475, the following by Hamilton Materials or one of the gypsum board manufacturers.
 - 1. Taping, and fastener and metal trim concealment: Multi-Purpose Compound V.
 - 2. Topping, Finish and Skim Coats: Topping Joint System.
- E. Sealant: As specified in Section 07900.

PART 3 – EXECUTION

3.01 INSPECTION / PREPARATION

- A. Verify conditions and measurements affecting the work of this Section at site. Make sure that detrimental conditions are corrected before proceeding with installation.
- B. Before enclosing stud walls, thoroughly clean sill of debris.

3.02 GYPSUM BOARD INSTALLATION

- A. General: Comply with the applicable provisions of ASTM C 840, Application and Finishing of Gypsum Board, ASTM E 497, Installing Sound Isolating Lightweight Partitions, GA-216, and the following.
 - 1. Use only full size boards above door and window openings, joints at corners of heads are not acceptable.
 - 2. Minimize butt joints and avoid butt joints centered on walls, over protruding studs, and above doors and windows. Avoid abutting end joints in the central area of each ceiling.
 - 3. Provide perimeter relief where board abuts structural decks, ceilings, vertical structural elements, or windows.
 - 4. Install horizontal board first. Butt joints between boards loosely. Do not force boards into place. Place tapered or wrapped edges next to one another.
 - 5. Attach boards to all studs and furring members with power-driven screws securely engaging supporting member, and with fastener heads uniformly depressed not over 1/32 in. below surface of board (except for first layer of multiple layer assembly) without breaking face paper. Space fasteners in accordance with Table 25 A-G or 25 A-H of the CBC.
 - 6. After boards have been installed over screws and backing plates, tap boards with a rubber mallet to depress backside of board over heads to eliminate unacceptable bulges.
 - 7. Allowable Tolerances:

- a. Do not exceed 3/16 in. in 8 ft., and 1/8 in. 4 ft. from plumb, level and flat (all directions) in gypsum board surfaces.
- b. Do not exceed 1/16 in. offset at joints between boards.
- c. Shim boards as necessary to comply with these tolerances.

B. Single Layer Application:

1. Horizontal Surfaces:

- a. Install board with long dimension at right angle to supports, with end joints located over supports.
- b. Use maximum practical length boards to minimize end joints. Stagger end joints in alternate boards.
- c. Where water-resistant (WR) boards are used for horizontal surfaces, framing must be spaced at not over 12 in. o.c. maximum.

2. Vertical Surfaces:

- a. Unless otherwise acceptable to the Architect, install board vertically. Use floor-to-ceiling length boards (unless height exceeds 12 ft.) with vertical joints located over supports.
- b. Offset joints at least one stud on opposite sides of partition/walls.
- c. Extend gypsum board continuously from finish floor to underside of structure above, except where indicated otherwise on the Drawings.

3.03 ERECTION OF SUSPENDED FRAMING

- A. Space hangers not over 3'-0" o.c. in the direction of the 1-1/2" main runner channels and not over 4'-0" o.c. in the direction at right angles to the main runners and within 6" of main runner ends and of boundary walls, girders or similar interruption of ceiling continuity.
- B. Install main runners not over 4'-0" o.c., properly positioned, level and saddle tie hangers along runners. Main runner shall not come in contact with abutting walls. Space runner channels within 6" of adjacent walls to support ends of the furring channels.
- C. Space drywall furring channels 16" o.c. and securely clip or saddle tie with two strands of tie wire to main runners. Provide end splices by nesting channels no less than 8", and securely wire tie.
- D. All light or other openings that interrupt the main runner or furring channels, reinforce grillage with 3/4" cold rolled channels wire tied atop and parallel to main runner channel.

3.04 FINISHING

- A. Finish gypsum board surface with exposed joints, corners and edges reinforced or trimmed in compliance with the following:

Level 0: No taping, finishing or accessories required.

Use: First layer of multiple layer construction.

- Level 1: Joints and interior angles shall have tape embedded in joint compound. Surface shall be free of excess joint compound. Tool marks and ridges are acceptable.
- Use: In plenum areas above ceilings, in attics, and in areas where the assembly will generally be concealed.
- Level 2: Not used.
- Level 3: Not used.
- Level 4: Joints and interior angles shall have tape embedded in joint compound and 3 separate coats of joint compound applied over joints, angles, fastener heads, and accessories. Joint compound shall be smooth and free of tool marks and ridges.
- Use: In areas where light textures or backed lightweight wall coverings are to be applied.
- Level 5: Joints and interior angles shall have tape embedded in joint compound and 3 separate coats of joint compound applied over joints, angles, fastener heads, and accessories. A thin skim coat of joint compound, or a material similar to USG First Coat shall be applied to the entire surface. The surface shall be smooth and free of tool marks and ridges.
- Use: All other areas to be painted.

B. General:

1. Fill joints, fastener heads, trim accessory flanges and surface defects with joint compound in compliance with the gypsum board manufacturer's recommendations to obtain a smooth, flush surface.
2. All joints, fastener heads and trim flanges in surfaces which will remain exposed to view in the building, shall be invisible after application of joint tape and compound.

C. Install trim in single unjointed length, unless length exceeds manufacturer's standard. Attach to gypsum board in compliance with manufacturer's printed instructions.

1. Install Type CB trim at external corners.
2. Install Type LC trim where gypsum board edges are exposed in the finish work.
3. Install Type CB or LC trim where gypsum board abuts a different material, and the edges are not covered by a finish material.
4. Install control joints as recommended in paragraph 5.6 of the reference standard. Joint locations are subject to the Architect's approval.

D. Reinforce joints between gypsum boards, and interior corners and angles with tape set in joint compound.

1. Apply skim coat over tape in one application.
2. Where space greater than 1/16 in. occurs between abutting gypsum boards (except at control joints), prefill joints with joint compound and allow to dry before applying joint tape.

3. Reinforce door frame jamb anchors, of openings scheduled to receive wood and metal doors, by spot-grouting with joint compound.
- E. Joint Compound:
1. Lap each coat not less than 4 in. over the preceding coat (2 in. on each edge). Width of joint compound on tapered board edges shall be not less than 12 in.; width of joint compound on square board edges not less than 18 in.
 2. Allow at least 24 hours drying time between applications of joint compound.
 3. Finish joint compound so that little or no sanding is required. When sanding, use sandpaper or mesh cloth with grit as fine as possible; do not scuff face paper. Remove all sanding dust before painting or applying other finishes.
- F. Leave gypsum board surfaces smooth, undamaged and ready to receive scheduled finishes.

3.05 MECHANICAL AND ELECTRICAL WORK

- A. Coordinate with Mechanical and Electrical trades in the location and installation of their work. Provide bridging, bracing and support their work installed in or on drywall construction. Do not close both faces of walls until their installations have been inspected and approved. Provide fire assembly enclosures for mechanical and electrical equipment which penetrates fire-rated assemblies.

3.06 ACCESS PANELS

- A. Access panels for access to electrical or mechanical controls and valves which occur in drywall partitions or furring will be furnished to the job by the trade involved for installation under this Section. Locate panels where directed by the Architect and install level and square with adjacent construction.
- B. Refer to the Mechanical and Electrical Drawings and Specifications for additional requirements.

END OF SECTION

**SECTION 09 25 50
CEMENT BACKERBOARD**

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. Principal Work in this Section:
 - 1. Cement backerboard all toilet room locations with wall tile.
 - 2. Joint tape.

1.03 SUBMITTALS

- A. Procedure: In compliance with Division 01.
- B. Data: Manufacturer's data for board proposed to use and installation instructions.

1.04 HANDLING

- A. Procedure: In compliance with Division 01.

1.05 JOB CONDITIONS

- A. Provide adequate ventilation to dissipate excess moisture.
- B. Before installation of the backerboard allow wood framing to stand in its normal service

PART 2 – PRODUCTS

2.01 MATERIALS

- A. Cement Backerboard: One of the following furnished in longest available length to minimize end joints.
 - 1. Gold Bond Building Products Glas-crete Cementitious Backerboard, 1/2 in. thick.
 - 2. US Gypsum Co. Durock 1/2 in. thick.
 - 3. Custom Building Products WonderBoard, 1/2 in. thick.
- B. Joint Reinforcement: Alkali-resistant, 2 in. wide, coated fiberglass mesh tape.
- C. Fasteners: Type S Hi-Lo thread, galvanized Bugle head screws x 1-1/4 in. long.
- D. Washers: 3/4 in. diameter, countersunk, stainless steel washer for use where panels abut over a framing member.
- E. Bonding Materials:
 - 1. Dry-set mortar meeting ANSI A118.1 standards.
 - 2. Latex Portland cement mortar meeting ANSI A 118.4 standards.

3. Dry-set mortar modified with acrylic latex additive.

F. Grout: Portland cement grout meeting ANSI A118.6.

PART 3 – EXECUTION

3.01 INSPECTION

- A. Verify conditions and measurements affecting the work of this Section at site. Make sure that detrimental conditions are corrected before proceeding with installation.

3.02 INSTALLATION

A. General:

1. Comply with the board manufacturer's printed installation instructions and the following.
2. Use longest possible board length for each application.

B. Walls:

1. Preparation: Edges of board parallel to framing shall be continuously.
2. Board Installation:
 - a. Precut panels and make accurate cutouts for penetrations.
 - b. Install board leaving a 1/8 in. to 3/16 in. space at all joints and corners. Stagger board joints with those of adjacent rows.
 - c. Fasten board every 8 in. o.c. in field and within 1/2 in. to 2 in. of edges around backerboard perimeter.
 - d. Where open mesh wrapped edges meet fill gap completely with bonding material. On all other joints and corners pre-fill gap with bonding material then imbed 2 in. mesh tape and smooth material over joint and corner.

END OF SECTION

**SECTION 09 30 00
CERAMIC TILE**

PART 1 – GENERAL

1.1 REFERENCE

- A. Requirements in Addenda, Alternates, Conditions, and Division 1 collectively apply to this work.

1.2 DESCRIPTION

- A. Principal Work Items Are:

- 1. Ceramic Tile:

- a. Unglazed ceramic tile floors – full mortar bed.
 - b. Unglazed ceramic tile floors – thinset.
 - c. Glazed walls – full mortar bed.
 - d. Glazed walls – thin set.

- 2. Waterproof membrane at showers and other locations where indicated.

- 3. Patching, repairing and modifications to existing work wherever damaged or modified by construction operations.

- 4. Cleaning of all existing terrazzo surfaces.

- B. Related Work Specified Elsewhere:

- 1. Demolition: Section 02 41 19.

- 2. Gypsum Board: Section 09 25 00.

- 3. Cement Backerboard: Section 09 25 50.

1.3 SUBSTITUTIONS

- A. Only written approval of Architect will permit substitutions for materials specified; See General Conditions for procedure and District Standards Sheets STD-01, STD-02, and STD-03.

1.4 QUALITY ASSURANCE

- A. Standards: In general, Work shall conform to latest edition of the following standards as applicable, and as modified herein:

- 1. Installation: Tile Council of American "Handbook for Ceramic Tile Installation."

- 2. Materials: Applicable ANSI standards, and Tile Council of America standards.

- B. Requirements Of Regulatory Agencies; Codes: Conform to CCR Title 24, 2022 CBC and UBC.
- C. Job Sample Panels For Ceramic Tile: When requested by Construction Manager.
 - 1. Construct a 3' x 3' sample area of each pattern.
 - 2. Obtain Architect's approval prior to proceeding with further tile work.
 - 3. Approved sample may be incorporated into the finished work.

