Exhibt No. 4

CITY OF CARSON

701 E. Carson Street
Carson, CA 90745

TECHNICAL SPECIFICATIONS

CARSON CITY HALL BASEMENT RENOVATION

801 East Carson Street
Carson, CA 90745

WESTBERG + WHITE, INC.

ARCHITECTS AND PLANNERS

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TABLE OF CONTENTS

DIVISION 01 GENERAL REQUIREMENTS

01 11 00 Summary of Work
01 21 00 Allowances
01 29 76 Progress Payment Procedures
01 31 13 Project Coordination
01 31 19 Project Meetings
01 33 00 Submittal Procedures
01 41 00 Regulatory Requirements
01 42 00 References
01 50 00 Temporary Facilities and Controls
01 60 00 Product Requirements
01 73 29 Cutting and Patching
01 74 19 Construction Waste Management and Disposal
01 74 23 Cleaning
01 77 00 Closeout Procedures
01 78 39 Project Record Documents

DIVISION 02 EXISTING CONDITIONS

02 41 20 Selective Interior Demolition

DIVISION 03 CONCRETE

03 30 00 Cast-in-Place Concrete

DIVISION 04 MASONRY

04 01 91 Masonry Repair

DIVISION 05 METALS

05 40 00 Cold-Formed Metal Framing

DIVISION 06 WOOD, PLASTICS, AND COMPOSITES

06 10 53 Miscellaneous Carpentry
06 40 00 Architectural Woodwork

DIVISION 07 THERMAL AND MOISTURE PROTECTION –

07 92 00 Joint Sealants

DIVISION 08 OPENINGS

08 14 00 Wood Doors
08 31 00 Access Doors and Panels
08 71 00 Door Hardware
08 83 13 Custom Glass Mirrors

DIVISION 09 FINISHES

09 22 16 Non-Structural Metal Framing
09 29 00 Gypsum Board
09 30 00 Tile
09 68 00 Carpet
09 91 00 Painting

DIVISION 10 SPECIALTIES – Refer to Drawings

DIVISION 11 EQUIPMENT – Refer to Drawings

DIVISION 12 FURNISHINGS – Refer tp Drawings

DIVISION 13 SPECIAL CONSTRUCTION – Not Used

DIVISION 14 CONVEYING EQUIPMENT – Not Used

DIVISION 21 FIRE SUPPRESSION – Refer to Drawings

DIVISION 22 PLUMBING - Refer to Drawings

DIVISION 23 HEATING, VENTILATING AND AIR-CONDITIONING (HVAC) – Refer to Drawings

DIVISION 26 ELECTRICAL – Refer to drawings

DIVISION 27 COMMUNICATIONS – Refer to Drawings

DIVISION 28 ELECTRONIC SAFETY AND SECURITY – Refer to Drawings

DIVISION 31 EARTHWORK – Not Used

DIVISION 32 EXTERIOR IMPROVEMENTS – Not Used

DIVISION 33 UTILITIES – Not Used

END OF TABLE OF CONTENTS

SECTION 01 11 00

SUMMARY OF WORK

PART 1 GENERAL

1.01 PROJECT DESCRIPTION

A. Project consists of the upgrade improvements for the EOC Department including restrooms and other improvements to the basement level of the Carson City Hall as shown on the Contract Documents prepared by Westberg + White, Inc., Architects.

1.02 PROCUREMENT AND CONTRACTING DOCUMENTS

A. Use Division 00 Procurement and Contracting Requirements provided by Westberg + White, Inc. for the City of Carson EOC Department Improvements.

1.03 RELATED DOCUMENTS

A. Refer to Division 00 Documents, including General Conditions, and other Division 01 Sections, for additional requirements.

B. Comply with requirements of these specifications Division 00 documents.

1. Changes to approved documents will be made by addenda or change order approved by Owner/Architect.

C. Contract Documents are complementary and what is required by one is as binding as when required by all.

1. Report errors, inconsistencies, or omissions discovered by Contractor promptly to Owner/Architect as request for information.

1.04 CONSTRUCTION REQUIREMENTS

A. Construct Work conforming to requirements of California Code of Regulations (CCR), Tile 24, Part 2, California Building Code (CBC), Volumes 1 and 2.

1. Refer to Section 01 41 00 for current Code edition.
2. Refer to Section 01 42 00 for additional references.

1.05 CONTRACTS

A. Construct Work under single fixed-price contract.

1.06 WORK SEQUENCE

A. General:

1. Conform to construction schedule as specified.
2. Construction Time:

a. Starts as of date specified in initial "Notice to Proceed" from Architect to Contractor and ends with date of acceptance of Work by Owner.

B. Construction Schedule:

1. Work will be conducted in single phase and provide least possible interference with activities of Owner's personnel and to permit orderly transfer of personnel and equipment to new facilities.

C. Liquidated Damages:

1. Liquidated damages will be assessed under conditions provided in Agreement.

1.07 CONTRACTOR'S USE OF PREMISES

A. General:

1. During construction period, limit use of premises to immediate area required for construction operations.
2. Use of premises is also limited by Owner's right to perform construction operations with its own forces or to employ separate contractors on portions of Project.

B. Limit use of premises for Work and for storage as directed, to allow for:

1. Work by other Contractors.
2. Owner occupancy.
3. Use by Public.

C. Coordinate use of premises under direction of Architect and Owner.

D. Assume full responsibility for protection and safekeeping of products under this contract, stored on Project Site.

E. Move stored products under Contractor's control, which interfere with operations of Owner or separate contractor.

F. Obtain and pay for use of additional storage or work areas needed for operations.

1.08 WORK DURING WORKING HOURS

A. Work under this contract will be executed in part during regular work hours.

1. Cooperate with Carson City Hall authorities in every way to minimize disturbance.

B. In entrance and exit of workers, and in bringing in, storing, and removal of equipment, cooperate with those in authority and prevent interference with functioning of Carson City Hall.

1. Observe rules and regulations in force and avoid unnecessary dust, mud, or accumulated debris, or undue interference with convenience, sanitation or routine of departmental activities.

C. In connecting new utilities to existing, and similar operations, time and coordinate such operations so that there will be no interference with Carson City Hall activities.

PART 2 PRODUCTS *(Not Applicable)*

PART 3 EXECUTION *(Not Applicable)*

END OF SECTION 01 11 00

SECTION 01 21 00
ALLOWANCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements governing allowances.

1. Certain items are specified in the Contract Documents by allowances. Allowances have been established in lieu of additional requirements or to defer selection of actual materials and equipment to a later date when additional information is available for evaluation. If necessary, additional requirements will be issued by Allowance Payment Record (APR).

B. Types of allowances include the following:

1. Contingency allowances.

1.3 ACTION SUBMITTALS

A. Submit proposals for purchase of products or systems included in allowances, in the form specified.

1.4 INFORMATIONAL SUBMITTALS

A. Submit invoices or delivery slips to show actual quantities of materials delivered to the site for use in fulfillment of each allowance.

B. Submit time sheets and other documentation to show labor time and cost for installation of allowance items that include installation as part of the allowance.

1.5 COORDINATION

A. Coordinate allowance items with other portions of the Work. Furnish templates as required to coordinate installation.

1.6 CONTINGENCY ALLOWANCES

A. Use the contingency allowance only as directed by City for City's purposes and only by Allowance Payment Records that indicate amounts to be charged to the allowance.

B. Allowance includes cost of materials, delivery, receiving, handling, installation, warranty, insurance, and Contractor overhead and profit. Contractor's supervision and bond costs are included in the Contract Sum.

C. At Project closeout, credit unused amounts remaining in the contingency allowance to City by Change Order.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF ALLOWANCES

A. Allowance No. 1, noted as Item No. 4 of the SoV: Masonry - For the purpose to provide Patching, Repair, and/or Restoration of existing masonry walls as needed. Include a lump sum contingency allowance of $ ***28,000.00***.

B. Allowance No. 2, noted as Item 22 of the SoV: For unforeseen conditions associated with the architectural plans and specifications or existing building conditions, as directed by City and / or Architect. Include a lump sum contingency allowance of $ ***175,000.00***.

END OF SECTION 01 21 00

SECTION 01 29 76

PROGRESS PAYMENT PROCEDURES

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Administrative and procedural requirements governing Contractor's applications for payment.

B. Related Sections:

1. Section 01 26 10: Construction Document Modification Procedures
2. Section 01 77 00: Closeout Procedures
3. Section 01 78 39: Project Record Documents

C. Related Requirements:

1. Refer to Division 00 Documents, including General Conditions, for requirements related to Contractor's Construction Schedule, Submittal Schedule, and Progress Payments Procedures.

1.02 SCHEDULE OF VALUES

A. Coordinate preparation of Schedule of Values with preparation of Contractor's construction schedule.

1. Correlate line items in Schedule of Values with other required administrative schedules and forms, including:

a. Contractor's Construction Schedule.
b. Application for Payment form.
c. List of Subcontractors.
d. Schedule of Alternates.
e. List of products.
f. List of principal suppliers and fabricators.
g. Schedule of Submittals.

2. Submit Schedule of Values to Architect at earliest feasible date, but in no case later than fourteen days before date scheduled for submittal of initial application for payment.
3. Sub-Schedules: Where Work is separated into phases that require separately phased payments, provide sub-schedules showing values correlated with each phase of payment.

B. Format and Content:

1. Include following project identification on Schedule of Values:

    a. Project name and location.
    b. Name of Architect.
    c. Project number.
    d. Contractor's name and address.
    e. Date of submittal.

2. Arrange Schedule of Values in tabular form with separate columns to indicate following for each item listed:

    a. Generic name.
    b. Related specification section.
    c. Name of subcontractor.
    d. Name of manufacturer or fabricator.
    e. Name of supplier.
    f. Change Orders (numbers) that have affected value.
    g. Dollar value.
    h. Percentage of Contract sum to nearest one-hundredth percent, adjusted to total 100 percent.

3. Provide breakdown of Contract Sum in sufficient detail to facilitate continued evaluation of applications for payment and progress reports.

    a. Break principal subcontract amounts down into several line items.

4. Round amounts off to nearest whole dollar, with total equal to Contract Sum.
5. For each part of Work where application for payment may include materials or equipment, purchased or fabricated and stored, but not yet installed, provide separate line items on Schedule of Values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of Work.
6. Margins of Cost:

    a. Show line items for indirect costs, and margins on actual costs, only to extent that such items will be listed individually in applications for payment.
    b. Complete each item in Schedule of Values and applications for payment including its total cost and proportionate share of general overhead and profit margin.
    c. At Contractor's option, temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown as separate line items in Schedule of Values or distributed as general overhead expense.

7. Schedule Updating:

    a. Update and resubmit Schedule of Values when Change Orders or Construction Change Directives result in change in Contract Sum.
    b. Submit along with updated construction schedule prior to monthly progress payment submittal

1.03 APPLICATIONS FOR PAYMENT

A. Ensure that each application for payment is consistent with previous applications and payments as certified by Architect and paid for by Owner.

1. Initial application for payment, application for payment at time of Substantial Completion, and final application for payment involve additional requirements.

B. Payment Application Times:

1. Date for each progress payment is 5th day of each month.
2. Period of construction Work covered by each application for payment is period ending fifteen days prior to date for each progress payment and starting day following end of preceding period.

C. Payment Application Forms:

1. Use *AIA Document G702 –Application and Certification For Payment* as form for application for payment or approved equal.

D. Application Preparation:

1. Complete every entry on form, including notarization and execution by person authorized to sign legal documents on behalf of Owner.

a. Incomplete applications will be returned without action.

2. Ensure entries match data on Schedule of Values and Contractor's construction schedule.

a. Use updated schedules when revisions have been made.

3. Include amounts of approved Change Orders issued prior to last day of construction period covered by application.

E. Transmittal:

1. Submit five executed copies of each application for payment to Architect by means ensuring receipt within twenty-four hours.

a. Transmit one completed copy, including waivers of lien and similar attachments, when required.
b. Transmit each copy with transmittal form listing attachments, and recording appropriate information related to application in manner acceptable to Architect.

F. Waivers of Mechanics Lien:

1. When requested by Architect or Owner, with each application for payment, submit waivers of mechanics lien from every entity who may lawfully be entitled

to file mechanics lien arising out of Contract, and related to Work covered by payment.

G. Initial Application for Payment:

1. Administrative actions and submittals that must precede or coincide with submittal of first application for payment include following:

    a. List of subcontractors.
    b. List of principal suppliers and fabricators.
    c. Schedule of Values.
    d. Contractor's Construction Schedule (preliminary if not final).
    e. Submittal Schedule (preliminary if not final).
    f. Certificates of insurance and insurance policies.
    g. Performance and Payment Bonds

H. Application for Payment at Substantial Completion:

1. Following issuance of Certificate of Substantial Completion, submit application for payment.
2. Submit Application reflecting Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of Work.

I. Administrative actions and submittals that precede or coincide with application include:

1. Occupancy permits and similar approvals.
2. Warranties/guarantees and maintenance agreements.
3. Test/adjust/balance records.
4. Maintenance instructions.
5. Meter readings.
6. Start-up performance reports.
7. Changeover information related to Owner's occupancy, use, operation and maintenance.
8. Final cleaning.
9. Application for reduction of retainage, and consent of surety.
10. Advice on shifting insurance coverage.
11. Record Drawings and Specifications.
12. Final progress photographs.
13. List of incomplete Work, recognized as exceptions to Architect’s Certificate of Substantial Completion.

J. Final Payment Application:

1. Administrative actions and submittals that must precede or coincide with submittal of final payment application for payment include following:

    a. Completion of project closeout requirements.
    b. Completion of items specified for completion after Substantial Completion.
    c. Assurance that unsettled claims will be settled.

d. Assurance that Work not complete and accepted will be completed without undue delay.
e. Transmittal of required project construction records to Owner.
f. Proof that taxes, fees and similar obligations have been paid.
g. Removal of temporary facilities, controls, and services.
h. Removal of surplus materials, rubbish and similar elements.
i. Change of door locks to Owner's access.

PART 2 PRODUCTS *(Not Applicable)*

PART 3 EXECUTION *(Not Applicable)*

END OF SECTION 01 29 76

SECTION 01 31 13
PROJECT COORDINATION

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Administrative and supervisory requirements necessary for Project coordination including, but not necessarily limited to:

    a. Coordination.
    b. Administrative and supervisory personnel.
    c. General installation provisions.
    d. Cleaning and protection.

B. Related Sections:

1. Section 01 33 00: Submittal Procedures; product and material submittals.
2. Section 01 74 23: Cleaning; general project cleaning

C. Related Requirements:

1. Refer to Division 00 Documents, including General Conditions, for requirements related to Contractor's Construction Schedule and Submittal Schedule.

1.02 COORDINATION

A. Coordination:

1. Coordinate construction activities included under various Sections of these Specifications to assure efficient and orderly installation of each part of Work.

B. Coordinate construction operations included under different Sections of Specifications that are dependent upon each other for proper installation, connection, and operation.

1. Where installation of one part of Work is dependent on installation of other components, either before or after its own installation, schedule construction activities in sequence required to obtain best results.
2. Where availability of space is limited, coordinate installation of different components to assure maximum accessibility for required maintenance, service and repair.
3. Make adequate provisions to accommodate items scheduled for later installation.

C. Where necessary, prepare memoranda for distribution to each party involved outlining special procedures required for coordination.

1. Include such items as required notices, reports, and attendance at meetings.
2. Prepare similar memoranda for Owner and separate Contractors where coordination of their Work is required.

D. Administrative Procedures:

1. Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and ensure orderly progress of Work.
2. Such administrative activities include, but are not necessarily limited to, following:

a. Preparation of schedules.
b. Installation and removal of temporary facilities.
c. Delivery and processing of submittals.
d. Progress meetings.
e. Project Close-out activities.

E. Conservation:

1. Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water and materials.
2. Salvage materials and equipment involved in performance of, but not actually incorporated in, Work.
3. Refer to other sections for disposition of salvaged materials that are designated as Owner’s property.

1.03 SUBMITTALS

A. Staff Names:

1. Within fifteen days of Notice to Proceed, submit list of Contractor's principal staff assignments, including Superintendent and other personnel in attendance at Project Site
2. Identify individuals, their duties and responsibilities

a. List their addresses and telephone numbers.

3. Post copies of list in Project meeting room, temporary field office and each temporary telephone.

PART 2 PRODUCTS *(Not Applicable)*

PART 3 EXECUTION

3.01 GENERAL INSTALLATION PROVISIONS

A. Inspection of Conditions:

1. Require installer of each major component to inspect both substrate and conditions under which Work is to be performed.
2. Do not proceed until unsatisfactory conditions have been corrected in an acceptable manner.

B. Manufacturer's Instructions:

1. Comply with manufacturer's installation instructions and recommendations, to extent that those instructions and recommendations are more explicit or stringent than requirements contained in Contract Documents.

C. Inspect materials or equipment immediately upon delivery and again prior to installation.

1. Reject damaged and defective items.

D. Provide attachment and connection devices and methods necessary for securing Work.

1. Secure Work true to line and level.
2. Allow for expansion and building movement.

E. Visual Effects:

1. Provide uniform joint widths in exposed Work.
2. Arrange joints in exposed Work to obtain best visual effect.
3. Refer questionable choices to Architect for final decision.

F. Recheck measurements and dimensions before starting each installation.

G. Install each component during weather conditions and Project status that will ensure best possible results.

1. Isolate each part of completed construction from incompatible material as necessary to prevent deterioration.

H. Coordinate temporary enclosures with required inspections and tests, to minimize necessity of uncovering completed construction for that purpose.

I. Mounting Heights:

1. Where mounting heights are not indicated, install individual components at standard mounting heights recognized within industry for particular application indicated.
2. Comply with requirements of Chapter 11B of CBC for accessible mounting heights of toilet accessories and like items.
3. Refer questionable mounting height decisions to Architect for final decision.

3.02 CLEANING AND PROTECTION

A. Comply with requirements of Section 01 74 23.

B. During handling and installation, clean and protect construction in progress and adjoining materials in place.

1. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

C. Clean and maintain completed construction as frequently as necessary through remainder of construction period.

1. Adjust and lubricate operable components to ensure operability without damaging effects.

D. Limiting Exposures:

1. Supervise construction activities to ensure that no part of construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during construction period.

END OF SECTION 01 31 13

SECTION 01 31 19
PROJECT MEETINGS

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Administrative and procedural requirements for project meetings including but not limited to:

   a. Pre-Construction Conference
   b. Progress Meetings
   c. Scheduling Conference

B. Related Sections:

1. Section 01 31 13: Project Coordination
2. Section 01 33 00: Submittals

C. Related Requirements:

1. Refer to various Sections for pre-construction and pre-installation meeting requirements
2. Refer to Division 00 Documents, including General Conditions, for requirements related to Contractor's Construction Schedule.
3. Requirements for Contractor’s Construction Schedule are included in Section 01 33 00.

1.02 PRE-CONSTRUCTION CONFERENCE

A. Schedule pre-construction conference and organizational meeting at Project Site or other convenient location no later than 15 days after execution of Agreement and prior to commencement of construction activities.

1. Conduct meeting to review responsibilities and personnel assignments.

B. Attendees:

1. Owner, Architect and their consultants.
2. Contractor and his superintendent.
3. Major subcontractors, manufacturers, suppliers.
4. Other concerned parties.
5. Persons representing each party in attendance must be familiar with and authorized to conclude matters relating to Work.

C. Agenda:

1. Discuss items of significance that could affect progress including such topics as:

a. Tentative construction schedule.
b. Critical Work sequencing.
c. Designation of responsible personnel.
d. Procedures for processing field decisions and Change Orders.
e. Procedures for processing Applications for Payment.
f. Procedures for processing Requests for Information (RFI).
g. Distribution of Contract Documents.
h. Submittal of Shop Drawings, Product Data and Samples.
i. Preparation of Record Documents.
j. Access to Project Site and use of premises.
k. Office, Work and storage areas.
l. Equipment deliveries and priorities.
m. Safety procedures.
n. First aid.
o. Security.
p. Working hours.

1.03 PROGRESS MEETINGS

A. Conduct weekly progress meetings at Project Site.

1. Coordinate dates of meetings with preparation of payment request.

B. Attendees:

1. Representatives of

a. Owner and Architect
b. Representatives of each subcontractor, supplier, or other entity concerned with current progress or involved in planning, coordination, or performance of future activities.
c. Persons representing each party in attendance at these meetings must be familiar with and authorized to conclude matters relating to progress.

C. Agenda:

1. Review and correct or approve minutes of previous progress meeting.
2. Review other items of significance that could affect progress.
3. Include topics for discussion as appropriate to current status of Project.
4. Contractor's Construction Schedule:

a. Review progress since last meeting.
b. Determine where each activity is in relation to Contractor's Construction Schedule, whether on time or ahead or behind schedule.
c. Determine how construction behind schedule will be expedited

1) Secure commitments from parties involved to do so.

d. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within Contract Time.

5. Review present and future needs of each entity present, including such items as:

a. Interface requirements.
b. Time.
c. Sequences
d. Cordination of Work.
e. Deliveries.
f. Off-site fabrication problems.
g. Access.
h. Site utilization.
i. Temporary facilities and services.
j. Hours of Work.
k. Hazards and risks.
l. Housekeeping.
m. Quality and Work standards.
n. Construction progress.
o. Progress Schedule and Submittals.
p. Change Orders.
q. Documentation of information for payment requests.

D. Meeting Records:

1. Recording of minutes of each meeting will be by Contractor.

a. Furnish copies within reasonable time to Owner, Architect, and other attendees.
b. Unless written objections to contents of meeting minutes are received by Contractor within five days of distribution of meeting minutes, it is understood and agreed upon that minutes are true and complete record of meeting.
c. Schedule Updating:

1) Revise construction schedule after each progress meeting where revisions to schedule have been made or recognized.
2) Issue revised schedule within seven calendar days of meeting.

PART 2 PRODUCTS(Not Applicable)

PART 3 EXECUTION (Not Applicable)

END OF SECTION 01 31 19

SECTION 01 33 00

SUBMITTAL PROCEDURES

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Procedural requirements for non-administrative submittals for work-related submittals required for performance of Work and by Contract Documents, including, but not necessarily limited to:

a. Submittal Schedule.
b. Product Data.
c. Shop Drawings.
d. Samples
e. Verified Reports

B. Related Sections:

1. Section 01 31 13: Project Coordination
2. Section 01 41 00: Regulatory Requirements; submittals to regulatory agencies.
3. Section 01 42 00: References; submittals to regulatory agencies.
4. Section 01 45 00: Quality Control: inspection and testing submittals
5. Section 01 60 00: Products Requirements; request for substitution submittals.

C. Related Requirements:

1. Refer to Division 00 Documents, including General Conditions, and other Division 01 Sections, for specifications for administrative submittals and additional requirements.

a. Administrative Submittals include, but are not necessarily limited to:

1) Permits.
2) Applications for Payment.
3) Performance and Payment Bonds.
4) Insurance Certificates.
5) Inspection and Test Reports.
6) Schedule of Values.
7) Progress Schedule.
8) Listing or designation of subcontractors.
9) Record Drawings.
10) Commissioning Requirements

2. Refer to Division 02 through 33 Sections where more specific Submittal Requirements are indicated

D. Substitutions:

1. Contractor's submittal and Architect's acceptance of Product Data, Shop Drawings, or Samples that relate to construction activities not complying with Contract Documents does not constitute acceptable or valid request for substitution, nor does it constitute approval.
2. Product Data, Shop Drawing and Sample Submittals containing substitutions for specified items will be rejected and returned as not in compliance with Contract Documents.
3. Refer to Section 01 60 00 for required procedures for submitting substitution requests.

E. Commissioning Milestone Reports:

1. Reports by parties that participate in design review, product submittal review, installation, start-up, test and balance, training, and closeout phases.
2. Coordinate submittals of documentation pertaining to these functions and communicate with Commissioning Authority via Contractor.

1.02 SUBMITTAL PROCEDURES AND REQUIREMENTS

A. Coordination:

1. Coordinate preparation and processing of submittals with performance of construction activities.
2. Designate in Progress Schedule, or in separate coordinated schedule, dates for submission and dates reviewed shop drawings, product data and samples will be needed for each product.

a. Identify items requiring long lead times.

1) Make submittals for such items as soon as possible, but not later than fifteen days after Notice of Award of Contract.

B. Timing of Submittals:

1. Make submittals promptly in accordance with approved schedule, sufficiently in advance of performance of related construction activities, and in such sequence as to not cause delay in Work or in Work of other contractors.
2. Schedule submissions at least 21 working days before dates reviewed submittals will be needed.

C. Number of Submittals Required:

1. Number stated in each specification section, or as follows:

a. Product Data and Shop Drawings:

1) One electronic copy as specified under “Electronic Submittals”.

b. Samples:

1) Number stated in each specification section or, when not stated, minimum of four.

c. Warranties, Maintenance Agreements, Industry Standards, and Operation/Maintenance Manuals:

1) Two copies.

D. Submittal Preparation:

1. Place permanent label or title block on each submittal for identification.
2. Indicate name of entity that prepared each submittal on label or title block.
3. Include following information on label for processing and recording action taken:

a. Project name.
b. Date.
c. Submittal reference number assigned by Contractor; this number should not be specification section number.
d. Specification section number to which submittal applies.

1) Do not reference drawing/detail numbers unless accompanied by specification section number.

4. Accompany submittals with transmittal form containing:

a. Date.
b. Project title and number.
c. Name and addresss of:

1) Architect.
2) Contractor.
3) Subcontractor.
4) Supplier
5) Manufacturer.
6) Separate detailer, when pertinent.

d. Number of each shop drawing, product data and sample submitted.
e. Notification of deviations from Contract Documents.
f. Other pertinent data.
g. Interactive Submittal Transmittal Form will be provided to Contractor at Pre-Construction Meeting.

E. Include following on Submittals:

1. Data and revision dates:
2. Project title and number.
3. Identification of product or material.
4. Relation to adjacent structure or materials.
5. Field dimensions, clearly identified as such.

6. Specification section number.
7. Applicable standards, such as ASTM number or Federal Specification.
8. Blank space, 8 inches x 3 inches, for Contractor and Architect stamps.
9. Identification of deviations from Contract Documents.
10. Contractor's stamp, initialed or signed, certifying review of submittal, verification of field measurements, and compliance with Contract Documents.

    a. Submittals without Contractor's stamp and signature will be returned by Architect without review.

F. Processing:

1. Allow sufficient review time so that installation will not be delayed as result of time required to process submittals, including time for resubmittals.
2. Allow minimum of 21 days from date of receipt of complete submittal for Architect's initial review and return of submittals.
3. Allow additional time if processing must be delayed to permit coordination with subsequent submittals.
4. Architect reserves right to withhold action on submittal requiring coordination with other submittals until related submittals are received.
5. Architect will promptly advise Contractor when submittal being processed must be delayed for coordination.
6. No extension of Contract Time will be authorized because of failure to transmit submittals to Architect sufficiently in advance of Work to permit processing.

G. Electronic Submittals:

1. Make electronic submittals consisting of one color PDF of each document, Product Data Sheet, or Shop Drawing.
2. Should full size hard copies of Submittals be required by Owner, Contractor, or Consultant, Architect will provide one marked-up color copy of PDF to Owner, Contractor, or Consultant for their use in printing additional copies.
3. Architect will review and return marked-up PDFs to Contractor.
4. Mark-up one copy of each PDF and maintain as "Record Document".

H. Material Safety Data Sheets/Safety Data Sheets (MSDS/SDS):

1. Do not include MSDS/SDS in submittals to Architect.

    a. MSDS/SDS sheets will not be reviewed by Architect and will not be returned.

1.03 PRODUCT DATA

A. Collect Product Data into single submittal for each element of construction or system.

B. Product Data includes standard printed information on manufactured products that has not been specially prepared for this Project, including, but not necessarily limited to following items:

1. Manufacturer's product specifications and installation instructions.
2. Catalog cuts.
3. Standard color charts.
4. Roughing-in diagrams and templates.
5. Standard wiring diagrams.
6. Printed performance curves.
7. Operational range diagrams.
8. Mill reports.
9. Standard product operating and maintenance manuals.

C. Modify standard data sheets and drawings to delete information which is not applicable to Project.

1. Where Product Data must be specially prepared because standard printed data is not suitable for use, submit as shop drawings.

a. Mark each copy to show applicable choices and options.
b. Where printed Product Data includes information on several products, some of which are not required, mark copies to indicate applicable information.
c. Include following information:

1) Manufacturer's printed recommendations.
2) Compliance with recognized trade association standards.
3) Compliance with recognized testing agency standards.
4) Application of testing agency labels and seals.
5) Notation of dimensions and clearances required and as verified by Field measurement.
6) Notation of coordination requirements.

D. Supplement standard information to provide additional information specifically applicable to Project:

1. Clearly mark each copy to show applicable choices and options and identify pertinent materials, products, or models.
2. Show dimensions and clearances required.
3. Show performance characteristics and capacities.
4. Show wiring or piping diagrams and controls.

E. Do not submit Product Data until compliance with requirements of Contract Documents has been confirmed.

1. Unless noncompliance with Contract Document provisions is observed, submittal may serve as final submittal.

F. Submittals:

1. Make electronic submittals as specified in "General Submittal Procedures and Requirements" Article.

G. Distribution:

1. Furnish copies of final submittal to installers, subcontractors, suppliers, manufacturers, fabricators, and others required for performance of construction activities.

    a. Show distribution on transmittal forms.

2. Do not proceed with installation until applicable copy of Product Data is in installer's possession.

H. Do not permit use of unmarked copies of Product Data in connection with construction.

1.04 SHOP DRAWINGS

A. Shop drawings are technical drawings and data that have been specially prepared for Project, including but not necessarily limited to following items:

1. Prepared information, drawn to accurate scale.
2. Fabrication and installation drawings.
3. Shopwork manufacturing instructions.
4. Setting diagrams.
5. Templates.
6. Patterns.
7. Coordination drawings (for use on Project Site).
8. Schedules.
9. Design mix formulas.
10. Contractor's engineering calculations.

B. Include following information:

1. Dimensions.
2. Identification of products and materials included.
3. Compliance with specified standards.
4. Notation of coordination requirements.
5. Notation of dimensions established by field measurement.
6. Sheet Size:

    a. Except for templates, patterns and similar full-size Drawings, submit Shop Drawings on sheets at least 8-1/2 inch by 11 inch but no larger than 30 inch by 42 inch.

C. Highlight, encircle, or otherwise indicate deviations from Contract Documents.

D. Standard information prepared without specific reference to Project is not considered Shop Drawings.

E. Submittals:

1. Make electronic submittals as specified in "General Submittal Procedures" Article.

F. Do not use Shop Drawings without appropriate final stamp indicating action taken in connection with construction.

G. Do not reproduce Contract Documents or copy standard information as basis of Shop Drawings.

1.05 SAMPLES

A. Samples are physical examples of Work, including, but not limited to, following items:

1. Partial sections of manufactured or fabricated work
2. Small cuts or containers of materials.
3. Complete units of repetitively- used materials.
4. Swatches showing color, texture and pattern.
5. Color Range Sets.
6. Units of Work to be used for independent inspection and testing.

B. Office Samples:

1. Sufficient size and quantity to clearly illustrate:

a. Functional characteristics of product or material, with integrally related parts and attachment devices.
b. Full range of color, texture and pattern.

2. Where size and quantity are not specified, provide minimum of four samples, 12 inches by 12 inches, minimum size, where samples are required

C. Field Samples and Mock-Ups:

1. Erect at Project Site in location acceptable to Architect.
2. Construct each sample or mock-up complete, including Work of trades required in finished Work.
3. Size of area as specified in respective specification section.
4. Remove mock-ups at conclusion of Work or when acceptable to Architect.

1.06 VERIFIED REPORTS

A. Submit Verified Reports to Division of State Architect (DSA). Comply with California Code of Regulations,Title 24, Part 1, Sections 4-336 and 4-343.

1.07 MISCELLANEOUS SUBMITTALS – WORK RELATED

A. Including, but not necessarily limited to, following types of submittals:

1. Specially prepared warranties/guarantees.
2. Standard printed warranties.
3. Maintenance agreements.

4. Printed industry standards.
5. Collected and bound operating/maintenance manuals.
6. Keying schedule, keys, and other security protection safety devices.
7. Maintenance tools and spare parts.

1.08 CONTRACTOR RESPONSIBILITIES

A. As defined in Division 00 General Conditions and following:.

1. Review shops drawings, product data and samples prior to submission to Architect.
2. Determine and Verify:

    a. Field measurements.
    b. Field construction criteria.
    c. Catalog numbers and similar data.
    d. Conformance with specifications.

3. Coordinate each submittal with requirements of Work and of Contract documents.
4. Notify Architect in writing, at time of submission, of deviations in submittals from requirements of Contract Documents
5. Do not begin fabrication of Work that requires submittals until return of submittals with Architect approval.

1.09 RESUBMITTAL REQUIREMENTS

A. Shop Drawings:

1. Revise initial drawings as required and resubmit as specified for initial submittal.
2. Indicate on drawings changes that have been made other than those requested by Architect.

B. Product Data and Samples:

1. New data and samples, same as required for initial submittal.

1.10 DISTRIBUTION OF SUBMITTALS AFTER REVIEW

A. Distribute reproductions of Shop Drawings and copies of Product Data which carry Architect/Engineer stamp to:

1. Project Site file.
2. Record Documents file.
3. Other affected contractors.
4. Subcontractors.
5. Supplier or Fabricator.
6. Owner's Project Inspector.

B. Distribute samples that carry Architect's review stamps as directed by Architect.

1.11 ARCHITECT'S ACTION

A. Except for submittals for record, information or similar purposes, where action and return is required or requested, Architect will review each submittal, mark to indicate action taken, and return promptly.

1. Compliance with specified characteristics is Contractor's responsibility.

B. Action Stamp:

1. Architect will stamp each submittal with uniform, self-explanatory action stamp.
2. Stamp will be appropriately marked, as follows, to indicate action taken:

a. Final Unrestricted Release:

1) Where submittals are marked "No Exception Taken", that part of Work covered by submittal may proceed provided it complies with requirements of the Contract Documents; final acceptance will depend upon that compliance.

b. Final-But-Restricted Release:

1) When submittals are marked "Make Correction Noted", that part of Work covered by submittal may proceed provided it complies with notations or corrections on submittal and requirements of Contract Documents.
2) Final acceptance will depend on that compliance.

c. Returned for Re-submittal:

1) When submittal is marked "Revise and Resubmit", do not proceed with that part of Work covered by submittal, including purchasing, fabrication, delivery, or other activity.
2) Revise or prepare new submittal in accordance with notations.
3) Resubmit without delay.
4) Repeat if necessary to obtain different action mark.
5) Do not permit submittals marked "Rejected" or "Revise and Resubmit" to be used at Project Site, or elsewhere where Work is in progress.

d. Other Action:

1) Where submittal is primarily for information or record purposes, special processing or other activity, submittal will be returned, marked "Action Not Required".

PART 2 PRODUCTS *(Not Applicable)*

PART 3 EXECUTION *(Not Applicable)*

END OF SECTION 01 33 00

SECTION 01 41 00
REGULATORY REQUIREMENTS

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. General regulatory requirements pertaining to Work supplementary to other regulatory requirements mentioned or referenced elsewhere in Contract Documents.

1.02 REQUIREMENTS OF REGULATORY AGENCIES

A. Pertaining statutes, ordinances, laws, rules, codes, regulations, standards, and lawful orders of public authorities having jurisdiction of Work are incorporated into these Contract Documents same as if repeated in full, and as such are intended where reference is made in either singular or plural to Code or Building Code unless otherwise specified including, without limitation, those in list below.

1. Make available at Project Site such copies of listed documents applicable to Work as Architect or Owner may request including mentioned portions of California Code of Regulations (CCR).

B. Project is fully governed under State of California's Codes Section Group 1, Chapter 4, Part 1, CCR, Title 24, as it pertains to construction:

1. Inspector and Continuous Inspections of Work:

a. Per Sections 4-333(b) and 4-342.

2. Tests and Testing Laboratory:

a. Per Section 4-335.
b. Owner pays for testing laboratory.

3. Special Inspections:

a. Per Section 4-333(c).

4. Verified Reports:

a. Submit per Sections 4-336 and 4-343(c).

5. Administration:

a. Duties of Architect and Engineers:

1) Per Sections 4-333(a) and 4-341.

b. Duties of Contractor:

1) Per Section 4-343.

c. Verified Reports:

1) Per Section 4-336.

6. Arrange for copies of CCR, Title 24, Part 1, Part 2 Volumes 1 and 2, Part 3, and Part 9, to be made available during construction.

C. Public regulatory requirements: Statutes, ordinances, laws, rules, codes, regulations, and standards include, but are not necessarily limited to, following:

1. California Code of Regulations (CCR):

a. Title 19 - Public Safety, current edition.
b. Title 24, Part 1 – 2019 California Administrative Code
c. Title 24, Part 2 – 2019 California Building Code (CBC), Volumes 1 and 2.
d. Title 24, Part 3 – 2019 California Electrical Code (CEC).
e. Title 24, Part 4 – 2019 California Mechanical Code (CMC)
f. Title 24, Part 5 – 2019 California Plumbing Code (CPC).
g. Title 24, Part 6 – 2019 California Energy Code
h. Title 24, Part 9 – 2019 California Fire Code (CFC).
i. Title 24, Part 10 – 2019 California Existing Building Code (CEBC):

1) Includes Part 12:

a) Part 12 – California Referenced Standards Code (CRSC)

j. Title 24, Part 11 – 2019 California Green Building Standards Code (GBSC)

2. Other statutes, ordinances, laws, regulations, rules, orders, and codes specified in other Sections of Specifications or bearing on Work.

1.03 GOVERNING REGULATIONS/AUTHORITIES

A. Architect has contacted authorities having jurisdiction where necessary to obtain information necessary for preparation of Contract Documents

1. Information may or may not be of significance to Contractor.
2. Owner and Architect, at request of Contractor, are to contact authorities having jurisdiction directly for information and decisions having bearing on Work.

1.04 SUBMITTALS

A. Permits, Licenses, and Certificates:

1. Submit for Owner's records, copies of following, including but not necessarily limited to:
2. Permits
3. Licenses
4. Certifications
5. Inspection reports
6. Releases
7. Jurisdictional settlements
8. Notices
9. Receipts for fee payments
10. Judgments, and similar documents
11. Correspondence, and records established in conjunction with compliance with standards and regulations bearing upon performance of Work.

PART 2 PRODUCTS *(Not Applicable)*

PART 3 EXECUTION *(Not Applicable)*

END OF SECTION 01 41 00

SECTION 01 42 00
REFERENCES

PART 1 GENERAL

1.01 DEFINITIONS

A. Basic contract definitions are included in Division 00 General Conditions.

B. Indicated:

1. Refers to graphic representations, notes or schedules on Drawings, or other paragraphs or schedules in Specifications, and similar requirements in Contract Documents.
2. Where terms such as “shown”, ”noted”, “scheduled”, and “specified” are used, it is to help locate the reference

    a. No limitation of location is intended except as specifically noted.

C. Directed:

1. Terms such as “directed”, “requested”, “authorized,” “selected”, “approved”, “required”, and “permitted” mean “directed by Architect”, “requested by Architect”, and similar phrases.
2. No implied meaning is to be interpreted to extend Architect’s responsibility into Contractor’s area of construction supervision.

D. Approved:

1. Where used in conjunction with Architect’s action on Contractor‘s submittals, applications, and requests, is limited to Architect’s duties and responsibilities as stated in General Conditions.

E. Regulations:

1. Includes laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, as well as rules, conventions, and agreements within construction industry that control performance of Work.

F. Furnish:

1. Means supply and deliver to Project Site, ready for unloading, unpacking, assembly, installation, and similar operations.

G. Install:

1. Describes operations at Project Site including actual unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimensions, finishing, curing, protecting, cleaning, and similar operations.

H. Provide:

1. Means furnish and install, complete and ready for intended use.

I. Installer:

1. Contractor or entity engaged by Contractor, either as employee, subcontractor, or sub-subcontractor, for performance of particular construction activity, including installation, erection, application, and similar operations.
2. Installers are required to be experienced in operations they are engaged to perform.

J. Project Site:

1. Space available to Contractor for performance of construction activities, either exclusively or in conjunction with others performing other construction activities as part of Project.
2. Extent of Project Site is shown on Drawings and may or may not be identical with description of land upon which Project is to be built.

K. Testing Laboratories:

1. Independent entity engaged to perform specific inspections or tests, either at Project Site or elsewhere, and to report on and, when required, to interpret results of those inspections or tests.

1.02 INDUSTRY STANDARDS

A. Applicability of Standards:

1. Except where Contract Documents include more stringent requirements, applicable construction industry standards have same force and effect as if bound or copied directly into Contract Documents.

a. Such standards are made part of Contract Documents by reference.

2. Individual Sections indicate which codes and standards Contractor must make available at Project Site for reference.

B. Publication Dates:

1. Comply with standard in effect as of date of Contract Documents.

C. Copies of Standards:

1. Each entity engaged in construction on Project is required to be familiar with industry standards.
2. Applicable standards are not bound with Contract Documents.
3. Where copies of standards are required by individual specification sections or are needed for performance of required construction activity, obtain copies directly from publication source.

D. Conflicting Requirements:

1. Where compliance with two or more standards is specified, and standards establish different or conflicting requirements for minimum quantities or quality levels, refer requirements that are different, but apparently equal, and uncertainties to Architect for decision before proceeding.

1.03 GOVERNING REGULATIONS/AUTHORITIES

A. Architect has contacted authorities having jurisdiction where necessary to obtain information necessary for preparation of Contract Documents

1. That information may or may not be of significance to Contractor.
2. Owner and Architect, at request of Contractor, are to contact authorities having jurisdiction directly for information and decisions having bearing on Work.