1.5 SUBMITTALS

- A. Samples; 2 Copies:
 - 1. For New Tile Areas: Mfr.'s full color range.
 - 2. For Patching and Repairing of Existing Tile: Style and color to match existing tile.
 - 3. Color for Mortar: Mfr.'s full color range, minimum 15 colors.
- B. Certificates: Furnish Tile Council of America "Master Grade Certificate" for each type of tile, signed by manufacturer and Contractor. Deliver with tile to site.
- C. Maintenance Materials; Spare Tile: In addition to tile required for installation, Contractor shall furnish the following to District's Inspector for delivery to District.
 - 1. Floor Tile: 1 box of each color of new ceramic floor tile.
 - 2. Wall Tile: 1 box of each color of new wall "field" tile and min. 1/2 box of each color of "accent" tile.

1.6 PRODUCT DELIVERY, STORAGE & HANDLING

- A. Deliver tile to site in sealed containers with Grade Seals Intact. Store all materials in a dry location.

1.7 JOB CONDITIONS

- A. Sequencing, Scheduling: Coordinate this work with demolition, concrete, framing, plumbing, lathing, plaster scratch coats, gypsum board, and/or backing furnished under other Spec. Sections and related work of other Spec. Sections.
- B. Protection: DO NOT PERMIT hammering on stud walls or floors supporting tile until 7 days min. after tile installation.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. Ceramic Tile:

1. General: Conform to ANSI A137.1-1980 "Standard Specification for Ceramic Tile". Tile to be Standard Grade. ALL Floor tile shall have a 0.6 min. coefficient of friction for interior location, per ASTM C-1028.
 - a. Tile patterns and price groups listed are according to Dal-tile "Commercial Products" Catalog.
2. Acceptable Mfrs.:
 - a. Dal-Tile Corporation, Dallas, TX., 714-521-5224; as a standard of quality.
 - b. Equivalent products by American Olean Tile Co., Lansdale, PA..
 - c. Other Manufacturers: See Article 1.03, Substitutions.
3. Ceramic Mosaic Tile For Floors and Coved Base: Unglazed, dust pressed, square-edged 1/4" thick porcelain tile. Min. coefficient of friction of 0.6 for interior and 0.8 for exterior per ASTM C1028.
 - a. Types: See District Standards Sheets STD-01, STD-02, and STD-03.
 - b. Size For Floor Tile: 2" x 2".
 - c. Colors:
 - (1) Dal-Tile Keystone Price Groups 1, 2, and 3.
 - (2) American Olean Color/Price Groups 1, 2, and 3.
4. Glazed Tile For Walls and Wainscots: Glazed, dust pressed, machine made, white body, cushion edge, solid-color glaze, matte and high gloss.
 - a. Types: See District Standards Sheets STD-01, STD-02, and STD-03.
 - b. Size: 4-1/4" x 4-1/4" square, unless noted otherwise.
 - c. Colors: Six colors as selected by Architect in any combination or quantity from Mfr.'s. standard range of colors within Price Groups listed above (36 colors min. range). Two colors may be selected to be used as field tile. Two colors may be selected to be used as accent stripes, accent stripe is considered to be two colors, each one tile high, running horizontally to form an accent stripe within the new tile areas, at height directed by Architect.
 - d. Trimmer Shapes: See District Standards Sheets STD-01, STD-02, and STD-03.

B. Installation Materials:

1. Portland Cement:
 - a. For Ceramic Tile: ASTM C150, Type 1, portland cement for grouting and pointing mortar; Trinity, Atlas, or Medusa; white color. Typical:
 - (1) At existing tile flooring and base, match existing grout.

2. Sand: Washed, graded natural sand or screening, durable, free from deleterious substance; conforming to ASTM C144.
3. Water: Domestic source, clean and potable.
4. Hydrated Lime: High calcium type: ASTM C206 or C207, Type S.
5. Color For Grout: Pure synthetic iron oxide, limeproof, nonfading mineral pigments:
 - a. Colors as selected by Architect from full color range including white and black.
6. Dry-Set Portland Cement Mortar: Conform to ANSI A118.1-1999; Custom Building Products Custom Thin Set Mortar, Mapei Kerabond, or acceptable equal.
7. Latex-Portland Cement Mortar: Conform to ANSI A118.4-1999.
 - a. For Porcelain Floor Tile: Laticrete #3030 Mega-Bond.
 - b. For White-Body Wall Tile: Laticrete #4237 with #211 Crete Filler Powder.
8. Sealer; For Sealing Grout Joints: Ameritone #7101 Clear Concrete Sealer.
9. Waterproofing Membrane (at tile over wood subfloors and other locations where required):
 - a. Acceptable Mfrs./Products:
 - (1) W.R. Grace & Co., (800) 444-6459, ext. 5364, Laguna Niguel, CA, as a standard of quality.
 - (2) Other Mfrs.: Comply with Art. 1.03.
 - b. Sheet Membrane Waterproofing:
 - (1) Type: Bituthene #3000, by W.R. Grace.
 - (2) Properties: 60 mil thick factory-made, self-adhesive, cold-applied composite sheet consisting of: 56 mils thickness of rubberized asphalt; 4 mils of cross-laminated, high-density, polyethylene film specially formulated for use with water-based surface conditioner. Membrane shall be covered with release paper, which is removed during installation. (No special adhesive or heat shall be required to form laps).
 - (a) Tensile Strength: 250 psi for membrane; 5000 psi for polyethylene film.
 - (b) Elongation Of Rubberized Asphalt: 300% to failure.
 - (c) Peel Adhesion: 9.0 lbs/inch of width.
 - (d) Permeance: 0.05 grains/sq. ft./hr./in. Hg.
 - (e) Water Absorption: 0.1% max.
 - c. Primer: Bituthene Low VOC Content Primer; a rubber-based primer in solvent conforming to APCD requirements.

- d. Mastic: Bituthene rubberized asphalt-based mastic.
- e. Liquid Membrane: Bituthene 2-component elastomeric, cold-applied, trowel-grade material.
- f. Miscellaneous Materials: Tape and other accessories as recommended by sheet membrane mfr.

PART 3 – EXECUTION

3.1 INSPECTION

- A. Examine surfaces scheduled to receive tile work, lath and plaster scratch coats and all other substrates. Report any unsatisfactory conditions. Ensure that substrates are firm, clean and free of oily film or other unsuitable conditions. Verify substrates do not exceed the following max. variation from required plane.
 - 1. Floors: 1/4" in 10'-0" from every direction.
 - 2. Walls: 1/4" in 10'-0" from every direction.
- B. Do not start work until unsatisfactory conditions are corrected. Starting work constitutes acceptance of surfaces.

3.2 INSTALLATION, GENERAL

- A. All work by skilled mechanics and in accordance with the applicable provisions of the Handbook for Ceramic Tile Installation, By Tile Council of America.
- B. Bring each tile to true level and plane by uniformly applied pressure. Lay tile to straight edges, accurately set to lines established to keep joints parallel over entire area. Space joint widths evenly to accommodate the tile in the given space with a minimum of cutting and to maintain maximum joint width of 1/8", unless noted or Architect-approved otherwise.
- C. After setting tiles, sound tile; remove and replace hollow sounding units.
- D. Allow tile to set a minimum of 48 hours prior to grouting.

3.3 INSTALLATION; TILE WORK WITH FULL PORTLAND CEMENT MORTAR BED

- A. Scope: Install tile work with full portland cement mortar bed at the following locations:
 - 1. At all new tile work on new concrete sub-floors.
 - 2. At all new tile work on walls in Student Toilet Rooms.
 - 3. At all new tile work on walls at drinking fountains.
 - 4. All patching, repairs & modifications of existing tile work on floors and walls as required to match existing tile installations.
 - 5. Other locations where indicated.
- B. Application:

1. Mortar Bed: Full portland cement. At concrete subfloor, direct to concrete. At walls (masonry, concrete and wood-framed), apply over plaster scratch coat and metal lath by other Spec. Sections.
2. Bond Coat: One of the following.
 - a. Conventional portland cement mortar per ANSI A108.1-1976.
 - b. Dry-set or latex portland cement mortar per ANSI A108.5-1976.
3. Grout:
 - a. Colored, typically as selected by Architect. For work at existing tile, colored to match existing grout.
 - b. Mix: 1 part cement, 2 parts sand; or approved factory-prepared mix.
4. Pattern: Stack bond, typical for new. Match existing pattern at patching and repairs to existing.

3.4 INSTALLATION; TILE WORK THIN-SET OVER CEMENT BOARD BACKING

- A. Scope: Install tile work thin-set over cement board.
 1. At all new tile work on walls.
- B. Installation: Lay tile in thin set mortar in accordance with ANSI A108.5 & TCA Method W243.
 1. Bond Coat: Dry-set or latex portland cement mortars per ANSI A108.5-1999.
 2. Grout: Colored as selected by Architect. Mix: 1 part sand, 1 part cement; or approved factory-prepared mix.

3.5 INSTALLATION; TILE WORK THIN-SET DIRECT TO CONCRETE SLABS

- A. Scope: Install tile work thin-set direct to concrete floor slabs at the following locations:
 1. At all new work on existing concrete sub-floors.
- B. Installation: Lay tile in thin set mortar over waterproof membrane in accordance with ANSI A108.5 & TCA Method F122-01.
 1. Waterproof Membrane: Install per mfr.'s specifications and installation instructions similar to installation over wood subfloors – See Article 3.03 E above.
 2. Over w.p. membrane install tile with Bond Coat: Latex Portland cement mortars per ANSI A118.4.
 3. Grout: Colored as selected by Architect. Mix: 1 part sand, 1 part cement; or approved factory-prepared mix.

3.6 ADJUSTMENT & CLEANING; TILE WORK

- A. Protection:

1. Protect finish hardware and adjacent material surfaces with Vaseline in cases where acid solutions are used.
2. Protect exposed work against staining, droppings, or defacement.
3. Do not permit any hammering on stud walls or floors supporting tile for 7 days min. after tile installation.

B. Cleaning:

1. Clear surface as work progresses.
2. Remove mortar droppings and stains as soon as possible.
3. Upon completion of any portion of tile work, remove all rubbish and unused materials incidental to the installation, and give the finished surfaces a thorough cleaning in an approved manner. Remove all traces of cement and dust accumulations.
4. DO NOT use acid solutions on glazed tile work.
5. Mix acid solution where required to clean unglazed tile and all terrazzo surfaces, in proportions of 10% muriatic (HCL) acid to 90% water. Rinse with clear water to eliminate the acid salts precipitating from interaction with the cement particles. Do not allow the acid solution to dry on the face of the tile and terrazzo.

C. Correction Of Defective Work:

1. General: Work not conforming to Contract requirements shall be removed and replaced; except where patching or other remedial work is specifically permitted by Construction Manager. Contractor shall bear all costs of correction of defective work.
2. Pointing: Cut out defective joints and repoint.
3. Cut out and replace chipped and damaged tile.
4. Replace all tiles that sound hollow when tapped.

3.7 SEALING TILE WORK

- A. General: Materials and application shall conform to Health Department requirements to provide an approvable sanitary condition.
- B. Scope: Seal all grout joints at all new tile work. Do not apply sealer to tiles.
- C. Material: Ameritone #7101 Clear Concrete Sealer.
- D. Application: Apply 2 coats at a rate of 500 sq. ft. max./gal/coat.

END OF SECTION

**SECTION 09 90 00
PAINTING**

PART 1 – GENERAL

1.01 SECTION INCLUDES:

- A. This section covers painting of exposed elements of the project, interior and exterior, Sealing and back priming of wood in the field. Surfaces that are left unfinished by requirements of other sections shall be finished as part of this section.

1.02 SECTION EXCLUDES:

- A. Control panels and control systems.
- B. Fabric connections to fans.
- C. Flexible conduit connections to equipment, miscellaneous name plates, stamping and instruction labels and manufacturer's data.
- D. Equipment and products having a complete factory finish, except as specified or noted on drawings.
- E. Flag, floodlight, parking light poles and loudspeaker poles furnished with a factory finish.
- F. The following items if specified or furnished with galvanized finish shall not be painted: Metal shelving, chain link fencing, areaway and catch basin gratings and frames.
- G. Brass, bronze, lead, stainless steel, and chrome or nickel-plated elements.
- H. Non-metallic walking surfaces unless specifically shown or specified to be painted.
- I. Fire rating labels at fire doors and frames.
- J. Cement masonry units at exterior.

1.03 RELATED SECTIONS:

- A. Section 05 50 00- Metal Fabrications.
- B. Section 08 11 13 – Hollow Metal Doors and Frames and Window Frames.
- C. Section 08 20 00 – Flush Wood Doors.
- D. Section 08 31 00 – Access Doors and Panels.
- E. Section 09 29 00– Gypsum Board.

1.04 QUALITY ASSURANCE

- A. Certification of Materials: With every delivery of paint materials, the manufacturer shall certify on the manufacturer's letterhead that materials comply with the requirements of this section.
- B. Paint materials shall comply with the Food and Drug Administration's (F.D.A.) Lead Law and the current rules and regulations of local, state and federal agencies governing the use of paint materials.

- C. Coats: The number of coats specified is the minimum number acceptable. If full coverage is not obtained with the specified number of coats, apply such additional coats as are necessary to produce the required finish.
- D. Employ coats and undercoats for all types of finishes in strict accordance with the recommendations of the paint manufacturer and approved by Architect.

1.05 SUBMITTALS

- A. Submittals shall be made in accordance with Section 01 33 00.
- B. List of Paint Materials: Prior to submittal of samples, submit a complete list of proposed paint materials, identifying each material by manufacturer's name, product name and number, including primers, thinners, and coloring agents, together with manufacturers' catalog data fully describing each material as to contents, recommended usage, and preparation and application methods. Identify surfaces to receive various paint materials. Do not deviate from approved list.
- C. Submit manufacturer's standard color samples for each type of paint used. Once colors have been selected, submit 3 samples of each color selected for each type of paint, on standard 8-1/2 x 11 inch spray-out panel with substrate textures demonstrated.
- D. For transparent and stained finishes, prepare samples (16" long) on same species and quality of wood to be installed on the project, showing system used and each step of the finishing process.
- E. Manufacturers shall verify that their products conform to latest California Air Resources Board and AQMD regulations.
- F. An MSDS sheet will be included with each individual submittal.

1.06 DELIVERY, STORAGE AND HANDLING

- A. Materials shall be delivered to the project site in original unbroken containers bearing manufacturer's name, brand number and batch number corresponding to description on list of materials as approved.
- B. Open and mix ingredients on the premises in the presence of the District Inspector. Immediately remove rejected materials from the premises.
- C. Storage and Mixing of Materials: Store materials and mix only in spaces designated for the purpose by the District Inspector. Keep such spaces clean and take necessary precautions to prevent fire. Hang out oily rags flat and singly in the open air. Stack paint containers so that manufacturer's labels are clearly displayed.

1.07 ENVIRONMENTAL CONDITIONS

- A. General: Follow mfr.'s printed recommendations for product when they are more stringent than limits stated herein.
- B. Do not apply "paint" to "wet-applied" construction until such work is "dry", and acceptable to Construction Manager and "paint" mfr.
- C. Temperature and Humidity: Do not apply exterior paint in damp, rainy or foggy weather (above 90% relative humidity) or until the surface has thoroughly dried from the effects of such weather. Do not apply paint, interior or exterior, when the temperature is below 50 or above 100 degrees F., or dust conditions are unfavorable to proper workmanship.

- D. Ventilation: As necessary to provide air movement, aid drying, disperse noxious fumes.

1.08 GUARANTEE

- A. Materials and workmanship guarantee shall be in accordance with the requirements of the Contract Documents, except that guarantee shall be furnished jointly by the Contractor and the materials manufacturer.

PART 2 – PRODUCTS

2.01 PAINT MATERIALS

- A. General: All materials used in the work are listed for Dunn-Edwards Paint. Dunn-Edwards has been adopted by the PUSD Board of Education as the “sole source” paint for use in the District.
- B. Regulatory changes may affect the formulation, availability, or use of specified coatings. Verify with supplier or your representative regarding such changes prior to start of painting project.
- C. Use the paint products of one Paint manufacturer unless otherwise specified or approved. In any case, primers, intermediate and finish coats in each painting system must all be the products of the same manufacturer, including thinners and coloring agents, except for materials furnished with shop prime coat by other trades. To the maximum extent feasible, factory mix paint materials to correct color, gloss, and consistency for application. Dunn-Edwards products are specified herein except as otherwise noted, to establish types and qualities.

PART 3 – EXECUTION

3.01 PREPARATION

- A. Inspect surfaces to receive paint finish for surface blemishes and repair as required. Surfaces that are not properly prepared or sandpapered or cleaned or which are not in condition to receive the specified finish, shall be corrected, before priming is done. Wash and rinse walls and trim with T.P.S. before applying any primer. No priming shall be done until District IOR Inspector or the Owner’s representative approves the surfaces.
- B. Protect floors and all adjacent surfaces from paint smears, spatters, and accidental droppings. Cover fixtures and remove hardware not to be painted. Mask off areas where necessary. Any accidental spills, over-painting or spatters shall be cleaned up immediately before additional work proceeds.

Hardware: Insure that hardware is removed before painting is started and replaced only when paint finishes are thoroughly dry.

- 1. Removal and reinstallation of hardware is specified in Section 06200--Finish Carpentry and Millwork.
- 2. Items to be removed include, without limitation: Signs and graphics; switch and receptacle plates; escutcheons and plates; all surface-mounted equipment; free-standing equipment blocking access; grilles and louvers at ducts opening into finished spaces; all tape on doors, walls or other District property; and other items as required and directed.
- C. Woodwork shall be thoroughly cleaned, hand sandpapered parallel to the grain, and dusted off. Nail holes, cracks or defects in all work shall be carefully puttied. Caulk all woodwork

joints with specified caulking. Wash and rinse trim with T.P.S. both before applying any primer. On stained woodwork the putty shall be colored to match the stain. Puttying shall be done after the first coat of paint, shellac or varnish has been applied.

- D. Gypsum board: Remove all foreign matter. Fill all pits flush and smooth with spackle. Wash and rinse Gypsum board walls with T.P.S. before applying any primer.
- E. Plaster surfaces shall be allowed to dry at least 3 weeks before painting, or plaster shall be allowed to dry sufficiently to receive paint as determined by moisture meter tests. Clean off dirt, dust, excess mortar, encrustation and foreign matter. Fill holes, pits and other imperfections flush and smooth. Wash and rinse Plaster walls with T.P.S. before applying primer.
- F. Concrete Surfaces shall be dry, cleaned of dirt and foreign materials and in proper condition to receive paint. Neutralize spots showing effects of alkali.
- G. Metal surfaces to be painted shall be thoroughly cleaned of rust, corrosion, oil, foreign materials, blisters, and loose paint removed to bright metal. Apply the metal paint preparation coating recommended by the paint manufacturer prior to applying the primer. All shop and field painted metal shall follow these procedures.
- H. Surfaces Not Mentioned: Prepare surfaces according to recommendations of the paint manufacturer and as approved by the Architect or the Owner.
- I. Do not apply painting materials to wet, damp, dusty, dirty, fingermarked, rough, unfinished, or defective surfaces.
- J. Bond breakers and curing agents must be removed and the surface cleaned, as specified in section 3.01-A above, before primers, sealers or finish paints are applied.

3.02 APPLICATION

- A. General: Employ experienced painters supervised by a foreman with a minimum of 5 years' experience in public works projects, thoroughly familiar with code requirements, the best recommendations of the painting materials manufacturer. Utilize the following methods and procedures:
 - 1. Apply material evenly, free from sags, runs, crawls, holidays or defects. Mix to proper consistency, brush out smooth, leaving minimum of brush marks, enamel uniformly flowed on. Sand between enamel coats.
 - 2. Apply paint by brushes, rollers or spray except rollers shall not be used on wood surfaces or on wood floors. If rollers are used on other surfaces, then all surfaces shall be brushed out by hand. Spraying is not permitted on wood floors. Paint wood floors by using a hand brush, applying the paint at the specified application rate as recommended by the manufacturer. Apply in thin coats allowing proper drying time between coats. The use of two ventilation fans is required in each room to accelerate the drying of the floors. One fan in the door pushing air into the room and one fan in a window exhausting air out of the room. Keep fans running until all paint fume smells and non-existence in the rooms.
 - 3. Tint all pigmented undercoats to approximately same shade as final coat. Perceptibly increase the depth of shade in successive coats.
 - 4. Allow each coat to thoroughly dry before succeeding coat application, a minimum of 24 hours. Sand between enamel coats.

5. Finish all four edges of doors with the same number and kind of coatings as specified for their main surfaces on all new or reused doors. Where opening into rooms have different finishes, finish door edges to match the side into which it swings. The top of all doors that open to the outside shall have a continuous painted top coating to prevent moisture from penetrating the door material.
 6. Finish mill or shop primed items with materials compatible with prime coat.
 7. Mechanical and electrical work shall be cleaned, pretreated and painted with 3 coats or as noted:
 - a. Paint that portion of ductwork or plenum spaces, the interior of which is visible through the grilles: they shall be pretreated and painted with 2 coats of flat black paint.
 - b. Shop primed metal surface of all mechanical and electrical equipment shall receive two finish coats of paint to match adjoining wall or ceiling surfaces. Prime coat, in addition to above, on all unprimed surfaces.
 - c. All other mechanical and electrical equipment exposed to view, such as covered and uncovered piping and ductwork, supports for piping and ductwork, pumps compressors, air conditioning equipment, tanks, etc., shall be painted as specified herein, where not supplied finished under other sections.
 8. Miscellaneous painting: Surfaces to be painted and not specifically described herein shall be painted with a product specifically manufactured or prepared for the material and surface; prime coat and two finish coats and subjected to all the conditions previously mentioned above governing painting.
- B. Back-painting: Immediately upon delivery to the building, exterior finish lumber and millwork shall be back-painted on surfaces that will be concealed after installation. Items to be painted shall be back-painted with the priming coat specified under "Priming".
- C. Priming: Wood and metal surfaces specified to receive paint finish shall be primed as specified in section 3.01. Surfaces of miscellaneous metal and steel not embedded in concrete, and surfaces of unprimed plain sheet metal work shall be primed immediately upon delivery to the project. Galvanized metal work and interior and exterior woodwork shall be primed immediately after erection. Priming of surfaces and priming coat shall be as follows and as specified in schedule:
1. Knots, Pitch and Sap Pockets: Shellac, or approved equivalent, before priming.
 2. Exterior Woodwork: Prime with one coat of exterior water borne emulsion wood primer.
 3. Interior Woodwork: Where indicated to be painted, prime with one coat of water borne wood primer.
 4. Stain: Woodwork indicated to receive a stain and varnish finish shall be stained to an even color with water borne stain. On open-grained hardwood, mix stain with paste filler and completely fill pores in wood.
 5. Galvanized Metal Work: Clean oil, grease and other foreign materials from surfaces. Apply the recommended muratic acid etching solution and thoroughly wash metal. Apply pretreatment coating and follow manufacturer's instructions for drying time, and then prime with one coat of metal primer as specified in section 3.01.