PART 2 PRODUCTS *(Not Applicable)*

PART 3 EXECUTION *(Not Applicable)*

END OF SECTION 01 42 00

SECTION 01 50 00
TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Temporary facilities required for this Work include, but are not necessarily limited to:

a. Temporary utilities such as heat, water, electricity, and telephone.
b. Field offices and sheds
c. Sanitary facilities.
d. Construction aids.
e. Barriers.
f. Temporary controls.
g. Project identification sign.
h. Temporary informational signs.

B. Related Sections:

1. Section 02 41 19: Selective Building Demolition

C. Related Requirements:

1. Refer to Division 00 Documents, including General Conditions, and other Division 01 Sections, for additional requirements.
2. Refer to Division 32 Sections for additional traffic control requirements.
3. Permanent installation and hook-up of various utility lines are described in other pertinent sections.
4. Comply with requirements of pertinent safety regulations for equipment furnished by subcontractors.

D. Work Not Part of This Section:

1. Ladders, planks, hoists, and similar items normally furnished by individual trades in execution of their own portions of Work.

1.02 **PROJECT CONDITIONS**

A. Use means necessary to maintain temporary facilities in proper and safe condition throughout progress of Work.

PART 2 PRODUCTS

2.01 UTILITIES

A. Water:

1. Provide necessary temporary water lines and water supply and upon completion of Work, remove such temporary facility.
2. Provide and pay for water needed for construction.

B. Electricity:

1. Provide necessary temporary wiring and upon completion of Work, remove such temporary facility.
2. Provide area distribution boxes so located that individual trades may furnish and use 100 foot maximum length extension cords to obtain adequate power and artificial lighting at points where needed for work, inspection, and safety.
3. Provide and pay for electricity needed for construction.

C. Heating:

1. Provide and maintain heat necessary for proper conduct of operations needed in Work.

D. Telephone:

1. Make necessary arrangements and pay costs for installation and operation of telephone service to Contractor’s office on Project Site and Owner’s Project Inspector’s office on Project Site.
2. Install telephone on separate line for each temporary office.

    a. Where office has more than one occupant, provide telephone for each additional occupant.

3. Coin operated telephones are not acceptable.

2.02 FIELD OFFICES AND SHEDS

A. Contractor’s Facilities:

1. Provide field office building and sheds adequate in size and accommodation for Contractor’s offices, supply, and storage.

B. Owner's Project Inspector's Office:

1. Provide lockable office at least 10 feet by 12 feet in dimension with lockable operable window, serviceable finishes, lighting, heating, and air conditioning, for use by Owner's Project Inspector.

2. Furnish with lockable desk, reference table, lockable 4 drawer file cabinet, plan rack, and two chairs.
3. Subject to Owner's approval, provide space in Contractor's Field Office for Owner's Project Inspector, in lieu of separate office.

C. Provide and maintain on premises, where directed, watertight storage sheds for materials which might be damaged by weather, including storage facilities for concrete test samples or other material samples required for Work.

2.03 SANITARY FACILITIES

A. Sanitary facilities include temporary toilets, wash facilities, and drinking water fixtures.

1. Comply with regulations and health codes for type, number, location, operation, and maintenance of fixtures and facilities.
2. Install where facilities will best serve Project's needs.
3. Provide toilet tissue, paper towels, paper cups, and similar disposable materials for each facility.
4. Provide covered waste containers for used material.

B. Temporary Toilet Units:

1. Provide self-contained, single-occupant toilet units of chemical, aerated recirculation, or combustion type.
2. Provide units properly vented and fully enclosed with a glass-fiber-reinforced polyester shell or similar nonabsorbent material.
3. Provide separate facilities for male and female personnel.
4. Maintain in sanitary condition.

C. Wash Facilities:

1. Install wash facilities supplied with potable water at convenient locations for personnel involved in handling materials that require wash-up for healthy and sanitary condition.
2. Dispose of drainage properly.
3. Supply cleaning compounds appropriate for each condition.
4. Provide safety showers, eyewash fountains , and similar facilities for convenience, safety, and sanitation of personnel.

D. Drinking-Water Facilities:

1. Provide containerized, tap-dispenser, bottled water drinking water units, including paper supply.

2.04 CONSTRUCTION AIDS

A. Provide construction aids and equipment required by personnel and to facilitate execution of Work

1. Scaffolds, staging, ladders, stairs, ramps, runways, platforms, railings, hoists, cranes, chutes, and other such facilities and equipment.

B. Provide necessary facilities and means of access to structure so that Building Inspectors, Special Inspectors, Architect and Structural Engineer may inspect structure or portions of structure as necessary.

1. Means of access includes, but is not necessarily limited to, ladders, scaffolds, and similar items.

2.05 BARRIERS

A. Temporary Fencing:

1. Provide temporary fence around entire construction area as required for safety and protection.
2. Construction:

a. Provide chain link fencing not less than six feet in height, complete with metal or wood posts and required bracing, and with suitably locked truck and pedestrian gates as required.

3. Provide opaque, fabric or plastic windscreen material, full height and run of fencing, including gates.

2.06 TEMPORARY CONTROLS

A. Contractor Responsiblility:

1. Specific safety requirements by governmental authorities, including requirements of latest Occupational Safety and Health Act (OSHA) and Cal/OSHA.

B. Provide and maintain methods, equipment, and temporary construction, as necessary to provide controls over environmental conditions at construction site and related areas under Contractor’s control.

1. Remove physical evidence of temporary facilities at completion of Work.
2. Comply with requirements of authorities having jurisdiction.

C. Dust Control:

1. Provide positive methods and apply dust control materials to minimize raising dust from construction operations, and provide positive means to prevent airborne dust from dispersing into atmosphere.

D. Water Control:

1. Provide methods to control surface water to prevent damage to Project, Site, or adjoining properties.

2. Control fill, grading and ditching to direct surface drainage away from excavations, pits, tunnels and other construction areas and to direct drainage to proper runoff.
3. Provide, operate and maintain hydraulic equipment of adequate capacity to control surface water.
4. Dispose of drainage water in manner to prevent flooding, erosion, or other damage to Project Site or to adjoining areas.
5. Comply with requirements specified in Section 01 57 13.

E. Debris Control:

1. Maintain areas under Contractor's control free of extraneous debris.
2. Prevent accumulation of debris at construction site, storage and parking areas, or along access roads.
3. Provide containers for deposit of debris as specified in Section 01 74 19.

F. Pollution Control:

1. Provide methods, means and facilities required to prevent contamination of soil, water and atmosphere by discharge of noxious substances from construction operations.
2. Provide equipment and personnel to perform emergency measures required to contain spillage, and to remove contaminated soils and liquids.
3. Take special measures to prevent harmful substances from entering public waters.

    a. Prevent disposal of wastes, effluents, chemicals, and other such substances in sanitary or storm sewers.

G. Temporary Fire Protection:

1. Install and maintain temporary fire protection facilities of types needed to protect against reasonably predictable and controllable fire losses.
2. Comply with NFPA 241 .
3. Prohibit smoking in construction areas.
4. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to requirements of authorities having jurisdiction.
5. Develop and supervise overall fire prevention and protection program for personnel at Project Site.

    a. Review needs with local fire department and establish procedures to be followed.
    b. Instruct personnel in methods and procedures.
    c. Post warnings and information.

2.07 PROJECT IDENTIFICATION SIGN

A. Provide one painted sign, of not less than 32 sq. ft. area, with painted graphic content to include:

1. Title of Project.
2. Name of Owner.
3. Names and Titles of:
4. Architect.
5. Professional Consultants.
6. Prime Contractor.
7. Graphic Design, Style of Lettering, and Colors:

    a. As designated by Architect.

8. Erect on Project Site at lighted location of high public visibility, adjacent to main entrance to Project Site, as approved by Architect.

    a. Support on posts or framing of preservative treated wood or steel.

2.08 TEMPORARY INFORMATIONAL SIGNS

A. Provide temporary informational signs as follows:

1. As required by codes, laws and regulatory agencies and to:

    a. Inform public and persons seeking entrance to Project.
    b. Identify key elements of construction facilities.
    c. Direct traffic.

B. Prepare temporary signs of sizes indicated.

1. Erect on Project Site as approved by Architect.
2. Support on posts or framing of preservative treated wood or steel.
3. Do not permit installation of unauthorized signs..

2.09 OWNERSHIP OF TEMPORARY FACILITIES AND CONTROLS

A. Items provided by Contractor under this Section remain property of Contractor

1. Remove such items from job site immediately upon completion of Work..

PART 3 EXECUTION

3.01 MAINTENANCE AND REMOVAL

A. Maintain temporary facilities as long as needed for safe and proper completion of Work.

B. Remove such temporary facilities as rapidly as progress of Work will permit, or as directed by Architect.

END OF SECTION 01 50 00

SECTION 01 60 00
PRODUCT
REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; and “or equal” products.

B. Related Requirements:

1. Section 01 42 00 "References" for applicable industry standards for products specified.

1.3 DEFINITIONS

A. Products: Items obtained for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.

1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature that is current as of date of the Contract Documents.
2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.
3. “or equal” Product: Product that is demonstrated and approved through the substitution request process to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.

B. Basis-of-Design Product Specification: A specification in which a specific manufacturer's product is named and accompanied by the words "basis-of-design

product," including make or model number or other designation. In addition to the basis-of-design product description, product attributes and characteristics may be listed to establish significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating “or equal” products of additional manufacturers.

1.4 QUALITY ASSURANCE

A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, select product compatible with products previously selected, even if previously selected products were also options.

B. Identification of Products: Except for required labels and operating data, do not attach or imprint manufacturer or product names or trademarks on exposed surfaces of products or equipment that will be exposed to view in occupied spaces or on the exterior.

1.5 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.

B. Delivery and Handling:

1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
4. Inspect products on delivery to determine compliance with the Contract Documents and to determine that products are undamaged and properly protected.

C. Storage:

1. Store products to allow for inspection and measurement of quantity or counting of units.
2. Store materials in a manner that will not endanger Project structure.
3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
4. Protect foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
5. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
6. Protect stored products from damage and liquids from freezing.

1.6 PRODUCT WARRANTIES

A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

1. Manufacturer's Warranty: Written warranty furnished by individual manufacturer for a particular product and specifically endorsed by manufacturer to District.
2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for District.

B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.

1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
2. Specified Form: When specified forms are included with the Specifications, prepare a written document using indicated form properly executed.
3. See other Sections for specific content requirements and particular requirements for submitting special warranties.

C. Submittal Time: Comply with requirements in Section 01 77 00 "Closeout Procedures."

PART 2 - PRODUCTS

2.1 PRODUCTS NOT ALLOWED

A. Do not provide products that contain asbestos, lead, or coal tar.

2.2 PRODUCT SELECTION PROCEDURES

A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.

1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
3. District reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
4. Where products are accompanied by the term "as selected," Architect will make selection.
5. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.
6. For products specified by name and accompanied by the term "or equal," comply with requirements of Section 01 25 00 “Substitution Procedures” to obtain

approval for use of an unnamed product.

B. Product Selection Procedures:

1. Where Specifications name a single manufacture's product and indicate "no substitution", provide the named product that complies with requirements. "or equal" products (substitutions) will not be considered.
2. Where Specifications name a single manufacturer or source and indicate "no substitution", provide a product by the named manufacturer or source that complies with requirements. "or equal" products (substitutions) will not be considered.
3. Where Specifications include a list of names of both manufacturers and products, provide one of the products listed that complies with requirements. "or equal" products (substitutions) will be considered.
4. Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements. "or equal" products (substitutions) will be considered unless expressly specified otherwise.
5. Basis-of-Design Product: Where Specifications name a product as the basis-of-design product, or refer to a product indicated on Drawings as the basis-of-design product, provide the specified or indicated product. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. "or equal" products (substitutions) will be considered.

C. Visual Matching Specification: Where Specifications require "match Architect's sample", provide a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.

1. If no product available within specified category matches and complies with other specified requirements, comply with requirements in Section 01 25 00 "Substitution Procedures" for proposal of product.

D. Visual Selection Specification: Where Specifications include the phrase "as selected by Architect from manufacturer's full range" or similar phrase, select a product that complies with requirements. Architect will select features such as color, gloss, pattern, density, texture from manufacturer's product line.

PART 3 - EXECUTION

3.1 COLOR CONSISTENCY

A. All like finish products within a given visible area shall be from the same dye lot or color run.

B. If like finish products within a given visible area vary slightly in color, mix and blend varying colors to avoid distinct areas of color variation.

END OF SECTION 01 60 00

SECTION 01 73 29
CUTTING AND PATCHING

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes

1. Administrative and procedural requirements for cutting and patching.

B. Related Sections:

1. Section 01 11 00: Summary of Work
2. Section 01 74 19: Construction Waste Management and Disposal
3. Section 01 74 23: Cleaning

C. Related Requirements:

1. Refer to Divisions 22 and 23 Sections for cutting, patching, of plumbing and mechanical items.
2. Refer to Divisions 26, 27, and 28 Sections for cutting, patching, of electrical and related systems.

1.02 **QUALITY ASSURANCE**

A. Requirements for Structural Work:

1. Do not cut and patch structural elements in manner that would reduce their load-carrying capacity or load-deflection ratio.

B. Operational and Safety Limitations:

1. Do not cut and patch operating elements or safety related components in manner that would result in reducing their capacity to perform as intended or result in increased maintenance or decreased operational life or safety.
2. Obtain approval before cutting and patching following operating elements or safety related systems:

a. Shoring, bracing, and sheeting.
b. Primary operational systems and equipment.
c. Air or smoke barriers.
d. Water, moisture, or vapor barriers.
e. Membranes and flashings.
f. Fire protection systems.
g. Noise and vibration control elements and systems.
h. Control systems.

i. Communication systems.
j. Conveying systems.
k. Electrical wiring systems.

C. Visual Requirements:

1. Do not cut and patch construction exposed on exterior or in occupied spaces, in manner that would, in Architect's opinion, reduce aesthetic qualities, or result in visual evidence of cutting and patching.
2. Remove and replace Work that has been cut and patched in visually unsatisfactory manner.
3. Engage recognized experienced and specialized fabricator to cut and patch following categories of exposed Work:

a. Processed concrete finishes.
b. Stucco and plaster.

PART 2 PRODUCTS

2.01 MATERIALS

A. Use materials that are identical to existing materials.

1. Where identical materials are not available or cannot be used where exposed surfaces are involved, use materials that match existing adjacent surfaces to fullest extent possible with regard to visual effect.
2. Use materials whose installed performance will equal or surpass that of existing materials.

PART 3 EXECUTION

3.01 INSPECTION

A. Before cutting existing surfaces, examine surfaces to be cut and patched and conditions under which cutting and patching is to be performed.

1. Take corrective action before proceeding if unsafe or unsatisfactory conditions are encountered.

3.02 PREPARATION

A. Temporary Support:

1. Provide temporary support of Work to be cut.
2. Review with Structural Engineer when necessary.

B. Protection:

1. Protect existing construction during cutting and patching to prevent damage.
2. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.

C. Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.

D. Take precautions necessary to avoid cutting existing pipe, conduit, or ductwork serving building, but scheduled to be removed or relocated until provisions have been made to bypass them.

3.03 PERFORMANCE

A. General:

1. Employ skilled workmen to perform cutting and patching.
2. Proceed with cutting and patching at earliest feasible time and complete without delay.
3. Cut existing construction to provide for installation of other components or performance of other construction activities and subsequent fitting and patching required to restore surfaces to their original condition.

B. Cutting:

1. Cut existing construction using methods least likely to damage elements to be retained or adjoining construction.
2. In general, where cutting is required use hand or small power tools designed for sawing or grinding, not hammering and chopping.
3. Cut holes and slots neatly to size required with minimum disturbance of adjacent surfaces.

    a. Temporarily cover openings when not in use.

4. To avoid marring existing finished surfaces, cut or drill from exposed or finished side into concealed surfaces.
5. Cut through concrete and masonry using cutting machine such as carborundum saw or diamond core drill.
6. By-pass utility services such as pipe or conduit, before cutting, where services are shown or required to be removed, relocated or abandoned.
7. Cut-off pipe or conduit in walls or partitions to be removed.

    a. Cap, valve or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after by-passing and cutting.

C. Patching:

1. Patch with durable seams that are as invisible as possible.
2. Comply with specified tolerances.

a. Where feasible, inspect and test patched areas to demonstrate integrity of installation.
b. Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in manner that will eliminate evidence of patching and refinishing.

3.04 CLEANING

A. Thoroughly clean areas and spaces where cutting and patching is performed or used as access.

1. Comply with requirements of Section 01 74 23.

END OF SECTION 01 73 29

SECTION 01 74 19
CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. References.
2. System description for construction and demolition waste management.
3. Submittals.

B. Related Sections:

1. Section 01 33 00 – Submittal Procedures.
2. Section 01 41 00 – Regulatory Requirements.
3. Section 01 50 00 – Temporary Facilities and Controls.
4. Section 01 74 23 – Cleaning.
5. Section 01 77 00 – Closeout Procedures.

1.02 REFERENCES

A. California Integrated Waste Management Act of 1989 (AB 75).

B. California Code of Regulations, Title 14 – Natural Resources

1. Division 7 – Department of Resources Recycling and Recovery

1.03 SYSTEM DESCRIPTION

A. Collection and separation of construction and demolition waste materials generated on-site as follows:

1. Re-use or recycling on-site.
2. Transportation to approved recyclers or re-use organizations.
3. Transportation to legally designated landfills for purpose of recycling, salvaging, or reusing minimum of 50 percent of construction and demolition waste generated.

1.04 SUBMITTALS

A. Construction and Demolition Waste Management Plan (Exhibit 1):

1. Within 10 calendar days after Notice to Proceed and prior to waste removal, submit following to Owner for review and approval:

    a. Materials to be recycled, re-used, or salvaged, either on-site or off-site.
    b. Estimates of construction and demolition waste quantity (in tons) by type of material.

        1) When waste is measured by volume, give factors for conversion to weight in tons.

    c. Procedures for recycling/re-use program.
    d. Permit or license and location of Project waste disposal areas.
    e. Site Plan for placement of waste containers.

B. Construction and Demolition Waste Management Monthly Progress Report (Exhibit 2):

1. Submit Summary of waste generated by Project, monthly with Application for Payment. Include following:

    a. Firms accepting recovered or waste materials.
    b. Type and location of accepting facilities (landfill, recovery facility, or used materials yard).

        1) When materials are to be re-used or recycled on Project Site, location should be designated as “On-site Re-use/Recycling”.

    c. Type of materials and net weight (tons) of each.
    d. Value of materials or disposal fee paid.
    e. Attach weigh bills and other documentation confirming amount and disposal location of waste materials.

C. Construction and Demolition Waste Management Final Compliance Report:

1. Final update of Waste Management Plan to provide summary of total waste generated by Project.

D. Waste management Report for Contractors (Exhibit 3):

1. Complete attached form and submit to Owner.

E. Solid Waste Management and Recycling Plan (Exhibit 4):

1. Complete attached form and submit to Owner.

PART 2 PRODUCTS *(Not Applicable)*

PART 3 EXECUTION

3.01 IMPLEMENTATION

A. Implement approved Waste Management Plan including collecting, segregating, storing, transporting and documenting each type of waste material generated, recycled or re-used, or disposed in landfills.

B. Designate on-site person to be responsible for instruction workers and overseeing sorting and recording of waste/recyclable materials.

C. Include waste management and recycling in worker orientation and as agenda item for regular project meetings.

D. Limit recycle and waste bin areas to approved areas indicated on Waste Management Plan.

1. Keep recycle and waste bins neat and clearly marked to avoid contamination of materials.

3.02 ATTACHMENTS

A. Exhibit 1: Construction and Demolition Waste Management Plan.

B. Exhibit 2: Construction and Demolition Waste Management Monthly Progress Report.

C. Exhibit 3: Waste Management Report for Contractors.

D. Exhibit 4: Solid Waste Management and Recycling Plan.

END OF SECTION 01 74 19

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EXHIBIT 1

CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT PLAN

CONSTRUCTION/MAINTENANCE/ALTERATION AND DEMOLITION PROJECTS

PROJECT NAME:_____

PROJECT NO: _____

NAME OF COMPANY:

_____

CONTACT PERSON: _____

TELEPHONE:_____

PROJECT SITE LOCATION: _____

PROJECT TYPE:

___New Construction ____Demolition ___Maintenance/Alteration Projects

PROJECT SIZE (SQ.FT.): _____

DATE AND ESTIMATED PERIOD _____

EXHIBIT 1 FORM

(1) Material Type	(2) Tons Estimated Recycle	(3) Tons Estimated Reuse	(4) Tons Estimated Salvage	(5) Tons Estimated Landfill	(6) Proposed Disposal or Recycling Facility
Total					
Diversion Rate: Columns[(2)+(3)+(4)] / [(2)+(3)+(4)+(5)				=	
Signature		Title		Date	

Column 1: “Material Type” – Enter type of materials targeted for recycling, reuse, or requiring disposal.

Columns 2 through 4: “Estimated Generation” – Enter estimated quantities (tons) of recyclable, reusable, or salvageable waste materials anticipated to be generated and state number of salvageable items.

Column 5: “Estimated Landfill” – Enter quantities (tons) of materials to be disposed in landfill.

Column 6: “Disposal Location” – Enter end-destination of recycled, salvaged, and disposed materials.

General: (1) Attach proposed Recycling and Waste Bin Location Plan.
(2) Attach name and contact data for each recycling or disposal destination to be used.

EXHIBIT 2

CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT MONTHLY PROGRESS REPORT

CONSTRUCTION/MAINTENANCE/ALTERATION AND DEMOLITION PROJECTS

PROJECT NAME:_____

PROJECT NO: _____

NAME OF COMPANY:
_____

CONTACT PERSON: _____

TELEPHONE:_____

PROJECT SITE LOCATION: _____

PROJECT TYPE:

___New Construction ____Demolition ___Maintenance/Alteration Projects

PROJECT SIZE (SQ.FT.): _____

DATE AND ESTIMATED PERIOD:_____

EXHIBIT 2 FORM

(1) Material Type	(2) Tons Actual Recycle	(3) Tons Actual Reuse	(4) Tons Actual Salvage	(5) Tons Actual Landfill Name	(6) Disposal or Recycling Facility (e.g. Onsite, of Facility)
Total					
Diversion Rate: Columns[(2)+(3)+(4)] / [(2)+(3)+(4)+(5)				=	
Signature		Title		Date	

Column 1: “Material Type” – Enter type of materials targeted for recycling, reuse, or requiring disposal.

Columns 2 through 4: “Estimated Generation” – Enter estimated quantities (tons) of recyclable, reusable, or salvageable waste materials anticipated to be generated and state number of salvageable items.

Column 5: “Estimated Landfill” – Enter quantities (tons) of materials to be disposed in landfill.

Column 6: “Disposal Location” – Enter end-destination of recycled, salvaged, and disposed materials.

General: (1) Attach proposed Recycling and Waste Bin Location Plan.
(2) Attach name and contact data for each recycling or disposal destination to be used.

EXHIBIT 3

WASTE MANAGEMENT REPORT FOR CONTRACTORS

Complete this form each time materials are removed from

Project Site or reused onsite.
Submit to Owner's Project Manager.

PROJECT SITE LOCATION:_____DATE:_____

COMPANY:_____
_

MATERIAL:_____

_____

_____

WAS THE MATERIAL RECYCLED: YES_____NO_____

VOLUME/WEIGHT:_____

RECYCLING COMPANY OR DISPOSAL
SITE:_____

SUBMITTED
BY:_____

PHONE NUMBER:_____

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EXHIBIT 4

SOLID WASTE MANAGEMENT AND RECYCLING PLAN

Prepare Waste Management and Recycling Plan by completing the following form for Construction and Demolition materials produced because of Work performed at Carson Community Center. Owner requires that Contractors recycle materials when there is viable recycling company available.

Owner's Environmental Health and Safety Supervisor will assist applicants in developing and implementing Waste Management and Recycling Plan.

COMPANY NAME:_____ CONTACT:_____

ADDRESS:_____ PHONE:_____

PROJECT SITE:_____

Please fill out following form for submittal.
Form will help to identify types of materials, estimated quantities of materials, and how material will be transported and recycled or disposed.

EXHIBIT 4 FORM

Circle the material that will be generated at the construction site, estimate the quantity, list how the materials will be transported, and write in where the materials will be taken.

MATERIALS	**ESTIMATED QUANTITY** (in yards and tons)	**HAULER** (List hauler's name if not self–haul)	**RECYCLING COMPANY OR DISPOSAL SITE**
Salvage and used building			
Wood			
Plant Debris			
Wallboard			
Glass			
Soil			
Corrugated cardboard			
Metals			
Masonry/Tile			
Concrete/Asphalt			
Toilets (porcelain)			
Carpet Padding (foam)			
Other			
Mixed Loads (i.e. trash)			

FOR OWNER USE ONLY:

Approval Status:

_____ Approved

_____ Further explanation needed, see attached

_____ Denied

Reviewed by:_____Date:_____

SECTION 01 74 23
CLEANING

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Performance of cleaning, during progress of Work, and at completion of Work, as required by General Conditions.

B. Related Sections:

1. Section 01 50 00: Temporary Facilities and Controls; additional requirements for dust and debris control.
2. Section 01 74 19: Construction Waste Management and Disposal.

C. Related Requirements:

1. Refer to Division 00 Documents, including General Conditions, for additional requirements.
2. Cleaning for specific products of Work:

a. Specification Section for that Work.

1.02 REFERENCES

A. South Coast Air Quality Management District (SCAQMD):

1. Rule 403 – Fugitive Dust.

1.03 QUALITY ASSURANCE

A. Verify that requirements of cleanliness are being met.

1.04 DISPOSAL REQUIREMENTS

A. Conduct cleaning and disposal operations in compliance with applicable codes, ordinances, regulations, and anti-pollution laws.

1. Comply with requirements of Section 01 74 19.

B. In addition to specified requirements, comply with applicable requirements of fire and governing authorities having jurisdiction.

1.05 PAYMENT WITHHELD

A. Architect reserves right to withhold certification of payment requests for failure on part of Contractor to regularly clean Project in conformance with requirements of this Section.

PART 2 PRODUCTS

2.01 CLEANING MATERIALS AND EQUIPMENT

A. Use only those cleaning materials which will not create hazards to health or property and which will not damage surfaces.

B. Use only those cleaning materials and methods recommended by manufacturer of surface material to be cleaned.

C. Use cleaning materials only on surfaces recommended by cleaning products manufacturer.

PART 3 EXECUTION

3.01 PROGRESS CLEANING DURING CONSTRUCTION

A. Execute periodic cleaning to keep Work, Project Site and adjacent properties free from accumulations of waste materials, rubbish and windblown debris, resulting from construction operations.

1. Maintain stored items in orderly arrangement allowing maximum access and providing required protection of materials.

    a. Provide on-site containers for collection of waste materials, debris and rubbish.

2. Provide adequate storage for waste materials awaiting removal from Project Site, observing requirements for fire protection and protection of environment.
3. Handle hazardous, dangerous or unsanitary waste materials separately from other waste material by placing it in proper containers.
4. Burying or burning of waste materials is not permitted.
5. Remove waste materials, debris and rubbish from Project Site periodically and dispose of at legal disposal areas away from Project Site.

B. Project Site:

1. Inspect Project Site daily and pick up scrap, debris, and waste material.

    a. Place waste material in designated containers.

2. Keep flammable waste in sealed metal containers until removed from Project Site.
3. Maintain Project Site clear of debris so as not to impede construction and fire department access

C. Structures:

1. Weekly, and more often if necessary, inspect structures and pick up scrap, debris, and waste material.

    a. Remove items and place in designated container.

2. Weekly, sweep interior spaces clean.

    a. Keep space free from dust and other material capable of being removed by handheld broom, (i.e.: “broom clean”).

3. Preparatory to installation of succeeding material, clean structures or pertinent portions as required to degree of cleanliness recommended by manufacturer of succeeding material.
4. Following installation of finish floor materials, clean finish floor daily, and more often if necessary.

    a. Provide adequate protection of finish where Work is being performed in space in which finish materials have been installed.
    b. For purpose of this subparagraph, term “Clean”, is to be interpreted as meaning free from foreign materials that, in opinion of Architect, may be injurious to finish floor material, (i.e.: “vacuum clean”).

3.02 DUST CONTROL

A. Schedule operations so that dust and other contaminants resulting from cleaning process will not fall on wet or newly-coated surfaces.

3.03 FINAL CLEANING

A. Prior to completion of Work, remove from Project Site, tools, surplus materials, equipment, scrap, debris, and waste.

B. Employ experienced workers for final cleaning.

C. Complete following cleaning operations before requesting inspection for Certification of Substantial Completion:

1. Site:

    a. Clean Site, including landscape development areas, of rubbish, litter and other foreign substances.

b. Sweep paved areas broom clean, including public paved areas directly adjacent to Project Site.

1) Remove stains, spills and other foreign deposits.

c. Rake grounds that are neither paved nor planted, to smooth even-textured surface and remove resultant debris.

2. Exterior and Interior:

a. Clean exposed exterior and interior hard-surfaced finishes to dust-free condition
b. Remove traces of soils, waste material, smudges and other foreign matter.
c. Remove traces of splashed material from adjacent surfaces.
d. Remove materials using equipment as instructed by manufacturer of surface materials to be cleaned.
e. Leave concrete floors broom clean.

3. Carpeted Surfaces:

a. Use only dry-chemical method of cleaning.
b. Do not use steam cleaning or water based cleaning on carpet.
c. Use materials and methods fully approved by carpet manufacturer, as instructed in manufacturer's published literature.
d. Vacuum carpet.

4. Labels:

a. Remove labels that are not permanent labels.

5. Transparent Materials:

a. Clean transparent material, including mirrors and glass in doors and windows.
b. Remove glazing compound and other substances that are noticeable vision obscuring materials.
c. Replace chipped or broken glass and other damaged transparent materials.
d. Restore reflective surfaces to their original reflective condition.
e. Clean glass inside and outside.
f. Polished Surfaces:

1) Apply polish recommended by manufacturer of material being polished to surfaces requiring routine application of buffed polish.

D. Ventilating Systems:

1. Clean permanent filters and replace disposable filters when units were operated during construction.

2. Clean ducts, blowers and coils when units were operated without filters during construction.

E. Wipe surfaces of electrical equipment.

1. Remove excess lubrication and other substances.
2. Clean plumbing fixtures to sanitary condition.
3. Clean light fixtures and lamps.

F. Comply with regulations of authorities having jurisdiction and safety standards for cleaning.

1. Do not burn waste materials.
2. Do not bury debris or excess materials on Owner's property.
3. Do not discharge volatile, harmful or dangerous materials into drainage systems.
4. Remove waste materials from Project Site and dispose of in lawful manner.
5. Where extra materials of value remaining after completion of associated Work have become Owner's property, arrange for disposition of these materials as directed.

G. Prior to final completion, or Owner occupancy, conduct inspection of sight-exposed exterior surfaces, and Work areas, to verify that entire Work is clean.

3.04 CLEANING DURING OWNER’S OCCUPANCY

A. Should Owner occupy portion of Project prior to its final completion by Contractor, comply with acceptance of partial occupancy by Owner/Architect in accordance with General Conditions of the Contract.

END OF SECTION 01 74 23

SECTION 01 77 00
CLOSEOUT PROCEDURES

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Administrative and procedural requirements for Project Closeout, including but not necessarily limited to:

a. Inspection procedures.
b. Substantial Completion
c. Final Acceptance

B. Related Sections:

1. Section 01 74 23: Cleaning
2. Section 01 78 39: Project Record Documents

C. Related Requirements:

1. Closeout requirements for specific construction activities are included in appropriate Sections in Divisions 02 through 33.

1.02 BENEFICIAL OCCUPANCY AND ACCEPTANCE OF SUBSTANTIAL COMPLETION

A. Comply with CCR, Title 24, Part 1 – Administrative Code, Section 4-336 CCR (Schools) Requirements for Closeout Procedures.

1. Comply with additional requirements in Division 00 Sections and General Conditions of the Contract.

B. Preliminary Procedures:

1. Before requesting inspection for certification of Substantial Completion, complete following.

a. List exceptions in request.

2. In application for payment that coincides with, or first follows, date Substantial Completion is claimed, show one hundred percent completion for portion of Work claimed as substantially complete.

a. Include supporting documents for completion as indicated in Contract documents and statement showing accounting of changes to Contract Sum.
b. When one hundred percent completion cannot be shown, include list of incomplete items, value of incomplete construction, and reasons Work is not complete.

3. Make required submittals of specific warranties, workmanship bonds, maintenance agreements, final certifications and similar documents, along with record drawings and similar final record information in accordance with requirements in Section 01 78 39.
4. Complete final clean up requirements in accordance with Section 01 74 23, including touch-up painting.

a. Touch-up and otherwise repair and restore marred exposed finishes.

C. Inspection Procedures:

1. Upon receipt of request for inspection, Architect will either proceed with inspection or advise Contractor of unfilled requirements.
2. Should Architect and Owner determine that Work is not substantially complete:

a. Architect will promptly notify Contractor in writing, giving reason(s) for his determination.
b. In conjunction with Inspector of Record and Construction Manager, Architect will prepare list of items (Punch List) to be completed or corrected.

1) Punch List may be developed for less than entire project, when approved by Architect and Owner.

c. Remedy deficiencies and notify Architect when Work is ready for reinspection.
d. Architect will prepare Certificate of Substantial Completion, accompanied by Punch List, following inspection, or advise Contractor of construction that must be completed or corrected before certificate will be issued

3. Architect will repeat inspection when requested and if assured that Work has been substantially completed in each phase, will submit Certificate of Substantial Completion to Contractor and Owner for their written acceptance of responsibilities assigned them in Certificate.

a. Owner reserves right to occupy each completed phase upon issuance of Certificate of Substantial Completion.

4. Results of completed inspection will form basis of requirements for final acceptance.

D. Mandatory Substantial Completion Submittals:

1. To include, but are not necessarily limited to:

a. Redlined' As-Built Set (marked up drawings).
b. On As-Built Set and Specifications manual record revisions to original contract document with contrasting color.
c. Operation and Maintenance Manuals for items specified in pertinent Sections and for other items approved by Architect.
d. Warranties and Guarantees.
e. Training.
f. Spare parts, materials, and extra stock.
g. Evidence of payment and release of liens, when requested by Owner.
h. List of Subcontractors, service organizations and principal vendors, including current names, addresses and telephone numbers, where they may be contacted for emergency service, including nights, weekends, and holidays.

1.03 FINAL ACCEPTANCE

A. Preliminary Procedures:

1. Before requesting final inspection for certification of final acceptance and final payment, complete following.
   a. List exceptions in request.

2. Prepare and submit Project Closeout Request notice that Work is ready for final inspection and acceptance.
3. Architect, and Owner's Project Inspector will verify that Punch List items are complete.
4. Should Architect or Owner's Project Inspector determine Work is incomplete or defective:

   a. Architect or Owner's Project Inspector will promptly notify Contractor in writing, listing incomplete or defective work.
   b. Remedy deficiencies promptly and notify Owner's Project Inspector when ready for re-inspection.

B. Reinspection Procedure:

1. Architect will reinspect Work upon receipt of notice that Work, including inspection list items from earlier inspections, has been completed, except items whose completion has been delayed because of circumstances acceptable to Architect.
2. Upon completion of reinspection, Architect will prepare certificate of final acceptance, or advise Contractor of Work that is incomplete, or of obligations that have not been fulfilled but are required for final acceptance.
3. When necessary, reinspection will be repeated.
4. When Architect determines Work is acceptable under Contract Documents, he will notify Owner's Project Inspector that Project is complete per Contract Drawings and Specifications.
5. Upon acceptance, Contractor must certify that Project has been completed in compliance with Contract Documents.

a. Submit copies of this report to following:

1) Architect.
2) Owner’s Project Inspector.

C. Final Payment Procedure.

1. Submit following in accordance with requirements of Section 01 78 39:

a. Final payment request with releases and supporting documentation not previously submitted and accepted.
b. Include certificates of insurance for products and completed operations where required.

2. Updated final statement, accounting for final additional changes to Contract Sum.
3. Certified copy of Architect's final inspection list of items to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance, and list has been endorsed and dated by Architect.
4. Consent of surety to final payment.
5. Comply with additional requirements in Division 00 Sections and General Conditions of the Contract.

PART 2 PRODUCTS *(Not Applicable)*

PART 3 EXECUTION *(Not Applicable)*

END OF SECTION 01 77 00

SECTION 01 78 39
PROJECT RECORD DOCUMENTS

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Administrative and procedural requirements for preparing, maintaining, and submitting following:

a. Project Record Documents.
b. Operating and Maintenance Data and Manuals.
c. Warranties, Guarantees, and Bonds.
d. Spare parts and Maintenance Materials.
e. Instructions to Owner's Personnel.

B. Related Sections:

1. Section 01 77 00: Closeout Procedures

C. Related Requirements:

1. Refer to Division 00 Documents, including General Conditions, for additional requirements.
2. Separate Specification Sections requiring Record Documents.

1.02 PROJECT RECORD DOCUMENTS

A. Dedicated Record Set:

1. Maintain one set of Contract Drawings and one copy of Project Specifications for use during construction to record changes made during construction..

a. Record revisions with contrasting color.
b. Do not use record documents for construction purposes.

B. Record Documents and Shop Drawings:

1. Record in concise and neat manner and on continual basis actual revisions to Work.
2. Include reference to appropriate document with date revision/change was approved or directed.
3. Changes/Revisions to Drawings and Specifications include, but are not necessarily limited to:

a. Changes made by RFI, CCD, and CO.

b. Changes made to shop drawings.

4. Mark set to show actual installation where installation varies substantially from Work as originally shown.

    a. Mark whichever drawing is most capable of showing conditions fully and accurately.
    b. Where shop drawings are used, record cross-reference at corresponding location on Contract drawings.
    c. Give particular attention to concealed elements that would be difficult to measure and record at later date.

5. Mark record sets with red erasable pencil; use other colors to distinguish between variations in separate categories of Work.
6. Mark new information that is important to Owner, but was not shown on Contract Drawings or shop drawings.
7. Note related Change Order numbers where applicable.
8. Label each document “PROJECT RECORD” in neat large printed letters.
9. Record information concurrently with construction progress.

    a. Do not conceal Work until required information is recorded.

10. Legibly mark each item to record actual construction including:

    a. Measured depths of foundations in relation to finish first floor datum.
    b. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.

        1) Identify drains and sewers by invert elevation.

    c. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of Work.
    d. Identify ducts, dampers, valves, access doors and control equipment wiring.
    e. Field changes of dimension and detail.
    f. Details not on original Drawings.

C. Store Record Documents and Samples in Contractor’s Field Office, separate from documents used for construction.

1. Protect record documents from deterioration and loss in secure, fire-resistive location.
2. Provide access to record documents for Architect's reference during normal working hours.
3. Provide files and racks for storage of Documents
4. Provide secure storage space for storage of samples.
5. Maintain documents in clean, dry, legible condition and in good order.

    a. Replace soiled or illegible documents.

D. Record Specifications:

1. Maintain one complete copy of Project Manual, including addenda, and one copy of other written construction documents such as Change Orders and modifications issued in printed form during construction.
2. Legibly mark these documents and record at each product section description of actual products installed to show substantial variations in actual Work performed in comparison with text of specifications and modifications including following:

    a. Manufacturer's name, trade name, product model and number and supplier.
    b. Give particular attention to substitutions, selection of options and similar information on elements that are concealed or cannot otherwise be readily discerned later by direct observation, including following:

        1) Authorized product substitutions or alternates utilized.
        2) Changes made by Addenda and Modifications.

3. Note related record drawing information and product data.
4. Upon completion of Work, submit record specifications to Architect for Owner's records.

E. Owner’s Project Inspector will verify that Project Record Documents are fully updated prior to approving Payment Applications.

    1. Obtain Owner’s Inspector’s signature on record set verifying information.

F. Record drawings will be reviewed by Architect for completeness and acceptance.

G. As-Built Drawings:

    1. Turn over to Owner in following manner:

        a. Separate each discipline (i.e. Civil, Architectural, Mechanical, Electrical, Pluming, and so on)
        b. Identify disciplines of Drawings by adding white tag.
        c. Tag each discipline.
        d. Tag Size: No. 8, 8-11/16 by 2-3/4 inches.
        e. Legibly write on tag name of Project, and discipline inside tube.
        f. Separately tube each discipline by using U-Line tube or equal.
        g. Size of Tube: 4 inches minimum and 6 inches maximum.

H. Record of Electronic (Digital) Files:

    1. Immediately before inspection of Substantial Completion, review marked-up Record Set with Architect and Owner’s Inspector.
    2. When authorized, prepare full set of corrected digital files of Record Documents.
    3. Submit following documents:

        a. Scan sheets in As-Built Set, furnish annotated PDF electronic files.
        b. CD or CD’s of PDF files and file labeling is to include following information:

            1) Project name.

2) Date.
3) Name of Architect.
4) Name of Contractor
5) Disciplines included in CD (i.e. Title sheet, Civil, Architectural, Structural, Mechanical, and so on)
6) Label and index files contained in CD in sequential order to match Title Sheet of Contract Documents.

I. RFI's:

1. Furnish one copy of RFI's questions and answers submitted on Project.
2. Submit RFI binder in following manner:

a. Provide binders as specified in "Record Document Storage" Article.
b. Label binder on cover and spine: RFI's.

1) Identify Project Name/Building Name, and Project Number on cover.

c. Furnish tab for each individual RFI.
d. Submit RFI Binders inside storage boxes as specified in "Record Document Storage" Article.

1) Include two labels on face and side of box or boxes.

1.03 MAINTENANCE AND OPERATING (M&O) DATA AND MANUALS

A. Submit two sets prior to Substantial Completion inspection for Architect's review and approval.

B. Manual Format:

1. Prepare data in form of instructional manual for use by Owner's personnel.

a. Provide binders as specified in "Record Document Storage" Article.
b. Identify Project Name/Building Name and Project Number on cover of manual.

2. Table of Contents: Include in each volume, neatly typewritten.

a. Identify Contractor, name of responsible principal, address, and phone number.
b. List each product included, indexed to content of volume.
c. List, with each product, name, address, and telephone number of subcontractor or installer and maintenance contractor, as appropriate and nearest source of supply for parts and replacement.
d. Identify location of installed equipment.
e. Submit M&O Manuals inside storage boxes as specified in "Record Document Storage" Article.

3. Product Data:

a. Include only those sheets which are pertinent to specific product.
b. Annotate each sheet to clearly identify specific product or part installed.
c. Include CD with Product Data information.

1) Maintenance schedules and equipment list must be in editable Word or Excel spreadsheet format.

4. Drawings:

a. Supplement product date with Drawings as necessary to clearly illustrate relations of component parts of equipment and systems.
b. Coordinate Drawings with information in Project Record Documents to ensure correct illustration of completed installation.
c. Do not use Project Record Documents as maintenance drawings.
d. Full size and half size hard copies of Drawings are required.

5. Copy of each warranty and service contract as specified.

1.04 RECORD DOCUMENT STORAGE

A. Binders:

1. Commercial quality, heavy-duty, three-ring D binders with durable and cleanable vinyl-covers at front and spine, with internal pockets to hold CD.
2. Size: 8-1/2 by 11 inches with ring size as required.
3. Provide new white binders.

B. Storage Boxes:

1. “Bankers Box” or equal quality.

a. Size: 11 by 15 inches or equal size.

2. Include two labels on face and side of box.
3. Label boxes as follows:

a. Use Avery Label 6573 or equal size.
b. Type information on label, including Bid No., Project Name, and Number of boxes (i.e. Box 1 of 5).

1) Refer to attached sample label at end of this Section.
2) Font for Labels:

a) Vernada, 48 point for Bid No.
b) Vernada, 16 point for remainder of content on label.

1.05 WARRANTIES, GUARANTEES, AND BONDS

A. Disclaimers and Limitations:

1. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of warranty on Work that incorporates products, nor does it relieve suppliers, manufacturers, and subcontractors required to countersign special warranties with Contractor.

B. Manufacturer's warranties and guarantees not withstanding, warrant entire Work against defects in materials and workmanship for twelve months from Date of Acceptance of Substantial Completion.

1. Warranties and guarantees between Contractor and Owner are not affected by warranties and guarantees between Contractor and manufacturers and Contractor and suppliers.

1.06 WARRANTY REQUIREMENTS

A. Related Damages and Losses:

1. When correcting warranted Work that has failed, remove and replace other Work that has been damaged as result of such failure or that must be removed and replaced to provide access for correction of warranted Work.

B. Reinstatement of Warranty:

1. When Work covered by warranty has failed and been corrected by replacement or rebuilding, reinstate warranty by written endorsement.
2. Provide Reinstated Warranty equal to original warranty with equitable adjustment for depreciation.

C. Replacement Cost:

1. Upon determination that Work covered by warranty has failed, replace or rebuild Work to acceptable condition complying with requirements of Contract Documents.
2. Contractor is responsible for cost of replacing or rebuilding defective Work regardless of whether Owner has benefited from use of Work through portion of its anticipated useful service life.

D. Owner's Recourse:

1. Written warranties made to Owner are in addition to implied warranties, and do not limit duties, obligations, right and remedies otherwise available under law, nor are warranty periods be interpreted as limitations on time in which Owner can enforce such other duties, obligations, rights, or remedies.
2. Rejection of Warranties:

a. Owner reserves right to reject warranties and to limit selections to products with warranties not in conflict with requirements of Contract Documents.

E. Owner reserves right to refuse to accept Work for Project where special warranty, certification, or similar commitment is required on such Work or part of Work, until evidence is presented that entities required to countersign such commitments are willing to do so.

F. Submit warranties and guarantees to Contractor for Architect's review and approval prior to final payment.

G. Do not start warranty period for delayed warranty items, until items have been completed.

H. Furnish two original copies with wet signatures of warranties and guarantees on Project.

I. Organize warranties/guarantees into orderly sequence based on Table of Contents in Project Specifications:

1. Bind warranties/guarantees in 8-1/2 by 11 inch heavy-duty, three ring binders, same as specified in "Maintenance And Operating (M&O) Data and Manuals" Article.
2. Identify each binder on front and spine with printed sheet "WARRANTIES", project name and name of contractor.
3. Contractor to issue Contractor's and Subcontractor's Warranties/Guarantees using attached Warranties/Guarantees form found at end of this Section.

1.07 SUBMITTALS

A. Submit written warranties to Architect prior to date certified for Substantial Completion.

1. When Architect's Certificate of Substantial Completion designates commencement date for warranties other than date of Substantial Completion for Work, or designated portion of Work, submit written warranties upon request of Architect.

1.08 MANUAL FOR EQUIPMENT AND SYSTEMS

A. Submit (2) copies of final approved manual to Owner's Project Inspector prior to final payment.

B. Content for each unit of mechanical equipment and each mechanical system, as applicable and appropriate, including but not limited to following:

1. Description of units, or system and component parts.
2. Operating procedures.
3. Maintenance procedures.
4. Servicing and lubrication schedule, with list of lubricants required.
5. As-installed control diagrams by controls manufacturer.
6. Other data as required in various specification sections.

C. Content, for each electrical and electronic system, as applicable and appropriate, including but not limited to following:

1. Description of system and component parts.
2. Circuit directories of panel boards.
3. As-installed color-coded wiring diagrams.
4. Operating procedures.
5. Maintenance procedures.
6. Other data as required in individual sections.

D. Prepare and include additional data as may be required for instruction of Owner's personnel.

E. Additional requirements for operating and maintenance data: As may be specified in individual Sections.

F. Provide complete information for products specified in individual Sections.

1.09 INSTRUCTION OF OWNER'S PERSONNEL

A. Provide instruction/training to Owner personnel as indicated in individual specification sections and as required.

B. Provide to Owner, date and list, including signatures, of Owner personnel who attended training.

1. Schedule instructional meeting or meetings after instructional manuals have been submitted, reviewed, and approved by Architect.
2. Coordinate meetings to include tier subcontractors.

C. Instruction sessions will be held in Owner designated area on Project Site and at Owner's convenience.

1. Schedule amount of time required for each session as specified in individual sections.

D. Review contents of Manuals with Owner's personnel in full detail to explain every aspect of operation and maintenance.

1.10 SPARE PARTS AND MAINTENANCE MATERIALS

A. Provide products, spare parts, maintenance and extra materials in quantities specified in individual Sections.

PART 2 PRODUCTS *(Not Applicable)*

PART 3 EXECUTION *(Not Applicable)*

END OF SECTION 01 78 39

WARRANTY/GUARANTEE FORM

FOR_____WORK

We, the undersigned, do hereby warranty and guaranty that the parts of the Work described above which we have furnished or installed for:

Project Name: (Insert Project Name)

Owner: (Insert Owner's Name)

Location: (Insert Project Location)

Are in accordance with the Contract Documents and that all said work as installed with fulfill or exceed all the Warranty and Guaranty requirements. We agree to repair or replace work installed by us, together with any other work which is displaced or damaged by so doing, that proves to be defective in workmanship, material, or operation within a period of:

(Insert written years) year(s)

from the date of filing of the Notice of Completion, ordinary wear and tear and unusual neglect or abuse excepted.

In the event of our failure to comply with the above-mentioned conditions within a reasonable time period determined by the Owner, after notification in writing, we, the undersigned, all collectively and separately, hereby authorize the Owner to have said defective work repaired and/or replaced and made good, and agree to pay to the Owner upon demand all monies that the Owner may expend in making good said defective work, including all collection costs and reasonable attorney fees.

Date:

(Insert Name of Contractor)	(Insert Name of Subcontractor, Manufacturer or Supplier)
Signature:	Signature:
Name:	Name:
Title:	Title:
State License No.	State License No.:

Local Representative: For maintenance, repair, or replacement service, contact:

Name:

Address:

Phone:

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Bid No. XXXX

City Project Number

RFI BINDERS 01 OF 04

BINDERS 01 OF 04: RFI'S 001 THRU 050

BINDERS 02 OF 04: RFI'S 051 THRU 100

BINDERS 03 OF 04: RFI'S 101 THRU 150

BINDERS 04 OF 04: RFI'S 151 THRU 200

Box 1 of 5

SECTION 02 41 20
SELECTIVE INTERIOR DEMOLITION

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Furnishing labor, materials and equipment necessary for performance of selective interior demolition as indicated, specified, or required.
2. Selective removal where indicated on Drawings and subsequent legal off-site disposal of, but not necessarily limited to following:

    a. Concrete work in path of travel
    b. Metal handrails and railings
    c. Portions of casework as required to accommodate required modifications.
    d. Existing aluminum stile and rail doors, including hardware and thresholds to be replaced.
    e. Existing door hardware, including thresholds to be replaced.
    f. Existing aluminum stile and rail doors and hardware to be replaced.

        1) Includes removal of existing floor closers and threshold.
        2) Patch and repair of concrete slab as indicated on Drawings.
        3) Patching and repair of existing steel frames where existing hardware is removed and not replaced.

    g. Portions of existing interior walls and wall finishes.
    h. Existing ceramic wall tile and base.

        1) May include removal of gypsum board/tile backer board.

    i. Existing carpet and carpet base.
    j. Existing non-compliant directional or other signage
    k. Surface mounted fire extinguisher cabinets

B. Related Sections:

1. Section 01 11 00: Summary of Work
2. Section 01 41 00: Regulatory Requirements; current Coded edition.
3. Section 01 50 00: Temporary Facilities and Controls; temporary protections.
4. Section 01 73 29: Cutting and Patching
5. Section 02 41 13: Selective Site Demolition

C. Related Requirements:

1. Refer to Plumbing and Electrical Specifications and respective Demolition Drawings.

2. Respective Sections of Divisions 22 and 26 for cutting, patching, or relocating plumbing and electrical items.

1.02 REFERENCES

A. California Code of Regulations (CCR), Title 24, current edition:

1. Part 2, California Building Code (CBC), Volumes 1 and 2.
2. Part 9, California Fire Code (CFC).

1.03 SUBMITTALS

A. Prior to cutting which affects structural safety, submit written request to Architect for permission to proceed with cutting.

B. Shop Drawings:

1. Indicating following:

a. Extent of items and systems to be removed.
b. Items to be salvaged or items to be protected during demolition.
c. locations of utility terminations and extent of abandoned lines to be removed.

1) Include details indicating methods and location of utility terminations.

C. Schedule of Removal:

1. Indicate elements to be demolished and removed and proposed timing for Work.
2. Coordinate with Work of other trades.

D. Record Drawings:

1. Identify and accurately locate capped utilities and other subsurface structural, plumbing, mechanical, or electrical conditions.

1.04 QUALITY ASSURANCE

A. Demolition Firm Qualifications:

B. Engage experienced firm that has successfully completed selective demolition work similar to that indicated for this Project.

C. Pre-Demolition Conference: Conduct conference at Project Site to comply with Pre-Installation Conference requirements of Section 01 31 19.

1. Conduct walkthrough with Owner's Project Representative to confirm Owner property items have been removed from scheduled Work areas.

2. Identify and mark remaining property items and schedule their removal and delivery to Owner.

D. Coordinate demolition for correct limits and methods.

1. Schedule demolition work to minimize inconvenience to public, and Owner's facility operations.

1.05 PROJECT CONDITIONS

A. Occupancy:

1. Owner will occupy portions of the building immediately adjacent to areas of selective demolition.
2. Conduct selective demolition Work in manner that will minimize need for disruption of Owner's normal operations.
3. Provide minimum of 48 hour advance notice to Owner of demolition activities that will affect Owner's normal operation.

B. Protections:

1. Ensure safety of Contractor, Owner personnel, and general public.
2. Institute measures designed to avoid physical harm to public or property damage to facilities from inadequate or improper means and methods; improper shoring, bracing and structural support; or poorly fenced off areas.

C. Traffic:

1. Conduct demolition operations and debris removal in manner to ensure minimum interference with occupied or used facilities.
2. Do not close, block or otherwise occupied or used facilities without written permission from authorities having jurisdiction.
3. Provide alternate routes around closed or obstructed traffic ways where required by governing regulations.

D. Drawings may not indicate in detail Demolition Work to be performed.

1. Examine existing conditions to determine full extent of required demolition.
2. When conditions are encountered that vary from those indicated, promptly notify Architect for direction or clarification before proceeding.

E. Condition of Structures:

1. Owner assumes no responsibility for actual condition of items or structures to be demolished.
2. Conditions existing at time of contractor inspection for bidding purposes will be maintained by Owner insofar as practicable.
3. Minor variations within structure may occur by Owner's removal and salvage operations prior to start of selective demolition work.

F. Asbestos or Hazardous Waste:

1. It is understood and agreed that this contract does not contemplate handling of asbestos or hazardous waste material.
2. Should asbestos or other hazardous waste material be encountered, notify Owner immediately.
3. Do not disturb, handle or attempt to remove.

G. Damages:

1. Promptly repair damages caused to adjacent facilities by demolition Work.
2. Repair damage to existing improvements or damage due to excessive demolition.

1.06 REGULATORY REQUIREMENTS

A. Intent of Drawings and Specifications is that Work of selective demolition is to be in accordance with CCR, Title 24.

1. Should existing conditions such as deterioration or non-compliant construction be discovered which is not covered by Contract Documents, and finished Work will not comply with CCR, Title 24:

a. Architect will submit Construction Change Document (CCD) or separate set of plans and specifications, detailing and specifying required Work to, and approved by the building department before proceeding with Work.

2. Comply with CCR Title 24, Part 2 - CBC, and Part 9 - CFC, Article 87 – “Fire Safety During Construction, Alteration or Demolition of a Building.”
3. Comply with governing EPA notification regulations before starting selective demolition Work.
4. Comply with requirements of Section 01 50 00 and hauling and disposal regulations of authorities having jurisdiction.

1.07 MATERIALS OWNERSHIP

A. Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, demolished materials become Contractor's property and are be removed from Project Site.

PART 2 PRODUCTS

2.01 HANDLING OF MATERIALS

A. Deliver items scheduled for salvage by Owner to location designated by Owner.

1. Clean, package and label Items for storage.

B. Store items scheduled for reuse on Project Site.

1. Secure from theft, and protected from damage, and other deleterious conditions.

C. Owner is responsible for removal and testing of materials suspected of asbestos or lead contamination.

1. Asbestos abatement reports are available from Owner.
2. Cease material removal and alert Owner immediately when suspect materials are discovered.

2.02 PRODUCTS FOR PATCHING, EXTENDING AND MATCHING

A. Provide same products or types of construction as that in existing structure, as needed to patch, extend or match existing Work.

1. Where identical materials are unavailable or cannot be used for exposed surfaces, use materials that visually match existing adjacent surfaces to fullest extent possible.
2. Use materials whose installed performance equals or surpasses that of existing materials.
3. Generally Contract Documents will not define products or standards of workmanship present in existing construction
4. Determine products by inspection and necessary testing, and workmanship by use of existing as sample of comparison.

B. Presence of product, finish, or type of construction, requires that patching, extending, or matching, be performed as necessary to make Work complete and consistent to identical standards of quality.

PART 3 EXECUTION

3.01 GENERAL

A. Preparation:

1. Conduct demolition operations to prevent injury to people and damage to adjacent buildings and facilities to remain.
2. Provide safeguards, including warning signs, lights and barricades, for Owner and protection of workers, occupants, and public and to ensure safe passage of people around selective demolition area.
3. Erect temporary protection, complying with requirements where required, by authorities having jurisdiction.
4. Protect walls, ceilings, floors, and other existing finish work that are to remain and are exposed during selective demolition operations.

B. Protection:

1. Always have fully charged, portable fire extinguisher with each demolition crew on-site.

3.02 EXAMINATION

A. Examine existing conditions, including elements subject to movement or damage during remodeling work.

B. After uncovering Work, examine conditions affecting installation of new work.

C. Discrepancies:

1. Where uncovered conditions are not as anticipated, immediately notify Architect and secure needed directions.
2. Do not proceed in areas of discrepancy until such discrepancies have been fully resolved.

D. Time extensions or increase or decrease of costs resulting from such changes will be adjusted in manner provided in General Conditions.

3.03 POLLUTION CONTROLS

A. Use water mist, temporary enclosures, and other suitable methods to limit spread of dust and dirt.

1. Comply with governing environmental protection regulations.
2. Do not use water when it may damage existing construction or create hazardous or objectionable conditions, such as flooding and pollution.

B. Remove and transport debris in manner that will prevent spillage on adjacent surfaces and areas.

C. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations.

1. Return adjacent areas to condition existing before start of selective demolition.

3.04 SELECTIVE INTERIOR DEMOLITION – GENERAL

A. Adhere to Project Schedule and notify Owner of changes to Schedule imposed by unforeseen site conditions or Owner operational activities.

B. Perform selective demolition in systematic manner.
1. Use such methods as required to complete Work indicated in accordance with Project Schedule and governing regulations.

C. Remove existing construction only to extent necessary for proper installation of new work and interfacing with existing construction.

1. Cut back finished surfaces to straight, plumb or level lines as required for smooth transition.
2. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level.

    a. Do not throw or drop materials.

3.05 REMOVAL OF EXISTING PLUMBING EQUIPMENT AND SERVICES

A. Remove existing plumbing equipment, fixtures, and services not indicated for reuse or necessary for completion of Work.

1. Remove abandoned lines and cap unused portions of active lines.
2. Comply with additional requirements specified in Division 22 Sections.

3.06 REMOVAL OF EXISTING ELECTRICAL EQUIPMENT AND SERVICES

A. Remove existing electrical equipment, fixtures, and services not indicated for reuse or necessary for completion of Work.

1. Remove abandoned lines and cap unused portions of active lines.
2. Comply with additional requirements specified in Division 26 Sections.

3.07 REMOVAL OF OTHER MATERIALS

A. Woodwork:

1. Cut or remove to joint or panel line.

B. Modular Materials:

1. Ceramic Tile:

    a. Remove to extent indicated without leaving damaged or defective Work where joining new construction.

C. Gypsum Board:

1. Remove to extent indicated or required.

    a. Preferably to panel joint line on stud or support line when possible.

D. Remove existing improvements not specifically indicated or required but necessary to perform new Work.

1. Cut to clean lines, allowing for installation of new Work.

3.08 PATCHING

A. Patch or repair materials to remain when damaged by performance of this Work.

1. Finish material and appearance of patch or repair Work to match existing.

3.09 CLEANING

A. Clean existing materials to remain with appropriate tools and equipment.

B. Protect existing improvements during cleaning operations.

C. Dampen debris by fog water spray prior to transporting by truck.

D. Keep debris pick-up area broom clean:

1. Wash daily with clean water.

E. Remove waste and debris, other than items to be salvaged.

1. Turn over salvaged items to Owner, or store and protect for reuse where required.

F. Continuously clean up and remove items as Work progresses and legally dispose of off Project Site.

1. Comply with additional requirements in Sections 01 74 19 and 01 74 23.

END OF SECTION 02 41 20

SECTION 03 30 00
CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Formwork for cast-in-place concrete and installation of embedded items.

    a. Work includes footings for chain link and decorative metal fence and gates.

2. Reinforcing steel for concrete unless specifically noted otherwise.
3. Reinforced concrete with compressive strengths as shown.
4. Under-slab moisture vapor barrier/retarder

B. Related Sections:

1. Section 01 41 00: Regulatory Requirements; current Code edition.
2. Section 01 45 00: Quality Control
3. Section 01 45 25: Concrete Moisture Testing
4. Section 05 50 00: Metal Fabrications
5. Section 07 92 00: Joint Sealants
6. Section 09 05 62: Moisture Vapor Emission Control System; emissions control for floor coverings and coatings.

C. Products Installed But Not Furnished Under This Section:

1. Built-in anchors, inserts, bolts and other embedded items for connection of other Work.
2. Built-in sleeves, thimbles, dovetail slots and water stops.

1.02 REFERENCES

A. California Code of Regulations (CCR), Title 24, Part 2, California Building Code (CBC), Volumes 1 and 2, current edition.

1. Chapter 19A – Concrete

B. ASTM International (ASTM):

1. ASTM A 615 – Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
2. ASTM A 706 – Standard Specification for Deformed and Plain Low-Alloy Steel Bars for Concrete Reinforcement
3. ASTM A 1064 – Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete

4. ASTM C 31 – Standard Practice for Making and Curing Concrete Test Specimens in the Field
5. ASTM C 33 - Standard Specification for Concrete Aggregates
6. ASTM C 39 – Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens
7. ASTM C 42 – Standard Test Method for Obtaining and Testing Drilled Cores and Sawed Beams
8. ASTM C 88 – Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate
9. ASTM C 94 – Standard Specification for Ready-Mixed Concrete
10. ASTM C 143 – Standard Test Method for Slump of Hydraulic-Cement Concrete
11. ASTM C150 – Standard Specification for Portland Cement
12. ASTM C 171 – Standard Specification for Sheet Materials for Curing Concrete
13. ASTM C 595 – Standard Specification for Blended Hydraulic Cements
14. ASTM C 618 – Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete
15. ASTM C 685 – Standard Specification for Concrete Made By Volumetric Batching and Continuous Mixing
16. ASTM D 882 – Test Method for Tensile Properties of Thin Plastic Sheeting
17. ASTM D 1434 – Standard Test Method for Determining Gas Permeability Characteristics of Plastic Film and Sheeting
18. ASTM D 1709 – Test Methods for Impact Resistance of Plastic Film by Free-Falling Dart Method
19. ASTM D 1751 – Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types)
20. ASTM D 1752 – Standard Specification for Preformed Sponge Rubber Cork and Recycled PVC Expansion Joint Fillers for Concrete Paving and Structural Construction
21. ASTM D 2419 – Standard Test Method for Sand Equivalent Value of Soils and Fine Aggregate
22. ASTM E 329 – Standard Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection
23. ASTM E 1745 – Standard Specification for Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs
24. ASTM F 1249 – Test Method for Water Vapor Transmission Rate Through Plastic Film and Sheeting Using a Modulated Infrared Sensor

C. American Concrete Institute (ACI):

1. ACI 117 – Specification for Tolerances for Concrete Construction and Materials (ACI 117-10) and Commentary-Reapproved 2015
2. ACI 301 – Specification for Structural Concrete for Buildings.
3. ACI 302.1R – Guide to Concrete Floor and Slab Construction
4. ACI 302.2R – Guide for Concrete Slabs that Receive Moisture-Sensitive Flooring Materials.
5. ACI 304 – Recommended Practice for Measuring, Mixing and Placing Concrete.
6. ACI 305 – Recommended Practice for Hot Weather Concreting.
7. ACI 306 – Recommended Practice for Cold Weather Concreting.
8. ACI 318 – Building Code Requirements for Reinforced Concrete.
9. ACI 347 – Recommended Practice for Concrete Formwork.

D. The Engineered Wood Association (APA):

1. Voluntary Product Standard Structural Plywood (PS 1-09)
2. Guide to Plywood Grades

E. West Coast Lumber Inspection Bureau (WCLIB):

1. Standard Grading Rules No. 17, current edition.

F. American Welding Society (AWS):

1. AWS D1.4 – Structural Welding Code – Reinforcing Steel.
2. AWS D1.8 – Seismic Welding Supplement.

G. South Coast Air Quality Management District (SCAQMD):

1. Rule 1113 – Architectural Coatings

1.03 SUBMITTALS

A. Product Data:

1. Manufacturer's product data with installation instructions for proprietary materials including reinforcement and forming accessories, form coatings, admixtures, joint materials, sealers/hardeners, curing materials (when permitted), and others as requested by Architect.

B. Mix Designs:

1. Prepare mix designs for Architect’s review and include following information in mix design data:

a. Design:

1) Project name, address, Site location, and location of design usage.
2) Contractor, Sub-Contractor, Supplier and Plant Location.
3) Mix Number.
4) Specified compressive strength, maximum aggregate size, slump, and placement method.
5) Application and location in structure.
6) Signature and stamp of licensed civil engineer responsible for mix design.

2. Materials:

a. Design Method.
b. Water-Cement Ratio.
c. Cement:

1) Type, amount, and compliance with specified criteria statement.

d. Aggregates:

1) Source(s), gradations (Individual and combined).

e. Admixtures:

1) Brand, classification, dosage, addition method.
2) Obtain specified approvals for admixtures prior to including in mix designs.

f. Water source.
g. Test Results, Batch Quantities, Yield (calculations).

3. Special Considerations:

a. Unit Weight.
b. Other considerations relative to placement, curing, finish, and testing.

C. Shop Drawings:

1. Cast-in-place Concrete:

a. Show construction joint locations and details.

2. Reinforcing Steel:

a. No submittals are required.
b. Providing steel reinforcing as indicated on Drawings and as specified herein is responsibility of Contractor.
c. Prepared Shop Drawings are solely for use by Contractor and will not be reviewed or approved by Architect or Structural Engineer.

D. Batch Plant Certificates:

1. Accompany each load of materials or concrete with signed copy of batch plant certificate stating quantity of each material, amount of water, admixtures, departure time and date.
2. When continuous batch plant inspection is waived, provide affidavit in accordance with Title 24, CBC, Part 2, Section 1704A.3.3 to Owner's Testing Laboratory.

E. Testing and Inspection Reports:

1. Owner's Testing Agency:

a. Laboratory Reports:

1) Laboratory test or evaluation reports for concrete materials and mix designs, performed in accordance with Section 01 4500, to Owner, Architect and Contractor.

2) Do not begin concrete production until mix designs have been reviewed and accepted by Architect.

2. Reinforcing Steel Reports:

a. Certified mill test reports (tensile and bending) for each heat or melt of steel prior to delivery of material to Project Site.
b. Where reinforcing is to be welded, furnish mill test reports verifying weldability of steel.

F. Contractor's Certifications:

1. Testing Laboratory's Certificate of Compliance.
2. Certified copies of mix designs for each concrete class specified including compressive strength test reports.
3. Certification that materials meet requirements specified.
4. Certification from vendor that samples originate from and are representative of each lot proposed for use.

G. Schedule of placing for Architect's review before starting Work.

H. Samples:

1. Upon request of Architect

a. Furnish formwork and accessories, including expansion joint fillers and waterstops.
b. Concrete sealer/harder products as required for application to mock-up slab panels.

I. Environmental Certifications:

1. Certificates for EQ Low-Emitting Materials:

a. Paints and Coatings.

1.04 QUALITY ASSURANCE

A. Formwork and Accessories:

1. Design Criteria: Formwork conforming to ACI 347.

a. Design Formwork to:

1) Prevent leakage or washing out of cement mortar.
2) Resist spread, shifting, and settling.
3) Reproduce accurately required lines, grades, and surfaces within tolerances specified.

b. Safety:

1) Responsibility for adequate strength and safety of formwork including falsework, and shoring rests with Contractor.

2. Allowable Tolerances:

a. Construct Formwork to produce concrete within tolerance limits recommended in ACI 347, unless otherwise noted.

B. Reinforcing:

1. Welders' Qualifications:

a. Qualify welders in accordance with AWS D1.4 and AWS D1.

2. Do not permit reinforcing steel to rust where there is danger of staining exposed surfaces of adjacent concrete.

a. Replace rust-stained concrete at Contractor’s expense.

3. Allowable Tolerances:

a. Place reinforcing steel within tolerances permitted by ACI 318, Section 26.6.2, unless otherwise approved by Architect.

4. Owner's Testing Agency will provide tests in accordance with CBC Chapter 17A.

a. Collect mill test reports for reinforcement.
b. Take samples from bundles at fabricators.

1) When bundles are identified by heat number and accompanied by mill analysis, take two specimens from each ten tons, or fraction thereof, of each size and grade.
2) When reinforcement is not positively identified by heat numbers or when random sampling is intended, take two specimens from each 2 tons, or fraction thereof, of each size and grade.

5. Test for Tensile and Bending Strengths:

a. Provide inspection of welding, including prior fit-up, welding equipment, weld quality and welder certification in accordance with AWS D1.4 and AWS D1.8
b. Perform chemical analysis sufficient to determine carbon equivalent and minimum preheat temperature when reinforcement does not conform to low-alloy steel requirements of CBC Section 1903A.8.

C. Concrete:

1. Testing Laboratory Qualifications:

a. Testing Laboratory under direction of registered Civil Engineer licensed in State of California, having operated successfully for four years prior to this Work, conforming to requirements of ASTM E 329.

2. Requirements of ACI 301 govern Work, materials, and equipment related to this Section.

   a. Specifications set minimum results required, and references to procedures are intended to establish minimal guides.

3. Responsibility for quality of concrete in place rests with Contractor who also bears burden of proof that concrete meets minimum requirements.
4. Placing of concrete by means of pumping will be acceptable method of placement providing that Contractor can demonstrate that:

   a. Specified concrete strengths will be met.
   b. Equipment has record of satisfactory performance under similar conditions and using similar mix.
   c. Trial batches have been made.

D. Mock-Up Slab Panels:

1. Size: Approximately 5 feet by 5 feet, unless otherwise indicated.

E. Mock-Up Wall Panels:

1. Construct mock-up wall panels for following finishes:

   a. Smooth Form Finish:

      1) Upon Architect's review of smooth form finish, Architect may request that subsequent grout cleaned finish or paint finish be applied to portion of mock-up panel.

   b. Grout Cleaned (Sack) Finish:

      1) For surface appearance and texture.

2. Panel Size:

   a. Approximately 6 feet wide by 8 feet high by 8 inches thick, unless otherwise indicated, for smooth form finish.
   b. Approximately 2 feet by 2 feet, for grout cleaned (sack) finish.

      1) May be applied to portion of mock-up for smooth form finish.

3. Do not proceed with placing and finishing of concrete wall areas indicated to receive specified finish until mock-up panel is accepted by Architect.
4. Retain mock-up wall panel on Project Site for comparison purposes with actual finish work.

a. Demolish and remove mock-up panel from Project Site after completion and acceptance of final wall finish.

1.05 DELIVERY, STORAGE, AND HANDLING

A. General:

1. Ensure storage facilities are weather tight and dry.
2. Deliver and store packaged materials in original containers with seals unbroken and labels intact until time of use.

B. Reinforcing:

1. Deliver reinforcement and accessories to Project Site not more than 48 hours before placement.
2. Store in manner to prevent excessive rusting and fouling with grease, dirt, or other bond-weakening coatings.
3. Take precautions to maintain identification after bundles are broken.

C. Cast-in-Place Concrete:

1. Store bulk cement in bins capable of preventing exposure to moisture.
2. Use sacked cement in chronological order of delivery.

a. Store each shipment so that it may be readily distinguishable from other shipments.

1.06 PROJECT CONDITIONS

A. Sequencing Schedule for Formwork:

1. Ensure timely delivery of embedded items.
2. Be responsible for cutting and patching necessitated by failure to place embedded items.
3. Plan erection and removal to permit proper sequence of concrete placing without damage to concrete.

PART 2 PRODUCTS

2.01 MATERIALS

A. Formwork and Accessories:

1. Forming Materials:

a. Panel or board forms at Contractor's option.

1) Panel Forms:

a) Minimum 5/8 inch thick exterior grade plywood with sealed edges, PS 1 grade Plyform Class I and II B-B Exterior or HDO Exterior.

2. Wood Framing:

   a. WCLIB standard grade or better Douglas Fir.

3. Form Ties and Spreaders:

   a. Metal type acting as spreaders, leaving no metal within one inch of concrete face and no fractures, spalls, depressions or other surface disfigurations greater than 3/4 inch in diameter.

4. Expansion Joint Filler:

   a. Fiber Type:

      1) Premolded non-extruding preformed bituminous saturated fiberboard units, ASTM D 1751, 1/4 inch thick unless otherwise noted.
      2) Provide one of following, or approved equal:

         a) W. R. Meadows, Inc. - Sealtight Fibre Expansion Joint (Basis-of-Design)
         b) J.D. Russell Company – Fiberflex Fiber Expansion Joint
         c) Right / Pointe Company – Fibre Expansion Joint
         d) SpecChem Fiber Expansion Joint

   b. Cork Type:

      1) Preformed cork, ASTM D1752, Type II, 1/2-inch size unless otherwise noted.

         a) Right / Pointe Company – Cork-Standard Expansion Joint, or approved equal.

5. Form Release Agent:

   a. Must not stain or otherwise adversely affect architectural concrete surfaces.
   b. Provide one of following, or approved equal:

      1) Atlas Construction Supply, Inc. – Atlas Premium Gold Release
      2) Nox-Crete Co. – Nox-Crete Form Coating
      3) Right / Pointe Company – Right Release Water Base

B. Waterstops:

   1. Sodium bentonite based waterstop conforming to following physical properties:

      a. Sodium Bentonite Content: 75 percent.

b. Hydrostatic Head Resistance: 231 ft.
c. Wet/Dry Cycling, (25 cycles at 231 ft.): No effect
d. Specific gravity, (ASTM 0 71): 1.57
e. Flash Point, (ASTM 093): > 300 °F.

2. Product and Manufacturer:

a. Waterstop-RX by CETCO div. Minerals Technologies.
b. Waterstop Adhesive: CETSEAL by CETCO

C. Under Slab Moisture Barrier/Retarder:

1. Vapor Retarder:

a. Minimum 15 mil thick, complying with ASTM E 1745, Class A and following:

1) Water Vapor Permeance, ASTM F 1249 / E 154, Section 7: 0.01 perms or less.
2) Puncture Resistance, ASTM D 1709: Minimum 2266 grams.
3) Tensile Strength, ASTM D 882: 70.6 lbf/in
4) Methane Transmission Rate, ASTM D 1434: 192.8 GTR mL(STP)/m2/day.

2. Provide one of following products, or approved equal:

a. Moistop Ultra 15 by Fortifiber Building Systems Group.
b. VaporBlock 15 by Raven Industries, Inc.
c. Stego Wrap Vapor Barrier by Stego Industries, LLC

D. Reinforcing:

1. Bars:

a. New billet steel, ASTM A615 Grade 60, and ASTM A706.

1) Grade 60, where welded.
2) Refer to Structural Drawings for use of Grade 40 bars.

2. Tie Wires and Spirals: ASTM A 1064.
3. Bar Supports:

a. As required for assembling and supporting reinforcement in place.
b. Typical: CRSI Class B, pregalvanized.
c. Concrete adobes for foundations and slabs on grade.

4. Threaded Coupler:

a. Lenton Standard coupler by ERICO, or approved equal.
b. Coupler is to develop 125 percent of specified yield strength reinforcement.

5. Welded Wire Fabric:

a. Conforming to ASTM A 1064
b. Fabricated from as-drawn steel wire into flat sheets.
c. For use with concrete stair fill only.

E. Concrete:

1. General Requirements:

a. Furnish cement and aggregates with proven history of successful use with one another.

1) Sources of cement and aggregate are to remain unchanged throughout Work, unless Architect approves request for change made at least 10 days prior to anticipated date of casting.

b. Ready-mixed concrete meeting requirements of ASTM C 94.
c. Deviations in properties of materials tested by Owner's Testing Agency is cause for their rejection pending additional test results and redesign of mix by Contractor's Testing Laboratory.
d. Use of frozen aggregates is not permitted.

2. Cement:

a. Conforming to ASTM C150, Type II / V, low alkali.
b. Use one brand of cement throughout Project, unless otherwise acceptable to Architect.

3. Aggregates:

a. Conform to Chapter 19A, Concrete, CCR, Title 24, Part 2 CBC Sections 1705A.3.2, 1903A.5, and following:
b. Coarse Aggregate:

1) Conforming to ASTM C 33.
2) Consisting of clean, hard, fine grained, sound crushed rock, or washed gravel, or combination of both.
3) Free from oil, organic matter or other deleterious substances and not contain more than two percent by weight of shale or cherty material.

c. Fines:

1) Conforming to ASTM C 33.
2) Sand Equivalent:

a) Not less than 75 when tested per ASTM D 2419.

d. Provide aggregates from single source for exposed concrete.

F. Water:

1. Clean and potable, free from impurities detrimental to concrete.

G. Admixtures:

1. Use of admixtures is not permitted unless request is submitted to Architect and Structural Engineer for review and Structural Engineer's approval.
2. Use of calcium chloride or admixtures containing calcium chloride is prohibited.
3. Upon receipt of Structural Engineer approval, Contractor modifies mix designs as necessary, and submits modifications to Owner's Testing Agency for testing and acceptance
4. When approved, following types of admixtures may be used, conforming to manufacturer's recommendations for use:

    a. Water Reducing: Conforming to ASTM C 494, Type A.
    b. Accelerating or Retarding: Conforming to ASTM C 494
    c. Air Entraining: Conforming to ASTM C 260.

5. Do not use admixtures which have not been incorporated and tested in accepted mix designs.

H. Fly Ash:

1. Fly ash conforming to ASTM C 618, Class N or F may be used at Contractor's option.

    a. Use of Class C is not permitted.

2. Do not substitute more than 15 percent by weight of fly ash or other pozzolan, for ASTM C 150, Portland Cement.

I. Non-Shrink, Non-Metallic Grout:

1. Premixed high strength grout requiring only addition of water at Project Site.

    a. BASF Corporation, Construction Chemicals – MasterFlow 928
    b. Five Star Products, Inc. – Five Star Grout.
    c. Sika Corporation – SikaGrout 428 FS

J. Curing Materials:

1. Concrete Curing Paper:

    a. Conforming to ASTM C 171, non-staining, reinforced type.

        1) Orange Label Sisalkraft by Fortifiber Building Systems Group.
        2) Approved equal.

2. Liquid Curing Compound:

    a. Conforming to ASTM C 309, Type 1, Class B, approved standard product resin type.

        1) Deliver in unopened labeled containers.

2) Water based acrylic polymer blend, free of wax or oil, compatible with subsequent applied finishes or floor coverings.
3) Do not apply curing compounds in areas designated to receive floor coverings.

K. Joint Sealing Compound:

1. Refer to Section 07 92 00.

2.02 SOURCE QUALITY CONTROL

A. Furnish Plywood bearing APA grade-trademark.

B. Owner's Testing Agency will:

1. Review mix designs, certificates of compliance, and samples of materials Contractor proposes to use.
2. Test and inspect materials, as necessary, in accordance with ACI 318 and CBC Sections 1705A, 1903A, and 1910A for compliance with requirements.
3. Take samples as required from Contractor's designated sources.
4. Take one grab sample for each 100 tons of Portland cement except that, when used in bulk loading ready-mix plants where separate bins for pretested cement are not available, take grab samples for each shipment of cement placed in bin with not less than one sample being taken for each day's pour and subsequently test such samples when required by Architect who may be so advised by DSA.
5. Test coarse, intermediate, and fine aggregate by use of solution of sodium or magnesium sulfate, or both whenever in judgment of Architect such tests are necessary to determine quality of material.

    a. Perform such tests in accordance with ASTM C 88.
    b. Loss not to exceed 6 percent of either fine intermediate or coarse aggregate.
    c. Aggregate failing to comply with this requirement may be used in Work provided it contains less than 2 percent of shale and other deleterious particles and shows loss in soundness test of not more than 10 percent when tested in sodium sulphate solution.
    d. Test aggregates as required by CBC Sections 1705A.3.2 and 1903A.5.

6. Test for sand equivalent of fine aggregate in accordance with California Test 217.
7. Test for cleanness value of coarse and intermediate aggregate in accordance with California Test 227.
8. Inspect plant prior to starting Work to verify following:

    a. Plant is equipped with approved metering devices for determining moisture content of fine aggregate.
    b. Other plant quality controls are adequate.

9. Continuously inspect quality and quantity of materials used in transit mixed concrete, in batched aggregates and ready-mixed concrete at mixing plant or

other location per CBC Sections 1705A.3, 1905A.1.16, 1910A.1, and ACI 318 Section 26.12 as modified, where other materials are measured.

C. Waiver of Batch Plant Inspection:

1. Continuous batch plant inspection may be waived in accordance with CBC Section 1705A.3.3.1
2. Following requirements apply when batch plant inspection is waived:

    a. Qualified technician of Testing Agency to perform check of first batch at start of day.
    b. Licensed weighmaster to positively identify materials as to quantity and certify to each load by batch ticket.
    c. Batch tickets, including material quantities and weights, are to:

        1) Accompany load
        2) Be transmitted to Project Inspector by truck driver with load identified thereon.
        3) Do not place load without batch ticket identifying mix.
        4) Inspector will keep daily record of placements, identifying each truck, its load, time of receipt, and approximate location of deposit in structure, and will transmit copy of daily record to enforcement agency.

2.03 MIXES

A. General Requirements:

1. Perform tests or assemble necessary data indicating conformance with Specifications.
2. For each mix submit data showing that proposed mix will attain required strength in accordance with requirements of CBC Sections 1705A.3 and 1905A.1.16 per ACI 318 Section 26.12.2 (a) as modified
3. Instruct Laboratory to base mix design on use of materials tested and approved by Owner's Testing Agency.
4. Include compression strength test reports with mix design per CBC Section 1904A and 1905A.1.9
5. Design Mix, test, and adjust when necessary in ample time before first concrete is scheduled to be placed.

    a. Submit laboratory data and strength test results for revised mix design to Architect prior to using Mix in Project.