6. Unprimed Iron, Steel, and Other Uncoated Metals: Where specified to be painted, prime with one coat of metal primer as specified in section 3.01.
 7. Shop Primed Metal Items: Metal shall be primed as specified in section 3.01 and touch up bare and abraded areas with metal primer prior to application of second and third coats.
- D. The number of paint coats specified to be applied are the minimum required. Apply additional coats if required to obtain complete coverage and approved results. Ensure acceptable paint finishes of uniform color, free from cloudy or mottled areas and evident thinness on arises. "Spot" or undercoat surfaces as necessary to produce such results. Conform to the approved Samples. Obtain approval of each coat before applying next coat. If this inspection step is missed, apply an additional coat over entire surface involved at no additional contract cost.
 - E. Each coat of painted woodwork and metal, except the last coat, shall be sandpapered smooth when dry. Texture-coated gypsum board shall be sanded lightly to remove surface imperfections after first coat of paint has been applied.
 - F. Each coat of paint or enamel shall be a slightly different shade as directed. The District Inspector will inspect each coat of paint, enamel, stain, shellac, and varnish before the next coat is applied. Notify the District Inspector that such work is ready for inspection. If this inspection step is missed, apply an additional coat over entire surface involved at no additional contract cost. FASO will be sent 48 hour notices for paint completion inspection.
 - G. Do not "paint-out" underwriters' labels, fusible links, **sliding surfaces** and identification stamps.
 - H. Damaged shop prime coat shall be touched-up with metal primer prior to application of second and third coats.
 - I. Apply each coat of material to the manufacturers recommended dry film thickness and spread rate.

3.03 CLEANING

- A. Remove rubbish, waste and surplus material and clean woodwork, hardware, floors and other adjacent work.
- B. Remove paint, varnish and brush marks from glazing material and, upon completion of the painting work, wash and polish the glazing material both sides. Glazing material that is damaged shall be removed and replaced with new material at no cost to the District.
- C. Clean hardware and other unpainted metal surfaces with approved cleaner. Do not use abrasives or edged tools.
- D. Leave paint storage spaces clean and in condition required for equivalent spaces in the project. Specified shelf stock shall consist of new unopened paint containers and shall be turned over to the District per the contract documents.
- E. Collect waste material, which may constitute a fire hazard, place in closed metal containers, and remove daily from site.

3.04 EXTERIOR PAINT SCHEDULE

- A. Metal Work; Exterior:

1. Galvanized Metal & Galvanized Metal Deck; Exterior:
 - a. Preparation: Before application, properly clean and etch (solvent wash) galvanized surfaces in accordance with preparation instructions for galvanized metal per Articles 3.02 H and 3.04F herein.
 - b. Coat 1: Rust Preventative Metal Primer Bloc-Rust Premium Primer (BRPR00-1)
 - c. Coat 2: 100% Acrylic Semi-Gloss Enamel EVERSIELD (EVSH50), 100% Acrylic Gloss Enamel EVERSIELD (EVSH60)
 - d. Coat 3: EVERSIELD 100% Acrylic Semi-Gloss Enamel—(EVSH50) EVERSIELD, 100% Acrylic Gloss Enamel (EVSH60)
 - e. DFT: 6 mils.
2. Ungalvanized Steel; Apply first prime coat immediately after steel is cleaned.
 - a. Coat 1: Rust Inhibitive Primer CORROBAR, White Alkyd Corr. Inhibitive Primer (43-5) Bloc-Rust Premium Primer (BRPR00-1)
 - b. Coat 2: Rust Inhibitive Primer Not Necessary
 - c. DFT for Coats 1 & 2 3.5 mils. Bloc-Rust Premium Primer (BRPR00-1)
 - d. Coat 3: 100% Acrylic Enamel Sash EVERSIELD, 100% Acrylic Semi-Gloss Enamel (EVSH50) Or EVERSIELD, 100% Acrylic Gloss Enamel (EVSH60)
 - e. Coat 4: 100% Acrylic Enamel Sash EVERSIELD, 100% Acrylic Semi-Gloss Enamel (EVSH500) Or EVERSIELD, 100% Acrylic Gloss Enamel (EVSH60)
DFT For coats 3 & 4: 4 mils.
3. Ungalvanized Steel: Concealed: Apply prime coat immediately after steel is cleaned.
 - a. Scope: Apply to all structural steel surfaces hidden and enclosed, within the building envelope (not exposed to view), except members with flanges 1/4" or thicker and webs 3/16" or thicker need NOT to be painted.
 - b. Prime Coat: Rust Inhibitive Primer Bloc-Rust Premium Primer (BRPR00-1)
 - c. DFT: 2 mils.
4. All Shop Primed Metals; Exterior:
 - a. Preparation: Touch up damaged, scratched, or missing prime coat paint using top-quality rust-inhibitive primer recommended by paint mfr. lightly sand smooth, ready to receive finish coats.
 - b. Coat 1: 100% Acrylic Enamel Bloc-Rust Premium Primer —Rust-Preventative Acrylic Primer (BRPR00-1)
 - c. Coat 2: 100% Acrylic Enamel—EVERSIELD, 100% Acrylic Semi-Gloss

Enamel (EVSH50) or EVERSIELD, 100% Acrylic Gloss Enamel (EVSH60)

d. DFT: 4 mils.

5. Factory Finished Equipment & Items:

a. Coat 1: Acrylic Enamel Sash & Trim EVERSIELD, 100% Acrylic Semi-Gloss Enamel (EVSH50) or EVERSIELD, 100% Acrylic Gloss Enamel (EVSH60)

b. DFT: 2 mils.

6. Aluminum; Where Indicated To Be Painted Or Where Previously Painted:

a. Follow paint mfr's. recommendations, and specifications.

b. Prepare surface by phosphatizing and cleaning same as for Galvanized Surfaces, Articles 3.02H and 3.04F.

c. Coat 1: Oil-Cementious Primer GALV-ALUM, Galv./Alum. Metal Primer GAPROO

d. Coat 2: 100% Acrylic Enamel EVERSIELD, 100% Acrylic Semi-Gloss Enamel (EVSH50) or EVERSIELD, 100% Acrylic Gloss Enamel (EVSH60)

e. Coat 3: 100% Acrylic Enamel EVERSIELD, 100% Acrylic Semi-Gloss Enamel (EVSH60) or EVERSIELD, 100% Acrylic Gloss Enamel (W 960V) (EVSH60)

f. DFT: 5 mils.

B. Exterior Work: Other Than Metals: Existing and At Repairs or New to Match Existing; Match Existing Finishes/Paint:

1. Wood (Painted):

a. Coat 1: Exterior Wood Primer E-Z Premium PRIME, Ext. 100% Acrylic Wood Primer (EZPR00-0)

b. Coat 2: 100% Acrylic Exterior Wood EVERSIELD, 100% Acrylic Semi-Gloss Enamel (EVSH50) or EVERSIELD, 100% Acrylic Gloss Enamel (EVSH60)

c. Coat 3: 100% Acrylic Exterior Wood EVERSIELD, 100% Acrylic Semi-Gloss Enamel (EVSH50) or EVERSIELD, 100% Acrylic Gloss Enamel (EVSH60)

d. DFT: 5 mils.

2. Wood (Stained/Natural Finish) Smooth or "Rough Surface" Materials, Trim, Boards, Fascia, Etc., Wood Trellis Siding, Trim, Boards, and Fascia:

a. Coat 1: Exterior Wood Stain OKON WeatherPro Tinted, (WPT-3) Prime all surfaces of all new pieces completely before installation (faces, edges, ends). After installation, inspect members; touch-up any damage, cuts, and nail holes.

- b. Coat 2: Exterior Wood Stain OKON WeatherPro Tinted, (WPT-3)
 - c. Application Rate: 150 sf./per gallon/per coat.
- 3. Cement Plaster:
 - a. Coat 1: Masonry Concrete Sealer EFF-STOP PERMIUM Masonry Primer/Sealer (ESPR00)
 - b. Coat 2: Exterior Masonry Finish SPARTASHIELD, Exterior 100% Acrylic Flat Finish (SSHL10) or EVERSHIELD , 100% Acrylic Ext. Masonry Finish (EVSH10)
 - c. Coat 3: Exterior Masonry Finish SPARTASHIELD, Exterior 100% Acrylic Flat Finish (SSHL10) or EVERSHIELD, 100% Acrylic Ext. Masonry Finish (EVHS10)
 - d. DFT: 4.0 mils.
- 4. Concrete; Columns, Wall Caps, Beams, Wall Exposed Foundation Walls & Curbs and Where Indicated:
 - a. Coat 1: Masonry/Concrete Sealer, on bare concrete and as required EFF-STOP PERMIUM, (W709) (ESPR00)
 - b. Coat 2: Exterior Masonry Finish EVERSHIELD, 100% Acrylic Semi-Gloss Enamel (EVSH50)
 - c. Coat 3: Exterior Masonry Finish EVERSHIELD, 100% Acrylic Semi-Gloss Enamel (EVSH50) or EVERSHIELD, 100% Acrylic Gloss Enamel (EVSH60)
 - d. DFT: 3.6 mils.
- 5. Concrete Block:
 - a. Coat 1: Masonry Filler BLOCFIL SMOOTH BLOCFIL PREMIUM, Concrete Block Filler, Smooth (SBPR00)
 - b. Coat 2: Concrete Sealer
 - c. Coat 3: Exterior Masonry Finish SPARTASHIELD, Exterior 100% Acrylic Flat Finish (SSHL10)
 - d. Coat 4: Exterior Masonry Finish SPARTASHIELD, Exterior 100% Acrylic Flat Finish (SSHL10)
 - e. DFT for coats 2-4: 3.6mil.
- 6. Painted Stripes At Exterior Concrete Stairs; Conform to State HDCP Requirements:
 - a. Stripes: 2" wide, Located 1" max from and parallel to nosing.
 - b. Required Locations: All treads and upper approach of each flight of stairs.
 - c. Application Rate: 2 coats of Traffic Paint, at 400 sf/per gallon per coat. VIN-L-STRIPE, (W 801)

7. Plastic or Rubber Condensate Piping & Other Plastic Piping Exposed on Roof-Tops:
 - a. Coat 1: Multipurpose Primer ULTRA-GRIP PREMIUM, Multi-Purpose Latex Primer (W 715) (UGPR00)
 - b. Coat 2: 100% Acrylic Enamel EVERSIELD, 100% Acrylic Semi-Gloss Enamel (EVSH50)
 - c. Application Rate/DFT for finish coats: As required to cover completely one coat to cover.
8. Painted Stripes At Exterior Concrete Stairs; Conform to State HDCP Requirements:
 - a. Required Locations: Bottom tread and upper approach of each flight of stairs, where indicated.
 - b. Stripes: 2" wide, located 1" max from parallel to nosing.
 - c. Applications Rate: 2 coats of Traffic Paint, at 400 sf/ per gallon per coat. VIN-L-STRIPE, (W 801)