6. Ensure mix designs will produce concrete to strengths specified and of uniform density without segregation.
7. When mix yield exceeds 1-cubic yard, modify mix design to no more than one cubic yard without changing cement content.
8. Contractor's mix designs are subject to review by Architect and Owner's Testing Agency.
9. Introduction of calcium chloride will not be permitted.

10. Water/Cement Ratio: 0.45 maximum, unless noted otherwise on Structural Drawings.

B. Admixtures:

1. Where use of admixtures has been approved, provide admixtures produced by establish reputable manufacturers.

    a. Conform to types of admixtures specified under “Materials” Article.
    b. Use in compliance with manufacturer’s printed directions.
    c. Do not use admixtures which have not been incorporated and tested in accepted mix designs.
    d. Refer to CBC Section 1903A.6 and ACI 318 Section 26.4.2.2(b) as modified.

C. Patching Mortar:

1. Mix in proportions by volume of one part cement to two parts fine sand.

D. Non-Shrink, Non-Metallic Grout:

1. Follow approved manufacturer's printed instructions and recommendations.

2.04 MIXING

A. Batching Plant Conditions:

1. Ensure equipment and plant will afford accurate weighing, minimize segregation and will efficiently handle materials to satisfaction of Architect and Owner's Testing Agency.
2. Use approved moisture meter capable of determining moisture content of sand.

B. General Requirements:

1. Thoroughly clean concrete equipment before use for architectural concrete mixes to avoid contamination.
2. Mix cement, fine and coarse aggregates, admixtures and water to exact proportions of mix designs.

    a. Use method of mixing complying with ACI 318, Section 26.4

3. Measure fine and coarse aggregates separately according to approved method which provides accurate control and easy checking.
4. Adjust grading to improve workability; do not add water unless otherwise directed.
5. Maintain proportions, values, or factors of approved mixes throughout Work.
6. Mix concrete in transit mixers five minutes immediately prior to discharge in addition to mixing as called for by ACI 304 and ASTM C 94.

C. Admixtures:

1. Use automatic metering dispenser to introduce admixture into mix.
2. Use Dispenser recommended and calibrated by admixture manufacturer.

2.05 FINISH MATERIALS

A. General:

1. Provide concrete sealer materials complying with requirements of SCAQMD Rule 1113.

B. Concrete Sealer Type 1:

1. Clear, non-yellowing, acrylic resin.
2. Use for concrete slabs, walls, and columns, where indicated in Finish Schedule.
3. Products: Subject to compliance with specified requirements, provide following, or approved equal:

    a. General Polymers 4502 Acrylic Sealer by Sherwin-Williams Protective and Marine Coatings.
    b. Comply with SCAQMD Rule 1113 and requirements for low-emitting materials as specified in Section 01 3329.
    c. Comply with ANSI/NFSI B101.3 for slip-resistance.

C. Concrete Sealer Type 2:

1. Lithium-Silicate sealer, hardener, and densifier.
2. Use for concrete slabs where indicated in Finish Schedule:
3. Products:

    a. Subject to compliance with specified requirements, provide following, or approved equal:

        1) Conslideck LS by Prosoco, Inc.

    b. Comply with SCAQMD Rule 1113 and requirements for low-emitting materials as specified in Section 01 3329.
    c. Comply with ANSI/NFSI B101.3 for slip-resistance.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine areas where formwork will be constructed and verify that:

1. Excavations are sufficient to permit placement, inspection, and removal of forms.
2. Excavations for earth forms have been neatly and accurately cut.
3. Conditions are otherwise proper for formwork construction.
4. Do not start Work until unsatisfactory conditions have been corrected.

B. Examine units of Work to be cast and verify that:

1. Construction of formwork is complete.
2. Required reinforcement, inserts, and embedded items are in place.
3. Form ties at construction joints are tight.
4. Concrete-receiving places are free of debris.
5. Depths of depressed slab conditions are correct for delayed finish noted and for its proper bonding to concrete.
6. Conveying equipment is clean and properly operating.
7. Architect has reviewed formwork and reinforcing steel and that preparations have been checked with Project Inspector.

C. Do not begin placement of concrete before unsatisfactory conditions have been corrected.

3.02 PREPARATION

A. Obtain necessary information for coordination of formwork with items to be embedded in concrete and other related work.

B. Ensure availability of sufficient labor, equipment and materials to place concrete correctly in accordance with scheduled casting.

C. Protect finished surfaces adjacent to concrete-receiving places.

D. Clean transportation and handling equipment at frequent intervals and flush thoroughly with water before each day's run.

1. Do not discharge wash water into concrete form.

E. Construction Joints:

1. Clean and roughen construction joint contact surfaces by removing surface laitance and exposing sound mortar.
2. Sandblasting and bush-hammering are acceptable methods.

3.03 FORMWORK CONSTRUCTION

A. General:

1. Design, erect, support, brace, and maintain formwork to support vertical and lateral, static, and dynamic loads that might be applied until concrete structure can support such loads.

a. Construct formwork so concrete members and structures are of correct size, shape, alignment, elevation and position.
b. Maintain formwork construction tolerances complying with ACI 347.

2. Construct forms to sizes, shapes, lines and dimensions shown, and to obtain accurate alignment, location, grades, level and plumb Work in finished structures.

    a. Provide for openings, offsets, sinkages, keyways, recesses, moldings, rustications, reglets, chamfers, blocking, screeds, bulkheads, anchorages and inserts, and other features required in Work.
    b. Use selected materials to obtain required finishes.
    c. Solidly butt joints and provide back-up at joints to prevent leakage of cement paste.

3. Frame openings where indicated on Architectural, Structural, Mechanical, Plumbing and Electrical Drawings.

B. Formed Elements:

1. Carefully align inside and outside forms before tightening ties.
2. Plywood Forms:

    a. Insure vertical joints are plumb and horizontal joints are level; arrange joints and ties in geometrical pattern as approved by Architect.

3. Form inside corners at exposed conditions with mitered boards or plywood so that no concrete is placed against form ends.
4. After erection, seal cracks, holes, slits, gaps, and apertures in forms so that they will withstand the pressure and will remain completely watertight.
5. Provide means to seal bottom of forms at construction joints such as foam tape or other gasket devices.
6. Apply coating of release agent prior to erection of formwork following approved manufacturer's recommendations.

C. Construction Joints:

1. Provide where shown on Drawings as directed by Architect and per ACI 318, Section 26.5.6.
2. Provide key indentations at joints.
3. Provide pour strips on inside face of forms at horizontal joints, but remove strips and thoroughly clean out reglets before placing subsequent portions of wall.
4. Prevent formations of shoulders and ledges.
5. Provide means for drawing forms into firm contact with concrete before placing additional concrete over previous pours where shrinking and warping has separated concrete from forms.

D. Embedded Items:

1. Properly locate, unless locating is specified elsewhere, and place inserts and embedded items required by other trades prior to casting concrete.

3.04 REINFORCING PLACEMENT

A. General:

1. Place bars as noted.
2. Reinforcement to be continuous.

    a. Refer to Structural Drawings for lap splice schedule.
    b. Stagger splices where possible.
    c. Securely wire contact lap splices together to maintain alignment.

3. Ensure placement will permit concrete protection in conformance with CRSI or to extent shown.
4. Support and fasten bars securely with spacers, chairs or ties to permit their being walked upon without displacement or movement both before and during placement of concrete.

    a. Wire-tie bar intersections.

5. Do not bend bars around openings or sleeves.

    a. Wherever conduits, piping, inserts, or sleeves, and like items interfere with placing of reinforcement, obtain Architect's approval of placing before concreting.

6. Do not field bend bars unless expressly noted in Contract Documents.

B. Prior to placing concrete, verify reinforcement has been bent, positioned, and secured in accordance with Drawings; ensure removal of oil, grease, dirt, or other bond-weakening coatings; replace severely rust-pitted reinforcing bars.

C. Quality Assurance:

1. Project Inspector will inspect placement of reinforcement and notify Structural Engineer of discrepancies in placement.
2. Owner's Testing Agency will inspect shop and field welding of reinforcing bars in accordance with CBC Section 1903A.8; 1705A.3.1 - Table 1705A.3, Item 2 and Table 1705A.2.1, Item 5b

3.05 CONCRETE PLACEMENT

A. Notify Project Inspector, Architect, Structural Engineer, Testing Laboratory at least 48 hours before placing concrete.

B. Place concrete in accordance with CBC Section 1705A and ACI 318.

C. Place concrete in cycles as continuous operation to permit proper and thorough integration and to complete scheduled placement.

1. Do not place concrete where sun, wind, heat, or facilities prevent proper finishing and curing.

D. Convey concrete as rapidly and directly as practicable to preserve quality and to prevent separation from re-handling and flowing.

1. Do not deposit concrete initially set.
2. Place concrete within ninety minutes after adding water unless otherwise noted.
3. Re-tempering of concrete which has partially set will not be permitted.

E. Take precautions to avoid damage to under-slab moisture barrier and displacement of reinforcement and formwork.

F. Deposit concrete vertically in its final position.

1. Avoid free falls in excess of six feet where reinforcement will cause segregation and in typical conditions unless Architect approves otherwise.

G. Keep forms and reinforcement clean above pour line by removing clinging concrete with wire brush before placing next lift.

1. Remove leakage through forms.

H. Interruption in placement longer than 60-minutes will be cause for discontinuing placement for remainder of day.

1. In this event, cut back concrete and provide construction joints as Architect directs
2. Clean forms and reinforcement as necessary to receive concrete at later time.

I. Hot Weather Concreting:

1. Conform to ACI 305 and following requirements when mean daily temperature rises above 75 degrees F.

2. Establish upper temperature limit of concrete mixes for each class of concrete.

   a. Ensure that concrete temperature during placing are not so high as to cause difficulty from loss of slump, flash set, or cold joints, and do not exceed 90 degrees F.
   b. Consider other project climatic conditions detrimental to concrete quality such as relative humidity, wind velocity, and solar radiation.

3. Make trial batches of concrete for each mix design at limiting mix temperature selected.

   a. In lieu of trial batches, submit compression strength test reports (20 minimum) at limiting temperature for each proposed mix to Owners testing laboratory for review.

4. Employ practices to maintain concrete below maximum limiting temperature in accordance with ACI 305.

   a. Concrete ingredients may be cooled before mixing, or flake ice or well-crushed ice of size that will melt completely during mixing may be substituted for part of mixing water.

5. Employ practices to avoid potential problems of hot weather concreting in accordance with ACI 305.
6. When temperature of reinforcing steel or steel deck forms is greater than 120 degrees F, spray reinforcing and forms with water just prior to placing concrete.

J. Cold Weather Concreting:

1. No placement of concrete will be allowed at temperatures below 20 degrees Fahrenheit or when mean daily temperature for curing period is anticipated to be below 20 degrees Fahrenheit.
2. No concrete placement will be allowed on frozen sub-grade.
3. Conform to ACI 306 and following requirements when mean daily temperature falls below 40 degrees Fahrenheit.

    a. Ensure that reinforcement, forms, or ground to receive concrete are completely free from frost.
    b. Temperature of concrete at time of placement for footings not to be lower than 50 degrees Fahrenheit.

        1) Minimum temperature at time of placement for other concrete to be 60 degrees Fahrenheit.
        2) Maximum temperature at time of placement to be 90 degrees Fahrenheit.

    c. Maintain concrete at temperature no lower than 50 degrees Fahrenheit for minimum 7 day period after placement by means of blanket insulation, heaters, or other methods as approved by Architect.
    d. Keep record of concrete surface temperature for first 7 days after each pour.

        1) Make Record open to inspection by Architect.

K. Consolidating:

1. Use vibrators for thorough consolidation of concrete.
2. Provide vibrators for each location during simultaneous placing to ensure timely consolidation around reinforcement, embedded items and into corners of forms; ensure availability of spare vibrators in case of failures.

    a. Vibrate through full depth of freshly placed concrete.

3. Do not place vibrators against reinforcement, attach to forms, or use to spread concrete.
4. Exposed Concrete:

    a. Vibrate with rubber type heads and, in addition, spade along forms with flat strap or plate.

L. Construction Joints:

1. Verify location and conformance with typical details

a. Provide only where designated or approved by Architect.
b. Comply with ACI 318, Section 26.5.6

2. Horizontal and vertical construction joints to be thoroughly sandblasted to clean and roughen entire surface to minimum 1/4-inch relief exposing clean coarse aggregate solidly embedded in mortar matrix.
3. Just prior to depositing concrete, wet surface of construction joint thoroughly.

M. Contraction (Control) Joints in Slabs-on-Grade:

1. Construct contraction joints in slabs-on-ground to form panels of patterns indicated on Shop Drawings.

a. Use saw cuts 1/8 inch x 1/4 slab depth, unless otherwise indicated.

2. Time saw cutting to allow sufficient curing of concrete to prevent raveled or broken edges.
3. Contraction joints in unexposed floor slabs may be formed by saw cuts as soon as possible after slab finishing as may be safely done without dislodging aggregate, maximum 24 hours after pouring.
4. When joint pattern is not shown, provide joints not exceeding 15 feet in either direction and located to conform to bay spacing wherever possible; at column centerlines, half bays, third-bays

N. Formed Elements:

1. Space points of deposit to eliminate need for lateral flow.

a. Placing procedures of concrete in forms permitting escape of mortar, or flow of concrete itself, will not be permitted.

2. Level top surface upon stopping Work.
3. Take special care to fill each part of forms by depositing concrete directly as near final position as possible, and to force concrete under and around reinforcement, embedded items, without displacement.
4. After concrete has taken its initial set, exercise care to avoid jarring forms or placing strain on ends of projecting reinforcement.

3.06 CURING

A. General Requirements:

1. Deploy curing measures immediately after placement and for measures other than application of curing compound, extend for seven days.

a. Architect may recommend longer periods based upon prevailing temperature, wind and relative humidity.
b. Comply with ACI 318, Section 26.5.3.

2. Avoid alternate wetting and drying and fluctuations of concrete temperature.

3. Protect fresh concrete from direct rays of sun, rain, freezing, drying winds, soiling, and damage.
4. Do not permit curing method to affect adversely finishes or treatments applied to finish concrete.

B. Curing Method, Typical:

1. Keep forms and concrete surfaces moist during period forms are required to remain in place.
2. Obtain Architect's approval of alternate measures.

3.07 FORM REMOVAL

A. Secure Architect's approval for time and sequence of form removal.

B. Form Removal:

1. Remove forms carefully to avoid damaging corners and edges of exposed concrete.
2. Remove forms after concrete has developed sufficient strength to sustain its own weight and superimposed loads, but not before time listed below:

MEMBER	STRENGTH	MINIMUM TIME*
Columns, Pilasters, and Beam Sides		2 days
Vertical surfaces of walls	0.60 f'c	7 days
Forms for Supported Slabs, but not Shoring		7 days
Forms for Soffits, Stairs Slabs and Beam Bottoms, but not Shoring		10 days
One half of Shoring for Soffits, Supported Slabs, and Beam Bottom		14 days
Leave remainder of shoring in place until after placing concrete in next slab above.		14 days

3. *Estimated curing time required to obtain desired strength.

a. Present results of 7 day test cylinder break to Architect to demonstrate compliance with above specified strength requirements prior to form removal.
b. Where 7 day test cylinder break demonstrates strength that is less than that specified, Contractor may elect to take additional cylinders at time of next pour to demonstrate strength requirements.
c. Cost of taking and testing additional sample will be borne by Contractor.

C. Reuse of Forms:

1. Architect will approve reuse of forms provided they are straight, clean, free from nails, dirt, hardened concrete, or other injurious matter and edges and surfaces are in good condition.
2. Clean and repair damage caused by placing, removal, or storage.

    a. Reuse of formwork with repairs or patches which would result in adverse effects to architectural concrete finish will not be permitted.

3. Store formwork in manner to prevent damage or distortion.
4. Reseal as required to achieve concrete of specified quality.

    a. Form Sealer:

        1) Pre-Form 100 by Nox-Crete Products Group, Omaha, NE, or approved equal.

3.08 CLEANING, PATCHING, AND DEFECTIVE WORK

A. Where concrete is under strength, out of line, level or plumb, or shows objectionable cracks, honeycombing, rock pockets, voids, spalling, exposed reinforcement, signs of freezing, or is otherwise defective, and, in Architect's judgment, these defects impair proper strength or appearance of Work, Architect will require its removal and replacement at Contractor's expense.

B. Immediately after stripping and before concrete is thoroughly dry, patch minor defects, form-tie holes, honeycombed areas, and similar areas, with patching mortar.

1. Install patch to match finish of adjacent surface unless otherwise noted.
2. Remove ledges and bulges.

C. Compact mortar into place and neatly file defective surfaces to produce level, true planes.

1. After initial set, dress surfaces of patches mechanically or manually to obtain same texture as surrounding surfaces.

D. Rock Pockets:

1. Cut out to full solid surface and form key.
2. Thoroughly wet before placing mortar.
3. Where Architect deems rock pocket too large for satisfactory mortar patching as described, cut out defective section to solid surface, key and pack solid with concrete to produce firm bond and match adjacent surface.

E. Cleaning

1. Ensure removal of bituminous materials, form release agents, bond breakers, curing compounds when permitted, and other materials employed in concrete

work which would otherwise prevent proper application of sealants, liquid waterproofing, and other delayed finishes and treatments.

2. Where cleaning is required, take care not to damage surrounding surfaces or leave residue from cleaning agents.

3.09 CONCRETE SLAB FINISHES

A. General:

1. Comply with recommendations in ACI 302.1 R for screeding, restraightening, and finishing operations for concrete surfaces.
2. Do not wet concrete surfaces.

B. Scratch Finish:

1. Apply scratch finish to slab surfaces scheduled to receive concrete floor topping or mortar setting beds for tile, Portland cement, and other bonded applied cementitious finish flooring material.

    a. After placing slabs, plane surface not exceeding tolerance specified in Article 2.06 when tested with a 10 foot straightedge.
    b. Slope surfaces uniformly to drains where required.
    c. After leveling, roughen surface before final set, with stiff brushes, brooms, or rakes.

C. Trowel Finish:

1. Apply trowel finish to slab surfaces to be exposed to view, and slab surfaces to be covered with resilient flooring, carpet, tile set over cleavage membrane, paint, or other thin film finish coating system.

    a. After floating, begin first trowel finish operation using power-driven trowel.
    b. Begin final troweling when surface produces ringing sound as trowel is moved over surface.
    c. Consolidate concrete surface by final hand-troweling operation, free of trowel marks, uniform in texture and appearance.
    d. Finish and measure surface so gap at any point between concrete surface and an unlevel0ed freestanding 10 foot long straightedge, resting on two high spots and placed anywhere on surface, does not exceed 1/4 inch.
    e. Grind smooth surface defects which would telegraph through applied floor covering system.

D. Broom Finishes:

1. Light Textured Broom Finish:

    a. Provide light texture by drawing soft bristle broom lightly across concrete surface in one directions, as indicated on Drawings, to provide uniform fine line texture finish.

2. Medium Textured Broom Finish:

    a. For slopes less than 6 percent, provide medium texture by drawing soft bristle broom across concrete surface perpendicular to line of traffic to provide uniform fine line texture finish.

3. Heavy (Coarse) Textured Broom Finish:

    a. For slopes 6 percent and greater, provide coarse finish by striating surface 1/16 inch to 1/8 inch deep with stiff-bristled broom, perpendicular to line of traffic.

4. Match finish of approved mock-up panel specified in “Quality Assurance” Article.

    a. Match existing texture where abutting adjacent slabs.

3.10 CONCRETE SEALER APPLICATION

A. Apply specified sealers only to concrete surfaces where scheduled in Finish Schedule.

B. Apply sealers only to surfaces that are sound, properly troweled and finished, and that are clean, dry, and free of form release agents, retarders, alkali, curing compounds, oil, grease and other contaminants.

    1. Acid-clean and etch discolored or stained slabs before sealer is applied when, in Architect's judgment, satisfactory uniform finish cannot be otherwise achieved.

C. Apply Sealer Type 1 to following surfaces:

    1. Floor slabs, not scheduled to receive other floor coverings or Sealer Type 2.
    2. Walls and columns where scheduled or indicated.

D. Apply Sealer Type 2 only to concrete slabs where scheduled or indicated.

3.11 FIELD QUALITY CONTROL

A. Owner's Testing Agency will:

    1. Perform testing in accordance with ACI 318 and CBC Section 1903A and 1905A.
    2. Review concrete mix designs.
    3. Inspect concrete and grout placement continuously.
    4. Test concrete to control slumps according to ASTM C143.
    5. Continuously monitor concrete temperature as it arrives on Project Site.
    6. Test concrete for required compressive strength in accordance with CBC Section 1705A.3 – Table 1705A.3, Item 6; 1905A.1.16; and ACI 318 – Section 26.12 as modified:

a. Make and cure three specimen cylinders according to ASTM C 31 for each 50 cubic yards, or fraction thereof, of each class poured at Project Site each day.
b. Retain one cylinder for 7 day test and two for 28-day test.
c. Number each cylinder 1A, 1B, 1C, 2A, 2B, 2C, and so on.

1) Date each set; and keep accurate record of pour each set represents.

d. Transport specimen cylinders from Project to laboratory after cylinders have cured for 24 hours on Project Site.
e. Cover cylinders and keep at air temperatures between 60 and 80 degrees Fahrenheit.
f. Test specimen cylinders at age 7 days and age 28 days for specified strength according to ASTM C 39.
g. Base strength value on average of two cylinders taken for 28 day test.

7. Test and inspect materials, as necessary, in accordance with ACI 318, MM Test Method 227 (Coarse and Intermediate Aggregates) and MM Test Method 217 (Fine Aggregates), for compliance with requirements specified in this Section.

B. Submit ticket for each batch of concrete delivered to Project Site.

1. Provide following information on Ticket:

a. Design mix number.
b. Signature or initials of ready mix representative.
c. Time of batching.
d. Weight of cement, aggregates, water and admixtures in each batch with maximum aggregate size.
e. Total volume of concrete in each batch.
f. Notation to indicate equipment was checked for contaminants prior to batching.

2. Pay Owner's Testing Agency for taking core specimens of hardened structure and testing specimen according to ASTM C 88 and C 42 when laboratory tests of specimen cylinders show compressive strengths below specified minimum.

3.12 CLEANING

A. Perform Work to keep affected portions of Project Site neat, clean, and orderly.

1. Remove, immediately upon completion of Work, surplus materials, rubbish, and equipment associated with or used in performance.
2. Be aware that failure to perform clean-up operations within 24 hours of notice by Architect will be considered adequate grounds for having work done by others at no added expense to Owner.

3.13 PROTECTION

A. Protect concrete from injurious action of elements and defacement during construction operations.

B. Protect exposed corners of concrete from traffic or use which will damage them.

C. Make provisions to keep exposed concrete free from laitance caused by spillage or leaking forms or other contaminants.

    1. Do not allow laitance to penetrate, stain, or harden on surfaces which have been textured.

END OF SECTION 03 30 00

SECTION 04 01 91

MASONRY REPAIR AND RESTORATION

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Furnish labor, materials, tools, and equipment required to perform structural masonry repairs.
   2. Work of this Section includes, but is not necessarily limited to:
      a. Partial-depth masonry wall repairs consisting of patching spalled unit masonry and refinishing of wall surface.
      b. Grout cleaned (sack) finish.

B. Related Sections:
   1. Section 03 30 00: Cast-in-Place Concrete.
   2. Section 07 92 00: Joint Sealants

1.02 REFERENCES

A. California Code of Regulations (CCR), Title 24, Part 2, California Building Code (CBC), Volumes 1 and 2, current edition.

B. ASTM International (ASTM):
   1. ASTM C 109 – Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2 in [50-mm] Cube Specimens)
   2. ASTM C 138 – Standard Test Method for Density (Unit Weight), Yield, and Air Content (Gravimetric) of Concrete
   3. ASTM C 157 – Standard Test Method for Length Change of Hardened Hydraulic-Cement Mortar and Concrete
   4. ASTM C 266 – Standard Test Method for Time of Setting of Hydraulic-Cement Paste by Gillmore Needles
   5. ASTM C 293 – Standard Test Method for Flexural Strength of Concrete (Using Simple Beam With Center-Point Loading)
   6. ASTM C 309 – Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete
   7. ASTM C 469 – Standard Test Method for Static Modulus of Elasticity and Poisson's Ratio of Concrete in Compression
   8. ASTM C 496 – Standard Test Method for Splitting Tensile Strength of Cylindrical Concrete Specimens
   9. ASTM C 531 – Standard Test Method for Linear Shrinkage and Coefficient of Thermal Expansion of Chemical-Resistant Mortars, Grouts, Monolithic Surfacings, and Polymer Concretes
   10. ASTM C 882 – Standard Test Method for Bond Strength of Epoxy-Resin Systems Used With Concrete By Slant Shear
   11. ASTM C 928 – Standard Specification for Packaged, Dry, Rapid-Hardening
   12. ASTM C 1202 – Standard Test Method for Electrical Indication of Concretes Ability to Resist Chloride Ion Penetration Cementitious Materials for Concrete Repairs

13. ASTM C 1581 – Standard Test Method for Determining Age at Cracking and Induced Tensile Stress Characteristics of Mortar and Concrete under Restrained Shrinkage
14. ASTM C 1583 – Standard Test Method for Tensile Strength of Concrete Surfaces and the Bond Strength or Tensile Strength of Concrete Repair and Overlay Materials by Direct Tension (Pull-off Method)
15. ASTM C 1602 – Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete

C. Masonry Institute of America (MIA):

1.03 DEFINITIONS

A. Corrosion:
   1. Destruction of metal by chemical, electrochemical, or electrolytic reaction within its environment.

B. Nonstructural Repair:
   1. Repair that addresses local deterioration and is not intended to affect structural capacity of member.

C. Repair:
   1. To replace or correct deteriorated, damaged, or faulty materials, components, or elements of structure.

D. Repair Systems:
   1. Combination of materials and techniques used in repair of structure.

E. Surface Preparation:
   1. Steps taken after removal of deteriorated concrete, including conditioning of surface of substrate at bond line and cleaning of existing reinforcing steel.

1.04 SYSTEM DESCRIPTIONS

A. Wall Repair System:
   1. Inspect areas of spalled unit masonry, grout, clean out existing holes, and remove loose material down to sound material.
   2. Apply specified one-component, cementitious vertical repair mortar to spalled areas, flush with surface.
   3. Apply grout cleaned (sack) finish to entire vertical concrete surface.
   4. Leave area ready to receive paint specified in Section 09 91 00

1.05 SUBMITTALS

A. Product Data:
   1. Manufacturer’s product data sheets for each product/material to be used on Project.
      a. Including, but not necessarily limited to, relevant manufacturer literature product standards, physical and chemical characteristics, technical data and specifications, limitations, maintenance instructions, and general recommendations regarding each material indicated.

B. Qualifications:

1. Documentation demonstrating conformance with qualification requirements for masonry repair contractor and foreman.

C. Quality Control Test Results:
   1. Copies of quality control test results and inspection reports.

D. Tools and Procedures for Masonry Removal:
   1. List of concrete removal tools to be used on Project.
      a. Include locations and circumstances under which each tool will be used.

E. Tools and Procedures for Surface Preparation:
   1. Description of tools and procedures that will be used to achieve required bond of repair material.

F. Mock-Up for Grout Cleaned (Sack) Finish:
   1. Prior to application of grout cleaned finish at masonry walls, apply finish in approximately 5 feet long by full height of wall test area in location designated by Architect.
   2. Obtain Architect's acceptance of mock-up before proceeding with application of finish to entire wall.

1.06 QUALITY ASSURANCE

A. General:
   1. Comply with specified reference standards as minimum requirement

B. Contractor Qualifications:
   1. Unit Masonry Repair Contractor:
      a. Submit documentation demonstrating experience with previous projects of similar size and complexity.
         1) Include references from Owners, Contractors, and Engineers on previous projects.
   2. Foreman for Masonry Repair Contractor:
      a. Submit a resume for foreman demonstrating experience with previous projects of similar size and complexity.
         1) Include references from Owners, Contractors, and Engineers on previous projects.

C. Preinstallation Conference:
   1. Purpose of conference will be to view areas where major masonry repair work is to take place and review proposed systems and methods to do such work.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Comply with the material manufacturer's ordering instructions and lead-time requirements to avoid construction delays.

B. Deliver materials to Project Site in manufacturer's original, unopened containers, with labels intact indicating type and name of products and manufacturers.

C. Comply with manufacturer's written instructions for conditions for temperature requirements as well as other conditions for storage.
   1. Store dry at 40 degrees to 95 degrees F.

D. Do not use materials that have exceeded their stated expiration date.
   1. Wall Repair Material:
      a. 12 months from date of production, if stored properly in original, unopened and undamaged sealed packaging.

E. Store materials off ground, under cover, in dry location.
   1. Protect from rain, water, excessive heat, foreign matter, and other damaging conditions until ready for use.
      a. Discard damp material
   2. Do not use damaged containers or broken bags.

1.08 PROJECT CONDITIONS

A. Environmental Limitations and Requirements:
   1. Execute demolition in manner to limit unnecessary dust and noise.
   2. Product Temperature:
      a. Condition material to 65 degrees to 75 degrees F before using
   3. Ambient Air Temperature:
      a. Greater than 45 degrees F

PART 2 PRODUCTS

2.01 EQUIPMENT

A. Concrete Saw:
   1. Hand-held adjustable depth concrete saw for saw cutting edges of repair areas.

B. Hand Tools:
   1. Hammers, chipping hammers, and cold chisels, for removal of spalled concrete.
      a. Do not use electric chipping hammers or other means that could damage surrounding area.

C. Air Compressor:
   1. Compressed air equipment, capable of delivering compressed air, free of oil, for cleaning loose material from repair areas.

D. Pressure-Washer:
   1. Pressure-washing equipment to clean entire vertical surface prior to application of grout cleaned finish.
   2. Provide pressure level sufficient to clean concrete, but not disturb recently repaired areas.

2.02 PRODUCTS AND MANUFACTURERS

A. Subject to compliance with specified requirements, comparable products may be submitted by manufacturers in accordance with requirements for product specified in Section 01 60 00 and following:
   1. Submit items listed in “Submittals” Article and as specified in Section 01 33 00, for evaluation of proposed system.
   2. Furnish documentation that tests have been made for identical systems within ranges of specified performance criteria.
   3. Copy of manufacturer's 1 year material warranty.

2.03 MATERIALS – GENERAL

1. Portland Cement, ASTM C 150.
2. Unit Masonry, ASTM C 90 and ASTM C 129.

B. Water:
1. Clean and free from deleterious amounts of oils, acids, alkalis, salts, or organic materials, ASTM C 1602

2.04 PACKAGED REPAIR MATERIAL

A. Cementitious Repair Materials for Wall Repairs:
1. Fast setting, one component, ready-to-use repair mortar for vertical applications with following characteristics:
   a. polymer modified, cement blends
   b. Fast finishing time
   c. Application up to 3 inches on vertical surfaces in one layer
   d. High bond strength ensures excellent adhesion.
   e. High early and ultimate strength.
   f. Suitable for exterior applications.
   g. Fiber reinforced and polymer modified
   h. Contains corrosion inhibitor.
2. Complying with ASTM C 928, Type R2
3. Mortar scrubbed into substrate at 73º F and 50% RH
4. Color:
   a. Gray
5. Product and Manufacturer:
   a. SikaQuick VOH by Sika Corporation.

PART 3 EXECUTION

3.01 PREPARATION FOR WALL REPAIRS

A. Surface Preparation:
1. Surface must be clean and sound.
2. Remove deteriorated concrete, dirt, oil, grease, and other bond-inhibiting materials from area to be repaired.
3. Perform preparation work by pressure waterblast, scabbler or other appropriate mechanical means to obtain an exposed aggregate surface profile of plus or minus 1/16 inch per CSP-5.
4. To ensure optimum repair results, assess effectiveness of decontamination preparation by pull-off test.
5. Saw cutting of edges is preferred and dovetail is recommended.
6. Substrate:
   a. Saturated Surface Dry (SSD) with clean water prior to application.
   b. No standing water should remain during application.

3.02 INSTALLATION OF WALL REPAIR SYSTEM

A. Priming of Masonry Substrate:
1. Apply scrub coat of repair material prior to placement of mortar.
   a. Apply repair mortar into wet scrub coat before it dries.

B. Mixing:
1. Mix components in accordance with manufacturer’s instructions.

C. Application:
   1. Work mixed repair material well into prepared substrate, filling pores and voids.
      a. Compact well.
   2. Force material against edge of repair, working towards center.
   3. Thoroughly compact mortar around exposed reinforcement.
   4. After filling repair, consolidate, then screed.
   5. Finish with appropriate tools to provide desired surface texture for application of grout cleaned (sack) finish.

D. Grout Cleaned (Sack) Finish:
   1. Upon completion of wall repairs, wet surface and apply cementitious material grout consisting of:
      a. 1 part by volume of Portland cement and 1½ parts of sand.
      b. Mix to consistency of thick paint and scrub grout into voids.
         1) Remove excessive grout.

3.03 PROTECTION

A. Wall Repair System:
   1. Protect newly applied material from direct sunlight, moisture, until specified exterior paint system is applied.

3.04 CLEANING

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

END OF SECTION 04 01 91

SECTION 05 40 00
COLD-FORMED METAL FRAMING

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Cold-formed metal framing for:

   a. Exterior steel stud walls
   b. Ceiling joist framing
   c. Deflection Track
   d. Bridging, bracing, clips, and accessories
   e. Header

B. Related Sections:

1. Section 01 41 00: Regulatory Requirements; current Code edition.
2. Section 05 12 00: Structural Steel Framing
3. Section 05 50 00: Metal Fabrications
4. Section 09 22 16: Non-Structural Metal Framing
5. Section 09 24 00: Portland Cement Plaster
6. Section 09 29 00: Gypsum Board

1.02 REFERENCES

A. California Code of Regulations (CCR), Title 24, Part 2, California Building Code (CBC), Volumes 1 and 2, current edition.

B. ASTM International (ASTM):

1. ASTM A 653 – Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy Coated (Galvannealed) by the Hot-Dip Process.
2. ASTM A 780 – Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings.
3. ASTM C 954 – Standard Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs from 0.033 in. (0.84 mm) to 0.112 in. (2.84 mm) in Thickness
4. ASTM C 955- Standard Specification for Load-Bearing (Transverse and Axial) Steel Studs, Runners (Tracks), and Bracing or Bridging for Screw Application of Gypsum Panel Products and Metal Plaster Bases.
5. ASTM C 1007 – Standard Specification for Installation of Load Bearing (Transverse and Axial) Steel Studs and Related Accessories.
6. ASTM C 1513 – Standard Specification for Steel Tapping Screws for Cold-Formed Steel Framing Connections.

C. American Iron and Steel Institute (AISI):

1. AISI-S100 – North American Specification for the Design of Cold-Formed Steel Structural Members, current edition.
2. AISI-S110 – Standard for Seismic Design of Cold-Formed Steel Structural Systems, current edition.
3. AISI-S200 – Standard for Cold-Formed Steel Framing – General Provisions, current edition with Commentary.
4. AISI-S201 – North American Standard for Cold-Formed Steel Framing-Product Data, current edition.
5. AISI-S211 – Standard for Cold-Formed Steel Framing – Wall Stud Design, current edition with Commentary
6. AISI-S212 – Standard for Cold-Formed Steel Framing - Header Design, current edition with Commentary.
7. AISI-S213 – Standard for Cold-Formed Steel Framing – Design, current edition with Commentary.

D. American Welding Society (AWS):

1. AWS D1.1 - Structural Welding Code - Steel.
2. AWS D1.3 - Structural Welding Code - Sheet Steel.

E. International Code Council Evaluation Service (ICC-ES):

1. ICC ES Reports (ESR):

a. ICC ES Report No. ESR-3016.
b. ICC ES Report No. ESR-3064P.
c. ICC ES Report No. ESR-2620.

F. Steel Framing Industry Association (SFIA):

1. Technical Guide for Cold-Formed Steel Framing Products.
2. Intertek Code Compliance Research Report CCRR-0224.

G. Certified Steel Stud Association (CSSA).

H. Steel Stud Manufacturers Association (SSMA).

1. Product Technical Guide.

1.03 SUBMITTALS

A. Product Data: Manufacturer's product literature, data sheets and installation recommendations for specified products.

B. Sustainable Design Submittals:

1. Recycled Content: Certify recycled content of metal stud and track; indicate recycled content percent and whether pre-consumer or post-consumer.

2. Regional Materials: Certify materials extracted, processed, and manufactured within 500 mile radius of Project Site.

1.04 QUALITY ASSURANCE

A. Manufacturer's Qualifications:

1. Current member of SFIA, CSSA, or SSMA, with current Code Compliance Certification
2. Provide full time quality control over fabrication and erection complying with applicable codes, ordinances, rules and regulations of authorities having jurisdiction.

B. Installer Qualifications: Minimum 2 years experience in performing Work of this Section on similar projects.

C. Welding:

1. Comply with AWS D1.1 and AWS D1.3.
2. Qualify welding processes and welding operators in accordance with AWS "Standard Qualification Procedure".

D. Pre-Installation Conference:

1. Convene at Project Site 2 weeks prior to beginning Work of this Section.
2. Attendees include, but are not limited to:

a. Owner, Architect, Structural Engineer, Contractor, and framing system installer.

3. Review and discuss Project requirements, substrate conditions, and manufacturer's installation instructions.

1.05 DELIVERY, STORAGE AND HANDLING

A. Store materials protected from exposure to rain and other harmful weather conditions, at temperature and humidity conditions per ASTM C 955.

B. Handle products in accordance with manufacturer's instructions and AISI NASPEC.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Subject to compliance with specified requirements, provide cold-formed metal framing by current members of one of following:

1. Certified Steel Stud Association (CSSA):

    a. Comply with ICC ES Legacy Report No. ESR-3016

2. Steel Stud Manufacturers Association (SSMA):

    a. Comply with ICC ES Legacy Report No. ESR-3064P.

3. Steel Framing Industry Association (SFIA):

    a. Intertek Code Compliance Research Report CCRR-0224

2.02 MATERIALS

A. Galvanized Steel:

1. Meet or exceed requirements of ASTM A 653.
2. Coating Class:

    a. G60 per ASTM C 955.

3. Recycled Content: Minimum 35 percent, with minimum 19.8 percent classified as post consumer and minimum 14.4 percent classified as pre-consumer.

B. Stud Punch-Outs:

1. Minimum 10 inches between end of member and near edge of web punch-out and 24 inches on center thereafter, per ASTM C 955.

2.03 COMPONENTS

A. Manufactured from prime mill certified steel.

1. Re-rolled steel without mill certificate is not acceptable.

B. Cold-Formed Structural Studs:

1. Galvanized steel C-studs complying with ASTM C 955.
2. Flange length, web depth, minimum material thickness, and minimum yield strength as indicated on Drawings.

C. Structural Track:

1. Cold-formed galvanized steel runner tracks complying with ASTM C 955.
2. Flange length, web depth, minimum material thickness, and minimum yield strength as indicated on Drawings.

D. Deflection Track:

1. Cold-formed deep leg runner slip track.
2. Leg length, minimum material thickness, and minimum yield strength as indicated on Drawings.
3. Web: Design to accommodate stud width for single track or interior track width for double track system.

E. Standard Clip Angles:

1. Minimum thickness: As indicated on Drawings.
2. Minimum yield strength: 50 ksi.

F. U-Channel (CRC Cold Rolled Channel):

1. As indicated on Drawings.

G. Furring Channels:

1. As indicated on Drawings.

H. Header:

1. Outer Member: Flange length, web depth, minimum material thickness, and minimum yield strength as indicated on Drawings.
2. Inset Member: Flange length, web depth, minimum material thickness, and minimum yield strength as indicated on Drawings.

2.04 ACCESSORIES

A. Framing Accessories:

1. Complying with ASTM C 955
2. Provide following as required:

    a. Flat strapping for X-bracing.
    b. Flat strapping and bridging for lateral bracing.
    c. Gusset plates.
    d. Flat steel sheets.

B. Fasteners:

1. Self-drilling, self-tapping screws complying with ASTM C 1513.

C. Touch-Up Paint:

1. Complying with ASTM A 780.

2.05 FABRICATION

A. Framing components may be preassembled into panels prior to erection.

B. Fabricate panels square, with components attached to prevent racking and minimize distortion during lifting and transport.

C. Cut framing components square for attachment to perpendicular members or as required for angular fit against abutting members.

D. Plumb, align, and securely attach studs to flanges of both upper and lower runners.

1. Refer to requirements in Section 09 22 16 for interior, non-load bearing walls where studs do need to be attached to upper or lower runners.

E. In doubled jamb studs and doubled headers not accessible for insulating, provide insulation equal to thicknesses specified elsewhere.

F. Splices in members other than top and bottom runner track are not permitted.

G. Provide temporary bracing required until erection is completed.

PART 3 EXECUTION

3.01 INSPECTION

A. Inspect supporting substrates and structures for proper conditions for installation and performance of cold-formed structural framing.

B. Verify that attachment surfaces are plumb, level, and in proper alignment to accept cold-formed structural framing.

3.02 INSTALLATION – NON-AXIAL LOAD-BEARING WALLS

A. Securely anchor runners to supporting structure as indicated on Drawings.

B. Stud Spacing:

1. As indicated on Drawings.

C. Install jack studs or cripples below window sills, above window and door heads, and elsewhere to furnish support.

D. Provide lateral bracing by use of gypsum board, gypsum sheathing, steel sheets, or by horizontal straps or cold-rolled channels; conform to AISI-S100 NAS.