3.05 INTERIOR PAINT SCHEDULE

A. Interior Work: Typically Match Existing Finishes/Paint:

1. Softwood; Typically, and Medium Density Overlaid (MDO) Doors; Existing and at Repairs or New To Match Existing:
 - a. Coat 1: ULTRA-GRIP PERMIUM, Multi-Purpose Latex Primer (UGRP00)
 - b. Coat 2: 100% Acrylic Semi-Gloss Enamel EVERSIELD, 100% Acrylic Semi-Gloss Enamel (EVSH50) or EVERSIELD, 100% Acrylic Semi-Gloss Enamel (EVSH60)
 - c. Coat 3: 100% Acrylic Semi-Gloss Enamel EVERSIELD, 100% Acrylic Semi-Gloss Enamel (EVSH50) or **EVERSHIELD**, 100% Acrylic Gloss (EVSH60)
 - d. DFT: 4 mils.
2. Interior Hardwood Doors, Paneling, Doors, Transom Panels, Trim, Handrails, Softwood Casework, Paneling & Casework & Similar; With Stained/Natural Finish/Transparent Finish and; where not factory finished, Plastic Laminate, or Painted:
 - a. Sealer: At contractors option and expense N/A
 - b. Coat 1: NOT NEEDED ZENITH IS SELF SEALING
 - c. Coat 2: Gloss Varnish ZENITH WB CONVERSION VARNISH (PKC7509)
 - d. Coat 3: Gloss Varnish ZENITH WB CONVERSION VARNISH (PKC7509)
 - e. Coat 4: Satin Varnish Defthane 2 ZENITH WB CONVERSION VARNISH (PKF7502)

- f. DFT: 3.5 mils.
 - g. Lacquer Option: With specific approval or Architect Construction Manager & District, Lacquer may be used in lieu of varnish. CE-275PRO90
 - h. In existing buildings, match existing finishes unless noted otherwise.
- 3. "Rough Surface" Wood Trim; Existing and at Repairs or New to Match Existing:
 - a. Coat 1: Exterior Wood Stain OKON WeatherPro Tinted, (WPT-3)
 - b. After installation, inspect members; touch-up any damage, cuts and nail holes.
 - c. Coat 2: Exterior Wood Stain OKON WeatherPro Tinted, (WPT-3)
 - d. Application Rate: 150 sf/per gallon per coat.
- 4. "Smooth Surface" Plywood at Equipment Backboards:
 - a. Coat 1: Enamel Undercoater ULTRA-GRIP PREMIUM, Multi-Purpose Latex Primer (W 715) (UGPR00)
 - b. Coat 2: Stipple Enamel, Semi-Gloss EVERSIELD, 100% Acrylic Semi-Gloss Enamel (EVSH50) or EVERSIELD, Int. 100% Acrylic Semi-Gloss Enamel (EVSH50)
 - c. Coat 3: Enamel, Semi-Gloss EVERSIELD, 100% Acrylic Semi-Gloss Enamel (EVSH50) or EVERSIELD, Int. 100% Acrylic Semi-Gloss Enamel (EVSH50)
 - d. DFT: 5 mils.
- 5. Existing Painted Casework and or Painted Wall Paneling:
 - a. Coat 1: Enamel Undercoater INTER-KOTE PREMIUM, Int. 100% Acrylic Enamel Undercoater (IKPR00) or ULTRA-GRIP PREMIUM, Multi-Purpose Latex Primer (UGPR00)
 - b. Coat 2: Enamel, Semi-Gloss EVERSIELD, 100% Acrylic Semi-Gloss Enamel (EVSH50) or EVERSIELD, Int. 100% Acrylic Semi-Gloss Enamel (EVSH50)
 - c. Coat 3: Enamel, Semi-Gloss EVERSIELD, 100% Acrylic Semi-Gloss Enamel (EVSH50) or EVERSIELD, Int. 100% Acrylic Semi-Gloss Enamel (EVSH50)
 - d. DFT: 6 mils.
- 6. Plaster Walls & Ceilings; Existing and at Repairs or New to Match Existing:
 - a. Coat 1: Latex Sealer, Pigmented EVERSIELD, 100% Acrylic Ext. Masonry Finish EVSH10) or ULTRA-GRIP PREMIUM, Multi-Purpose Latex Primer (UGPR00)
 - b. Coat 2: Enamel Undercoater.

- c. Coat 3: Typically match existing: One of the following as applicable or selected by Architect Construction Manager:
 - 1) Enamel Semi-Gloss EVERSIELD, 100% Acrylic Semi-Gloss Enamel (EVSH50) Or EVERSIELD, Int. 100% Acrylic Semi-Gloss Enamel (EVSH50)
 - 2) Enamel, Low Sheen EVERSIELD, 100% Acrylic Low Sheen Enamel (EVSH40) or SUPREMA, Int. 100% Acrylic Low Sheen Enamel (SPMA40)
 - 3) Stipple Enamel, Semi-Gloss. Apply with an Architect approved heavy-texture stipple roller. EVERSIELD, (W901) or EVERSIELD, (EVSH50)
 - d. DFT: 5mils.
7. Concrete, Concrete Block and Brick; Existing Painted and at Repairs or New To Match Existing:
- a. Coat 1: Concrete Sealer EVERSIELD, 100% Acrylic Ext. Masonry Finish (EVSH10)
 - b. Coat 2: Enamel Undercoater SUPREMA, Latex Low Gloss Enamel (SPMA20)
 - c. Coat 3: Match existing: Enamel, Semi-Gloss, Low Sheen, or Velvet or Stipple as selected by Architect Construction Manager. SUPREMA, (SPMA20) or SUPREMA, (SPMA40) or, SUPREMA (SPMA50)
 - d. DFT: 5 mils.
8. Drywall Walls: Typical:
- a. Coat 1: Latex Sealer VINYLASTIC PREMIUM, Interior Pigmented Sealer (VNPR00)
 - b. Coat 2: Stipple Enamel or Flat Latex SUPREMA, Int. 100% Acrylic Semi-Gloss Enamel (SPMA50) or EVERSIELD, Int. 100% Acrylic Low Sheen Enamel (EVSH40)
 - c. Coat 3: Enamel Semi-Gloss or Low Sheen SUPREMA, Int. 100% Acrylic Semi-Gloss Enamel (SPMA50) or SUPREMA, Int. 100% Acrylic Low Sheen Enamel-(SPMA40)
 - 1) Enamel, Semi-Gloss EVERSIELD, 100% Acrylic Semi-Gloss Enamel (EVSH50) Or EVERSIELD, Int. 100% Acrylic Semi-Gloss Enamel-(SPMA50)
 - 2) Enamel, Low Sheen SUPREMA, Int. 100% Acrylic Low Sheen Enamel (W 440V) (SPMA40)
 - 3) Enamel Velvet SUPREMA, Latex Low Gloss Enamel (SPMA20)
 - 4) Flat Wall Latex SUPREMA, Interior Flat Wall Finish (W 401) (SPMA10)
 - d. DFT: 6mils.

9. Drywall Ceilings
 - a. Coat 1: Latex Sealer VINYLASTIC PREMIUM, Interior Pigmented Sealer (W 101V) (VNPR00)
 - b. Coat 2: Flat Wall Latex SUPREMA, Interior Velvet Flat Wall Finish (W 401) (SPMA10)
 - c. Coat 3: Flat Wall Latex SUPREMA, Interior Velvet Flat Wall Finish (W 401) (SPMA10)
 - d. DFT: 4 mils.

10. Drywall Walls & Ceilings At Toilets, Storage Rooms, and Electrical and Mechanical Rooms:
 - a. Coat 1: Latex Sealer VINYLASTIC PREMIUM, Interior Pigmented Sealer (VNPR00)
 - b. Coat 2: Enamel Undercoater EVERSIELD, Int. 100% Acrylic Semi-Gloss Enamel (EVSH50)
 - c. Coat 3: Stipple Enamel, Semi-Gloss EVERSIELD, Int. 100% Acrylic Semi-Gloss Enamel (EVSH50)
 - d. DFT: 5 mils.

B. Metal Work; Interior:

1. Galvanized Metal & Galvanized Metal Deck;
 - a. Preparation: Before application, properly clean and etch (solvent wash) galvanized surfaces in accordance with preparation instructions for galvanized metal per Articles 3.02 H and 3.04F herein. (SCME-01)
 - b. Coat 1: Rust Preventative Metal Primer Bloc-Rust Premium Primer (BRPR00-1)
 - c. Coat 2: 100% Acrylic Enamel EVERSIELD 100% Acrylic Semi-Gloss Enamel (EVSH50) or EVERSIELD, 100% Acrylic Gloss Enamel (EVSH60)
 - d. Coat 3: 100% Acrylic Enamel Enamel EVERSIELD, 100% Acrylic Semi-Gloss Enamel (EVSH50) Or EVERSIELD, 100% Acrylic Gloss Enamel (EVSH60)
 - e. DFT: 6 mils.
2. Ungalvanized Steel Interior Apply prime coat immediately after steel is cleaned.
 - a. Coat 1: Rust Preventative Metal Primer Bloc-Rust Premium Primer (BRPR00-1)
 - b. Coat 2: 100% Acrylic Enamel EVERSIELD 100% Acrylic Semi-Gloss Enamel (EVSH50) or EVERSIELD, 100% Acrylic Gloss Enamel (EVSH60)

- c. Coat 3: 100% Acrylic Enamel Enamel EVERSIELD, 100% Acrylic Semi-Gloss Enamel (EVSH50) Or EVERSIELD, 100% Acrylic Gloss Enamel (EVSH60)
DFT: 6 mils.
- 3. Ungalvanized Steel Interior: Concealed: Apply prime coat immediately after steel is cleaned.
 - a. Scope: Apply to all structural steel surfaces hidden and enclosed, within the building envelope (not exposed to view), except members with flanges ¼" or thicker and webs 3/16" or thicker need NOT to be painted.
 - b. Prime Coat: Rust Inhibitive Primer Bloc-Rust Premium Primer (BRPR00-1)
DFT: 2 mils.
- 4. All Shop Primed Metals; Interior:
 - a. Preparation: Touch up damaged, scratched, or missing prime coat paint using top-quality rust-inhibitive primer recommended by paint mfr. lightly sand smooth, ready to receive finish coats.
 - b. Coat 1: Rust Preventative Metal Primer Bloc-Rust Premium Primer (BRPR00-1)
 - c. Coat 2: 100% Acrylic Enamel EVERSIELD, 100% Acrylic Semi-Gloss Enamel (EVSH50) or EVERSIELD 100% Acrylic Gloss Enamel (EVSH60)
DFT: 4 mils.
- 5. All Shop Primed Metals: Interior:
 - a. Preparation: Touch-up damaged, scratched, or missing prime coat paint using top-quality rust-inhibitive primer recommended by paint mfr. Lightly sand smooth, ready to receive finish coats.
 - b. Coat 1:Sash and Trim Rust Preventative Metal Primer Bloc-Rust Premium Primer (BRPR00-1)
 - c. Coat 2: Sash and Trim Industrial Enamel EVERSIELD, 100% Acrylic Semi-Gloss Enamel (EVSH50) or EVERSIELD, 100% Acrylic Gloss Enamel (EVSH60)
DFT: 4 mils.
- 6. Factory Finished Equipment & Items:
 - a. Coat 1:Acrylic Enamel Sash & Trim EVERSIELD, 100% Acrylic Semi-Gloss Enamel (EVSH50) or EVERSIELD, 100% Acrylic Gloss Enamel (EVSH60)
DFT: 2 mils.
- 7. Aluminum; Where Indicated To Be Painted Or Where Previously Painted:
 - a. Follow paint mfr's. recommendations and specifications.
 - b. Prepare surface by phosphatizing and cleaning same as for Galvanized Surfaces, Articles 3.02H and 3.04F.

- c. Coat 1: Oil-Cementious Primer GALV-ALUM PREMIUM, Galv./Alum. Metal Primer (GAPR00)
- d. Coat 2: 100% Acrylic Enamel EVERSIELD, 100% Acrylic Semi-Gloss Enamel (EVSH50) or EVERSIELD, 100% Acrylic Gloss Enamel (EVSH60)
- e. Coat 3: 100% Acrylic Enamel EVERSIELD, 100% Acrylic Semi-Gloss Enamel (EVSH50) or EVERSIELD, 100% Acrylic Gloss Enamel (EVSH60)
DFT: 5 mils.