E. Make provisions for vertical movement where indicated on Drawings.

F. Perform handling and lifting of prefabricated panels in manner to prevent distortion in members.

3.03 INSTALLATION – JOISTS

A. Joist Spacing:

1. As indicated on Drawings.

B. Align joist bearing at foundation walls by means of shims or non-setting grout.

C. Locate joists or load distribution member directly over bearing studs at top of bearing walls.

D. Provide web stiffeners at reaction points or points of concentrated loads or where indicated on Drawings.

E. Install joist bridging where indicated on Drawings.

F. Install additional joists under parallel partitions when partition length exceeds one-half joist span and around floor and roof openings that interrupt one or more spanning members, unless otherwise indicated.

G. Install end blocking where joist ends are not otherwise restrained from rotation.

END OF SECTION 05 40 00

SECTION 06 10 53
MISCELLANEOUS CARPENTRY

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Carpentry work not specified elsewhere and generally intended for support of other work.
2. Wood furring.
3. Miscellaneous blocking, grounds, and nailers.

B. Related Sections:

1. Section 06 40 00: Architectural Woodwork
2. Section 08 14 00: Wood Doors

C. Related Requirements:

1. Refer to Division 26 sections for additional requirements for electrical/telephone backing panels.

1.02 REFERENCES

A. California Code of Regulations (CCR), Title 24, Part 2, California Building Code (CBC), Volumes 1 and 2, 2019 edition.

B. American Plywood Association (APA):

1. Guide to Plywood Grades
2. Product Standard, PS-1 – Construction and Industrial Plywood.

C. ASTM International (ASTM):

1. ASTM F 1667 – Standard Specification for Driven Fasteners, Nails, Spikes, and Staples.

D. UL, LLC (UL):

1. Fire Hazard Classification – FR-S

E. West Coast Lumber Inspection Bureau (WCLIB):

1. Standard Grading Rules No. 17, current edition.

F. Western Wood Products Association (WWPA):

1. Standard Grading Rules for Western Lumber.

G. American Wood Preservers Association Standards (AWPA)

1.03 QUALITY ASSURANCE

A. Wood Product Quality Standards:

1. Lumber Standards:

a. Comply with West Coast Lumber Inspection Bureau (WCLIB).

2. Plywood Standard:

a. Comply with Voluntary Product Standard PS 1.

3. Factory-mark each piece of lumber and plywood with type, grade, mill and grading agency, except omit marking from surfaces to be exposed with transparent finish or without finish.

B. Single-Source Responsibility for Fire Retardant Treated Wood:

1. Obtain each type of fire-retardant-treated wood product from one source and by single producer.

1.04 SUBMITTALS

A. Wood Treatment Data:

1. General:

a. Obtain from chemical treatment manufacturer.
b. Include chemical treatment manufacturer's instructions for handling, storing, installing, and finishing treated material:

2. Preservative Treatment – General:

a. Include certification by treatment plant stating type of solution and pressure process used, net amount of preservative retained, and compliance with applicable standards.

3. Waterborne Preservative Treatment:

a. Include certification that moisture content of treated wood was reduced to levels specified prior to shipment to Project Site.

4. Fire-Retardant Treatment:

a. Include certification by treating plant that treated wood complies with specified requirements.

5. Include warranty of chemical treatment manufacturer for each type of treatment.

1.05 DELIVERY, STORAGE AND HANDLING

A. Delivery and Storage:

1. Keep materials under cover and dry.
2. Protect against exposure to weather and contact with damp or wet surfaces.
3. Stack material above ground level on uniformly spaced supports to prevent deformation.
4. For material pressure treated with waterborne chemicals, place spacers between each bundle for air circulation.

PART 2 PRODUCTS

2.01 LUMBER – GENERAL

A. Standards:

1. Furnish lumber manufactured to comply with PS 20 – American Softwood Lumber Standard, with applicable grading rules of inspection agencies certified by American Lumber Standards Committee's (ALSC) Board of Review.

B. Grade Stamps:

1. Furnish lumber with each piece factory marked with grade stamp of inspection agency that indicates grading agency, grade, species, moisture content at time of surfacing, and mill.

C. Sizes:

1. Provide nominal sizes indicated, complying with PS 20, except where actual sizes are specifically noted as being required.

D. Surfacing:

1. Dressed lumber, S4S, unless otherwise indicated.

2.02 DIMENSION LUMBER FOR CONCEALED CONDITIONS

A. Species: Wood species listed by PS 20.

B. Moisture Content: S-DRY, KD 19 or MC 19 (19 percent maximum moisture content).

C. Grade: No.2, or standard grade.

D. Grade: No.3, or utility grade.

2.03 PLYWOOD

A. Identify each panel with appropriate trademark of APA.

1. Meet requirements of latest edition of Voluntary Product Standard PS 1 and Voluntary Product Standard PS 2

B. Panel Size, Thickness, and Grade: At least equal to that indicated.

C. Electrical/Telephone Backing Panels:

1. Fire-retardant plywood with exterior glue containing no urea formaldehyde.
2. Grade: C-D Plugged, Exposure 1,
3. Thickness: As indicated, but not less than 1/2 inch nominal.
4. Coordinate with Division 26 Sections.

2.04 FASTENERS

A. Nails, Wire, Brads, and Staples:

1. Conforming to ASTM F 1667.

B. Bolts:

1. Conforming to ASTM A 307, Grade A.
2. With hex nuts and flat washers conforming to ASTM A 563.

2.05 PRESERVATIVE WOOD TREATMENT BY PRESSURE PROCESS

A. Obtain preservative-treated lumber complying with AWPA Standard C2.

1. Mark each treated item with AWPB or SPIB Quality Mark Requirements.
2. Coat surfaces cut after treatment to comply with AWPA M4.

B. Above-Ground Wood Treatment:

1. Pressure treat with waterborne preservatives to minimum retention of 0.25 pcf.
2. Kiln-dry interior dimension lumber after treatment to 19 percent maximum moisture content.
3. Treat wood items indicated and in following circumstances:

a. In contact with flashing or waterproofing.
b. In contact with masonry or concrete.
c. Within 18 inches of grade.

C. Ground Contact Wood Treatment:

1. Pressure treat with waterborne preservatives to minimum retention of 0.40 pcf.

2.06 FIRE-RETARDANT TREATMENT BY PRESSURE PROCESS

A. Identify treated wood with appropriate classification marking of Underwriters Laboratories, Inc., or other testing and inspection agency acceptable to authorities having jurisdiction.

B. Dimension Lumber:

1. Comply with AWPA C20.
2. Treatment Types:

a. Interior Type A for protected wood.
b. Exterior Type for wood exposed to weather.

C. Plywood:

1. Comply with AWPA C27.
2. Treatment Types: Interior Type A for protected wood.

D. Inspect each piece after drying and discard damaged or defective pieces.

PART 3 EXECUTION

3.01 INSTALLATION – GENERAL

A. Discard units of material with defects that impair quality of miscellaneous carpentry and in sizes that would require excessive number or poor arrangement of joints.

B. Cut and fit miscellaneous carpentry accurately.

1. Install members plumb and true to line and level.

C. Coat cut edges of preservative-treated wood to comply with AWPA M4.

D. Securely fasten miscellaneous carpentry as indicated and according to applicable codes and recognized standards.

E. Countersink nail heads on exposed carpentry work and fill holes.

F. Use fasteners of appropriate type and length.

1. Predrill members when necessary to avoid splitting wood.

3.02 WOOD GROUNDS, NAILERS, AND BLOCKING

A. Install where shown and where required for screeding or attachment of other work.

1. Cut and shape to required size.
2. Coordinate location with other work involved.

B. Attach to substrates as required to support applied loading.

1. Countersink bolts and nuts flush with surfaces, unless otherwise indicated.

3.03 WOOD FURRING

A. Install at spacing indicated, with closure strips at edges and openings.

1. Shim with wood as required for tolerance of finished Work.

B. Furring to Receive Plywood Paneling:

1. Install 1 by 3 inch furring at 2 feet on center, horizontally and vertically.
2. Select furring strips for freedom from knots that could cause bent-over nails and damage to paneling.

C. Furring to Receive Gypsum Board:

1. Install 1 by 2 inch furring at 16 inches on center, vertically.

END OF SECTION 06 10 53

SECTION 06 40 00
ARCHITECTURAL WOODWORK

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Decorative Laminate Casework
2. Solid surface counter tops and backsplashes.
3. Casework hardware and accessories.
4. WI Certified Seismic Installation Program (CSIP) for DSA-approved casework anchorage.

B. Related Sections:

1. Section 05 50 00: Metal Fabrications; fabricated steel supports for countertops.
2. Section 06 10 53: Miscellaneous Carpentry; miscellaneous wood blocking.
3. Section 07 92 00: Joint Sealants; mildew-resistant sealant for damp or wet areas.
4. Section 08 14 00: Wood Doors
5. Section 09 91 00: Painting; paintable caulk at dry areas.
6. Section 12 36 40: Stone Countertops

1.02 REFERENCES

A. California Code of Regulations (CCR), Title 24, Part 2, California Building Code (CBC), Volumes 1 and 2, 2019 edition.

B. Woodwork Institute (WI):

1. North American Architectural Woodwork Standards (NAAWS) U.S. Version 3.1

    a. NAAWS Section 10-Casework
    b. WI Certified Seismic Installation Program (CSIP) for DSA-approved casework anchorage.

C. ASTM International (ASTM):

1. ASTM E1333 – Standard Test Method for Determining Formaldehyde Concentrations in Air and Emission Rates from Wood Products Using Large Chamber.
2. ASTM F 1667 – Standard Specification for Driven Fasteners: Nails, Spikes, and Staples

D. The American Society of Mechanical Engineers (ASME):

1. ASME B18.6.1 – Wood Screws (Inch Series)

E. South Coast Air Quality Management District (SCAQMD):

1. Rule 1168 – Adhesive and Sealant Applications

1.03 QUALITY ASSURANCE

A. Fabricator/Installer Qualifications:

1. Current Licensee of WI Certified Compliance Program.

a. Employs skilled workers who custom-fabricate products similar to those required for this Project and whose products have record of successful in-service performance.

B. Quality Standards:

1. Except as otherwise shown or specified, comply with specified provisions of Woodwork Institute (WI), North American Architectural Woodwork Standards (NAAWS) U.S. Version 3.1.

C. Apply WI Certified Compliance Label to each casework and countertop unit.

1. Do not remove WI Certified Compliance labels until casework has been accepted by Architect.

D. Comply with requirements of CBC and WI CSIP for casework attachment and seismic restraint and following:

1. Before wood or metal stud walls are closed up, provide written WI CSIP report confirming that acceptable backing is installed in locations required for proper casework installation

a. Identify those locations where backing is missing or improperly located

E. Inspection:

1. When millwork shop is not licensee of WI Certified Compliance Program, provide for inspections by authorized WI Inspectors complying with following schedule:

a. Inspection at Manufacturer's Shop: Prior to initial delivery of casework components to Project Site.
b. Site Conditions:

1) Prior to delivery of casework components to Project Site, inspect Project Site for compliance with requirements of Section 2 of NAAWS

2. On-Site Inspections:

a. Immediately after installation of first casework components.
b. Immediately after complete installation of casework components.

3. Provide additional site inspections as required by Architect and Owner, at no cost to Owner, when certified WI inspection reports indicate noncompliance with specified requirements.

F. Identification of Casework:

1. Casework identified by diamond box symbol with associated descriptive notations and shown on Drawings.

a. Refer to Casework Design Series (CDS) as established by Woodwork Institute (WI), North American Architectural Woodwork Standards (NAAWS), U.S. Version 3.1

2. Refer to Drawing A861 – Casework and Miscellaneous Details, for casework details and designs.

G. Formaldehyde Emissions:

1. Provide composite wood products/materials containing no added formaldehyde-based resins complying with regulations of California Air Resources Board (CARB) as tested in accordance with ASTM E 1333.

H. Forest Stewardship Certification:

1. For wood products, provide materials produced from wood obtained from forests certified by FSC-accredited certification body to comply with FSC STD-01-001 V5-2 EN.

1.04 SUBMITTALS

A. Product Data:

1. For each type of product indicated including finishing

B. Shop Drawings:

1. Showing location of each item, dimensioned plans and elevations, large-scale details, attachment devices, and other components.
2. Furnish WI Certified Compliance Label on first page of shop drawings.
3. Comply with NAAWS Section 1, Submittals; indicate NAAWS grades.
4. Show plans, elevations, ends, cross-sections.
5. Show details and location of anchorages and fitting to floors, walls, and base.

a. Include layout of units with relation to surrounding walls, doors, windows, and other building components.

6. Coordinate shop drawings with other work involved.

C. Certified Compliance Requirements:

1. Certified Compliance Certificate:

   a. Before delivery of casework to Project Site, provide WI Certified Compliance Certificate certifying that products fully meet requirements of WI Grade(s) specified.

2. Certified Compliance Label:

   a. Apply WI Certified Compliance Label to each elevation of casework and solid surface top.

3. WI Certified Compliance Certificate for Installation:

   a. Upon completion of installation, provide WI Certified Compliance Certificate indicating products installed, and Certifying that installation of these products fully meets requirements of Grade(s) specified.

4. Fees charged by WI for Certified Compliance Program are responsibility of millwork manufacturer and installer.

   a. Include fees in bid.

D. Samples:

1. Decorative Laminate:

   a. Four 5 inch by 8 inch samples each of decorative laminate surfacing and cabinet liner required in Work.

2. Edge Banding:

   a. Four 6 inch long samples of edge banding for selection of color, design and finish.

3. Solid Surface:

   a. Four minimum 6 inch by 6 inch sample in specified gloss.
   b. Cut sample and seam together for representation of inconspicuous seam.

4. Exposed cabinet hardware

   a. One unit of each type and finish.
   b. Furnish at Architect's request.

E. Maintenance Data for Solid Surface Material:

1. Manufacturer's care and maintenance data, including repair and cleaning instructions.

a. Maintenance kit for finishes.

2. Include with closeout documents as specified in Division 01 Sections.

1.05 DEFINITIONS

A. Solid Surface Material:

1. Avonite: Defined as nonporous, homogeneous material maintaining same composition throughout with composition of acrylic polymer, aluminum trihydrate filler, and pigment.

B. Solid Surface Material:

1. Corian: Defined as cast, nonporous, filled polymer, not coated, laminated or of composite construction with through body colors, having minimum physical and performance properties specified.

1.06 PROJECT CONDITIONS

A. Environmental Conditions:

1. Obtain and comply with woodwork manufacturer's and installer's coordinated advice for optimum temperature and humidity conditions for woodwork during its storage and installation.
2. Do not install woodwork until these conditions have been attained and stabilized so that woodwork is within plus or minus 1.0 percent of optimum moisture content from date of installation through remainder of construction period.

B. Field Measurements:

1. Before proceeding with fabrication of casework required to be fitted to other construction, obtain accurate field measurements and verify dimensions and shop drawing details as required for accurate fit.

a. Show recorded measurements on final shop drawings.

2. When possible, coordinate manufacturing schedule with construction progress to avoid delay of Work.

a. Where sequence of measuring substrates before fabrication would delay Project, proceed with fabrication (without field measurements) and provide ample borders and edges to allow for subsequent scribing and trimming for accurate fit.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver casework as factory-assembled units.

B. Protect casework during transit, delivery, storage and handling to prevent damage, soiling and deterioration.

C. Deliver casework when Project construction is ready for installation.

1. Provide clean storage area as required by WI NAAWS, Section 2 – Care and Storage.

1.08 SCHEDULING

A. Coordinate fabrication, delivery, and installation with Contractor and other applicable trades.

PART 2 PRODUCTS

2.01 MATERIALS

A. Provide materials complying with requirements of Architectural Woodwork Standards and NAAWS quality grade indicated, unless otherwise indicated.

1. High Pressure Decorative Laminate (HPDL), complying with NEMA LD 3.

B. High Pressure Decorative Laminate Manufacturers:

1. Subject to compliance with specified requirements, provide high pressure decorative laminates by one of following:

a. Formica Corp.
b. Laminart.
c. Nevamar Corp.
d. Wilsonart International

2. Colors and Patterns: As scheduled.

C. Core Material for High Pressure Decorative Laminate:

1. Industrial Grade Medium Density Fiberboard (MDF) complying with ANSI A208, Grade 130.

a. Manufactured with synthetic resin binder system.
b. Certified as Class 1 Flame Retardant panel in accordance with ASTM E 84.

2. Thickness: Minimum

a. 3/4 inch and up to 1-1/8 inches thick, as indicated on Drawings.

3. Product and Manufacturer:

a. Medite FR by Roseburg Forest Products Company, Springfield, OR, or approved equal.

4. Average physical properties for 3/4 panels, based on 5 panel average, when tested in accordance with ASTM D1037:

Technical Data	Imperial
Density	50 lb/ft^3
Internal Bond	130 lb/in^2
Modulus of Rupture	4,000 lb/in^2
Modulus of Elasticity	450,000 lb/in^2
Modulus of Hardness	1200 lbf, Janka ball
Screw Holding, Face	250 lb
Screw Holding, Edge	200 lb
Thickness Tolerance	±0.005 inches
Thickness Swell	10 percent
Linear Expansion	0.3 percent
Flame Spread Rating	Class 1 (A)
Moisture Content	6 – 9 percent
Formaldehyde Emissions	low as 0.01 ppm

D. Semi-Exposed Surfaces:

1. Low Pressure Decorative Melamine Overlay.

E. Edge Banding; provide as follows:

1. High Pressure Decorative Laminate (HPDL):

a. Same thickness as countertop surface.

1) For self-edge countertops and tops
2) Top and front edges of splashes.

2. Polyvinylchloride (PVC) Edging:

a. Chip proof, flame resistant and impervious to moisture.

1) Door Edges and Drawer Front Edges: Minimum 3 mm thickness
2) Exposed Edges of Boxes: Minimum 0.08 mm thickness

3. Colors: As scheduled or selected by Architect.

F. Adhesive:

1. Type 1 adhesive, fully waterproof.

a. Use for adhesive bonded materials.
b. Use adhesives complying with SCAQMD Rule 1168.

G. Solid Hardwood Trim:

1. For Painted Finish:

    a. NAAWS Premium Grade, Natural Yellow Birch or Yellow Poplar, plain sawn.

H. Solid Surface Material Avonite:

1. Non-porous, homogeneous material maintaining same composition throughout part with composition of acrylic polymer, aluminum trihydrate filler, and pigment.
2. Avonite 100 percent Acrylic Class 1 Solid Surfacing as manufactured by Aristech Surfaces LLC, Florence, KY, or approved equal, subject to color acceptable to Architect.

    a. Sheet Size: As indicated on Drawings.
    b. Finish: Matte
    c. Thickness: 1/2 inch (12 mm).
    d. Edge Treatment: As indicated.
    e. Splashes: Applied.
    f. Type: Solids
    g. Color: As selected by Architect.

3. Accessories:

    a. Adhesives:

        1) Avonite Solid Surface Adhesive
        2) Ultra-Bond G Adhesive: Pre-measured and pre-tinted two part adhesive colored to match surfacing.
        3) Comply with requirements of SCAQMD Rule 1168.

    b. Sealant:

        1) Mildew resistant silicone sealant conforming to Sealant No. 3 as specified in Section 07 92 00.
        2) Color: Clear or to match solid surface when available.

I. Solid Surface Material Corian:

1. Solid polymer components.

    a. Cast, nonporous, filled polymer, not coated, laminated or of composite construction with through body colors, having minimum physical and performance properties specified.
    b. Superficial damage to depth of 0.010 inch shall be repairable by sanding and polishing.
    c. Thickness: 3/4 inch
    d. Edge Treatment: As indicated.
    e. Splashes: Applied.
    f. Manufacturer and Product: DuPont Corian
    g. Color: As scheduled.

J. Miscellaneous Materials:

1. Backing for compliance with WI CSIP:

a. Consisting of minimum of either 3 x 6 Flat Douglas Fir, or 16 gage, 50 KSI sheet metal.

2.02 CASEWORK HARDWARE

A. Provide hardware required for complete casework installation.

1. Concealed Hinges:

a. Heavy duty concealed offset for overlay door installation

1) Installed with minimum of two full thread screws to jamb and two full thread screws to door.
2) Blum Modul hinge system or Hafele Duomatic hinges 300 Series, or approved equal.

2. Catches:

a. Two on doors over 36 inches in height, one on doors under 36 inches in height.
b. Provide elbow catches on companion doors where locks are specified.

3. Surface Pulls:

a. Stainless steel wire pulls with satin stainless steel finish (630).

1) Size: 5/16 inch diameter; 4 inch centers.
2) Engineered Products Company (EPCO) No. MC402-SS 4"; or approved equal.
3) Provide specified wire pulls on doors and drawers.

4. Door and Drawer Locks:

a. Surface mounted, pin tumbler type.
b. 3/4 inch bolt throw, brass construction,
c. BHMA 626 finish, complete with strike.
d. Door Locks: National C8173
e. Drawer Locks: National C1878
f. Provide locks on doors, unless indicated otherwise.

5. Keying:

a. Verify keying requirements with Owner prior to start of Work.
b. For estimate use grandmaster key system.
c. Number keys and provide 2 keys per lock.
d. Key locks alike.

6. Exposed Hardware Finish:

    a. Except where not available, provide exposed hardware with satin stainless steel finish (ANSI/BHMA 630)
    b. Where not available, provide satin chrome (626) or satin aluminum (628) finish.

2.03 SOURCE QUALITY CONTROL

A. Single-Source Responsibility for Fabrication and Installation of Architectural Woodwork:

1. Engage qualified woodworking firm, complying with requirements in "Quality Assurance" Article, to assume undivided responsibility for fabricating, finishing, and installing Work specified in this Section, including providing countertops, backsplashes, and related millwork as specified.

2.04 FABRICATION

A. Quality Standards for Fabrication:

1. Comply with indicated standards for following types of casework as applicable:
2. Decorative Laminate Casework:

    a. NAAWS Section 10 – Casework, grades as follows:

        1) Open Cabinets: Premium grade.
        2) Others: Custom grade.

3. Countertops and Splashes:

    a. Shop Assembly:

        1) Fabricate components to greatest extent practical to sizes and shapes indicated, in accordance with approved shop drawings and manufacturer's printed instructions and technical bulletins.
        2) Form joints between components using manufacturer's standard joint adhesive without conspicuous joints.

            a) Reinforce with strip of solid polymer material, 2 inches wide.

        3) Provide factory cutouts for plumbing fittings and toilet accessories as indicated.
        4) Rout and finish component edges with clean, sharp returns.

            a) Rout cutouts, radii and contours to template.
            b) Smooth edges.
            c) Repair or reject defective and inaccurate work.

b. Adhere applied splashes to countertops using manufacturer's standard color-matched silicone sealant.

1) Comply with requirements for Sealant No. 3 as specified in Section 07 92 00.

c. Integral Cove:

1) For solid surface countertop and backsplash:

a) Provide shop fabricated integrally molded coves at back and ends where against walls or other vertical surfaces, with 3/8 inch radius between top and splash.

B. Design and Construction Features:

1. Comply with details shown for profile and construction of casework.

a. Where not otherwise shown, comply with applicable NAAWS Quality Standards.

2. Obtain approval of Architect in writing, for proposed deviations.
3. Construction Style: Style A, frameless.
4. Construction Type: Type 1.
5. Door and Drawer Front Style: Flush overlay.
6. Provide dust panels between lockable drawers.
7. Recess clip-type shelf standards within open type casework.
8. Provide 1/2 inch by 6 inch vent slots at 2 feet on center in bottom, over toe paces in sink units.
9. Apply resilient base to exposed side of exposed ends of fixed base cabinets.

a. Comply with requirements for resilient base specified in Section 09 65 00.

C. Pre-Cut Openings:

1. Fabricate work with pre-cut openings, wherever possible, to receive hardware, appliances, plumbing fixtures, electrical work and similar items.
2. Locate openings accurately and use templates or roughing-in diagrams for proper size and shape.
3. Smooth edges of cutouts and where located in countertops and similar exposures, seal edges of cutouts with water-resistant coating.

D. Edge Banding:

1. Self-Edge:

a. High pressure decorative laminate of same color and pattern as face surface.

2. Polyvinylchloride Edging:

a. Machine apply using hot-melt waterproof adhesives under heat and pressure.
b. Trim and buff corners and edges to eliminate sharp edges.

3. Shelves supported on wall-mounted standards and brackets:

a. Edge band edges.

E. High pressure decorative laminate faced doors to be 3/4 inch thick.

2.05 FASTENERS AND ANCHORS

A. Screws:

1. Select material, type, size, and finish required for each use.
2. Comply with ASME B8.6.1 for applicable requirements.
3. For metal framing supports, provide screws as recommended by metal framing manufacturer.

B. Nails:

1. Select material, type, size, and finish required for each use.
2. Comply with ASTM F 1667 for applicable requirements.

C. Anchors:

1. Select material, type, size, and finish required by each substrate for secure anchorage.
2. Provide nonferrous metal or hot-dip galvanized anchors and inserts on inside face of exterior walls and elsewhere as required for corrosion resistance.
3. Provide toothed steel or lead expansion bolt devices for drilled-in-place anchors.

PART 3 EXECUTION

3.01 PREPARATION

A. Condition woodwork to average prevailing humidity conditions in installation areas before installing.

B. Before installing architectural woodwork, examine shop-fabricated Work for completion and complete Work as required, including back priming and removal of packing.

3.02 INSTALLATION – GENERAL

A. Installation Compliance:

1. NAAWS Section 10 – Casework, and installation requirements in NAAWS Appendix B.
2. WI Certified Seismic Installation Program (CSIP) for DSA-approved casework anchorage.

B. Install Work plumb, level, true and straight with no distortions.

1. Shim as required using concealed shims.
2. Install to tolerance of 1/8 inch in 8 feet for plumb and level.

    a. With 1/16 inch maximum offset in flush adjoining surfaces.
    b. 1/8 inch maximum offsets in revealed adjoining surfaces.

C. Scribe and cut Work to fit adjoining Work.

1. Refinish cut surfaces or repair damaged finish at cuts.

D. Install casework without distortion so that doors and drawers will fit openings properly and be accurately aligned.

1. Adjust hardware to center doors and drawers in openings and to provide unencumbered operation.
2. Complete installation of hardware and accessory items as indicated.

E. At gypsum board construction, anchor through wall surface to steel backing plates or wood blocking placed in wall as Work of other sections.

1. Conform to material requirements specified under “Miscellaneous Materials”
2. Anchorage through gypsum board panels only is not acceptable.

F. Furnish fillers, closures, trim and like as required for complete installation.

1. Scribe in place wherever required.

3.03 INSTALLATION OF COUNTERTOPS

A. Anchor securely to base units and other support systems as indicated.

1. Fasten joints in tops with draw-bolt type fasteners let into underside of top.

B. Install countertops with ends flush with exposed ends of base cabinets unless otherwise indicated.

C. Verify opening requirements and make cutouts for sinks, fittings, and equipment.

D. Completely fill joints between splash and walls with specified sealant in accordance with Section 07 92 00.

E. Field Jointing:

1. Where practicable, make in same manner as factory jointing, using dowels, splines, adhesive, and fasteners recommended by manufacturer.
2. Locate field joints as shown on accepted shop drawings, factory prepared so there is no Project Site processing of top and edge surfaces.

F. Workmanship:

1. Abut top and edge surfaces in one true plane, with internal supports placed to prevent deflection.
2. Provide flush hairline joints in top units using clamping devices.
3. Use manufacturer's recommended adhesive and holding devices to provide joint widths not more than 1/16 inch wide at each location, completely filled and flush with abutting edges.
4. Penetration of tops with fasteners is not permitted.
5. After installation, carefully dress joints smooth, remove surface scratches, clean and polish entire surface.
6. Provide holes and cutouts as required for built-in equipment and mechanical and electrical service fixtures.

    a. Verify size of openings with actual size of equipment to be used, prior to making openings.
    b. Form inside corners to radius of not less than 1/8 inch.
    c. After sawing, rout and file cut-outs to ensure smooth, crack-free edges.

G. Provide scribe moldings for closures at junctures of top, curb, and splash with walls as recommended by manufacturer for materials involved.

1. Wet or Damp Locations:

    a. Use mildew resistant one part silicone rubber sealant or chemical resistant, permanently elastic sealing compound.

2. Dry Locations:

    a. Use paintable caulk specified in Section 09 91 00, unless indicated or directed otherwise

3.04 INSTALLATION OF ACCESSORIES

A. Install in precise manner following manufacturer's directions.

1. Turn screws to flat seat; do not drive.
2. Adjust moving parts to operate freely without excessive bind.

3.05 REPAIRING, ADJUSTING, AND CLEANING

A. Repair damaged and defective casework wherever possible to eliminate defects functionally and visually

1. Where not possible to repair properly, replace casework.
2. Adjust joinery for uniform appearance.

B. Clean hardware, lubricate, and make final adjustments for proper operation.

C. Clean casework on exposed and semi-exposed surfaces.

1. Touch-up shop applied finishes to restore damaged or soiled areas.

3.06 PROTECTION

A. Provide protection and maintain conditions, in manner acceptable to manufacturer and installer, that ensures woodwork is without damage or deterioration at time of Substantial Completion.

END OF SECTION 06 40 00

SECTION 07 92 00
JOINT SEALANTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Nonstaining silicone joint sealants.
2. Urethane joint sealants.
3. Mildew-resistant joint sealants.

B. Related Requirements:

1. Section 09 30 10 “Tile”.

1.3 PRE-INSTALLATION MEETINGS

A. Pre-installation Conference: Conduct conference at Project site.

1.4 ACTION SUBMITTALS

A. Product Data: For each joint-sealant product.

B. Samples for Initial Selection: Manufacturer's color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.

C. Samples for Verification: For each kind and color of joint sealant required, provide Samples with joint sealants in 1/2-inch-wide joints formed between two 6-inch-long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.

D. Joint-Sealant Schedule: Include the following information:

1. Joint-sealant application, joint location, and designation.
2. Joint-sealant manufacturer and product name.
3. Joint-sealant formulation.
4. Joint-sealant color.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For qualified testing agency.

B. Product Test Reports: For each kind of joint sealant, for tests performed by manufacturer and witnessed by a qualified testing agency.

C. Product Certificates: Signed by manufacturers of joint sealants certifying that products furnished comply with requirements and are suitable for the use indicated.

D. Sample Warranties: For special warranties.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: An authorized representative who is trained and approved by manufacturer.

1.7 PRECONSTRUCTION TESTING

A. Testing will not be required if joint-sealant manufacturers submit data that are based on previous testing, not older than 24 months, of sealant products for adhesion to, staining of, and compatibility with joint substrates and other materials matching those submitted.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to Project site in original unopened containers or bundles with labels indicating manufacturer, product name and designation, color, expiration date, pot life, and curing time.

B. Store and handle materials in compliance with manufacturer's written instructions to prevent their deterioration or damage due to moisture, high or low temperatures, contaminants, or other causes.

1.9 FIELD CONDITIONS

A. Do not proceed with installation of joint sealants under the following conditions:

1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 deg F.
2. When joint substrates are wet.
3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
4. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

1.10 WARRANTY

A. Special Installer's Warranty: Installer agrees to repair or replace joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period: Two years from date of Substantial Completion.

B. Special Manufacturer's Warranty: Manufacturer agrees to furnish joint sealants to repair or replace those joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period: Manufacturer’s standard.

C. Special warranties specified in this article exclude deterioration or failure of joint sealants from the following:

1. Movement of the structure caused by stresses on the sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression.
2. Disintegration of joint substrates from causes exceeding design specifications.
3. Mechanical damage caused by individuals, tools, or other outside agents.
4. Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.

PART 2 - PRODUCTS

2.1 JOINT SEALANTS, GENERAL

A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.

B. Elastomeric Sealant Standard: Comply with ASTM C 920 and other requirements indicated for each liquid-applied chemically curing sealant in the Elastomeric Joint-Sealant Schedule at the end of Part 3, including those referencing ASTM C 920 classifications for type, grade, class, and uses.

C. Provide elastomeric joint sealants that establish and maintain watertight and airtight continuous joint seals without staining or deteriorating joint substrates.

D. Sealants shall comply with the testing and product requirements of San Diego Air Pollution Control District Rule 67.0 “Architectural Coatings” and Rule 67.21 “Adhesive Material Application Operations”.

E. Suitability for Contact with Food: Where elastomeric sealants are indicated for joints that will come in repeated contact with food; provide products that comply with 21 CFR 177.2600.

2.2 NONSTAINING SILICONE JOINT SEALANTS

A. Nonstaining Joint Sealants: No staining of substrates when tested according to ASTM C 1248.

B. Silicone, Nonstaining, S, NS, 50, NT: Nonstaining, single-component, nonsag, plus 50 percent and minus 50 percent movement capability, nontraffic-use, neutral-curing silicone joint sealant; ASTM C 920, Type S, Grade NS, Class 50, Use NT.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Dow Corning Corporation.
b. Pecora Corporation.
c. Tremco Incorporated.
d. Or Equal.

2.3 URETHANE JOINT SEALANTS

A. Urethane, S, NS, 25, T, NT: Single-component, nonsag, plus 25 percent and minus 25 percent movement capability, traffic- and nontraffic-use, urethane joint sealant; ASTM C 920, Type S, Grade NS, Class 25, Uses T and NT.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. BASF / Sonneborn Corporation.
b. Sika Corporation.
c. Tremco Incorporated.
d. Or Equal.

2.4 MILDEW-RESISTANT JOINT SEALANTS

A. Mildew-Resistant Joint Sealants: Formulated for prolonged exposure to humidity with fungicide to prevent mold and mildew growth.

B. Silicone, Mildew Resistant, Acid Curing, S, NS, 25, NT: Mildew-resistant, single-component, nonsag, plus 25 percent and minus 25 percent movement capability, nontraffic-use, acid-curing silicone joint sealant; ASTM C 920, Type S, Grade NS, Class 25, Use NT.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Dow Corning Corporation.
b. Pecora Corp.
c. Tremco Incorporated.
d. Or Equal.

2.5 JOINT-SEALANT BACKING

A. Sealant Backing Material, General: Nonstaining; compatible with joint substrates, sealants, primers, and other joint fillers; and approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

B. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin), and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.

C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint. Provide self-adhesive tape where applicable.

2.6 MISCELLANEOUS MATERIALS

A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances

capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.

C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting performance of the Work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:

1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
2. Clean porous joint substrate surfaces by brushing, grinding, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include the following:

    a. Concrete.
    b. Masonry.
    c. Unglazed surfaces of ceramic tile.
    d. Exterior insulation and finish systems.

3. Remove laitance and form-release agents from concrete.
4. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants. Nonporous joint substrates include the following:

    a. Metal.
    b. Glass.
    c. Porcelain enamel.

B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.3 INSTALLATION OF JOINT SEALANTS

A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.

B. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

C. Install sealant backings of kind indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.

1. Do not leave gaps between ends of sealant backings.

2. Do not stretch, twist, puncture, or tear sealant backings.
3. Remove absorbent sealant backings that have become wet before sealant application, and replace them with dry materials.

D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.

E. Install sealants using proven techniques that comply with the following and at the same time backings are installed:

1. Place sealants so they directly contact and fully wet joint substrates.
2. Completely fill recesses in each joint configuration.
3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified in subparagraphs below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.

1. Remove excess sealant from surfaces adjacent to joints.
2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.

3. Provide concave joint profile per Figure 8A in ASTM C 1193 unless otherwise indicated.
4. Provide flush joint profile at locations indicated on Drawings according to Figure 8B in ASTM C 1193.
5. Provide recessed joint configuration of recess depth and at locations indicated on Drawings according to Figure 8C in ASTM C 1193.

    a. Use masking tape to protect surfaces adjacent to recessed tooled joints.

3.4 CLEANING

A. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.5 PROTECTION

A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out, remove, and repair damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

3.6 JOINT-SEALANT SCHEDULE

A. Joint-Sealant Application: Exterior joints in vertical surfaces and horizontal nontraffic surfaces.

1. Joint Locations:

   a. Control and expansion joints in unit masonry.
   b. Joints in exterior insulation and finish systems.
   c. Joints between metal panels.
   d. Joints between different materials listed above.
   e. Perimeter joints between materials listed above and frames of doors, windows and louvers.
   f. Control and expansion joints in ceilings and other overhead surfaces.
   g. Other joints as indicated on Drawings.

2. Joint Sealant: Silicone, nonstaining, Type S, Grade NS, Class 50, Use NT.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

B. Joint-Sealant Application: Interior joints in horizontal traffic surfaces

1. Joint Locations:

   a. Control and expansion joints in tile flooring.
   b. Other joints as indicated on Drawings.

2. Joint Sealant: Urethane, Type S, Grade NS, Class 25, Use T, NT.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

C. Joint-Sealant Application: Mildew-resistant interior joints in vertical surfaces and horizontal nontraffic surfaces.

1. Joint Locations:

   a. Joints between plumbing fixtures and adjoining walls, floors, and counters.
   b. Tile control and expansion joints where indicated.
   c. Other joints as indicated on Drawings.

2. Joint Sealant: Silicone, mildew resistant, acid curing, Type S, Grade NS, Class 25, Use NT.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

D. Joint-Sealant Application: Interior joints in vertical surfaces and horizontal nontraffic surfaces.

1. Joint Locations:

    a. Control and expansion joints on exposed interior surfaces of exterior walls.
    b. Tile control and expansion joints.
    c. Vertical joints on exposed surfaces of unit masonry walls and partitions.
    d. Other joints as indicated on Drawings.

2. Joint Sealant: Urethane, Type S, Grade NS, Class 25, Use NT.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

END OF SECTION 07 92 00

SECTION 08 14 00
WOOD DOORS

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Solid Core Flush Wood Doors.

a. Including following:

1) Wood louvers:

a) Sightproof inverted chevron (V-Slat) with flush wood moulding.

2. Where indicated and as scheduled.

B. Related Sections:

1. Section 06 10 53:Miscellaneous Carpentry.
2. Section 08 11 13:Hollow Metal Doors and Frames; hollow metal frames for wood doors.
3. Section 08 71 00:Door Hardware
4. Section 09 91 00:Painting; field finishing of wood doors.

1.02 REFERENCES

A. California Code of Regulations (CCR), Title 24, Part 2, California Building Code (CBC), Volumes 1 and 2, 2019 edition.

1. Chapter 11B – Accessibility to Public Buildings, Public Accommodations, and Commercial Buildings.

B. American National Standards Institute (ANSI)/Window and Door Manufacturers Association (WDMA):

1. ANSI/WDMA I.S. 1A – Architectural Wood Flush Doors

C. ASTM International (ASTM):

1. ASTM D 5456 – Standard Specification for Evaluation of Structural Composite Lumber Products

D. Woodwork Institute (WI):

1. North American Architectural Woodwork Standards (NAAWS) – U.S. Version 3.1

a. Section 9 – Doors

E. South Coast Air Quality Management District (SCAQMD):

1. Rule 1168 – Adhesive and Sealant Applications

F. Door and Hardware Institute (DHI):

1. DHI-WDHS Recommended Standards for Flush Wood Doors

1.03 QUALITY ASSURANCE

A. Quality Standards:

1. Provide wood flush doors complying with following standards:

a. ANSI/WDMA I.S. 1A
b. NAAWS Section 9 – Doors

1) Conform to NAAWS Section 9 Custom Grade requirements, unless noted otherwise.

B. Inspection:

1. Provide for inspections by authorized WI Inspectors complying with following schedule:

a. Inspection at door manufacturer's shop or supplier's warehouse prior to initial delivery of wood doors to Project Site.
b. On-Site Inspection:

1) Immediately after completion of installation of wood doors.

2. Provide additional site inspections as required by Architect and Owner, at no cost to Owner, when WI inspection reports indicate non-compliance with specified requirements.

C. Door modifications are not permitted, unless reviewed and accepted by Architect.

1.04 SUBMITTALS

A. Product Data:

1. Manufacturer's product data, specifications and installation instructions for each type of wood door required, including details of core and edge construction, trim for louvers and similar components.

B. Shop Drawings:

1. Schedules and plans, indicating location and size of each door.

2. Elevations and details of each kind of door, indicating door construction details,

    a. Include opening identification symbols, sizes, door type and grade fire ratings, swing, louver cutout size and locations, undercuts, and other pertinent data.

3. Show location and extent of hardware blocking.

    a. Provide blocking as required to eliminate need for through-bolting of surface applied hardware.

4. Use same door numbering system as Drawing door schedules.
5. Indicate name of door manufacturer on shop drawing.

C. Samples:

1. Construction Samples:

    a. Minimum of 4 samples of not less than 6 inches by 6 inches for each type of door to be furnished, showing face, edge and core construction.

2. Wood Louvers:

    a. Minimum of four 12 inch x 12 inch louvers in wood frame, unfinished.

3. Metal Louvers:

    a. Minimum of four 6 inch long sections of louver blade and frame for each material and finish required.

D. Certificates:

1. Certificate that solid core wood doors comply with requirements of WDMA I.S. 1A and NAAWS Section 9.

1.05 SYSTEM DESCRIPTION

A. Design Requirements:

1. Drawings indicate sizes, locations and general details of wood door construction and installation.

1.06 PROJECT CONDITIONS

A. Do not install doors until building is enclosed and ambient conditions are within temperature and humidity range recommended by door manufacturer.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Protect wood doors during transit, storage, and handling to prevent damage, soiling and deterioration.

1. Package doors at factory prior to shipping using manufacturer's standard method.

B. Deliver materials in manufacturers original, unopened, undamaged containers with identification labels intact.

1. Include name of manufacturer stamped or marked on packaging.

C. Deliver doors to Project Site only after building has been provided with design temperature and humidity.

D. Store and handle in accordance with ANSI/WDMA I.S.1A.

1. Store doors protected from exposure to harmful conditions and at temperature and humidity conditions recommended by manufacturer.