END OF SECTION

**SECTION 10 14 00
IDENTIFYING DEVICES**

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

A. Section Includes:

- 1. Plastic signs.
 - a. Accessible Restroom Signage

B. Related Work:

- 1. Division 1.

1.03 QUALITY ASSURANCE

A. Requirements of Regulatory Agencies and Codes:

- 1. State Fire Marshal, Title 19.
- 2. California Building Code (CBC) and Standards.
- 3. Federal Americans with Disabilities Act (ADA) and to State "Accessibility" Regulations.

- B. Text, Numbering and Message: The District will provide exact numbering and wording for signs.

1.04 SUBMITTALS

- A. Procedure: In accordance with Division 01.

B. Samples:

- 1. Two (2) for Each Type, Including the following:
 - a. Manufacturer's standard color range.
 - b. One (1) of each typical sign specified.

- C. Product Data: Manufacturer's standard brochures describing all items and materials; specific items for this work shall be indicated / highlighted.

- D. Shop Drawings: Signs, 4 copies, all work, including fastening devices and backing plates.

PART 2 – PRODUCTS

2.01 MANUFACTURERS/MATERIALS

- A. All other Plastic and Metal Signs:

MARSHALL FUNDAMENTAL SCHOOL
TOILET ROOMS MODERNIZATION & ADA UPGRADES
PASADENA UNIFIED SCHOOL DISTRICT
FLEWELLING & MOODY PROJECT NO. 3189.0000

IDENTIFYING DEVICES
10 14 00 - 1
DSA# 03-125519
FILE# 19-H19

- B. Acceptable Manufacturers / Products: Mohawk Sign Systems (518) 370-3433) Series No. 200-A or equal.
- C. Description of System: Text, letters, symbols and Braille must be integral.
- D. List of Signs: Note that all signs specified below may not be required for the Project. Refer to the Drawings and provide all required signage for the Project.
- E. Unframed Plastic Signs:
 - 1. Plastic – ES Plastic: Two-color sandwich with face color contrasting with core color suitable for interior and exterior use.
 - 2. Text / Letters / Symbols / Braille:
 - a. Raised in accordance with ADA and CBC requirements.
 - b. Color contrasting with their background color. 70% minimum contrast and have a non-glare finish.
 - c. Created by sandblasting away the face color to expose the surrounding background (core) color.
 - d. Contracted Grade 2 Braille shall be used whenever Braille symbols are specifically required. Dots shall be spaced 1/10 inch (2.54 mm) on center within each cell with 2/10 inch (5.08 mm) space between cells. Domed Dot shall be raised 1/40 inch (0.635 mm) above background. Refer to CBC Sections 11B-703.3 and 11B703.4. All signage shall conform to CBC Sections 11B-703.
 - e. Gluing components of signs together is not acceptable.
 - 3. Type Style: “Helvetica Medium” all upper case, 3/4 in. high (72-point). Characters on signs shall be raised 1/32” (0.794 mm) minimum and shall be sans serif uppercase characters accompanied by Grade 2 Braille.
 - 4. Arrangement: Standard spacing between letters, words, numbers and lines; centered typically; 1/2 in. minimum margins.
 - 5. Edges and Corners: Finish edges smooth; 1/2 in. rounded corners. Provide screw mounting hole at each corner.
 - 6. Colors: As selected by the Architect. Contrast between character, symbols and their background must be 70% minimum and have a non-glare finish, per 11B-703.5.1.
 - 7. Sign Face Colors, and Core Colors: One face/core color combination for each site will be selected by Architect from manufacturer’s standard color ranges (12 colors minimum).
 - 8. Code Required Colors: Where colors are mandated by Codes or regulations, conform to those requirements. Accessibility signage shall be blue color equal to #15090 per Federal Standard 595C. All other colors will be selected by Architect.
 - 9. Color Type: Integral to sign material; painting is not acceptable.

10. Mounting: Non-corrosive vandal-resistant screws and double-face, pressure-sensitive foam tape, full length and width of sign.

11. Letters and numbers on signs: Proportion for raised characters on signs shall be selected from fonts where the width of the uppercase letter "O" is 60% minimum and 100% maximum height of the uppercase letter "I". Stroke thickness of the uppercase letter "I" shall be 15% maximum of the height of the character.

F. Plastic Accessible Symbol Signs:

1. Figure / Symbol Style: Recognized standard "International Symbols of Accessibility" such as those developed by the American Institute of Graphics for the US Dept. of Transportation.

2. Types:

a. Toilet Room Door Signs: Appropriate Man/Boy or Woman/Girl silhouette figures, superimposed over geometric symbols.

1. Color: White figure on blue geometric symbol.

2. Geometric Symbols:

a. For Men/Boys: Equilateral triangle, 12 in/ on a side by 1/4 in. thick.

b. For Women/Girls: 12 in. diameter circle by 1/4 in. thick.

PART 3 – EXECUTION

3.01 PREPARATION

A. Layout: Accurately lay out work to maintain proper lines, levels and spacing.

3.02 INSTALLATION - PLASTIC SIGNS

A. General: Press tape firmly to mounting surface, and secure each sign with 4 vandal-resistant screws, one screw at each corner, equidistant from the edges.

B. Mounting Location:

1. General:

a. At heights and locations prescribed by Code.

b. As indicated on Drawings.

END OF SECTION

**SECTION 10 21 20
TOILET COMPARTMENTS**

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Solid plastic toilet compartments including the following: (Hiny Hiders)
 - 1. Floor mounted overhead-braced toilet compartments.
 - 2. Floor-to-ceiling toilet compartments.
 - 3. Ceiling hung toilet compartments.
 - 4. Privacy screens.
 - 5. Shower and dressing compartments.
 - 6. Vanities.

1.2 RELATED SECTIONS

- A. Section 05 50 00 - Metal Fabrications.
- B. Section 06 10 00 - Rough Carpentry.

1.3 REFERENCES

- A. ASTM A666 - Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.
- B. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
- C. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
- D. National Fire Protection Association (NFPA) 286 - Standard Methods of Fire Tests for Evaluating Contribution of Wall and Ceiling Interior Finish to Room Fire Growth.
- E. United States EPA (Environmental Protection Agency) Registration - Bactericidal Surfaces Registered with the U.S. EPA to Legally Make Claims that these Materials Kill Infectious Bacteria.

1.4 SUBMITTALS

- A. Submit under provisions of Section 01 33 00.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Preparation instructions and recommendations.
 - 2. Storage and handling requirements and recommendations.
 - 3. Installation methods.
- C. Shop Drawings: Provide layout drawings and installation details with location and type of hardware required.
- D. Verification Samples: For each finish product specified, two samples representing actual product, color, and patterns.
- E. Sustainable Design Submittals:
 - 1. Recycled Content: Certify percentages of post-consumer and pre-consumer recycled content.
 - 2. Regional Materials: Certify distance between manufacturer and Project.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: A company regularly engaged in manufacture of products specified in this section, and whose products have been in satisfactory use under similar service conditions for not less than 5 years.
- B. Installer Qualifications: A company regularly engaged in installation of products specified in this Section, with a minimum of 5 years experience.
- C. Materials: Doors, panels and pilasters, constructed from high density polyethylene (HDPE) resins. Partitions to be fabricated from polymer resins compounded under high pressure, forming a single component which is waterproof, nonabsorbent and has a self-lubricating surface that resists marks from pens, pencils, markers and other writing instruments. Cover all plastic components with a protective plastic masking.
- D. Performance Requirements:
 - 1. Fire Resistance: Partition materials shall comply with the following requirements, when tested in accordance with ASTM E 84, Class B:
 - a. Tested to Meet ASTM E84, Class B flame spread/smoke developed rating.
 - 2. Material Fire Ratings:
 - a. National Fire Protection Association (NFPA) 286: Pass.
 - b. International Code Council (ICC): Class B.
 - 3. Antimicrobial Touch Surfaces: Hardware touch surfaces shall be manufactured from substrates that are registered with the U.S. EPA to kill specific bacteria tested according to U.S. EPA protocols.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation.

1.7 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

1.8 WARRANTY

- A. Manufacturer guarantees its plastic against breakage, corrosion, and delamination under normal conditions for 25 years from the date of receipt by the customer. If materials are found to be defective during that period for reasons listed above, the materials will be replaced free of charge. Labor not included in warranty.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Scranton Products, which is located at: 801 E. Corey St.; Scranton, PA 18505; ASD Toll Free Tel: 800-445-5148; Fax: 855-376-6161; Email: request info (info@scrantonproducts.com); Web: <https://www.scrantonproducts.com>
 - 1. Fabricator: Santana Toilet Partitions.
 - 2. Fabricator: Comtec Toilet Partitions.
- B. Requests for substitutions will be considered in accordance with provisions of Division 1.

2.2 MATERIALS

- A. Plastic Panels: High density polyethylene (HDPE) suitable for exposed applications, waterproof, non-absorbent, and graffiti-resistant textured surface.
 - 1. Recycled Content; Post Industrial: 25 percent.
 - 2. Recycled Content; Post Industrial: 100 percent.
 - 3. Recycled Content; Post Consumer: 100 percent.
- B. Zinc Aluminum Magnesium and Copper Alloy (Zamac): ASTM B 86.
- C. Stainless Steel Castings: ASTM A167, Type 304.
- D. Aluminum: ASTM 6463-T5 alloy.

2.3 SOLID PLASTIC TOILET COMPARTMENTS

- A. Basis of Design: Hiny Hiders Toilet Partitions as manufactured by and supplied by Scranton Products.
 - 1. Style: Floor mounted overhead-braced toilet compartments.
 - 2. Style: Floor-to-ceiling toilet compartments.
 - 3. Style: Ceiling hung toilet compartments.
- B. Doors, Panels, and Pilasters: 1 inch (25 mm) thick with all edges rounded to a radius. Mount doors and dividing panels based on height of specified system.
 - 1. Door and Panel Height: See District Standard Sheet STD-02
- C. Panel Color: Paisley - Orange Peel.
- D. Pilaster Shoes: 3 inches (76 mm), 20 gauge stainless steel. Secured to pilasters with a stainless steel tamper resistant Torx head sex bolt.
- E. Headrail: Heavy-duty extruded 6463-T5 alloy aluminum with anti-grip design. Finish to be clear anodized. Fastened to headrail brackets with stainless steel tamper resistant Torx head sex bolt, and fastened at the top of the pilaster with stainless steel tamper resistant Torx head screws.
 - 1. Headrail Brackets: 20 gauge stainless steel with satin finish. Secured to the wall with stainless steel tamper resistant Torx head screws.
- F. Wall Brackets:
 - 1. Stainless Steel Brackets: Stainless steel type 201.
 - 2. Brackets are fastened to pilasters with stainless steel tamper resistant Torx head screws and fastened to the panels with stainless steel tamper resistant Torx head sex bolts.
 - 3. Bracket Type: Continuous stainless steel.
- G. Door Hardware:
 - 1. Wrap-Around Hinges: 8 inches (203 mm) and fabricated from heavy-duty extruded aluminum. Hinges are through-bolted to pilasters and doors with stainless steel tamper resistant Torx head sex bolts. Hinges operate with field adjustable nylon cams. Cams can be field set in 30, 60 or 9 degree increments.
 - 2. Door Strike/Keeper: Heavy-duty extruded aluminum 6436-T5 alloy with a clear anodized finish. Secured to pilasters with stainless steel tamper resistant Torx head sex bolts. Bumper shall be made of extruded black vinyl.
 - a. Style: 3 inches (76 mm) stainless steel emergency access.
 - 3. Latch Mechanism: Aluminum Slide Bolt Latch and Housing: Heavy-duty extruded 6463-T5 alloy aluminum. Latch and housing to have a clear anodized finish. Slide bolt
 - 4. Doors supplied with one coat hook/bumper and door pull, clear anodized aluminum or stainless steel.
 - 5. Equip outswing handicapped doors with second door pull and door stop.

2.4 SOLID PLASTIC PRIVACY SCREENS

- A. Provide plastic privacy screens in urinals.
- B. Panels, 1 inch (25 mm) thick with edges rounded to a radius. Screens to be floor and wall mounted. Color to match toilet partitions.
- C. Screen Type: Match Toilet Partitions – See District Standards Sheet STD-01.

2.5 SOLID PLASTIC VANITY

- A. Provide vanities in sizes and applications as indicated or scheduled.
- B. Tops, Splashes, Skirts, End and Center Supports: 1 inch (25 mm) thick with all edges rounded to a radius. Screens shall be mounted at 14 inches (356 mm) above the finished floor. Color as selected by Architect from manufacturer's full line of current colors.
- C. Pilaster sleeves shall be 3 inches (76 mm) high one-piece molded HDPE secured to the pilaster with a stainless steel tamper resistant Torx head sex bolt.
- D. Attachment Brackets: 16 inches (406 mm) long, heavy duty extruded aluminum with clear anodized finish.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- C. Examine areas to receive toilet partitions, screens, and shower compartments for correct height and spacing of anchorage/blocking and plumbing fixtures that affect installation of partitions. Report discrepancies to the architect.

3.3 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Install partitions rigid, straight, plumb, and level manor, with plastic laid out as shown on shop drawings.
- C. Clearance at vertical edges of doors shall be uniform top to bottom and shall not exceed 3/8 inch (9.5 mm).
- D. No evidence of cutting, drilling, and/or patching shall be visible on the finished work.
- E. Finished surfaces shall be cleaned after installation and be left free of imperfections.

3.4 PROTECTION

- F. Protect installed products until completion of project.
- G. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

**SECTION 10 28 13
TOILET ACCESSORIES**

PART 1 – GENERAL

1.01 SUMMARY

- A. Provisions of Division 01 apply to this section.
- B. Section Includes:
 - 1. Toilet accessories as indicated. Also see District Standards Sheet STD-01.
 - a. Grab Bars.
 - b. Mirrors.
 - c. Toilet Paper Dispensers.
 - d. Soap Dispensers.
 - e. Paper Towel Dispensers.
 - f. Toilet Seat Cover Dispensers.
 - g. Sanitary Napkin Disposal.
 - h. Hand Dryers.
- C. Related Sections:
 - 1. Supporting construction and backing: Respective Divisions.

1.02 PROJECT CONDITIONS

- A. Regulatory Requirements: Comply with CBC requirements and ADA recommendations for accessibility.
- B. Sequencing, Scheduling:
 - a. Coordinate work with demolition, supporting construction, blocking, ceramic tile, plumbing, electrical, District-provided items, and related work of other Sections.
 - b. Coordinate accessory locations with other work to prevent interference with clearances required for access by disabled persons, or required for proper installation, adjustment, operation, cleaning and servicing of accessories.
 - c. Deliver items and anchoring devices set into concrete or masonry as required to prevent delaying the Work.
- C. Coordination:
 - a. Verify type and installation of backing and proper locations prior to installation of

items. Verify field dimensions and product sizes. Verify product types with District prior to ordering.

- b. Verify layout, rough-in and final hook-up requirements with actual equipment.
- c. Verify product types, sizes and requirements of all items to be provided by District and installed by Contractor.

1.03 SUBMITTALS

- A. Product Data/Catalog Cuts; 4 Copies: Submit for all accessory items; key cut sheets to floor plans in order to show location of accessories being provided. Include construction details, material descriptions and thicknesses, dimensions, profiles, fastening and mounting methods, specified options, and finishes for each accessory specified. Provide all dimensional information necessary to install backing and to provide recessed openings for recessed and semi-recessed accessories.
- B. Setting/Shop Drawings; 4 Copies: For cutouts required in other work; include templates, accessory installation instructions, substrate preparation instructions, and directions for preparing cutouts and installing anchoring devices.
- C. Maintenance Data; 4 Copies: Provide for all electrical items specified; include lists of replacement parts and service recommendations.

1.04 QUALITY ASSURANCE

- A. Requirements Of Regulatory Agencies: Conform to ADA and State "Accessibility" Regulations.
 - 1. Toilet accessories required to be accessible shall be mounted at heights according to CCR Title 24 CBC Section 11B-403, and 11B-305.
 - 2. Toilet paper and feminine napkin dispensers located on the grab bar side of an accessible toilet room or stall shall not project more than 3" from the finished wall surface nor be located closer than 1-1/2" clear of the tangent point of the grab bar.
- B. Source Limitations: Provide products of same manufacture for each type of accessory unit and for units exposed to view, unless otherwise specified herein or approved by Architect.
- C. Coordinate related Work as required to ensure proper and adequate provision in framing of backing and wall finish for installation of accessories.
- D. Coordinate requirements of Section 10 21 20 Toilet Compartments to ensure that correct openings are provided in partitions for toilet accessories where required.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Protect accessories from damage.

PART 2 – PRODUCTS

2.01 GENERAL

- A. Accessories shall be provided with necessary anchoring devices and fasteners appropriate for surfaces on which items are to be fastened.
- B. Acceptable Mfrs./Products:
 - a. Toilet & Sink Accessories:
 - 1. Bobrick Washroom Equipment, Inc., phone (818) 982-9600; as a standard of quality or equal.

2.02 MATERIALS

A. TOILET & SINK ACCESSORIES

- 1. Material & Finish, Typical: Unless specifically noted otherwise, all material to be 22 ga. all-welded construction, 18-8 S Type 304 stainless steel (ASTM A167), with all exposed surfaces to be #4 satin finish.
- 2. Baked-Enamel Finish: Factory-applied, gloss-white, baked-acrylic-enamel coating.
- 3. Fasteners, Screws and Bolts: Stainless steel or chrome, tamperproof, theft resistant. When concealed, fasteners may be galvanized steel. Provide all necessary anchoring devices and fasteners appropriate for attachment surfaces.
- 4. Mounting Devices: Concealed typically. unless noted otherwise; galvanized steel ASTM A153 (hot-dipped galvanized after fabrication).
- 5. Keys: Provide universal keys for internal access to accessories for servicing and re-supplying. Provide a minimum of six (6) keys to District Inspector.

B. ITEMS

- 1. Grab Bars:
 - a. Type: Bobrick #B-5806 Series; 1-1/4" diam., #18 ga. 304 stainless steel; non-slip finish in grip area, satin finish elsewhere; 3/16" thick x 3" diam. welded flanges for exposed mounting. Provide an additional stainless steel center mounting flange for all bars 42" and longer.
 - b. Sizes: Configurations as indicated.
- 2. Mirrors: 18" x 24" – One per sink – Bobrick B-165.
- 3. Toilet Paper Dispensers:
 - a. Surface-Mounted Type: Jumbo Roll Dispenser SJMR2090TBK
at non-accessible stalls only.
 - b. Semi-Recessed Wall Type: At Accessible Water Closets:

Bobrick #B-3888; required to meet ADA clearance requirements; for partially recessed mounted, maximum 3" projection from wall, stainless steel construction, fits 2 paper rolls vertically; unit is 6-1/16" wide, 12-1/2" high, 6" deep overall.

- c. Surface-Mounted Type: At Accessible Water Closets with concrete or CMU walls:
Bobrick #B3588 surface mounted
- 4. Soap Dispensers:
 - a. Owner furnished - Bobrick B-2111 – Contractor installed.
- 5. Paper Towel Dispensers:
 - a. Owner furnished – B-9262 – Contractor installed.
- 6. Toilet Seat Cover Dispensers:
 - a. Surface-Mounted Type: Bobrick Model #B-221.
- 7. Sanitary Napkin Disposals:
 - a. Girl's Toilet Rooms Only. B-270 – Contractor installed.
- 8. Hand Dryers:
 - a. B-7125 or Excel Model XL-SB.

C. FABRICATION; GENERAL

- 1. Fabricate units with tight seams and joints, exposed edges rolled. Hang doors or access panels with continuous stainless steel piano hinges. Provide concealed anchorage wherever possible.
- 2. Only a maximum 1-1/2" diameter unobtrusive stamped manufacturer's logo, as approved by Architect, is permitted on exposed face of toilet accessory units. On interior surface not exposed to view or back surface, provide additional identification by means of either a waterproof printed label or a stamped nameplate, indicating manufacturer's name and product model number.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Check openings in substrates to receive accessories. Verify openings are correctly located and sized to receive accessories, and that locations will comply with disability access requirements. Confirm that blocking, backing or support is properly located and adequate for the accessory installation.
- B. Verify spacing of plumbing fixtures and toilet partitions. Confirm spacing and locations are compatible with proposed accessory locations and will allow compliance with disability access requirements.

3.2 INSTALLATION

A. General:

1. Anchorage: Securely anchor all items into solid backing with mfr.'s recommended suitable attachments and/or threaded metal anchors; Phillips-head typical; sexbolts into toilet partitions. Verify wall blocking or solid substrate for proper attachment before installation. Do not start work until satisfactory conditions are corrected.
2. Install units plumb, level and firmly anchored.
3. Mounting Heights: Conform to "Accessibility Requirements" for each particular item installed in areas serving the persons with disabilities. Toilet paper and dispensers located on the grab bar side of an accessible toilet room stall shall not project more than 3" from the finished wall surface nor be located closer than 1 ½" clear of the tangent point of the grab bar.
 - a. Grab Bars; Match heights on 1/A8.01
 - b. Dispensers: 40" A.F.F. max. to all operating controls, dispensing slots, or coin slots.
4. Install new toilet accessories specified herein at all new work, at all new plumbing fixtures and sinks, and/or where indicated on Drawings.
5. Coordinate installation with installation of toilet partitions, ceramic tile and all other work which supports or abuts this work.

B. Grab Bars:

1. Install at all new water closets and locations indicated; use mfr. recommended anchor plates.
2. Anchorage must resist the forces stated in Title 24, Section 511.1, Article (a)9, which are 250 lb./lf. of bar.

C. Toilet Paper Dispensers:

1. Install one at each new water closet and where indicated on Drawings.
2. At all new "accessible" water closets, install semi-recessed dispensers into walls. Install "combination units" where specifically indicated on Drawings and listed below in Article 3.1K. At all other water closets, install surface mounted type.
3. Surface mounted TP dispensers are provided by District, installed by Contractor; all recessed and semi-recessed TP dispensers and combination units are provided and installed by Contractor.

D. Soap Dispensers:

1. Install one dispenser each at the following locations:
 - a. Every new sink.

E. Paper Towel Dispensers:

1. Install one dispenser each at:
 - a. Every new sink.

F. Seat Cover Dispensers (Surface-Mounted Type):

1. Install one dispenser adjacent to each new water closet in:
 - a. Each toilet compartment.

3.3 ADJUSTING AND CLEANUP

- A. Adjust accessories for proper operation.
- B. Remove rubbish, debris, and waste material and legally dispose of off the Project site.

3.4 PROTECTION

- A. Protect the Work of this section until Substantial Completion.

END OF SECTION

**SECTION 22 40 00
PLUMBING**

PART 1 - GENERAL

1.1 SCOPE

- A. Provide a complete ADA Plumbing system, tested and ready for use, as indicated on the Drawings and described herein.
- B. Work under this Section: Principal items include, but are not necessarily limited to the following:
 - 1. Plumbing fixtures, and equipment.
 - 2. Plumbing services to equipment furnished under this section of work or Owner-furnished. Make all final connections for water, and waste services, as required, and as indicated and specified.
 - 3. All drilling, cutting and patching required for the work; patching materials and finish shall match the surrounding work.
 - 4. All labor, materials, and equipment not indicated by Drawings or Specifications, which are required for proper operation of the systems in accordance with the true intent and meaning of the Contract Documents, shall be provided and incorporated in the work by and at the expense of the Contractor.