1.08 WARRANTY

A. Door Manufacturer's Warranty:

1. Written agreement on door manufacturer's standard form signed by manufacturer, installer and Contractor, agreeing to repair or replace defective doors which have warped (bow, cup or twist) or which show telegraphing of core construction in face veneers, or do not conform to tolerance limitations of NAAWS.
2. Furnish Warranty in effect for following period of time after date of Substantial Completion:

a. Solid Core Flush Interior Doors:

1) Life of original installation

B. Installer Warranty:

1. Furnish labor warranty for wood doors.

a. Warranty Period: 2 years from date of Substantial Completion.

C. Responsibility for replacement or refinishing of doors where Contractor's work contributed to rejection or to voiding of manufacturer's warranty rests with Contractor.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Subject to compliance with specified requirements, provide products of one of following, or approved equal:

1. Eggers Industries – Two Rivers, WI
2. Haley Bros., Inc. – Buena Park, CA
3. Lynden Door – Lynden, WA
4. Masonite Architectural, Tampa, FL
5. Oregon Door – Winston, OR
6. V.T. Industries, Inc. – Holstein, IA

2.02 FLUSH SOLID CORE DOORS

A. Interior Flush Doors:

1. Furnish interior doors as follows:

a. Opaque Finished (Painted): Custom grade.
b. Solid wood core flush veneered, 5 ply minimum, faced both sides with smooth resin fiber Medium Density Overlay (MDO), fully bonded to core.

2. Core Material:

a. Structural Composite Lumber (SCLC-5), complying with ASTM D 5456, and following:

1) Uniform Density: 38 lbs per cubic foot.
2) Modulus of Rupture: 6,000 psi, minimum.
3) Modulus of Elasticity: 1.3 x 106 psi.
4) Made with binder containing no urea-formaldehyde resin

3. Edge Strips:

a. Closed grain hardwood. kiln-dried birch or other material as indicated.

4. Full Stile Edge Strip:

a. Not less that 1-1/2 inches wide, 2 ply stile.
b. Provide stiles fully bonded to core.
c. Outer Face Stile:

1) Full length 3/4 inch Birch or Maple.

d. Inner Back Stile:

1) 3/4 inch of similar species which may have two finger joints fully bonded to core.

5. Provide full length top and bottom edge rails which may be of glued up stock of similar species as edge strip, white fir or Douglas fir, minimum density 24.33 pounds per cubic foot, or higher

a. Top Rail:

1) Minimum of 2 inches.

b. Bottom Rail:

1) Minimum of 5 inches, fully bonded to core.

6. Crossbanding:

a. Furnish doors with full width crossbanding of properly dried hardwood or engineered fiber composite material, 1/16 inch thick, with density of 52 pounds per cubic foot, or higher

7. Adhesive and Bonding:

a. Fabricate bonding between veneer plies of wood face panel, and between door faces, frame and core unit with Type I or II waterproof adhesives.
b. Use adhesives complying with SCAQMD Rule 1168.
c. Do not use adhesives containing urea formaldehyde.

2.03 SOURCE QUALITY CONTROL

A. Obtain doors from single manufacturer to ensure uniformity in quality of appearance and construction, fabricated to dimensions specified.

2.04 FABRICATION – GENERAL

A. Factory machine doors for hardware that is not surface applied.

1. Locate hardware to comply with DHI-WDHS-3.

a. Comply with requirements of CBC Chapter 11B for locations of hardware required to be accessible.

2. Comply with following:

a. Final hardware schedules.
b. Door frame shop drawings,
c. DHI Standards.
d. Hardware templates.

3. Coordinate locations of hardware preparation in hollow metal frames to verify dimensions and alignment prior factory machining of wood doors.

B. Openings:

1. Cut and trim openings through doors to comply with applicable requirements of referenced standards for kinds of doors required.
2. Louver Openings:

a. Trim openings with moldings of material and profile indicated.
b. Louvers:

1) Factory install louvers in prepared openings.

2.05 FINISHING

A. Shop Priming:

1. Doors for Opaque Paint Finish:

a. Shop prime faces and edges of doors, including cutouts, with one coat of wood primer specified in Section 09 91 00.
b. Ensure compatibility of primer with specified finish coats.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install Work as specified in Woodwork Institute NAAWS.

1. Provide Woodwork Institute Certified Compliance Certificate for Installation at Substantial Completion.

B. Provide each door accurately cut, trimmed, and fitted to its frame and hardware.

1. Clearance at Stiles and Top: 1/8 inch.
2. Undercut:

a. Top of Slab to Bottom of Door: 3/4 inch, except where otherwise indicated.

3. Arises:

a. Rounded to 1/16 inch radius

4. Lock Rail Edges:

a. Slightly beveled.

5. Screws for Hardware:

a. Screws are to be screwed, not driven, into pre-drilled holes.

C. Ensure that doors operate freely, but not loosely, without sticking or binding, without hinge-bind conditions and with hardware properly adjusted and functioning.

3.02 CLEAN UP

A. Remove and legally dispose of rubbish, waste and debris off Project Site.

1. Comply with requirements of Section 01 74 19.

3.03 PROTECTION

A. Protect Work until Substantial Completion.

END OF SECTION 08 14 00

SECTION 08 31 00
ACCESS DOORS AND PANELS

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Access doors and panels occurring in walls and ceilings in finished areas.
2. Fire-rated wall and ceiling access doors.

B. Related Sections:

1. Section 06 10 00: Rough Carpentry
2. Section 06 10 53: Miscellaneous Carpentry
3. Section 09 22 16: Non-Structural Metal Framing; partition framing
4. Section 09 29 00: Gypsum Board.
5. Section 09 91 00: Painting; field painting of primed doors and panels.

C. Related Requirements:

1. Refer to respective Sections of Division 22, 23, and 26 for access doors and panels for mechanical, electrical, and other equipment requiring maintenance, inspection, adjustment, and monitoring, which are installed in inaccessible areas such as behind walls, above ceilings, and in soffits.

1.02 QUALITY ASSURANCE

A. Size Variations:

1. Obtain Architect's acceptance of manufacturer's standard size units which may vary slightly from sizes indicated.

B. Coordination:

1. Furnish inserts and anchoring devices which must be built into other Work for installation of access doors and panels.
2. Coordinate access doors and panels specified in this Section with related mechanical and electrical work in order that appropriate access doors and panels are provided in finished construction.
3. Coordinate delivery with other Work to avoid delay.

C. Verification:

1. Determine specific locations and sizes for access doors or panels needed to gain access to concealed plumbing, mechanical, or other concealed work, and indicate in schedule specified in "Submittals" Article.
2. Access doors and panels furnished under Division 21 through 23, and Division 26 Sections that are indicated as occurring in architecturally finished areas are subject to requirements of this Section.

1.03 SUBMITTALS

A. Product Data:

1. Manufacturer's technical data and installation instructions for each type of access door assembly, including setting drawings, templates, instructions and directions for installation of anchorage devices.
2. Provide typed list, based on Owner's directions and verification, of doors to receive locks.

B. Shop Drawings:

1. For fabrication and installation of access doors, panels, and frames.
2. Include details of each frame type, elevations of door design types, and accessory items.
3. Indicate sizes, materials, thickness, fabrication methods, access door or panel and frame reinforcement, anchorage, and installation details.
4. Provide layout drawings, indicating dimensioned locations of proposed access doors and panels.

    a. Determine and indicate required access doors panels in finished surfaces, whether furnished under this Section or as part of Work of Divisions 21, 22 23, and 26.

C. Samples:

1. Furnish minimum of two samples of each type of access door and panel required for Project for review by Architect and Mechanical Engineer.

D. Access Door, Panel, and Frame Schedule:

1. Provide complete access door, panel, and frame schedule, including types, locations, sizes, latching or locking provisions, and other data pertinent to installation.
2. Coordinate with access doors to be provided under Division 21, 22, 23, and 26 Sections.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Access Doors, Panels, and Frames:

1. Provide protection as required by manufacturer to protect from damage during storage.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Basis-of-Design:

1. Design for access doors and panels is based on characteristics of products as manufactured by Elmdor/Stoneman, City of Industry, CA.

B. Subject to compliance with specified requirements, provide named product or comparable product by one of following manufacturers:

1. Jay R. Smith Mfg. Co., Montgomery, AL
2. Milcor by Hart & Cooley, Inc. Grand Rapids, MI
3. Karp Associates, Inc., Melville, NY

2.02 MATERIALS AND FABRICATION – GENERAL

A. Furnish each access door assembly manufactured as factory-fabricated integral unit, complete with parts, attachment devices, and ready for installation.

B. Steel Access Doors, Panels, and Frames: Fabricate units of continuous welded steel construction, unless otherwise indicated.

1. Grind welds smooth and flush with adjacent surfaces.
2. Furnish attachment devices and fasteners of type required to secure access doors and panels to types of support shown.
3. Frames: Fabricate from 16 gage steel.

C. Flush Panel Doors: Fabricate from not less than 14 gage sheet steel, with concealed spring hinges or concealed continuous piano hinge set to open 175 degrees.

1. Finish with manufacturer's factory applied prime paint.

D. Locking and Latching Devices: Furnish flush, screwdriver-operated cam locks of number required to hold door in flush, smooth plane when closed.

1. Where shown or scheduled, provide one cylinder lock per access door.

a. Furnish 2 keys per lock and key locks alike, unless otherwise scheduled.
b. Verify and coordinate locking requirements with Owner and Architect prior to submittal.

2. For recessed panel doors, provide access sleeves for each locking device.

a. Furnish plastic grommets and install in holes cut through finish.

2.03 MATERIALS AND FABRICATION – FLOOR ACCESS DOOR

A. Frame:

1. Extruded aluminum with full anchor flange around perimeter.

B. Lifting Mechanisms:

1. Provide required number and size of compression spring operators enclosed in telescopic tubes to provide, smooth, easy, and controlled cover operation throughout entire arc of opening and to act as check in retarding downward motion of cover when closing.
2. Upper Tube:

a. Outer tube to prevent accumulation of moisture, grit, and debris inside lower tube assembly.

3. Lower Tube:

a. Interlock with flanged support shoe fastened to formed 1/4 inch gusset support plate.

C. Provide removable exterior turn/lift handle with spring loaded ball detent to open latch release.

1. Protect latch release with flush, gasketed, removable screw plug.

D. Automatic Closing System:

1. Provide self-contained, pneumatic, fusible link activated, closing system that will automatically close and latch door in event of fire.

E. Hold-Open System:

1. Equip door with pneumatic hold-open system to automatically hold door in open position of 85 degrees.

a. Provide release button for hold-open system which will reset itself when cover is closed.

2. Manual Closing System:

a. Provide mechanical aluminum hold-open arm for doors specified without automatic closing system,.

F. Hardware:

1. Hinges:

a. Continuous heavy duty Type 316 stainless steel hinge, accessible only when cover is in open position.

1) Fit cover with required number and size of compression spring operators.
2) Mount Type 316 stainless steel snap lock with fixed handle on underside of cover.
3) Provide cable release handle to open cover from underside.

2. Compression Spring Tubes:

a. Anti-corrosive composite, with fasteners of Type 316 stainless steel material.

3. Other Hardware:

a. Zinc plated and sealed.

1) Use of chromates is not permitted.

G. Factory Finish:

1. Mill finish aluminum with coating of specified isolation material applied to exterior of frame.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine areas and conditions under which access door and panel products are to be installed.

1. Do not proceed with Work until unsatisfactory conditions have been corrected in manner acceptable to installer.

3.02 INSTALLATION

A. Comply with manufacturer's instructions for installation of access doors and panels.

B. Coordinate installation with Work of other trades.

C. Set frames accurately in position and securely attach to supports, plumb and level, with plane of face panels aligned with adjacent finish surfaces.

1. Brace to prevent displacement by adjacent Work.

D. Examine panels after installation:

1. Adjust hardware, doors and panels after installation for proper operation.

2. Repair finishes damaged during installation.

    a. Restore finishes so no evidence remains of corrective work.
    b. Replace doors or panels when finishes cannot be repaired to satisfaction of Architect.

3. Replace doors, panels, or frames which are warped, bowed or otherwise damaged during installation.
4. Test floor door units for proper function and adjust until proper operation is achieved.

3.03 CLEAN UP

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

1. Comply with requirements of Sections 01 74 19 and 01 74 23.
2. Use methods acceptable to manufacturer which will not damage finish.

3.04 PROTECTION

A. Protect Work until Substantial Completion.

END OF SECTION 08 31 00

SECTION 08 71 00
DOOR HARDWARE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes:

1. Mechanical and electrified door hardware for:

a. Swinging doors.
b. Sliding doors.

B. Exclusions: Unless specifically listed in hardware sets, hardware is not specified in this section for:

1. Windows
2. Cabinets (casework), including locks in cabinets
3. Signage
4. Toilet accessories
5. Overhead doors
6. Installation.
7. Rough hardware.
8. Conduit, junction boxes & wiring.
9. Folding partitions, except cylinders where detailed.
10. Sliding aluminum doors, except cylinders where detailed.
11. Access doors and panels, except cylinders where detailed.

C. Related Sections:

1. Division 01 Section “Alternates” for alternates affecting this section.
2. Division 07 Section “Joint Sealants” for sealant requirements applicable to threshold installation specified in this section.
3. Division 09 sections for touchup finishing or refinishing of existing openings modified by this section.
4. Division 26 sections for connections to electrical power system and for low-voltage wiring.
5. Division 28 sections for coordination with other components of electronic access control system.

1.3 REFERENCES

A. UL - Underwriters Laboratories

1. UL 10B - Fire Test of Door Assemblies
2. UL 10C - Positive Pressure Test of Fire Door Assemblies
3. UL 1784 - Air Leakage Tests of Door Assemblies

4. UL 305 - Panic Hardware

B. ANSI - American National Standards Institute

1. ANSI/BHMA A156.1 - A156.29, and ANSI/BHMA A156.31 - Standards for Hardware and Specialties

C. California Code of Regulations

1. Title 24: California Building Standards Code

1.4 SUBMITTALS

A. General:

1. Submit in accordance with Conditions of Contract and Division 01 requirements.

B. Action Submittals:

1. Product Data: Product data including manufacturers' technical product data for each item of door hardware, installation instructions, maintenance of operating parts and finish, and other information necessary to show compliance with requirements.
2. Riser and Wiring Diagrams: After final approval of hardware schedule, submit details of electrified door hardware, indicating:

a. Wiring Diagrams: For power, signal, and control wiring and including:
   1) Details of interface of electrified door hardware and building safety and security systems.
   2) Schematic diagram of systems that interface with electrified door hardware.
   3) Point-to-point wiring.
   4) Risers.

3. Samples for Verification: If requested by Architect, submit production sample or sample installations of each type of exposed hardware unit in finish indicated, and tagged with full description for coordination with schedule.

a. Samples will be returned to supplier in like-new condition. Units that are acceptable to Architect may, after final check of operations, be incorporated into Work, within limitations of key coordination requirements.

4. Door Hardware Schedule: Submit schedule with hardware sets in vertical format as illustrated by Sequence of Format for the Hardware Schedule as published by the Door and Hardware Institute. Indicate complete designations of each item required for each door or opening, include:

a. Door Index; include door number, heading number, and Architects hardware set number.
b. Opening Lock Function Spreadsheet: List locking device and function for each opening.
c. Type, style, function, size, and finish of each hardware item.
d. Name and manufacturer of each item.
e. Fastenings and other pertinent information.
f. Location of each hardware set cross-referenced to indications on Drawings.
g. Explanation of all abbreviations, symbols, and codes contained in schedule.
h. Mounting locations for hardware.
i. Door and frame sizes and materials.
j. Name and phone number for local manufacturer's representative for each product.

k. Operational Description of openings with any electrified hardware (locks, exits, electromagnetic locks, electric strikes, automatic operators, door position switches, magnetic holders or closer/holder units, and access control components). Operational description should include how door will operate on egress, ingress, and fire and smoke alarm connection.
   1) Submittal Sequence: Submit door hardware schedule concurrent with submissions of Product Data, Samples, and Shop Drawings. Coordinate submission of door hardware schedule with scheduling requirements of other work to facilitate fabrication of other work that is critical in Project construction schedule.

5. Key Schedule:

   a. Initiate and conduct meeting(s) with Owner representatives and hardware supplier to determine system keyway(s), keybow styles, structure, stamping, degree of physical security and degree of geographic exclusivity. Furnish Owner's written approval of the system; do not order keys or cylinders without written confirmation of actual requirements from the Owner.
   b. After Keying Conference, provide keying schedule listing levels of keying as well as explanation of key system's function, key symbols used and door numbers controlled.
   c. Use ANSI/BHMA A156.28 "Recommended Practices for Keying Systems" as guideline for nomenclature, definitions, and approach for selecting optimal keying system.
   d. Provide 3 copies of keying schedule for review prepared and detailed in accordance with referenced DHI publication. Include schematic keying diagram and index each key to unique door designations.
   e. Index keying schedule by door number, keyset, hardware heading number, cross keying instructions, and special key stamping instructions.
   f. Provide one complete bitting list of key cuts and one key system schematic illustrating system usage and expansion.
      1) Forward bitting list, key cuts and key system schematic directly to Owner, by means as directed by Owner.

6. Templates: After final approval of hardware schedule, provide templates for doors, frames and other work specified to be factory prepared for door hardware installation.

C. Informational Submittals:

1. Qualification Data: For Supplier and Installer.
2. Product Certificates for electrified door hardware, signed by manufacturer:

   a. Certify that door hardware approved for use on types and sizes of labeled fire-rated doors complies with listed fire-rated door assemblies.

3. Certificates of Compliance:

   a. Electrified Hardware Coordination Conference Certification: Letter of compliance, signed by Contractor, attesting to completion of electrified hardware coordination conference, specified in "QUALITY ASSURANCE" article, herein.

4. Warranty: Special warranty specified in this Section.

D. Closeout Submittals:

1. Operations and Maintenance Data : Provide in accordance with Division 01 and include:

   a. Complete information on care, maintenance, and adjustment; data on repair and replacement parts, and information on preservation of finishes.

b. Catalog pages for each product.
c. Name, address, and phone number of local representative for each manufacturer.
d. Final approved hardware schedule, edited to reflect conditions as-installed.
e. Final keying schedule
f. As-installed wiring diagrams for each opening connected to power, both low voltage and 110 volts.
g. Copy of warranties including appropriate reference numbers for manufacturers to identify project.

1.5 QUALITY ASSURANCE

A. Product Substitutions: Comply with product requirements stated in Division 01 and as specified herein.

1. Where products indicate “acceptable manufacturers” or “acceptable manufacturers and products”, provide product from specified manufacturers, subject to compliance with specified requirements and “Single Source Responsibility” requirements stated herein.

B. Supplier Qualifications and Responsibilities: Recognized architectural hardware supplier with record of successful in-service performance for supplying door hardware similar in quantity, type, and quality to that indicated for this Project.

1. Scheduling Responsibility: Preparation of door hardware and keying schedules.
2. Engineering Responsibility: Preparation of data for electrified door hardware, including Shop Drawings, based on testing and engineering analysis of manufacturer's standard units in assemblies similar to those indicated for this Project.
3. Coordination Responsibility: Coordinate installation of electronic security hardware with Architect and electrical engineers and provide installation and technical data to Architect and other related subcontractors.

a. Upon completion of electronic security hardware installation, inspect and verify that all components are working properly.

C. Installer Qualifications: Qualified tradesmen, skilled in application of commercial grade hardware with record of successful in-service performance for installing door hardware similar in quantity, type, and quality to that indicated for this Project.

D. Single Source Responsibility: Obtain each type of door hardware from single manufacturer.

1. Provide electrified door hardware from same manufacturer as mechanical door hardware, unless otherwise indicated.
2. Manufacturers that perform electrical modifications and that are listed by testing and inspecting agency acceptable to authorities having jurisdiction are acceptable.

E. Fire-Rated Door Openings: Provide door hardware for fire-rated openings that complies with NFPA 80 and requirements of authorities having jurisdiction. Provide only items of door hardware that are listed and are identical to products tested by Underwriters Laboratories, Intertek Testing Services, or other testing and inspecting organizations acceptable to authorities having jurisdiction for use on types and sizes of doors indicated, based on testing at positive pressure and according to NFPA 252 or UL 10C and in compliance with requirements of fire-rated door and door frame labels.

F. Smoke- and Draft-Control Door Assemblies: Where smoke- and draft-control door assemblies are required, provide door hardware that meets requirements of assemblies tested according to UL 1784 and installed in compliance with NFPA 105.

1. Air Leakage Rate: Maximum air leakage of 0.3 cfm/sq. ft. (3 cu. m per minute/sq. m) at tested pressure differential of 0.3-inch wg (75 Pa) of water.

G. Electrified Door Hardware: Listed and labeled as defined in NFPA 70, Article 100, by testing agency acceptable to authorities having jurisdiction.

H. Means of Egress Doors: Latches do not require more than 5 lbs (67 N) to release latch. Locks do not require use of key, tool, or special knowledge for operation.

I. Accessibility Requirements: For door hardware on doors in an accessible route, comply with governing accessibility regulations cited in "REFERENCES" article, herein.

1. Provide operating devices that do not require tight grasping, pinching, or twisting of wrist and that operate with force of not more than 5 lbs (22.2 N).
2. Maximum opening-force requirements:

    a. Interior, Non-Fire-Rated Hinged Doors: 5 lbs (22.2 N) applied perpendicular to door.
    b. Sliding or Folding Doors: 5 lbs (22.2 N) applied parallel to door at latch.
    c. Fire Doors: The minimum opening force allowable by the appropriate administrative authority, not to exceed 15 lbs (66.7N).

3. Bevel raised thresholds with slope of not more than 1:2. Provide thresholds not more than 1/2 inch (13 mm) high.
4. Adjust closer so that the time required to move the door from the 90 degree position to 12 degrees from the latch is 5 seconds minimum.

J. Pre-installation Conference: Conduct conference at Project site to comply with requirements in Division 01.

1. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
2. Inspect and discuss preparatory work performed by other trades.
3. Inspect and discuss electrical roughing-in for electrified door hardware.
4. Review sequence of operation for each type of electrified door hardware.
5. Review required testing, inspecting, and certifying procedures.

K. Coordination Conferences:

1. Installation Coordination Conference: Prior to hardware installation, schedule and hold meeting to review questions or concerns related to proper installation and adjustment of door hardware.

    a. Attendees: Door hardware supplier, door hardware installer, Contractor.
    b. After meeting, provide letter of compliance to Architect, indicating when meeting was held and who was in attendance.

2. Electrified Hardware Coordination Conference: Prior to ordering electrified hardware, schedule and hold meeting to coordinate door hardware with security, electrical, doors and frames, and other related suppliers.

    a. Attendees: electrified door hardware supplier, doors and frames supplier, electrified door hardware installer, electrical subcontractor, Owner, Owner's security consultant, Architect and Contractor.
    b. After meeting, provide letter of compliance to Architect, indicating when coordination conference was held and who was in attendance.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Inventory door hardware on receipt and provide secure lock-up for hardware delivered to Project site.

B. Tag each item or package separately with identification coordinated with final door hardware schedule, and include installation instructions, templates, and necessary fasteners with each item or package.

   1. Deliver each article of hardware in manufacturer's original packaging.

C. Project Conditions:

   1. Maintain manufacturer-recommended environmental conditions throughout storage and installation periods.
   2. Provide secure lock-up for door hardware delivered to Project, but not yet installed. Control handling and installation of hardware items so that completion of Work will not be delayed by hardware losses both before and after installation.

D. Protection and Damage:

   1. Promptly replace products damaged during shipping.
   2. Handle hardware in manner to avoid damage, marring, or scratching. Correct, replace or repair products damaged during Work.
   3. Protect products against malfunction due to paint, solvent, cleanser, or any chemical agent.

E. Deliver keys and permanent cores to Owner by registered mail or overnight package service.

1.7 COORDINATION

A. Coordinate layout and installation of floor-recessed door hardware with floor construction. Cast anchoring inserts into concrete. Concrete, reinforcement, and formwork requirements are specified in Division 03.

B. Installation Templates: Distribute for doors, frames, and other work specified to be factory prepared. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.

C. Security: Coordinate installation of door hardware, keying, and access control with Owner's security consultant.

D. Electrical System Roughing-In: Coordinate layout and installation of electrified door hardware with connections to power supplies and building safety and security systems.

E. Existing Openings:

   1. Prior to submittal, carefully inspect existing conditions to verify finish hardware required to complete Work, including sizes, quantities, existing hardware scheduled for re-use, and sill condition material. If conflict between the specified/scheduled hardware and existing conditions, submit request for direction from Architect. Include date of jobsite visit in the submittal.
   2. Submittals prepared without thorough jobsite visit by qualified hardware expert will be rejected as non-compliant.

F. Direct shipments not permitted, unless approved by Contractor.

1.8 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of door hardware that fail in materials or workmanship within specified warranty period.

   1. Warranty Period: Years from date of Substantial Completion, for durations indicated.

a. Closers:
   1) Mechanical: 30 years.

b. Exit Devices:
   1) Mechanical: 3 years.
   2) Electrified: 1 year.

c. Locksets:
   1) Mechanical (Mortise Locks): 3 years.
   2) Mechanical (Cylindrical Locks): 10 years.
   3) Electrified: 1 year.

d. Continuous Hinges: Lifetime warranty
e. Key Blanks: Lifetime

2. Warranty does not cover damage or faulty operation due to improper installation, improper use or abuse.

1.9 MAINTENANCE

A. Maintenance Tools:

1. Furnish complete set of special tools required for maintenance and adjustment of hardware, including changing of cylinders.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Approval of manufacturers and/or products other than those listed as “Scheduled Manufacturer” or “Acceptable Manufacturer” in the individual article for the product category shall be in accordance with QUALITY ASSURANCE article, herein.

B. Approval of products from manufacturers indicated in “Acceptable Manufacturers” is contingent upon those products providing all functions and features and meeting all requirements of scheduled manufacturer’s product.

C. Hand of Door: Drawings show direction of slide, swing, or hand of each door leaf. Furnish each item of hardware for proper installation and operation of door movement as shown.

D. Where specified hardware is not adaptable to finished shape or size of members requiring hardware, furnish suitable types having same operation and quality as type specified, subject to Architect's approval.

2.2 MATERIALS

A. Fasteners

1. Provide hardware manufactured to conform to published templates, generally prepared for machine screw installation.
2. Furnish screws for installation with each hardware item. Finish exposed (exposed under any condition) screws to match hardware finish, or, if exposed in surfaces of other work, to match finish of this other work including prepared for paint surfaces to receive painted finish.

3. Provide concealed fasteners for hardware units exposed when door is closed except when no standard units of type specified are available with concealed fasteners. Do not use thru-bolts for installation where bolt head or nut on opposite face is exposed in other work unless thru-bolts are required to fasten hardware securely. Review door specification and advise Architect if thru-bolts are required.
4. Install hardware with fasteners provided by hardware manufacturer.

B. Modification and Preparation of Existing Doors: Where existing door hardware is indicated to be removed and reinstalled.

1. Provide necessary fillers, Dutchmen, reinforcements, and fasteners, compatible with existing materials, as required for mounting new opening hardware and to cover existing door and frame preparations.
2. Use materials which match materials of adjacent modified areas.
3. When modifying existing fire-rated openings, provide materials permitted by NFPA 80 as required to maintain fire-rating.

C. Provide screws, bolts, expansion shields, drop plates and other devices necessary for hardware installation.

1. Where fasteners are exposed to view: Finish to match adjacent door hardware material.

2.3 HINGES

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product: Ives 5BB series

B. Requirements:

1. Provide five-knuckle ball bearing hinges conforming to ANSI/BHMA A156.1.
2. 1-3/4 inch (44 mm) thick doors, up to and including 36 inches (914 mm) wide:

   a. Exterior: Standard weight, bronze or stainless steel, 4-1/2 inches (114 mm) high
   b. Interior: Standard weight, steel, 4-1/2 inches (114 mm) high

3. 1-3/4 inch (44 mm) thick doors over 36 inches (914 mm) wide:

   a. Exterior: Heavy weight, bronze/stainless steel, 5 inches (127 mm) high
   b. Interior: Heavy weight, steel, 5 inches (127 mm) high

4. 2 inches or thicker doors:

   a. Exterior: Heavy weight, bronze or stainless steel, 5 inches (127 mm) high
   b. Interior: Heavy weight, steel, 5 inches (127 mm) high

5. Provide three hinges per door leaf for doors 90 inches (2286 mm) or less in height, and one additional hinge for each 30 inches (762 mm) of additional door height.
6. Where new hinges are specified for existing doors or existing frames, provide new hinges of identical size to hinge preparation present in existing door or existing frame.
7. Hinge Pins: Except as otherwise indicated, provide hinge pins as follows:

   a. Steel Hinges: Steel pins
   b. Non-Ferrous Hinges: Stainless steel pins
   c. Out-Swinging Exterior Doors: Non-removable pins
   d. Out-Swinging Interior Lockable Doors: Non-removable pins
   e. Interior Non-lockable Doors: Non-rising pins

8. Width of hinges: 4-1/2 inches (114 mm) at 1-3/4 inch (44 mm) thick doors, and 5 inches (127 mm) at 2 inches (51 mm) or thicker doors. Adjust hinge width as required for door, frame, and wall conditions to allow proper degree of opening.
9. Doors 36 inches (914 mm) wide or less furnish hinges 4-1/2 inches (114 mm) high; doors greater than 36 inches (914 mm) wide furnish hinges 5 inches (127 mm) high, heavy weight or standard weight as specified.
10. Provide hinges with electrified options as scheduled in the hardware sets. Provide with sufficient number and wire gage to accommodate electric function of specified hardware. Locate electric hinge at second hinge from bottom or nearest to electrified locking component.
11. Provide mortar guard for each electrified hinge specified.
12. Provide spring hinges where specified. Provide two spring hinges and one bearing hinge per door leaf for doors 90 inches (2286 mm) or less in height. Provide one additional bearing hinge for each 30 inches (762 mm) of additional door height.

2.4 ELECTRIC POWER TRANSFER

A. Manufacturers:

   a. Scheduled Manufacturer: Von Duprin EPT-10

B. Provide power transfer with electrified options as scheduled in the hardware sets. Provide with number and gage of wires sufficient to accommodate electric function of specified hardware.

C. Locate electric power transfer per manufacturer's template and UL requirements, unless interference with operation of door or other hardware items.

2.5 FLUSH BOLTS

A. Manufacturers:

   1. Scheduled Manufacturer: Ives

B. Requirements:

   1. Provide automatic, constant latching, and manual flush bolts with forged bronze or stainless steel face plates, extruded brass levers, and with wrought brass guides and strikes. Provide 12 inch (305 mm) steel or brass rods at doors up to 90 inches (2286 mm) in height. For doors over 90 inches (2286 mm) in height increase top rods by 6 inches (152 mm) for each additional 6 inches (152 mm) of door height. Provide dust-proof strikes at each bottom flush bolt.

2.6 COORDINATORS

A. Manufacturers:

   1. Scheduled Manufacturer: Ives

B. Requirements:

   1. Where pairs of doors are equipped with automatic flush bolts, an astragal, or other hardware that requires synchronized closing of the doors, provide bar-type coordinating device, surface applied to underside of stop at frame head.
   2. Provide filler bar of correct length for unit to span entire width of opening, and appropriate brackets for parallel arm door closers and surface vertical rod exit device strikes. Factory-prep coordinators for vertical rod devices if required.

2.7 MORTISE LOCKS

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product: Schlage L9000 series

B. Requirements:

1. Provide mortise locks conforming to ANSI/BHMA A156.13 Series 1000, Grade 1 Operational, Grade 1 Security, and manufactured from heavy gauge steel, containing components of steel with a zinc dichromate plating for corrosion resistance. Provide lock case that is multi-function and field reversible for handing without opening case. Cylinders: Refer to "KEYING" article, herein.
2. Provide locks with standard 2-3/4 inches (70 mm) backset with full 3/4 inch (19 mm) throw stainless steel mechanical anti-friction latchbolt. Provide deadbolt with full 1 inch (25 mm) throw, constructed of stainless steel.
3. Provide standard ASA strikes unless extended lip strikes are necessary to protect trim.
4. Provide electrified options as scheduled in the hardware sets. Where scheduled, provide a request to exit (RX) switch that is actuated with rotation of inside lever.
5. Provide motor based electrified locksets with electrified options as scheduled in the hardware sets and comply with the following requirements:

    a. Universal input voltage – single chassis accepts 12 or 24V DC to allow for changes in the field without changing lock chassis.
    b. Fail Safe/Fail Secure – changing mode between electrically locked (fail safe) and electrically unlocked (fail secure) is field selectable without opening the lock case
    c. Low maximum current draw – maximum 0.4 amps to allow for multiple locks on a single power supply.
    d. Low holding current – maximum 0.01 amps to produce minimal heat, eliminate "hot levers" in electrically locked applications, and to provide reliable operation in wood doors that provide minimal ventilation and air flow.
    e. Request to Exit Switch (RX) –
        1) Modular Design – provide electrified locks capable of using, adding, or changing a modular RX switch without opening the lock case.
        2) Monitoring – where scheduled, provide a request to exit (RX) switch that detects rotation of the inside lever.

    f. Connections – provide quick-connect Molex system standard.
    g. UL Listed – 3 hour fire door

6. Lever Trim: Solid brass, bronze, or stainless steel, cast or forged in design specified, with wrought roses and external lever spring cages. Provide thru-bolted levers with 2-piece spindles.

    a. Lever Design: As scheduled.

2.8 CYLINDRICAL LOCKS – GRADE 1

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product: Schlage ND Series

B. Requirements:

1. Provide cylindrical locks conforming to the following standards and requirements:

    a. ANSI/BHMA A156.2 Series 4000, Grade 1.
    b. UL 10C for 4'-0" x 10'-0" 3-hour fire door.

2. Cylinders: Refer to “KEYING” article, herein.
3. Provide cylindrical locksets exceeding the ANSI/BHMA A156.2 Grade 1 performance standards for strength, security, and durability in the categories below:

    a. Abusive Locked Lever Torque Test – minimum 3,100 inch-pounds without gaining access
    b. Cycle life - tested to minimum 10 million cycles per ANSI/BHMA A156.2 Cycle Test with no visible lever sag or use of performance aids such as set screws or spacers.

4. Provide locks with standard 2-3/4 inches (70 mm) backset, unless noted otherwise, with 1/2 inch latch throw. Provide proper latch throw for UL listing at pairs.
5. Provide locksets with separate anti-rotation thru-bolts, and no exposed screws.
6. Provide independently operating levers with two external return spring cassettes mounted under roses to prevent lever sag.
7. Provide standard ASA strikes unless extended lip strikes are necessary to protect trim.
8. Provide electrified options as scheduled in the hardware sets.
9. Lever Trim: Solid cast levers without plastic inserts, and wrought roses on both sides.

    a. Lever Design: As scheduled.

2.9 EXIT DEVICES

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product: Von Duprin 98/35 series

B. Requirements:

1. Provide exit devices tested to ANSI/BHMA A156.3 Grade 1, and UL listed for Panic Exit or Fire Exit Hardware. Cylinders: Refer to “KEYING” article, herein.
2. Provide touchpad type exit devices, fabricated of brass, bronze, stainless steel, or aluminum, plated to standard architectural finishes to match balance of door hardware.
3. Touchpad: Extend minimum of one half of door width. Match exit device finish, stainless steel for US26, US26D, US28, US32, and US32D finishes; and for all other finishes, provide compatible finish to exit device. No plastic inserts are allowed in touchpads.
4. Provide exit devices with dead-latching feature for security and for future addition of alarm kits and/or other electrified requirements.
5. Provide flush end caps for exit devices.
6. Provide exit devices with manufacturer’s approved strikes.
7. Provide exit devices cut to door width and height. Install exit devices at height recommended by exit device manufacturer, allowable by governing building codes, and approved by Architect.
8. Mount mechanism case flush on face of doors, or provide spacers to fill gaps behind devices. Where glass trim or molding projects off face of door, provide glass bead kits.
9. Provide cylinder dogging at non-fire-rated exit devices.
10. Removable Mullions: 2 inches (51 mm) x 3 inches (76 mm) steel tube. Where scheduled as keyed removable mullion, provide type that can be removed by use of a keyed cylinder, which is self-locking when re-installed.
11. Where lever handles are specified as outside trim for exit devices, provide heavy-duty lever trims with forged or cast escutcheon plates. Provide vandal-resistant levers that will travel to 90-degree down position when more than 35 pounds of torque are applied, and which can easily be re-set.

    a. Lever Style: Match lever style of locksets.

12. Accessibility: Maximum 5lbs force to retract latch bolt per CBC Chapter 11B.

"AX" feature: touchpad directly retracts the latchbolt with 5 lb or less of force. Provide testing lab certification confirming that the mechanical device is independent third-party tested to meet this 5 lb requirement.

13. Provide UL labeled fire exit hardware for fire rated openings.
14. Provide factory drilled weep holes for exit devices used in full exterior application, highly corrosive areas, and where noted in hardware sets.
15. Provide electrified options as scheduled.

2.10 CYLINDERS

A. Manufacturers:

1. Scheduled Manufacturer: Schlage

B. Requirements:

1. Provide permanent small format interchangeable core (SFIC) cylinders/cores to match Owner's existing key system, compliant with ANSI/BHMA A156.5; latest revision, Section 12, Grade 1; permanent cylinders; cylinder face finished to match lockset, manufacturer's series as indicated. Refer to "KEYING" article, herein.
2. Replaceable Construction Cores.

   a. Provide temporary construction cores replaceable by permanent cores, furnished in accordance with the following requirements.
      1) 3 construction control keys
      2) 12 construction change (day) keys.

   b. Owner or Owner's Representative will replace temporary construction cores with permanent cores.

2.11 KEYING

A. Provide cylinders/cores keyed into Owner's existing factory registered keying system, complying with guidelines in ANSI/BHMA A156.28, incorporating decisions made at keying conference.

B. Requirements:

1. Provide permanent cylinders/cores keyed by the manufacturer according to the following key system.

   a. Master Keying system as directed by the Owner.

2. Forward bitting list and keys separately from cylinders, by means as directed by Owner. Failure to comply with forwarding requirements shall be cause for replacement of cylinders/cores involved at no additional cost to Owner.
3. Provide keys with the following features:

   a. Material: Nickel silver; minimum thickness of .107-inch (2.3mm)

4. Identification:

   a. Mark permanent cylinders/cores and keys with applicable blind code per DHI publication "Keying Systems and Nomenclature" for identification. Blind code marks shall not include actual key cuts.
   b. Identification stamping provisions must be approved by the Architect and Owner.

c. Stamp cylinders/cores and keys with Owner's unique key system facility code as established by the manufacturer; key symbol and embossed or stamped with "DO NOT DUPLICATE" along with the "PATENTED" or patent number to enforce the patent protection.
d. Failure to comply with stamping requirements shall be cause for replacement of keys involved at no additional cost to Owner.
e. Forward permanent cylinders/cores to Owner, separately from keys, by means as directed by Owner.

5. Quantity: Furnish in the following quantities.

a. Change (Day) Keys: 3 per cylinder/core.
b. Permanent Control Keys: 3.
c. Master Keys: 6.

2.12 KEY CONTROL SYSTEM

A. Manufacturers:

1. Scheduled Manufacturer: Telkee
2. Acceptable Manufacturers: HPC, Lund

B. Requirements:

1. Provide key control system, including envelopes, labels, tags with self-locking key clips, receipt forms, 3-way visible card index, temporary markers, permanent markers, and standard metal cabinet, all as recommended by system manufacturer, with capacity for 150% of number of locks required for Project.

a. Provide complete cross index system set up by hardware supplier, and place keys on markers and hooks in cabinet as determined by final key schedule.
b. Provide hinged-panel type cabinet for wall mounting.

2.13 DOOR CLOSERS

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product: LCN 4040XP series.

B. Requirements:

1. Provide door closers conforming to ANSI/BHMA A156.4 Grade 1 requirements by BHMA certified independent testing laboratory. ISO 9000 certify closers. Stamp units with date of manufacture code.
2. Provide door closers with fully hydraulic, full rack and pinion action with high strength cast iron cylinder, and full complement bearings at shaft.
3. Cylinder Body: 1-1/2-inch (38 mm) diameter piston with 5/8-inch (16 mm) diameter double heat-treated pinion journal. QR code with a direct link to maintenance instructions.
4. Hydraulic Fluid: Fireproof, passing requirements of UL10C, and requiring no seasonal closer adjustment for temperatures ranging from 120 degrees F to -30 degrees F.
5. Spring Power: Continuously adjustable over full range of closer sizes, and providing reduced opening force as required by accessibility codes and standards. Provide snap-on cover clip, with plastic covers, that secures cover to spring tube.
6. Hydraulic Regulation: By tamper-proof, non-critical valves, with separate adjustment for latch speed, general speed, and backcheck. Provide graphically labelled instructions on the closer body adjacent to each adjustment valve. Provide positive stop on reg valve that prevents reg screw from being backed out.

7. Provide closers with solid forged steel main arms and factory assembled heavy-duty forged forearms for parallel arm closers.
8. Pressure Relief Valve (PRV) Technology: Not permitted.
9. Finish for Closer Cylinders, Arms, Adapter Plates, and Metal Covers: Powder coating finish which has been certified to exceed 100 hours salt spray testing as described in ANSI Standard A156.4 and ASTM B117, or has special rust inhibitor (SRI).
10. Provide special templates, drop plates, mounting brackets, or adapters for arms as required for details, overhead stops, and other door hardware items interfering with closer mounting.