1.2 CODES, RULES, AND SAFETY ORDERS

- A. All work and materials shall be in full accordance with the latest rules and regulations of the California Code of Regulations, Title 19 and 24, Safety Orders of Division of Industrial Safety, Uniform Plumbing Code, Uniform Fire Code, and all other State and local codes and regulations. Nothing in these Plans and Specifications is to be construed to permit work not conforming to these codes.

1.3 EXISTING UTILITY LINES

- A. Adjust location or alignment of the new work as necessary to avoid or to connect to existing utilities or piping without additional cost to the Owner.
- B. Verify, before installation, the invert elevations, locations, sizes, and pressures of all existing utility lines at the new points of connection.

1.4 ON-SITE VISIT

- A. It shall be the Contractor's responsibility to visit the new project site and acquaint himself with all existing conditions, as well as ascertain the extent of the work involved. By the act of submitting a Bid, the Contractor shall be deemed to have made such an examination, to have accepted such conditions, and to have made all allowances therefore, in preparing his figure.
- B. The Contractor shall provide all labor, materials, etc., required for the complete, new installation of all plumbing systems for the completion of this project.

1.5 CONDUCT OF WORK

- A. The Contractor shall provide all labor, materials, etc., for the completion of the project. All equipment installations shall be readily accessible for maintenance and repairs. Provide all necessary staging, scaffolding, ladders, or similar facilities required to carry on the work. Consult with other trades to avoid interferences in work. Extras will not be allowed for such interferences.

1.6 INTENT OF DRAWINGS

- A. The Drawings are essentially diagrammatic. The size and location of equipment and fixtures are drawn to scale wherever possible. Provide offsets in piping and changes in fixture locations as necessary to conform to structure, architecture, avoid obstructions, preserve headroom, and keep passageways clear, as a Contract requirement.

B. SUBMITTALS AND SHOP DRAWINGS

- C. Within 5 days after award of Contract, the Contractor shall submit (4) four copies of complete Shop Drawings, materials list, and equipment specifications of items proposed for installation. No work shall be installed prior to receipt of written approval from the Architect. Approval of substitutions shall be at the sole judgment or discretion of the Architect or his Engineer. All materials shall be new and of the best quality.
- D. All equipment that is substituted shall fit in the space provided, with adequate room for servicing, including substitute equipment named in this Section of the Specifications.
- E. All electrical equipment or components shall be approved by the Underwriters Laboratories for the intended use, and shall be so labeled.

1.7 CONFLICTS BETWEEN CONTRACT DOCUMENTS

- A. In the event of conflicting requirements between items on the Drawings or between items in the Specifications, or between items on the Drawings and in the Specifications, the more stringent or costly shall govern, unless decided otherwise by the Architect, who shall be the sole judge of these matters.

PART 2 - PRODUCTS

2.1 GENERAL

- A. All materials shall be new and in perfect condition; all materials for similar uses shall be of the same type, material, and manufacture for ease of future maintenance.
- B. Exposed Trim: All trim, piping, and fittings allowed to remain exposed in finished parts of the building shall be chromium plated brass, or rough piping may be covered with chromium plated brass tubing.
- C. Protection: All materials, fixtures, and equipment shall be covered or sealed upon installation so as to provide for safety and to ensure that operation and appearance will be maintained after subsequent construction operations.

2.2 CLEANOUTS

- A. All cleanouts shall have heavy cast iron body and extra heavy bronze plug. All flush-with-floor cleanouts shall have adjustable watertight covers. When waterproofing membrane is used, the cleanout body shall have integral anchoring flange and heavy clamping collar. All cleanouts shall be readily accessible.
 - 1. Interior finished floors: Cleanouts to have non-skid cast iron top, J.R. Smith No. 4220 Series, or approved equal.
 - 2. Interior finished room walls: Toilets and tile walls, cleanouts to have stainless steel cover, J.R. Smith No. 4532, and in all other walls cleanout shall have prime coated steel cover, J.R. Smith No. 4532-PC or approved equal.

2.3 ACCESS DOORS, BOXES AND COVERS

- A. Provide an access door adjacent to all concealed valves and equipment. Door shall be 12" x 12" metal hinged and fire-rated to match construction. Door shall be stainless steel. Replace all existing access doors in the project area.

2.4 FIXTURES, FIXTURE CARRIERS AND BACKING

- A. Fixtures: American Standard or as noted – See Districts Standards Sheet STD-01.
- B. Fixture Carriers: J.R. Smith, Zurn or Josam.
- C. Fixture Backing:
 - 1. General: Provide proper bracing for each plumbing fixture requiring same at the time roughing-in is done. Backing shall be 1/4" thick by 6" wide steel plate welded or bolted to at least three studs. Fixture or supporting arms shall be securely attached to backing plate in accordance with the manufacturer's instruction. Plates shall be drilled and tapped at time of fixture installation. Exposed heads of fixture bolts shall be chrome plated.
 - 2. In metal stud construction attached backing plate to each stud that it crosses by 3/16" fillet weld on top and bottom edges of the plate and across the full width of the stud flange.

2.5 PLUMBING FIXTURES

- A. ADA Water closet shall be vitreous china, floor-mounted, siphon jet action, 1.6 gallon flush, elongated bowl and with open front seat. Set from schedule on the plans from finished floor to toilet rim for accessible use.

Fixture: American Standard or Equal (A.D.A. Compliant).

Flush valve: Sloan 8111 (1.6 gpf) with free spinning, Vandal Resistant Stop Cap and Courtesy Flush Override Button.

Seat: Centoco No. 1500 STSCC comfort curve extra heavy-duty with check and stainless steel hinge posts.

- B. Non-ADA Water closet shall be vitreous china, wall-mounted, siphon jet action, 1.6 gallon flush, elongated bowl and with open front seat. Set 17" high from finished floor to toilet rim for standard use.

Fixture: American Standard or Equal.

Flush valve: Sloan 8111 (1.6 gpf) with free spinning, Vandal Resistant Stop Cap and Courtesy Flush Override Button.

Seat: Centoco No. 1500 STSCC comfort curve extra heavy-duty with check and stainless steel hinge posts.

- C. ADA Urinal shall be vitreous china wall-mounted, water free, and shall extend 14" from wall, with cartridge liquid for waterless unit (no flush valve required) and set 17" from finished floor to top of urinal lip for accessible use.

Fixture: Sloan WES-1000, Elkay or Falcon (ADA Compliant).

- D. Urinal shall be the same as Standard Urinal, except set at 24" from finished floor to top of urinal lip for standard use.

Fixture: Sloan WES-1000, Elkay or Falcon.

- E. Lavatory shall be 20" x 18", wall-mounted vitreous china with single center set faucet installed for both ADA and non-ADA use. See provided chart for appropriate age use.

Fixture: American Standard or Equal (A.D.A. Compliant).

Faucet: Chicago (per District Standards)

Strainer: Polished Chrome Grid

Supply Stop: McGuire No. 167-LK

Trap: 1 1/4" x 1 1/2" L.A. pattern chrome plated cast brass P-trap with galvanized waste-to-wall covered with chrome-plated brass tubing and wall excutcheon plate.

Note: Strainer drain, supply stops, and risers, as well as P-trap shall be protected with **Truebro, Inc. Lav-Shield No. 2018-KO-H**, Rigid, high-impact, stain-resistant, rigid PVC, factory finish, fastened with tamper-resistant screws, and shall meet ADA Standards.

- F. Hose bib shall be recess type with vacuum breaker set in recess box and door all stainless steel finish.

Fixture: Acorn 8141 - 3/4" -BR.

2.6 FLOOR DRAINS

- A. Existing floor drains to remain. Replace drain surface grate to match existing.

PART 3 - EXECUTION

3.1 PIPING INSTALLATION

- A. Arrange piping to maintain headroom and keep passageways and access openings clear, and offset as required to coincide with structural features of building. Do not spring, bend, or force pipe into place. Use fittings for all offset or changes in alignment of piping. Run piping to drain at low points, free of traps, sags, and bends. Provide ample space between pipes for proper thickness of covering.
- B. Thoroughly clean all piping before installation. Cap all openings during installation.
- C. Openings in pipes, drains, fittings, apparatus, and equipment shall be carefully covered or plugged during erection to prevent accumulating obstructions in the piping.
- D. Install horizontal sanitary and drain piping to a uniform grade of not less than 1/4" per foot, unless noted otherwise.
- E. Set all rough-in to measurements furnished by the manufacturer.
- F. All above ground piping shall be concealed wherever possible. Underground piping outside of building shall have a minimum cover 24".
- G. Provide clamps or concrete thrust blocks on all dead ends, angles, or at other points where separation may occur in joints.
- H. Provide a union on one side of all valves and equipment connections, and in other locations as required for ease of servicing of equipment.
- I. Make suitable provision for maximum expansion and contraction of piping. Provide swing joints and anchors as required.
- J. No bullhead tees, close nipples, or bushing will be allowed in piping.

3.2 CUTTING AND PATCHING

- A. The Contractor shall do all drilling, cutting, and patching of the general construction work, rough, finish, and trim, which may be required for the installation of the work. All patching shall be of the same materials, workmanship, and finish as the original work, and shall accurately match the surrounding work. All cutting and patching shall be done under the Architect's supervision.

3.3 CLEANING

- A. Thoroughly clean all parts of the materials and equipment. Exposed parts shall be thoroughly cleaned of cement, plaster, and other materials, and all oil and grease spots shall be removed. Such surfaces shall be carefully wiped and all cracks and corners scraped out.
- B. Exposed metal work shall be carefully brushed down with steel brushes to remove rust and other spots, and shall be left smooth and clean.

3.4 TESTING

- A. Test the water system with water 150 psig pressure.

- B. Test all other piping in conformity with applicable codes.

3.5 ADJUSTING

- A. Each piece of equipment and all of the systems shall be adjusted to ensure proper functioning of all controls, maintenance of temperatures, elimination of noise and vibration, and left in first class operating condition.

3.6 CLOSING IN OF UNINSPECTED WORK

- A. Contractor shall not allow or cause any of the work to be covered up or enclosed until it has been inspected, tested, and approved by the Architect's Representative and Project Inspector. Should any of his work be covered up or enclosed before such inspection and test, he shall, at his own expense, uncover the work, and after it has been inspected, tested, and approved, make all repair with such materials as may be necessary to restore all his work and that of other trades to its original and proper condition.

3.7 WARRANTY

- A. Before the acceptance of the project, deliver to the Architect a written one-year warranty on all workmanship, equipment, and materials; repair or replace any such defective items occurring during this period. Contractor shall be responsible for all damages to premises caused by leaks or breaks in piping.
- B. Contractor shall warrant the complete and perfect operation of the entire system and that all apparatus will perform in accordance with the detailed Drawings and Specifications.
- C. Contractor shall warrant that all equipment shall be supported in such a manner as to be free from objectionable vibration and noise.
- D. Contractor shall warrant that all licenses and royalties for use of any patented feature of the system will be paid before acceptance of the installation. Payment of such license and royalties shall be a part of the Contract.

3.8 DAMAGE BY LEAKS

- A. The Contractor shall be responsible for all damage to any part of the premises caused by leaks or breaks in piping or equipment furnished and/or installed by him for a period of one year from date of acceptance of the work by the Owner.

END OF SECTION