2.14 DOOR TRIM

A. Manufacturers:

1. Scheduled Manufacturer: Ives

B. Requirements:

1. Provide push plates 4 inches (102 mm) wide by 16 inches (406 mm) high by 0.050 inch (1 mm) thick and beveled 4 edges. Where width of door stile prevents use of 4 inches (102 mm) wide plate, adjust width to fit.
2. Provide push bars of solid bar stock, diameter and length as scheduled. Provide push bars of sufficient length to span from center to center of each stile. Where required, mount back to back with pull.
3. Provide offset pulls of solid bar stock, diameter and length as scheduled. Where required, mount back to back with push bar.
4. Provide flush pulls as scheduled. Where required, provide back-to-back mounted model.
5. Provide pulls of solid bar stock, diameter and length as scheduled. Where required, mount back to back with push bar.
6. Provide pull plates 4 inches (102 mm) wide by 16 inches (406 mm) high by 0.050 inch (1 mm) thick, beveled 4 edges, and prepped for pull. Where width of door stile prevents use of 4 inches (102 mm) wide plate, adjust width to fit.
7. Provide wire pulls of solid bar stock, diameter and length as scheduled.
8. Provide decorative pulls as scheduled. Where required, mount back to back with pull.

2.15 PROTECTION PLATES

A. Manufacturers:

1. Scheduled Manufacturer: Ives

B. Requirements:

1. Provide kick plates, mop plates, and armor plates minimum of 0.050 inch (1 mm) thick, beveled four edges as scheduled. Furnish with sheet metal or wood screws, finished to match plates.
2. Sizes of plates:

   a. Kick Plates: 10 inches (254 mm) high by 2 inches (51 mm) less width of door on single doors, 1 inch (25 mm) less width of door on pairs
   b. Mop Plates: 4 inches (102 mm) high by 2 inches (51 mm) less width of door on single doors, 1 inch (25 mm) less width of door on pairs
   c. Armor Plates: 36 inches (914 mm) high by 2 inches (51 mm) less width of door on single doors, 1 inch (25 mm) less width of door on pairs

2.16 OVERHEAD STOPS AND OVERHEAD STOP/HOLDERS

A. Manufacturers:

1. Scheduled Manufacturers: Glynn-Johnson

B. Requirements:

1. Provide heavy duty concealed mounted overhead stop or holder as specified for exterior and interior vestibule single acting doors.
2. Provide heavy duty concealed mounted overhead stop or holder as specified for double acting doors.
3. Provide heavy or medium duty and concealed or surface mounted overhead stop or holder for interior doors as specified. Provide medium duty surface mounted overhead stop for interior doors and at any door that swings more than 140 degrees before striking wall, open against equipment, casework, sidelights, and where conditions do not allow wall stop or floor stop presents tripping hazard.
4. Where overhead holders are specified provide friction type at doors without closer and positive type at doors with closer.

2.17 DOOR STOPS AND HOLDERS

A. Manufacturers:

1. Scheduled Manufacturer: Ives

B. Provide door stops at each door leaf:

1. Provide wall stops wherever possible. Provide convex type where mortise type locks are used and concave type where cylindrical type locks are used.
2. Where a wall stop cannot be used, provide universal floor stops for low or high rise options.
3. Where wall or floor stop cannot be used, provide medium duty surface mounted overhead stop.

2.18 THRESHOLDS, SEALS, DOOR SWEEPS, AUTOMATIC DOOR BOTTOMS, AND GASKETING

A. Manufacturers:

1. Scheduled Manufacturer: Zero International

B. Requirements:

1. Provide thresholds, weather-stripping (including door sweeps, seals, and astragals) and gasketing systems (including smoke, sound, and light) as specified and per architectural details. Match finish of other items.
2. Size of thresholds:

    a. Saddle Thresholds: 1/2 inch (13 mm) high by jamb width by door width
    b. Bumper Seal Thresholds: 1/2 inch (13 mm) high by 5 inches (127 mm) wide by door width

3. Provide door sweeps, seals, astragals, and auto door bottoms only of type where resilient or flexible seal strip is easily replaceable and readily available.

2.19 POCKET DOOR HARDWARE

A. Manufacturers:

1. Scheduled Manufacturer: KN Crowder

B. Requirements:

1. Provide complete sets of pocket door hardware as recommended by manufacturer for door type and weight.

a. Include track, hangers, fasteners, guides, stops, and other hardware as required for complete installation.

2.20 FINISHES

A. Finish: BHMA 626/652 (US26D); except:

1. Hinges at Exterior Doors: BHMA 630 (US32D)
2. Push Plates, Pulls, and Push Bars: BHMA 630 (US32D)
3. Protection Plates: BHMA 630 (US32D)
4. Overhead Stops and Holders: BHMA 630 (US32D)
5. Door Closers: Powder Coat to Match
6. Wall Stops: BHMA 630 (US32D)
7. Latch Protectors: BHMA 630 (US32D)
8. Weatherstripping: Clear Anodized Aluminum
9. Thresholds: Mill Finish Aluminum

PART 3 - EXECUTION

3.1 EXAMINATION

A. Prior to installation of hardware, examine doors and frames, with Installer present, for compliance with requirements for installation tolerances, labeled fire-rated door assembly construction, wall and floor construction, and other conditions affecting performance.

B. Examine roughing-in for electrical power systems to verify actual locations of wiring connections before electrified door hardware installation.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

D. Existing frames and doors to be retrofitted with new hardware**:**

1. Field-verify conditions and dimensions prior to ordering hardware. Fill existing hardware cut outs not being reused by the new hardware. Remove existing hardware not being reused, return to Owner unless directed otherwise.
2. Remove existing floor closers not scheduled for reuse, fill cavities with non-shrinking concrete and finish smooth.
3. Cut and weld existing steel frames currently prepared with 2.25 inch height strikes. Cut an approximate 8 inch section from the strike jamb and weld in a reinforced section to accommodate specified hardware’s strike.
4. Patch and weld flush filler pieces into existing door hardware preparations in steel doors and frames, leave surfaces smooth.

3.2 PREPARATION

A. Where on-site modification of doors and frames is required:

1. Carefully remove existing door hardware and components being reused. Clean, protect, tag, and store in accordance with storage and handling requirements specified herein.
2. Field modify and prepare existing door and frame for new hardware being installed.
3. When modifications are exposed to view, use concealed fasteners, when possible.
4. Prepare hardware locations and reinstall in accordance with installation requirements for new door hardware and with:

a. Steel Doors and Frames: For surface applied door hardware, drill and tap doors and frames according to ANSI/SDI A250.6.
b. Wood Doors: DHI WDHS.5 "Recommended Hardware Reinforcement Locations for Mineral Core Wood Flush Doors."
c. Doors in rated assemblies: NFPA 80 for restrictions on on-site door hardware preparation.

3.3 INSTALLATION

A. Mounting Heights: Mount door hardware units at heights to comply with the following, unless otherwise indicated or required to comply with governing regulations.

1. Standard Steel Doors and Frames: ANSI/SDI A250.8.
2. Custom Steel Doors and Frames: HMMA 831.
3. Wood Doors: DHI WDHS.3, "Recommended Locations for Architectural Hardware for Wood Flush Doors."

B. Install each hardware item in compliance with manufacturer's instructions and recommendations, using only fasteners provided by manufacturer.

C. Do not install surface mounted items until finishes have been completed on substrate. Protect all installed hardware during painting.

D. Set units level, plumb and true to line and location. Adjust and reinforce attachment substrate as necessary for proper installation and operation.

E. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.

F. Install operating parts so they move freely and smoothly without binding, sticking, or excessive clearance.

G. Hinges: Install types and in quantities indicated in door hardware schedule but not fewer than quantity recommended by manufacturer for application indicated or one hinge for every 30 inches (750 mm) of door height, whichever is more stringent, unless other equivalent means of support for door, such as spring hinges or pivots, are provided.

H. Lock Cylinders: Install construction cores to secure building and areas during construction period.

1. Replace construction cores with permanent cores as indicated in keying section.

I. Wiring: Coordinate with Division 26, ELECTRICAL sections for:

1. Conduit, junction boxes and wire pulls.
2. Connections to and from power supplies to electrified hardware.
3. Connections to fire/smoke alarm system and smoke evacuation system.
4. Connection of wire to door position switches and wire runs to central room or area, as directed by Architect.

5. Testing and labeling wires with Architect's opening number.

J. Key Control System: Tag keys and place them on markers and hooks in key control system cabinet, as determined by final keying schedule.

K. Door Closers: Mount closers on room side of corridor doors, inside of exterior doors, and stair side of stairway doors from corridors. Closers shall not be visible in corridors, lobbies and other public spaces unless approved by Architect.

L. Closer/Holders: Mount closer/holders on room side of corridor doors, inside of exterior doors, and stair side of stairway doors.

M. Power Supplies: Locate power supplies as indicated or, if not indicated, above accessible ceilings or in equipment room, or alternate location as directed by Architect.

1. Coordination: Coordinate provision with the security systems provider to mitigate excessive or redundant purchase.
2. Configuration: Provide least number of power supplies required to adequately serve doors with electrified door hardware.

N. Thresholds: Set thresholds in full bed of sealant complying with requirements specified in Division 07 Section "Joint Sealants."

O. Stops: Provide floor stops for doors unless wall or other type stops are indicated in door hardware schedule. Do not mount floor stops where they may impede traffic or present tripping hazard.

P. Perimeter Gasketing: Apply to head and jamb, forming seal between door and frame.

Q. Meeting Stile Gasketing: Fasten to meeting stiles, forming seal when doors are closed.

R. Door Bottoms: Apply to bottom of door, forming seal with threshold when door is closed.

S. Field-verify existing conditions and measurements prior to ordering hardware. Fill existing hardware cut outs not being used by the new hardware.

T. Remove existing hardware not being reused. Tag and bag removed hardware, turn over to Owner.

U. Where existing wall conditions will not allow door to swing using the scheduled hinges, provide wide-throw hinges and if needed, extended arms on closers.

V. Provide manufacturer's recommended brackets to accommodate the mounting of closers on doors with flush transoms.

3.4 ADJUSTING

A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.

1. Spring Hinges: Adjust to achieve positive latching when door is allowed to close freely from an open position of 30 degrees.
2. Electric Strikes: Adjust horizontal and vertical alignment of keeper to properly engage lock bolt.
3. Door Closers: Adjust sweep period to comply with accessibility requirements and requirements of authorities having jurisdiction.

B. Occupancy Adjustment: Approximately three months after date of Substantial Completion, Installer shall examine and readjust each item of door hardware, including adjusting operating

forces, as necessary to ensure function of doors, door hardware, and electrified door hardware.

3.5 CLEANING AND PROTECTION

A. Clean adjacent surfaces soiled by door hardware installation.

B. Clean operating items as necessary to restore proper function and finish.

C. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of Substantial Completion.

3.6 DEMONSTRATION

A. Provide training for Owner's maintenance personnel to adjust, operate, and maintain door hardware and door hardware finishes. Refer to Division 01 Section "Demonstration and Training."

3.7 DOOR HARDWARE SCHEDULE

A. Locksets, exit devices, and other hardware items are referenced in the following hardware sets for series, type and function. Refer to the above-specifications for special features, options, cylinders/keying, and other requirements.

B. Do not order material until submittal has been reviewed, stamped, and signed by Architect’s door hardware consultant.

C. Hardware Sets:

106237 OPT0358636 Version 1
HW SET: 01

Door(s):
B14.2 B15.8

HARDWARE BY DOOR MFR.

HW SET: 02

Door(s):
B14.3 B15.7

HARDWARE BY DOOR MFR.

HW SET: 03

Door(s):

B07A

6	EA	HINGE	5BB1HW 4.5 X 4.5 NRP		630	IVE
2	EA	POWER TRANSFER	EPT10 CON		689	VON
1	EA	ELEC PANIC HARDWARE	RX-9847-EO		626	VON
1	EA	ELEC PANIC HARDWARE	RX-9847-L-M996-17-FSE		626	VON
1	EA	SFIC RIM CYLINDER	80-159 GRN		626	SCH
1	EA	PERMANENT CORE	VERIFY W/ OWNER			
2	EA	SURFACE CLOSER	4040XP EDA ST-1944		689	LCN
2	EA	KICK PLATE	8400 10" X 1" LDW B-CS		630	IVE
2	EA	FLOOR STOP	FS18S/FS18L		BLK	IVE
2	EA	MEETING STILE	328AA-S		AA	ZER
1	EA	GASKETING	429AA-S		AA	ZER
2	EA	DOOR SWEEP	39A		A	ZER
1	EA	THRESHOLD	102A OR AS DETAILED		A	ZER
1			CARD READER(S) BY ACCESS CONTROL VENDOR			
2			DOOR CONTACT(S) BY ACCESS CONTROL VENDOR			
1			POWER SUPPLY BY ACCESS CONTROL VENDOR			

DOORS NORMALLY CLOSED AND LOCKED. PRESENTING VALID CREDENTIALS TO THE READER WILL MOMENTARILY UNLOCK THE DOOR, ALLOWING ACCESS. FREE EGRESS AT ALL TIMES. UPON LOSS OF POWER, THE DOORS WILL REMAIN LOCKED AND CONTINUE TO ALLOW FREE EGRESS.

HW SET: 04

Door(s):
B07B

6	EA	HINGE	5BB1HW 4.5 X 4.5		652	IVE
1	EA	POWER TRANSFER	EPT10 CON		689	VON
1	EA	CONST LATCHING BOLT	FB51P/FB61P		630	IVE
1	EA	DUST PROOF STRIKE	DP1/DP2 AS REQ'D		626	IVE
1	EA	ELEC PANIC HARDWARE	RX-9875-L-BE-RX996-17-ALK-EMERG EXIT RSS 9-VOLT BATTERY WITH HARDWIRED OPTION		626	VON
2	EA	SFIC MORTISE CYL.	80-132 GRN X K510-730		626	SCH
2	EA	PERMANENT CORE	VERIFY W/ OWNER			
2	EA	OH STOP	100S		630	GLY
2	EA	SURFACE CLOSER	4040XP ST-1630		689	LCN
2	EA	TOP JAMB MTG PLATE	4040XP-18TJ SRT		689	LCN
2	EA	KICK PLATE	8400 10" X 1" LDW B-CS		630	IVE
1	EA	GASKETING	188SBK PSA		BK	ZER
1			CARD READER(S) BY ACCESS CONTROL VENDOR			
2			DOOR CONTACT(S) BY ACCESS CONTROL VENDOR			
1			POWER SUPPLY BY ACCESS CONTROL VENDOR			

DOOR NORMALLY CLOSED AND LATCHED. PRESENTING VALID CREDENTIALS TO THE READER WILL MOMENTARILY DISABLE THE LOCAL ALARM, ALLOWING ACCESS. FREE EGRESS AT ALL TIMES. TURNING THE LEVER IN THE EXIT DEVICE WILL DISABLE THE LOCAL ALARM. PUSHING ON THE EXIT DEVICE BAR WITHOUT PRESENTING VALID CREDENTIALS TO THE READER WILL SOUND A LOCAL ALARM. TURNING KEY IN CYLINDER LOCATED IN THE EXIT DEVICE WILL RESET THE DOOR TO THE NORMALLY CLOSED AND LATCHED STATE. UPON LOSS OF POWER, THE LOCAL ALARM WILL DISABLE, ALLOWING FREE ACCESS FROM EITHER DIRECTION WITHOUT SOUNDING AN ALARM.

HW SET: 05

Door(s):
B11

6	EA	HINGE	5BB1HW 4.5 X 4.5 NRP		652	IVE
1	EA	CONST LATCHING BOLT	FB51P/FB61P		630	IVE
1	EA	DUST PROOF STRIKE	DP1/DP2 AS REQ'D		626	IVE
1	EA	STOREROOM LOCK	L9080HD 17A 10-072 7/8" LIP		626	SCH
1	EA	PERMANENT CORE	VERIFY W/ OWNER			
1	EA	COORDINATOR	COR X FL		628	IVE
2	EA	MOUNTING BRACKET	MB		689	IVE
2	EA	SURFACE CLOSER	4040XP EDA ST-1754		689	LCN
2	EA	KICK PLATE	8400 10" X 1" LDW B-CS		630	IVE
2	EA	FLOOR STOP	FS439		630	IVE
1	EA	ASTRAGAL	44STST		STST	ZER
2	EA	SILENCER	SR64/SR65		GRY	IVE

HW SET: 06

Door(s):
B12 B13A

3	EA	HINGE	5BB1 4.5 X 4.5 NRP		652	IVE
1	EA	CLASSROOM LOCK	L9070HD 17A		626	SCH
1	EA	PERMANENT CORE	VERIFY W/ OWNER			
1	EA	SURFACE CLOSER	4040XP REG OR PA AS REQ		689	LCN
1	EA	KICK PLATE	8400 10" X 1 1/2" LDW B-CS		630	IVE
1	EA	FLOOR STOP	FS439		630	IVE
1	EA	GASKETING	188SBK PSA		BK	ZER

HW SET: 07

Door(s):
B13B B27 B29A B29B

3	EA	HINGE	5BB1 4.5 X 4.5		652	IVE
1	EA	PASSAGE SET	ND10S SPA		626	SCH
1	EA	FLOOR STOP	FS439		630	IVE
1	EA	GASKETING	188SBK PSA		BK	ZER

HW SET: 08

Door(s):
B14 B15

3	EA	HINGE	5BB1 4.5 X 4.5		652	IVE
1	EA	CLASSROOM DEADBOLT	B663HD 12-631		626	SCH
1	EA	PERMANENT CORE	VERIFY W/ OWNER			
1	EA	PUSH PLATE	8200 4" X 16" CFT/CFC		630	IVE
1	EA	PULL PLATE	8303 10" 4" X 16" CFC/CFT		630	IVE
1	EA	SURFACE CLOSER	4040XP REG OR PA AS REQ		689	LCN
1	EA	KICK PLATE	8400 10" X 1 1/2" LDW B-CS		630	IVE
1	EA	MOP PLATE	8400 4" X 1" LDW B-CS		630	IVE
1	EA	FLOOR STOP	FS439		630	IVE
3	EA	SILENCER	SR64/SR65		GRY	IVE

HW SET: 09

Door(s):
B25 B26

3	EA	HINGE	5BB1 4.5 X 4.5		652	IVE
1	EA	CLASSROOM DEADBOLT	B663HD 12-631		626	SCH
1	EA	PERMANENT CORE	VERIFY W/ OWNER			
1	EA	PUSH PLATE	8200 4" X 16" CFT/CFC		630	IVE
1	EA	PULL PLATE	8303 10" 4" X 16" CFC/CFT		630	IVE
1	EA	SURFACE CLOSER	4040XP REG OR PA AS REQ		689	LCN
1	EA	KICK PLATE	8400 10" X 1 1/2" LDW B-CS		630	IVE
1	EA	FLOOR STOP	FS439		630	IVE
3	EA	SILENCER	SR64/SR65		GRY	IVE

HW SET: 10

Door(s):
B14.1 B15.6

1	EA	POCKET DOOR HW KIT	TYPE CC-2HD-6MS			KNC
1	EA	SLIDING DOOR PRIVACY SET	2001ADAP-5I		626	ACC

HW SET: 11

Door(s):
B14.4 B14.6 B15.2 B15.3 B15.4 B15.5
B26.2

3	EA	HINGE	5BB1 4.5 X 4.5		652	IVE
1	EA	PRIVACY LOCK	ND40S SPA		626	SCH
1	EA	WALL STOP	WS406/407CCV		630	IVE
1	EA	COAT AND HAT HOOK	582		626	IVE
3	EA	SILENCER	SR64/SR65		GRY	IVE

HW SET: 12

Door(s):
B14.5 B15.1 B25.1 B26.1

3	EA	HINGE	5BB1 4.5 X 4.5		652	IVE
1	EA	PRIVACY LOCK	ND40S SPA		626	SCH
1	EA	SURFACE CLOSER	4040XP REG OR PA AS REQ		689	LCN
1	EA	WALL STOP	WS406/407CCV		630	IVE
1	EA	COAT AND HAT HOOK	582		626	IVE
3	EA	SILENCER	SR64/SR65		GRY	IVE

HW SET: 13

Door(s):
B16

6	EA	HINGE	5BB1HW 4.5 X 4.5		652	IVE
1	EA	CONST LATCHING BOLT	FB51P/FB61P		630	IVE
1	EA	DUST PROOF STRIKE	DP1/DP2 AS REQ'D		626	IVE
1	EA	CLASSROOM LOCK	L9070HD 17A		626	SCH
1	EA	PERMANENT CORE	VERIFY W/ OWNER			
1	EA	COORDINATOR	COR X FL		628	IVE
2	EA	OH STOP	100S		630	GLY
2	EA	SURFACE CLOSER	4040XP ST-1630		689	LCN
2	EA	TOP JAMB MTG PLATE	4040XP-18TJ SRT		689	LCN
2	EA	KICK PLATE	8400 10" X 1" LDW B-CS		630	IVE
1	EA	GASKETING	188SBK PSA		BK	ZER
1	EA	ASTRAGAL	44STST		STST	ZER

HW SET: 14

Door(s):
B23

4	EA	HINGE	5BB1HW 4.5 X 4.5 NRP		652	IVE
1	EA	DUTCH DOOR BOLT	054		626	IVE
1	EA	STOREROOM LOCK	ND80HD SPA		626	SCH
1	EA	PERMANENT CORE	VERIFY W/ OWNER			
1	EA	OH STOP & HOLDER	100HP		630	GLY
1	EA	FLOOR STOP	FS439		630	IVE
1	EA	WALL STOP	WS406/407CCV		630	IVE
1			DOOR CONTACT(S) BY ACCESS CONTROL VENDOR			

HW SET: 15

Door(s):
B27.1

3	EA	HINGE	5BB1HW 4.5 X 4.5		652	IVE
1	EA	STOREROOM LOCK	ND80HD SPA		626	SCH
1	EA	PERMANENT CORE	VERIFY W/ OWNER			
1	EA	OH STOP	100S		630	GLY
1	EA	SURFACE CLOSER	4040XP ST-1630		689	LCN
1	EA	TOP JAMB MTG PLATE	4040XP-18TJ SRT		689	LCN
1	EA	KICK PLATE	8400 10" X 1 1/2" LDW B-CS		630	IVE
3	EA	SILENCER	SR64/SR65		GRY	IVE

HW SET: 16

Door(s):
B31

3	EA	HINGE	5BB1HW 4.5 X 4.5 NRP		652	IVE
1	EA	POWER TRANSFER	EPT10 CON		689	VON
1	EA	ELEC FIRE EXIT HARDWARE	RX-AX-98-L-F-M996-17-FS		626	VON
1	EA	SFIC RIM CYLINDER	80-159 GRN		626	SCH
1	EA	PERMANENT CORE	VERIFY W/ OWNER			
1	EA	SURFACE CLOSER	4040XP REG OR PA AS REQ		689	LCN
1	EA	KICK PLATE	8400 10" X 1 1/2" LDW B-CS		630	IVE
1	EA	FLOOR STOP	FS439		630	IVE
1	EA	GASKETING	188SBK PSA		BK	ZER
1	EA	DOOR BOTTOM	355AA		AA	ZER
1	EA	THRESHOLD	545A OR AS DETAILED INSTALL W/ TAMPER-RESISTANT FASTENERS		A	ZER
1			CARD READER(S) BY ACCESS CONTROL VENDOR			
1			DOOR CONTACT(S) BY ACCESS CONTROL VENDOR			
1			POWER SUPPLY BY ACCESS CONTROL VENDOR			

DOOR NORMALLY CLOSED AND LOCKED. PRESENTING VALID CREDENTIALS TO THE READER WILL MOMENTARILY UNLOCK THE DOOR, ALLOWING ACCESS. FREE EGRESS AT ALL TIMES. UPON LOSS OF POWER, FIRE ALARM OR SIGNAL FROM THE FIRE COMMAND CENTER, ELECTRIFIED EXIT DEVICE TRIM UNLOCKS, ALLOWING FREE ACCESS.

END OF SECTION 08 71 00

SECTION 08 83 13
CUSTOM GLASS MIRRORS

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Custom size glass mirrors:

a. Sizes and locations as indicated on Drawings.

2. Glazing Accessories:

a. Including adhesives and metal trim.

B. Related Sections:

1. Section 01 31 19: Project Meetings
2. Section 01 33 00: Submittal Procedures
3. Section 01 60 00: Product Requirements
4. Section 09 29 00: Gypsum Board
5. Section 09 91 00: Painting; painting of gypsum board.
6. Section 10 28 13: Toilet Accessories; standard toilet room mirrors.

1.02 REFERENCES

A. California Code of Regulations (CCR), Title 24, Part 2, California Building Code (CBC), Volumes 1 and 2, 2019 edition.

1. Chapter 24 – Glass and Glazing

B. Comply with applicable performance standards of following:

1. Glazing Association of North America (GANA):

a. Glazing Manual
b. Sealants Manual
c. Mirror Informational Bulletin GANA MD 06-0413

1) Mirrors: Handle with Extreme Care

2. Consumer Product Safety Commission (CPSC):

a. CPSC 16 CFR 1201 – Safety Standard for Architectural Glazing Materials

C. ASTM International (ASTM):

1. ASTM C 864 – Standard Specification for Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers
2. ASTM C 1036 – Standard Specification for Flat Glass.
3. ASTM C 1503 – Standard Specification for Silvered Flat Glass Mirror

1.03 SUBMITTALS

A. Product Data:

1. Manufacturer's product data sheets for each glass product and glazing material required.
2. Preparation instructions and recommendations.
3. Storage and handling requirements and recommendations.
4. Typical installation methods.

B. Shop Drawings:

1. Include following:
   a. Details of materials, construction, and finish.
   b. Relationship with adjacent construction.

C. Samples:

1. Mirror Glass:

   a. Minimum of four 12 inch square samples of each type of glass indicated except for clear monolithic glass.

D. Silvered Flat Glass Mirror Certification:

1. That mirror products are manufactured with flat glass that meets or exceeds ASTM C 1036.
2. That mirror products are certified to meet or exceed ASTM C 1503.

E. Maintenance Data:

1. Manufacturer's maintenance data for glass and other glazing materials.

1.04 QUALITY ASSURANCE

A. Grading and Labeling:

1. Grade and label each light stating quality and grade of glass and manufacturer's name and brand designation.
2. Leave labels intact until removal is directed by Architect.

B. Glazier Qualifications:

1. Engage experienced glazier who has completed glazing similar in material, design, and extent to that indicated for Project with record of successful in-service performance.

C. Single-Source Responsibility for Glass:

1. Obtain glass from one source for each product indicated below:

a. Primary glass (ASTM C 1036) of each type and class indicated.

D. Pre-Installation Conference:

1. Conduct conference at Project Site to comply with requirements of Section 01 31 19.
2. Attendees to include:

a. Architect, Contractor, and trades involved.

3. Agenda to include:

a. Schedule, responsibilities, critical path items, and approvals.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Deliver glass and glazing materials with manufacturer’s labels intact.

B. Protect glazing materials to comply with manufacturer's directions and as needed to prevent damage to glass and glazing materials from condensation, temperature changes, direct exposure to sun, or other causes.

1.06 PROJECT CONDITIONS

A. Environmental Conditions:

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

1.07 REGULATORY REQUIREMENTS

A. California Building Code (CBC), Chapter 24 – Glass and Glazing.

B. Safety Glass:

1. Category II materials complying with testing requirements in 16 CFR 1201 and ANSI Z97.1

2. Subject to compliance with requirements, permanently mark safety glass with certification label of Safety Glazing Certification Council or another certification agency acceptable to authorities having jurisdiction.

1.08 WARRANTIES

A. General:

1. Warranties specified in this Article do not deprive Owner of other rights Owner may have under other provisions of Contract Documents and are in addition to and run concurrent with other warranties made by Contractor under requirements of Contract Documents.

B. Manufacturer's Mirror Warranty:

1. Written warranty, executed by mirror manufacturer agreeing to replace mirrors that develop visible silver spoilage defects within minimum warranty period indicated.

a. Minimum Warranty Period:

1) 15 years from date of Substantial Completion.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Basis-of-Design:

1. Design of custom mirrors specified in this Section are based on products as manufactured by General Glass International, Secaucus, NJ

B. Subject to compliance with specified requirements, comparable products may be submitted by alternate manufacturers in accordance with requirements for product substitutions specified in Section 01 60 00 and following:

1. Submit items listed in “Submittals” Article and as specified in Section 01 33 00, for evaluation of proposed system.
2. Complete project shop drawings for similar project may be submitted for evaluation purposes, however shop drawings specific to this Project will be required from successful bidder.
3. Copy of manufacturer's minimum 15 year mirror warranty.

2.02 MIRRORS

A. General:

1. Select materials and provide supports to limit mirror material deflection to 1/200, or to the flexure limit of glass, with full recovery of glazing materials, whichever is less.

B. Clear Mirror.

1. Glass Type:

a. Clear annealed float glass per ASTM C1036.

1) Select quality, distortion free, polished glass.
2) Thickness: 1/4 inch (6 mm).

b. Provide mirror glass with full silver coating, electroplated-copper protective coating, and nonmetallic paint coating conforming to:

1) ASTM C 1036 and ASTM C 1503.

c. Grade: Mirror Select
d. Quality: Clear

2. Backing:

a. Provide mirror backing as follows:

1) As required for adhesive mounting.
2) Taped-back system to mirror backing to comply with specified safety glazing requirements.

a) Tempering of mirror glass is not acceptable.

3. Sizes:

a. As dimensioned in the Drawings.

1) Where mirror size exceeds maximum available glass size, provide joints as indicated.

2.03 ACCESSORIES

A. Setting Blocks:

1. Elastomeric material of Neoprene, EPDM, or silicone.

a. Provide 70 to 90 Durometer with Shore A hardness.
b. Comply with ASTM C 864.

B. Adhesive for Bonding of Mirrors to Wall:

1. Provide adhesives as recommended by mirror manufacturer for securing mirrors to gypsum board.
2. Comply with SCAQMD Rule 1168.
3. Adhesive for Bonding of Mirrors to Wall:

    a. Use construction adhesive recommended by mirror manufacturer which will adhere mirrors permanently to backing, retain resiliency, and is compatible with mirror backing.
    b. Provide adhesive complying with SCAQMD Rule 1168.

C. Edge Treatment:

1. Polish edges of glass not covered by frames.

    a. Include polished stainless steel J-Mold or channel edge trim at exposed edges of mirror as indicated on Drawings.

PART 3 EXECUTION

3.01 EXAMINATION

A. Do not begin installation until substrates have been properly constructed and prepared.

B. If substrate preparation is the responsibility of another installer, notify Architect in writing of unsatisfactory preparation before proceeding.

3.02 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.

3.03 INSTALLATION

A. Install in accordance with manufacturer's instructions approved submittals and in proper relationship with adjacent construction.

B. Protect mirror glass from edge damage during handling and installation as follows:

1. Use rolling block in rotating glass units to prevent damage to glass corners.
2. Do not impact mirror glass with metal framing.
3. Use suction cups to shift mirror glass units within openings

    a. Do not raise or drift glass with pry bar.

4. Rotate mirror glass lights with flares or bevels on bottom horizontal edges so edges are located at top of opening, unless otherwise indicated by manufacturer's label.
5. Remove damaged mirror glass from Project Site and legally dispose of off-site.

    a. Damaged glass is glass with edge damage or other imperfections that, when installed, weaken glass and impair performance and appearance.

C. Setting Mirrors:

1. Ensure walls are clean, dry, plumb, rigid and smooth.
2. Set mirrors in adhesive on back surface only.

    a. Keep edges clean.

3. Install sufficient mirror adhesive to provide 100 percent coverage when mirror is installed.

    a. Install mirror into place.

4. Maintain uniform width tight joints between mirror panels, and flush surface across joints that do not have frames.
5. Provide permanent top and bottom edge trim as indicated on Drawings.

3.04 FIELD QUALITY CONTROL

A. Field Inspection: Coordinate field inspection in accordance with appropriate sections in Division 01.

B. Manufacturer's Services:

1. Provide for field quality control by mirror manufacturer, to include onsite personnel for following:

    a. Instruction or supervision of product installation, application, erection or construction.
    b. Coordinate manufacturer's services in accordance with appropriate Sections in Division 01.

3.05 CLEANING AND PROTECTION

A. Clean products in accordance with the manufacturers recommendations.

B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION 08 83 13

SECTION 09 29 00

GYPSUM BOARD

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Gypsum board systems and accessory components for gypsum board partitions, ceilings, soffits, and shaft wall assemblies ..

    a. Gypsum Board attached to metal framing.
    b. Tile Backer Board
    c. Gypsum board finishing.

B. Related Sections:

1. Section 01 41 00: Regulatory Requirements; current Code edition.
2. Section 06 10 00: Rough Carpentry; wood framing, blocking, and nailers.
3. Section 06 10 53: Miscellaneous Carpentry; wood blocking and nailers.
4. Section 07 29 00: Building Insulation; thermal, fire-rated, and sound insulation
5. Section 08 31 00: Access Doors and Panels; occurring in gypsum board construction.
6. Section 09 22 16: Non-Structural Metal Framing
7. Section 09 25 13: Portland Cement Plaster
8. Section 09 91 00: Painting; priming and finish painting of gypsum board.

1.02 REFERENCES

A. California Code of Regulations (CCR), Title 24, Part 2, California Building Code (CBC), Volumes 1 and 2, current edition.

1. CBC, Chapter 25 – Gypsum Board, Gypsum Panel Products, and Plaster.

B. ASTM International (ASTM):

1. ASTM C 473 – Standard Test Methods for Physical Testing of Gypsum Panel Products.
2. ASTM C 518 – Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.
3. ASTM C 834 – Standard Specification for Latex Sealants
4. ASTM C 840 – Standard Specification for Application and Finishing of Gypsum Board.
5. ASTM C 1002 – Standard Specification for Steel Self-Piercing Tapping Screws for Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs.
6. ASTM C 1047 – Standard Specification for Accessories for Gypsum Wallboard

and Gypsum Veneer Base.
7. ASTM C 1396 – Standard Specification for Gypsum Board.
8. ASTM D 3273 - Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Enviromnental Chamber.
9. ASTM E 84 – Standard Test Method for Surface Burning Characteristics of Building Materials.
10. ASTM E 90 – Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements
11. ASTM E 119 – Standard Test Methods for Fire Tests of Building Construction and Materials
12. ASTM E 413 - Classification for Rating Sound Insulation

C. National Fire protection Association (NFPA):

1. NFPA or UL requirements for fire-rated assemblies per ASTM E119.

D. UL, LLC (UL):

1. UL 2818 – GREENGUARD Certification Program For Chemical Emissions For Building Materials, Finishes and Furnishings.
2. UL 2821 – GREENGUARD Certification Program Method for Measuring and Evaluating Chemical Emissions From Building Materials, Finishes and Furnishings
3. Requirements and listings for fire-rated materials and products classification.

E. Gypsum Association (GA):

1. GA 214 – Recommended Levels of Gypsum Board Finish.
2. GA-216 – Application and Finishing of Gypsum Panel Products.
3. GA-253 – Application of Gypsum Sheathing
4. GA-600 – Fire Resistance Design Manual

1.03 SYSTEM DESCRIPTION

A. Design Requirements:

1. Provide systems capable of deflection as required by current CBC and authorities having jurisdiction.

1.04 SUBMITTALS

A. Product Data:

1. Manufacturer's catalog data for each product proposed for use.
2. Manufacturer’s certification of compliance with fire and sound requirements indicated or specified.

B. Shop Drawings:

1. Details of proprietary or non-proprietary components when included.

C. Environmental Certifications:

1. Certificates for GREENGUARD Gold Certification per UL 2818 and UL 2821.
2. Certificates for EQ Low-Emitting Materials:

a. Interior Adhesives and Sealants applied on Site.

1.05 QUALITY ASSURANCE

A. Qualifications:

1. Installer: Minimum 5 years experience in installing and finishing gypsum board.

B. Finishes:

1. Conform to requirements of GA 214, and as specified.
2. Levels used on the project are described as follows:

LEVELS OF GYPSUM BOARD FINISH					
Level	**Joints**	**Interior Angles**	**Accessories**	**Fasteners**	**Surface**
1	Tape set in compound	Tape set in joint compound			Tool marks and ridges acceptable
2	Tape set in joint compound and one separate coat of joint compound	Tape embedded in joint compound and wiped to leave a thin coat of compound over tape, and one separate coat	Covered by one separate coat of joint compound	Covered by one separate coat of joint compound	Free from excess joint compound. Tool marks and ridges acceptable.

LEVELS OF GYPSUM BOARD FINISH					
Level	**Joints**	**Interior Angles**	**Accessories**	**Fasteners**	**Surface**
3	After taping, cover with two separate coats of joint compound	After taping, cover with one separate coat of joint compound	Covered by 3 separate coats of joint compound	Covered by 3 separate coats of joint compound	Smooth and free of tool marks and ridges *

4	After taping, cover with 2 separate coats of joint compound	After taping, cover with one separate coat of joint compound	Covered by 3 separate coats of joint compound	Covered by 3 separate coats of joint compound	Smooth and free of tool marks and ridges *
5	After taping, cover with 2 separate coats of joint compound	After taping, cover with one separate coat of joint compound	Covered by 3 separate coats of joint compound	Covered by 3 separate coats of joint compound	Skim coat of joint compound applied to entire surface. Surface free from tool marks and ridges. **

* At completion of specified taping and finishing, apply one coat of high solids primer as specified in Section 09 9100.

**Or use Sheetrock Brand Primer Surfacer "Tuff-Hide" in lieu of skim coat and primer.

C. Fire Resistance Rated Assemblies:

1. Provide UL Design Number for basic systems.

D. Sound Rated Assemblies (STC):

1. Provide sound-rated system whose materials and construction comply with requirements of ASTM E 90 and are classified according to ASTM E 413 by qualified testing agency.

E. Preinstallation Conference: Conduct conference at Project Site.

1. Review methods and procedures for Work related to:

a. Gypsum Board partition assemblies.
b. Shaft Wall System assemblies.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in original, factory sealed packages, containers or bundles bearing brand name and name of manufacturer.

B. Keep materials dry.

1. Neatly stack gypsum board flat.
2. Avoid sagging and damage to edges, ends. and surface

C. Use means necessary to protect gypsum board systems before, during and after installation.

1.07 PROJECT CONDITIONS

A. Install gypsum panels following environmental conditions, room temperatures and ventilation specified.

1.08 REGULATORY REQUIREMENTS

A. Comply with current CBC requirements for design and installation.

1. CBC, Chapter 25.

B. Fire-Resistance Ratings:

1. Comply with fire-resistance ratings as shown and as required by governing authorities and codes.
2. Provide materials, accessories and application procedures which have been listed by UL or tested according to ASTM E 119 for type of construction shown.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Products of following manufacturers form basis for design and quality intended.

1. Georgia-Pacific Gypsum LLC, Atlanta, GA
2. National Gypsum Company, Charlotte, NC.
3. United States Gypsum Company (USG), Chicago, IL

2.02 MATERIALS

A. Gypsum Board Panels – Type 1

1. Conforming to ASTM C 1396.
2. Width: 48 inches.
3. Thickness: 5/8 inch.
4. Edges: Tapered.
5. Type X as minimum.

a. Comply with UL Type, SCX.

6. Location:

a. Provide at walls, soffits

1) As part of shaft wall assemblies.

b. Provide at walls not indicated to receive abuse-resistant or moisture and mold resistant panels, or tile backer board.

7. Product and Manufacturer:

    a. Sheetrock Brand Firecode X Panels by USG, or approved equal.

B. Moisture and Mold Resistant Gypsum Panels – Type 2:

1. Conforming to ASTM C 1396.
2. Width: 48 inches.
3. Thickness: 5/8 inch.
4. Edges: Tapered.
5. UL Type: SCX.
6. Fire Resistance:

    a. Class A as defined in CBC Section 803.1
    b. When tested in accordance with ASTM E 84:

        1) Flame Spread Index: 15
        2) Smoke Developed Index: 0

7. Average Water Absorption, ASTM C 473:

    a. Not greater than 5 percent by weight after two hour immersion.

8. Location:

    a. Provide at walls and ceilings in toilet rooms and janitor storage, not indicated to receive tile.

9. Product and Manufacturer:

    a. Sheetrock Brand Mold Tough Firecode X Panels by USG, or approved equal.

C. Tile Backer Board – Type 5:

1. Cementitious Backer Units:

    a. Water-resistant, non-combustible cementitious panels reinforced with fiberglass scrim, conforming to ANSI A118.9:
    b. Durock Brand Cement Board, 5/8 inch, by USG Corporation, or approved equal.
    c. Tape joints with Durock glass fiber tape and ANSI A136.1 Type I organic adhesive, or approved equal.

2. Fasteners for Cementitious Backer Units:

    a. Metal Studs, 20 gage: 1-1/4 inch Buildex Hi-Lo Bugle Head Type S screws
    b. Metal Studs, 18 gage: 1-1/4 inch Buildex T/3 self-embedding-head screws..

D. Fastenings:

1. Steel Drill Screws:

    a. Self-drilling, self-tapping bugle-head drywall screws:

        1) Conforming to ASTM C 1002:

            a) For fastening gypsum board to steel members less than 0.03 inch thick.

        2) For fastening gypsum board to wood members.
        3) Type S, 1-5/8 inches long bugle head for steel framing

            a) For single-layer panels.
            b) Use longer screws for double-layer panels as recommended by manufacturer.

    b. Conforming to ASTM C 954:

        1) For fastening gypsum board to steel members from 0.033 to 0.112 inch thick.

    c. Furnish screws with corrosion-resistant treatment.

E. Metal Trim:

1. Conforming to ASTM C 1047:

    a. Metal trim and cornerbead fabricated from minimum 26 gage steel sheet zinc coated by hot-dip process or rolled zinc.

        1) Paper-faced where required.

2. Trim Units:

    a. Shapes indicated below by reference to Figure 1 designations in ASTM C 1047 of size and type to fit gypsum board construction:

        1) Cornerbead on outside corners, unless otherwise indicated.
        2) LC-bead with both face and back flanges:

            a) Face flange formed to receive joint compound.
            b) Use LC-beads for edge trim, unless otherwise indicated.

        3) L-bead with face flange only:

            a) Face flange formed to receive joint compound.
            b) Use L-bead where indicated.

        4) U-bead with face and back flanges:

            a) Face flange formed to be left without application of joint compound.

b) Use U-bead where indicated.

b. Control Joint:

1) One-piece control joint formed with V-shaped slot and removable strip covering slot opening.

c. Crimp-on type trim is not allowed.

3. Acceptable Manufacturers:

a. USG, Beadex, National Gypsum Company, or approved equal.

F. Resilient Furring:

1. Conforming to ASTM C 645.

a. Minimum 25 gage.

2. Provide manufacturer's special type designed to reduce sound transmission.

G. Finishing Materials:

1. Gypsum Board Primer and Paint:

a. As specified in Section 09 9100.

2. Contractor’s Option:

a. Use Sheetrock Brand Primer Surfacer, Tuff-Hide in lieu, of skim coat and high solids primer.

PART 3 EXECUTION

3.01 INSTALLATION

A. Metal Framing:

1. Refer to Sections 05 54 00 or 09 22 16.

B. Wood Framing:

1. Refer to Sections 06 10 00 and 06 10 53.

C. Metal Trim:

1. Provide following:

a. Corner beads at outside corners and angles
b. Metal casing where gypsum board terminates at uncased openings

c. Metal edge trim where board edges abut horizontal and vertical surfaces of other construction.

2. Install trim in accordance with manufacturer's directions and secure to framing with joint compound.

   a. Apply trim in longest practical pieces.

D. Gypsum Board:

1. Install gypsum board in conformance with ASTM C 840 and the manufacturer's recommendations.
2. Cut gypsum board by scoring and breaking or by sawing, working from face side.

   a. Where board meets projecting surfaces, scribe and neatly cut.
   b. Unless conditions require otherwise, apply board first to ceilings, then to walls.
   c. End joints to occur over support.
   d. Use panels of maximum practical length so that minimum number of end joints occur.

3. Stagger end joints and arrange joints on opposite sides of partition to occur on different studs.

   a. Make joint layout at openings so that no end joints will align with edges of openings.

4. Except where specified otherwise, space fasteners not less than 3/8 inch from edges and ends of gypsum board.

   a. Do not stagger fasteners at adjoining edges and ends.

5. Install gypsum board vertically or horizontally.

   a. Attach board with drywall screws spaced not to exceed 8 inches on center around perimeter of boards and 12 inches on center on intermediate studs.
   b. Space screws at 8 inches on centers along top and bottom runners.
   c. Drive screws to provide screwhead penetration just below gypsum board surface without breaking surface layer.
   d. Where electrical outlet and switch boxes are indicated, provide adjustable attachment brackets between studs.
   e. Nails are not permitted.

6. Install gypsum board to heights indicated, with long dimension at right angles to steel framing members.

   a. Attach with specified drywall screws spaced 6 inch to 7 inch on centers across board.
   b. Do not install screws less than 1/2 inch from side joints and 3/8 inch from butt end joints.
   c. Install so that abutting end joints occur over framing and that end joints of

boards are staggered.

7. Install access doors, furnished under separate section, in correct location, plumb or level, flush with adjacent construction, and securely attached to framing.

3.02 TOLERANCES

A. Install gypsum board flat within 1/8 inch in 10 feet.

3.03 JOINT TREATMENT AND FINISHING

A. Conform to GA 214 and following.

1. Apply tape bedding compound, tape, and finishing cement on joints in gypsum board, interior angles, flanges of cornerbead, edge trim, control joints, penetrations, fasteners heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for for specified levels of finish.
2. Apply joint tape over gypsum board joints, except those with trim accessories having flanges not requiring tape.
3. Prefill open joints, rounded or beveled edges, and damaged areas using setting-type joint compound.

B. Level 1:

1. Embed tape in joint compound.

C. Levels 2 through 5:

1. Apply joint cement and finishing cement over screw heads.

   a. Treat inside corners with joint cement, tape, and finishing cement.
   b. Treat outside corners with corner beads and finishing cement.

2. Provide metal casing beads at edges of gypsum board which abut ceiling, wall, or column finish, and elsewhere as required.

   a. Make exposed joints, trims and attachments non-apparent following application of paint or other finishes.
   b. Where joints and fasteners are apparent, correct defects as directed.

3. Seal raw edges of plumbing openings and boards that have been cut to fit with brushed on sealing compound.

D. Additional Finish Requirements:

1. When entire installation is completed and prior to installation of finish materials by other trades, correct and repair broken, dented, scratched or damaged gypsum board
2. Levels 3 and 4:

a. Apply one coat of high solids primer over entire surface.

3. Level 5:

a. Apply one coat of skim coat of topping compound over entire surface, followed by one coat of high solids primer over entire surface.

3.04 REQUIRED LEVELS OF FINISH

A. Levels of finish required are as follows, unless otherwise indicated or specified:

1. Level 1:

a. Ceiling plenum areas above ceilings, fire-taped areas, insides of shafts, and other concealed areas, unless higher level of finish is required for fire-resistance-rated assemblies.

2. Level 2:

a. Substrate for tile

3. Level 3:

a. Backing for adhered acoustic tile and where textured finish is indicated.

4. Level 4:

a. Exposed, painted gypsum board in utility rooms, corridors and areas receiving vinyl wall covering.

5. Level 5:

a. Exposed, painted gypsum board in restrooms and corridors where semi gloss enamel is used.

3.05 TEXTURE COAT

A. Spray apply texture coat to interior gypsum board surfaces which are scheduled to receive painted finish, except in food preparation areas.

B. Apply texture coat creating uniform splatter pattern finish with 80 percent minimum coverage of surface.

C. Protect interior surfaces of electrical boxes and wiring therein from spray.

3.06 REPAIR OF DAMAGED GYPSUM BOARD

A. Upon completion of gypsum board installation, examine areas of Wotk and make necessary repairs as follows:

1. Reset protruding or loose fasteners.
2. For each screw in fractured area or protruding screws, replace with specified screw placed in undamaged area near loose screw.
3. Remove loose gypsum, paper, and joint compound.
4. Refinish to match existing texture.

    a. Paint entire wall plane.

        1) Color to match existing.

3.07 CLEANING

A. Upon completion, repair damage caused by Work and remove debris, surplus materials and tools of Work from Project Site.

B. Leave installation clean and ready for finishing.

END OF SECTION 09 29 00

SECTION 09 30 00

TILE

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Ceramic tile.
2. Porcelain tile.
3. Crack isolation and waterproofing membranes for tile.
4. Setting beds for floor and wall tile:

    a. Cured mortar bed for floor tile
    b. Thinset for floor and wall tile

B. Related Sections:

1. Section 03 30 00: Cast-In-Place Concrete.
2. Section 07 92 00: Joint Sealants
3. Section 08 31 00: Access Doors and Panels; occurring in tile walls.
4. Section 09 29 00: Gypsum Board; tile backer board
5. Section 09 65 00: Resilient Flooring
6. Section 09 68 00: Carpet

C. Releated Requirements:

1. Access doors and panels specified in Plumbing and HVAC Sections and indicated on Drawings as occurring in tile walls are to conform to requirements of Section 08 31 00 for type and finish.

1.02 REFERENCES

A. California Code of Regulations (CCR), Title 24, Part 2, California Building Code (CBC), Volumes 1 and 2, 2019 edition.

1. Chapter 11B – Accessibility to Public Buildings, Public Accommodations, Commercial Buildings, and Public Housing.

B. ASTM International (ASTM):

1. ASTM A1064 – Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete
2. ASTM C 144 – Standard Specification for Aggregate for Masonry Mortar
3. ASTM C 150 – Standard Specification for Portland Cement
4. ASTM C 206 – Standard Specification for Finishing Hydrated Lime

5. ASTM C 207 – Standard Specification for Hydrated Lime for Masonry Purposes
6. ASTM C645 – Standard Specification for Nonstructural Steel Framing Members
7. ASTM D 2047 – Standard Test Method for Static Coefficient of Friction of Polish-Coated Flooring Surfaces as Measured by the James Machine
8. ASTM D 4551 – Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Flexible Concealed Water-Containment Membrane

C. American National Standards Institute, Inc. (ANSI):

1. ANSI A108 – Standard Specifications for the Installation of Ceramic Tile.
2. ANSI A118 – Standard Specifications for Ceramic Tile Installation Materials.
3. ANSI A137.1 – Standard Specifications for Ceramic Tile.

D. Tile Council of North America (TCNA):

1. TCNA Handbook for Ceramic, Glass, and Stone Tile Installation, latest edition.

1.03 DEFINITIONS

A. Regular Tile:

1. Defined as tile of nominal size of 15 inches or less.

B. Large Format Tile:

1. Defined as tile of nominal size greater than 15 inches up to 1 square meter.

C. Gauged Tile:

1. Defined as tile of nominal size greater than 1 square meter.

1.04 SUBMITTALS

A. Product Data:

1. Manufacturer's data, standard specifications, and other technical information for each product specified.

B. Samples for Verification Purposes:

1. Minimum of four samples, or four sample sets for each type of tile and for each color and texture required:

a. Not less than 12 inches square.

1) Mounted on plywood or hardboard backing and grouted as required.

b. Provide minimum of four board-mounted tiles for sizes 4-1/4 inches and larger.

2. Full size samples for each type of trim, accessory and for each color.
3. Minimum of four 6 inch long sample of stone thresholds.
4. Samples of metal edge strips.

C. Installation Instructions:

1. Manufacturer's preparation and installation instructions.

D. Certificates:

1. Manufacturer's certification that grout materials being provided are suitable for intended use, meet or exceed referenced standards.
2. DCOF AcuTest friction test reports for floor tile.

E. Reference Methods:

1. Copies of TCNA and ANSI Methods and Standards.

1.05 QUALITY ASSURANCE

A. Laboratory Testing:

1. Test tile for compliance with ASTM C 2047 by testing laboratory approved by Owner.

B. Qualifications of Tile Manufacturer:

1. Company specializing in types of tile specified.

a. Including trim units, and thresholds when required, with five years minimum experience.
b. Obtain tile and trim components from single source for each type and color of tile with resources to provide products of consistent quality in appearance and physical properties.

C. Qualification of Installation System Manufacturer:

1. Company specializing manufacturing of installation systems and materials:

a. Including mortars, grouts, and adhesives
b. With ten years minimum experience.

2. Obtain grout and setting materials from single source manufacturer to ensure consistent quality and compatibility.

D. Qualifications of Installer:

1. Company specializing in installation of types of tile and installation systems specified.

a. Including trim units, and thresholds when required, with five years minimum experience with installations of similar scope, materials, and design.

E. Pre-Installation Meetings:

1. Following approval of submittals and prior to start of Work and setting of tile:

a. Schedule on-site meeting with Contractor, Owner, Architect, Project Inspector, and representatives of material manufacturer and tile installer:

1) Review following for conformance with specified requirements:

a) Conditions and Drawings for each substrate.
b) Tile, tile installation materials, and finishing equipment.
c) Mock-ups

F. Mock-Ups:

1. Construct mock-ups of tile installations when requested by Architect.

a. Provide one mock-up for each type, class, and color of tile specified, including type of installation required.
b. Locate in area on Project Site approved by Architect,

2. Make mock-up approximately 4 by 4 feet.
3. Blend tiles to achieve smooth transition within range approved in advance by Architect.
4. Accepted mock-ups in undisturbed condition at time of completion may be used as part of Work, and may be included in finished work, when so directed by Architect.
5. Revise as necessary to secure Architect's acceptance.
6. Mock-ups, when accepted by Architect, will be used as basis for comparison with remainder of tile work for purposes of acceptance or rejection.
7. When mock-up panels are not permitted to be part of finished Work, completely demolish and remove them from Project Site upon completion and acceptance of tile Work.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver and store packaged tile materials in original in manufacturer's sealed containers, with seals unbroken and manufacturer's labels intact until time of use.

1. Prevent damage or contamination to materials by water, foreign matter or other causes.

B. Keep materials clean and dry.

1.07 PROJECT CONDITIONS

A. Maintain environmental conditions and protect Work during and after installation to comply with referenced standards and manufacturer's printed recommendations.

B. Maintain temperatures at not less than 50 degrees F in tiled areas during installation and for 7 days after completion, unless higher temperatures are required by referenced installation standard, or manufacturer's instructions.

C. Shade Work area from direct sunlight during installation as needed to prevent rapid evaporation caused by excessive heat.

D. Observe manufacturer's recommended safety precautions, including those pertaining to ventilation.

E. Illuminate Work area during installation, providing same level and angle of illumination as will be available for final inspection.

F. Protection:

1. Protect adjacent surfaces during progress of Work of this Section.
2. Close rooms and spaces to traffic until mortar and grout have set for minimum of 72 hours.

1.08 REGULATORY REQUIREMENTS

A. Comply with requirements of 2019 California Building Code and Chapter 11B

B. Comply with applicable parts of following codes or standards as minimum requirement:

1. ANSI A108.
2. ANSI A118.
3. ANSI A137.1, Section 9.6 – DCOF AcuTest.

1.09 EXTRA MATERIAL

A. Provide minimum of 5 percent of each type and color of tile and accessory shapes, from same run or lot as installed tile.

1. Furnish full size units matching units installed, packaged with protective covering for storage, in manufacturers’ cartons identified with appropriate labels.

1.10 WARRANTY

A. Manufacturer’s Warranty:

1. For tile products and installation materials.

a. Provide 5 year material warranty.

B. Installer's Warranty:

1. Provide 5 year labor warranty on tile installation.

C. Manufacturer's Warranty:

1. For Crack Isolation and Waterproofing Membranes:

a. Provide 10 year material warranty for crack isolation and waterproofing membrane installation.

1) Includes tile setting and grouting materials.

PART 2PRODUCTS

2.01 PRODUCTS – GENERAL

A. Comply with ANSI A137.1 for types, compositions, and grades of tile indicated.

1. Furnish tile complying with "Standard Grade" requirements unless otherwise indicated.

B. Comply with ANSI standard referenced with products and materials indicated for setting and grouting

C. Dynamic Coefficient of Friction (DCOF): Provide floor tiles with coefficient of friction equal to or greater than 0.42 when tested in accordance with provisions of ANSI A137.1, Section 9.6 – DCOF AcuTest.

D. Condition of Surfaces to Receive Tile:

1. Verify that surfaces to receive mortar setting bed and tile are firm, dry, clean, and free from oily or waxy films and curing compounds.

2.02 TILE PRODUCTS

A. Glazed Porcelain Floor Tile: PT-1

1. Light Polished Porcelain Floor Tile.
2. Face Size: Nominal 6 inches by 36 inches (5-7/8 inches by 35-7/16 inches).
3. Nominal Thickness: 5/16 inches.
4. Surface/Texture: Matte.
5. Color: Gravel Road XT SD86.
6. Manufacturer: Daltile.
7. Staggered joint pattern.

B. Glazed Wall Tile: CT-1

1. Glazed Ceramic Wall Tile
2. Face Size: Nominal 4-1/4 inches by 12-3/4 inches.
3. Nominal Thickness: 5/16 inch.
4. Surface/Texture: Glazed.
5. Color: Urban Canvas Wave Mushroom 0041 Matte.
6. Manufacturer: Daltile.

C. Accent Tile: GT-1

1. Glass Wall Tile
2. Face Size: Nominal 4-1/4 inches by 4-1/4 inches.
3. Nominal Thickness: 1/4 inch.
4. Color: Solitude SA98.
5. Manufacturer: Daltile.
6. Random Interlocking.

2.03 INSTALLATION MATERIALS

A. Sand and Cement Mortar Setting Beds:

1. Mortar Sand:

a. Confroming to ASTM C 144.

2. Portland Cement:

a. Conforming to ASTM C 150, Type I.

3. Hydrated Lime:

a. Conforming to ASTM C 206, Type S or ASTM C 207, Type S.

B. Waterproof Membrane:

1. Cold-applied laminated CPE composite waterproofing membrane for thin-set tile setting application of latex-modified mortar and grout.
2. Products and Manufacturer:

a. NobleSeal TS Membrane Waterproofing System by Nobel Company, or approved equal.

1) Zero VOC

C. Crack Isolation Membrane:

1. Sheet membrane product specifically manufactured for use in thin-set tile installations at slab-on-grade conditions as crack isolation sheet to prevent cracks in concrete slab from telegraphing through to tile.
2. Products and Manufacturer:

a. NobleSeal® TS or CIS Membrane by Noble Company, or approved equal.

1) Zero VOC

2.04 MORTARS

A. Polymer-Modified Portland Cement Mortar:

1. Polymer -Modified Portland Cement Dry-Set Mortar:

a. Conforming to ANSI A 118.4.

1) Gauged with Acrylic Mortar Admix

b. Conforming to ANSI A 118.15:

1) Gauged with improved modified Acrylic Mortar Admix for large format tiles.

2.05 GROUT

A. Polymer-Modified Portland Cement Grout:

1. Approved standard factory mixed and packaged Portland cement tile grout material containing waterproofing and curing admixtures.

a. Conforming to ANSI A118.7
b. For use as wall grout, unless noted otherwise.

2. Grout Joints:

a. Unsanded grout on joints less than than 1/8 inch.
b. Sanded grout on joints 1/8 inch or greater.

B. Floor Grout:

1. Chemical-resistant, water-cleanable, grouting epoxy:

a. Conforming to ANSI A118.3

2. Provide product capable of withstanding continuous and intermittent exposure to temperatures up to 140 degrees F and 212 degrees F, respectively.

a. Certified by grout manufacturer for intended use.

C. Grout Colors:

1. As selected or scheduled by Architect.

2.06 MISCELLANEOUS MATERIALS

A. Separation Material:

1. For expansion joints indicated to receive sealant.

a. Including perimeters and floor mortar beds.

2. Quality Foam, QF 200 White:

a. Size: 3/8 inch wide x 5 inches high.

B. Cleaner and Sealer:

1. General:

a. Provide materials from one manufacturer, acceptable to tile and grout manufacturers.
b. Basis-of-Design:
c. Provide cleaner and sealer products manufactured by one following manufacturers:

1) Aqua Mix Inc., Torrington, CT
2) Custom Building Products, Huntington Beach, CA
3) Miracle Sealants Company, div. of Rust-Oleum Corporation, Vernon Hills, IL
4) Approved equal may be provided, subject to compatibility with specified tile and grout materials..

2. Cleaner:

a. Neutral Phosphate-Free Cleaner:

1) Concentrated Tile Cleaner by Aqua Mix Inc.
2) Tile Lab Concentrated Tile/Stone Cleaner by Custom Building Products.
3) Tile & Stone Cleaner by Miracle Sealants Company.

3. Sealer:

a. Fungus and Bacteria Resistant, Stain and Slip-Resistant as specified for Tile:

1) Penetrating Sealer by Aqua Mix.
2) Tile Lab Surface Gard by by Custom Building Products
3) 511 Impregnator by by Miracle Sealants Company

C. Sealant and Backer Rod:

1. Comply with specified requirements in Section 07 92 00

2. Provide sealant and primer from one manufacturer, acceptable to tile and grout manufacturers.
3. Provide backer rod as specified for compatibility with sealants.

2.07 SOURCE QUALITY CONTROL

A. Source of Materials:

1. Obtain materials from single source with resources to provide products of consistent quality in appearance and physical properties.

PART 3EXECUTION

3.01 EXAMINATION AND PREPARATION

A. Examine substrates, areas, and conditions under which Work will be performed for compliance with specified requirements for installation tolerances and other conditions affecting performance of installed tile.

1. Coordinate with other trades as needed to ensure that proper substrata are provided to receive work
2. Verify that vents, drains, piping, and other projections through substrate have been installed.
3. Correct conditions detrimental to timely and proper completion of Work.
4. Do not proceed until unsatisfactory conditions are corrected.

B. Verify that substrates for setting tile are firm; dry, clean and within flatness tolerances required by relevant ANSI A108 tile installation standards and following:

1. Where Portland cement mortar setting bed will be installed, do not commence installation of setting bed until substrata are within following tolerances:

a. Horizontal Surfaces:

1) Level within 1/4 inch in 10 feet in any direction.

b. Vertical Surfaces:

1) Plumb within 1/4 inch in 8 feet in any direction.

2. Where tile units will be thin-set directly to substrata, do not commence installation of tile units until substrata are within following tolerances:

a. Horizontal Surfaces:

1) Level within 1/8 inch in 10 feet in any direction, except for slope to floor drains.

b. Vertical Surfaces:

1) Plumb within 1/8 inch in 8 feet in any direction.

C. Surface Preparation:

1. Condition of Surfaces to Receive Tile:

a. Concrete Floors:

1) Allow concrete floors to cure for 28 days minimum before beginning tile and grout installation.
2) Verify that surfaces to receive mortar setting bed and tile are firm, dry, clean, and free from oily or waxy films and curing compounds.
3) Remove laitance, sand, dust, and loose particles with air blast.
4) Where coatings, such as curing compounds and other substances containing soap, wax, oil, or silicone remain and are incompatible with tile-setting materials, remove them using terrazzo or concrete grinder, drum sander, polishing machine equipped with heavy-duty wire brush, or shot-blast system.

b. Verify that installation of grounds, anchors, recessed frames, electrical and mechanical items of Work, and similar items located in or behind tile have been completed before installing tile.

3.02 SUBSTRATA AND SETTING BEDS

A. Floors:

1. Install polymer-modified Portland cement mortar setting bed over cured concrete slab.

a. Do not abut against vertical surfaces.

1) Install foam separation material at perimeters and expansion joint locations for sealant joints.

2. Mix setting mortar in accordance with ANSI A.108.1a.2.2.
3. Once begun, continue mortar installation until room is completely filled.

a. Discard batch not floated and finished within 1/2 hour of mixing.
b. Firmly compact before screeding.
c. Screed to true plane and pitch as indicated.
d. Slope mortar bed sufficiently that water flows to drain and no puddling will occur.
e. Slope mortar down to floor drains for proper installation of waterproof or crack isolation membrane.
f. After screeding, firmly rub down with steel or wood float.

4. Cure mortar bed with light fog spray of water and cover with 6 mil polyethylene for 72 hours.

B. Crack Isolation and Waterproof Membranes:

1. Crack Isolation Membrane:

a. Install crack isolation membrane over cured mortar bed in accordance with TCNA Method F122 at Ground Level (slab-on-grade) rooms scheduled to have tile.

1) Use of liquid products is not permitted.

2. Waterproof Membrane:

a. Install waterproof membrane over concrete slab in accordance with TCNA Method F122 at upper floor rooms scheduled to have tile.

1) Use of liquid products is not permitted.

C. Walls:

1. Substrate for Wall Tile and Base:

a. Cementitious tile backer board, as specified in Section 09 2900

2. Installing cementitious backer units on walls:

a. Pre-cut units to size, and make necessary cutouts.
b. Fasten units at 8 inches on center where joints occur over stud, using manufacturer's approved fasteners and washers.

1) Use fastener combined with countersunk washer to secure two abutting units.

3. Where two units abut, leave gap from 1/8 inch to 3/16 inch wide.

a. Fill solid with mortar, and cover with fiberglass tape embedded in skim coat of mortar.

D. Verify that joints in tile substrates are coordinated with sealed tile joint locations

1. Where not coordinated, adjust as required by Architect.

E. Do not install tile until construction in spaces is completed and ambient temperature and humidity conditions are being maintained to comply with referenced standards and manufacturer's written instructions.

F. Protect adjacent surfaces during progress of the Work.

3.03 TILE INSTALLATION – GENERAL

A. General:

1. Conform to manufacturers printed instructions, and applicable requirements of ANSI and TCNA Standards.
2. Install tile by pressing and beating tile into place to obtain 100 percent coverage by mortar on back of each tile.

    a. Back-butter tiles if necessary to achieve 100 percent coverage.

3. Maintain minimum temperature limits and installation practices recommended by setting materials manufacturers.
4. Minimum Coverage of Bond Mortar: 80 percent.

    a. 95 percent in shower areas or exterior installations

B. Limits of Tile:

1. Extend tile into recesses and under equipment and fixtures to achieve complete covering without interruptions, unless otherwise indicated.
2. Terminate tile neatly at obstructions, edges, and corners, without disruption of pattern or joint alignment.

C. Joining Pattern:

1. Install tile in grid pattern, unless otherwise indicated.
2. Align joints when adjoining tiles on floor, base, trim, and walls are same size.
3. Layout tile work, and center tile fields both directions in each space or on each wall area.

    a. Adjust to minimize tile cutting.

4. Provide uniform joint widths in accordance with manufacturers recommendations, unless indicated otherwise.

D. Tile Mounted in Sheets:

1. Install joints between tile sheets same width as joints within tile sheets so joints between sheets are not apparent in finished Work.

E. Accurately form intersections and returns.

1. Perform cutting and drilling of tile without marring visible surfaces.
2. Carefully grind cut edges of tile abutting trim, finish, or built-in items for straight aligned joints.
3. Fit tile closely to electrical outlets, piping, fixtures, and other penetrations so plates, collars, or covers overlap tile.

F. Allowable Variations in Finished Work:

1. Do not exceed following deviations from level and plumb, and from elevations, locations, slopes, and alignments shown:

    a. Horizontal surfaces: 1/8 inch in 10 feet in any direction.
    b. Vertical surfaces: 1/8 inch in 8 feet in any direction.

3.04 TILE INSTALLATION – FLOOR

A. Install tile over properly cured setting bed and crack isolation or waterproof membrane utilizing thin-set method with polymer-modified Portland cement bond mortar, in accordance with manufacturer's printed instructions and ANSI A108.5.

1. Confirm substrate is completely clean and free of dust.
2. Cut foam at floor perimeters flush with top of mortar bed.
3. Ensure that bond coats do not intrude into joints to receive sealant.

B. Placement Method:

1. Place tile into fresh mortar and move and press or beat in tile to ensure full contact.
2. Before setting proceeds, set and remove three tiles or sheets of tiles to confirm specified coverage of bond mortar.
3. When coverage is insufficient, utilize larger toothed trowel or back butter tiles until proper coverage is provided.

3.05 TILE INSTALLATION – WALLS

A. Install wall tile over properly installed tile backer board, utilizing thin-set method with polymer-modified Portland cement bond mortar, in accordance with manufacturer's printed instructions and ANSI A108.5.

1. Confirm substrate is completely clean and free of dust.
2. Ensure that bond coats do not intrude into joints to receive sealant.

B. Lay out tile wainscots, where occurring, to next full tile beyond dimensions indicated.

C. Spot tile backer board substrate with mortared tile, set plumb and true, to accurately indicate plane of finished tile surfaces.

D. Set tile with horizontal joints level and vertical joints plumb, with surfaces true and plumb, and edges of tiles flush.

E. Rub exposed cuts smooth with fine stone.

1. Do not set cut edge against fixture or adjoining surface without 1/16 inch sealant joint.

3.06 ACCESS DOOR AND PANEL INSTALLATION

A. Install access doors and panels, furnished under other sections, where required, in correct location, plumb or level, flush with adjacent construction, and securely fastened to framing.

3.07 EXPANSION / CONTROL JOINTS

A. Comply with TCNA Handbook, Method EJ171.

1. Locate expansion, control, contraction, or isolation joints where indicated on Drawings, and as follows:

a. Interior: 20 feet to 25 feet in each direction
b. Exterior: 8 feet to 12 feet in each direction
c. Interior tilework exposed to direct sunlight or moisture:

1) 8 feet to 12 feet in each direction.

B. Other Sealant Filled Joints:

1. Directly above joints in concrete substrates where tile abuts restraining surfaces such as perimeter walls, dissimilar floors, curbs, columns, pipes, ceilings, and where changes occur in backing materials.
2. At horizontal and vertical changes in plane.
3. At perimeter walls in rooms and spaces larger than 12 feet on one side.
4. As continuation of expansion joints, control joints, cold joints, and seismic joints in building structure which occur in tiled areas, making such joints in tile work not less in width than joint which is being continued.
5. Where indicated during installation of mortar beds.
6. Do not saw-cut joints after installing tiles.

C. Extend openings for joints completely through tile, mortar, mortar bed, and reinforcing.

1. Make openings for joints same width as tile joints.
2. Keep joints open and free from mortar and grout until filled with sealant.
3. Apply joint primer in wet areas, and apply elsewhere as recommended by sealant manufacturer.
4. Make joint edges free from dirt, oils, wax, and other contaminants.

3.08 GROUTING

A. General:

1. Do not begin grouting floor tiles until they are firmly set and, in no case, in less than 48 hours after they have been installed.
2. Remove spacers, ropes, glue, and similar foreign matter prior to grouting.
3. When using proprietary grout, adhere strictly to manufacturer's directions unless otherwise specified or acceptable in advance by Architect.
4. Prior to start of grouting, ensure that wall and floor tile surfaces are clean and excessive bond mortar is scraped and vacuumed from joints.

a. Approximately 2/3 depth of tile should be open for grouting.

B. Installation – General:

1. Follow manufacturer's instructions and following for mixing grout:

a. Mix grout by hand or with slow-speed drill motor not exceeding 300 rpm, achieving stiff non-slumping consistency, and using minimum amount of liquid to achieve workable mix.

2. Once grout Work commences, proceed until complete wall or floor area is finished utilizing one batch of grout.

C. Polymer-modified Portland Cement Grouting:

1. Dampen tile surface and joints with water using sponge, but leaving no puddles in joints.
2. Force maximum amount of approved grout into joints in accordance with pertinent recommendations contained in ANSI A 108.10

a. Use sufficient pressure on rubber float so as to fill joints completely.

1) Fill joints of cushion-edge tile to depth of cushion.
2) Fill joints of square-edge tile flush with surface.

b. Scrape excess grout off tile surface with rubber float.
c. Smooth or tool grout to uniform joint finish.
d. Do not over water.

3. Fill gaps and skips.

a. Do not permit mortar or mounting mesh to show through grouted joints.
b. Provide hard finished grout which is uniform in color, smooth, and without voids, pin holes, or low spots.
c. Leave tile clean.

3.09 CURING OF TILE INSTALLATION AND GROUT

A. Damp cure tile installations, including polymer-modified Portland cement grouts, for 72 hours minimum.

1. Remove final grout haze with clean soft cloth.
2. Cover with 40 lb. kraft paper.
3. Leave paper in place for protection.
4. Do not use polyethylene sheets directly over tile on horizontal surfaces.

3.10 SEALANT INSTALLATION

A. Prepare and clean joints to receive sealant to ensure joints are free and clear of setting and grouting materials and construction debris.

B. Install sealants in accordance with requirements of Section 07 9200.

C. Seal between tile and penetration and restraining surfaces with sealant matching color of grout/joint filler.

3.11 CLEANING AND SEALING OF TILE AND GROUT

A. After completion of tile installation and curing, thoroughly clean tile using neutral cleaner acceptable to manufacturers of tile and grout, complying with manufacturer's instructions.

1. Do not use acid or acid cleaners to clean tile.

B. Apply specified sealer in accordance with manufacturer's instructions.

1. Avoid overlapping, puddling, and rundown.
2. Completely wipe surface dry within 3 to 5 minutes using cotton or paper towels.
3. Do not allow sealer to dry on tile.
4. After 2 hours, test surface by applying water droplets to surface.

a. When water is absorbed, apply second coat.

5. Avoid surface traffic for 24 hours.

3.12 REPLACEMENT

A. Remove and replace cracked, chipped, broken, and otherwise defective tiles with proper material.

1. Replace grout as neccessary due to replacement of tile.

2. Match existing color without evidence of replacement.

B. Remove Work not complying with requirements of Contract Documents or referenced standards, and promptly replace with Work which does comply.

3.13 CLEANING

A. Remove and legally dispose of rubbish, debris, and waste material off Project Site.
1. Comply with requirements of Sections 01 74 19 and 01 742 3.

3.14 PROTECTION

A. Do not permit foot traffic on installed tile until mortar and grout has set for minimum of 72 hours.

B. Do not permit foot traffic on installed sealant for minimum of 48 hours or protect with hardboard strips.

C. Protect Work until Substantial Completion.

END OF SECTION 09 30 00

SECTION 09 68 00
CARPET

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Carpet.

B. Carpet cushion.

1.2 RELATED SECTIONS

A. Section 03 30 00 - Cast-in-Place Concrete.

1.3 SUBMITTALS

A. 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.

B. Verification Samples: For each finish product specified, two samples, representing actual product and finish.

C. Seaming Layout: Submit proposed seaming layout.

D. Extra Stock: Submit extra stock equal to 2% of total installed.

1.4 QUALITY ASSURANCE

A. Manufacturer Qualifications: Minimum 5 year experience manufacturing similar products.

B. Installer Qualifications: Minimum 2 year experience installing similar products.

C. Performance: Fire performance meeting requirements of building code and local authorities.

D. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
   1. Finish areas designated by Architect.
   2. Do not proceed with remaining work until workmanship is approved by Architect.
   3. Refinish mock-up area as required to produce acceptable work.

1.5 PRE-INSTALLATION MEETINGS

A. Convene minimum two weeks prior to starting work of this section.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver and store products in manufacturer's unopened packaging bearing the brand name and manufacturer's identification until ready for installation.

B. Handling: Handle materials to avoid damage.

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 recommended limits.

1.8 SEQUENCING

A. Ensure that products of this section are supplied to affected trades in time to prevent interruption of construction progress.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturers: TARKETT, Color Knit, Modern Patina 30201, 24X24, installed as recommended by manufacturer.

B. Substitutions: Not permitted.

2.2 MATERIALS

A. Carpet Material:
   1. Auxiliary Materials:
      a. Edge guards.
      b. Adhesives, cements and fasteners.
      c. Leveling compound.

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.

3.3 INSTALLATION

A. Install in accordance with manufacturer's instructions and in proper relationship with adjacent construction. Test for proper operation and adjust until satisfactory results are obtained.

B. Comply with recommendations of Carpet and Rug Institute 'Specifier's Handbook'.

3.4 PROTECTION

A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION 09 68 00

SECTION 09 91 00

PAINTING

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Surface preparation, priming, and field painting of following:

a. Exposed exterior and interior items and surfaces as indicated.

B. Related Sections:

1. Section 06 40 00: Architectural Woodwork; natural wood finish system.
2. Section 07 92 00: Joint Sealants
3. Section 08 14 00: Wood Doors
4. Section 08 31 00: Access Doors and Panels
5. Section 09 29 00: Gypsum Board

C. Related Requirements:

1. Surface preparation, priming, and finish coats specified in this Section are in addition to shop priming and surface treatment specified in other Sections.

1.02 REFERENCES

A. California Air Resources Board (CARB):

1. South Coast Air Quality Management Owner (SCAQMD):

a. Rule 1113 – Architectural Coatings
b. Rule 1168 – Adhesive and Sealant Applications

B. California Department of Public Health (CDPH):

1. Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers, Version 1.2 – 2017

C. United States Environmental Protection Agency (EPA):

1. 40 CFR Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings

a. Method 24 – Surface Coatings

D. The Society of Protective Coatings (SSPC):

1. SSPC-SP 1 – Solvent Cleaning.
2. SSPC-SP 2 – Hand Tool Cleaning.
3. SSPC-SP 3 – Power Tool Cleaning.
4. SSPC-SP 6 – Commercial Blast Cleaning (NACE No. 3)
5. SSPC-SP 7– Brush-off Blast Cleaning.(NACE No. 4)

1.03 DEFINITIONS

A. Paint – As used in this Section:

1. Means coating systems materials, including primers, emulsions, enamels, stains, sealers, and other applied materials whether used as prime, intermediate, or finish coats.

1.04 SYSTEM DESCRIPTION

A. Paint exposed surfaces except where material is obviously intended and specifically noted as surface not to be painted:

1. Where items or surfaces are not specifically mentioned, paint item or surface same as adjacent similar materials or surfaces whether or not schedules indicate colors.

a. When system, color, or finish is not designated, Architect will select from standard colors and finishes available.

2. Refer to Finish Schedules and notations on Drawings.
3. Painting Includes:

a. Field painting of exposed bare and covered pipes, ducts (including color coding), and hangers.
b. Exposed steel and iron work.
c. Conduit, and metal surfaces of mechanical and electrical equipment as indicated.
d. Exposed piping, ductwork, equipment, and other such items as designated or required.

B. Work Not to be Painted:

1. Do not include painting when factory finishing or installer finishing is specified for such items as, but not limited to, following:

a. Acoustic materials
b. Decorative laminate casework
c. Natural finished wood casework.
d. Aluminum with shop-applied finish.

1) Includes high performance coatings and anodizing.

e. Stainless steel, chromium plate, brass, bronze and similar finish materials.
f. Factory-finished mechanical and electrical equipment including light fixtures, switchgear and distribution cabinets.

2. In general, following items will not require finishing unless specifically specified, scheduled, or indicated:

a. Exterior aluminum and galvanized components of modular buildings.
b. Flexible conduit connections to equipment, miscellaneous nameplates, stamping, and instruction labels and manufacturer's data.
c. Do not paint moving parts of operating units, including, but not limited to:

1) Mechanical and electrical parts, such as valves and damper operators, linkages, sensing devices, motor and fan shafts.

d. Do not paint over code required labels, such as Underwriters' Laboratories and Factory Mutual, or equipment identification, performance rating, name, or nomenclature plates.
e. Finish Hardware, except prime coated items.

f. Concealed Surfaces:

1) Painting is not required on wall or ceiling surfaces in concealed areas and inaccessible areas, such as furred areas, pipe spaces, duct shafts, and elevator shafts, as applicable to Project.

g. Exterior concrete and masonry
h. Exterior aluminum and galvanized components of modular buildings.

3. Portland Cement Plaster:

a. Unless direct otherwise by Architect at request of Owner, do not paint following:

1) Integrally colored polymer-modified (acrylic) finish.
2) Integrally colored Portland cement plaster (stucco) finish,

b. In lieu of painting, apply fog coat to integrally colored Portland cement plaster in accordance with plaster specification section.
c. When directed to paint Portland cement plaster, refer to Schedule of Exterior Paint Systems in this Section for appropriate paint system.

C. Shop Priming:

1. Unless otherwise specified, shop priming of ferrous metal items is included under various sections for metal fabrications, hollow metal work and similar items.

1.05 SUBMITTALS

A. Product Data:

1. Provide for each paint system specified; include primers.
2. Material List:

a. Provide inclusive list of required coating materials:

1) Indicate each material and cross-reference specific coating, finish system, and application.
2) Identify each material by catalog number and general classification.
3) In addition to manufacturer's name, product name and number, include following:

a) Primers, thinners, and coloring agents.
b) Manufacturers' catalog data fully describing each material as to content, recommended installation, and preparation methods.

b. Identify surfaces to receive various paint materials.

3. Manufacturer's Information:

a. Provide manufacturer's technical information, including label analysis and instructions for handling, storing, and applying each coating material proposed for use.

4. Certification by manufacturer that products supplied comply with local regulations controlling use of Volatile Organic Compounds (VOC).

B. Samples:

1. After receipt of Architect's Color Schedule, submit following for Architect's review for color and texture only:

a. Draw-Downs:

1) Manufacturer-produced draw-downs for each color sample required

b. Stepped Samples:

1) Defining each separate coat, including primers.
2) Use representative colors when preparing samples for review.
3) Resubmit until required sheen, color, and texture are achieved.

2. Furnish list of materials and applications for each coat of each sample.

1) Label each sample for location and application.

3. Furnish minimum of four 8-1/2 by 11 inch painted samples of each color and material, with texture to simulate actual conditions.

a. On Metal – Provide minimum of four 4 by 8 inch samples for each type of finish and color, defining prime and finish coat.
b. Do not proceed with painting work until color samples have been accepted.

C. Field Samples:

1. When and as directed by Architect, apply one complete coating system for each color, gloss and texture required.
2. When approved, sample panel areas will be deemed incorporated into Work and will serve as standards by which subsequent Work of this Section will be judged.

D. Environmental Certifications:

1. Certificates for EQ Low-Emitting Materials:

a. Interior Paints and Coatings applied on Site.
b. Interior Adhesives and Sealants applied on Site

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to Project Site in original, new, and unopened packages and containers bearing manufacturer's name and label, and following information:

1. Name or title of material.
2. Product Description (Generic Classification or Binder Type).
3. Federal Specification number, if applicable.
4. Manufacturer's stock number and date of manufacture.
5. Manufacturer's name
6. Contents by volume, for major pigment and vehicle constituents.
7. Thinning instructions.
8. Application instructions.
9. Color name and number.
10. VOC Content
11. Concurrently provide local representative of approved paint products with copies of invoices of purchased materials.

B. Storage and Mixing of Materials:

1. Store and mix paint materials in single suitable place in compliance with health and fire regulations.
2. Open and mix ingredients on premises in presence of Project Inspector.
3. Maintain such storage spaces clean and neat.
4. Remove oily rags, waste, and like materials from building each night and take every precaution to avoid danger of fire.

1.07 PROJECT CONDITIONS

A. Apply primers and paints only when temperature of surfaces to be painted and surrounding air temperatures are within range permitted by paint manufacturer's printed instructions.

B. Do not apply paint in rain, fog, mist or to damp or wet surfaces; or when relative humidity exceeds 85 percent, unless otherwise specified by paint manufacturer.

C. Do not apply paint, interior, or exterior, when temperature is below 50 degrees F or above 90 degrees F, or when dust conditions are unfavorable for application.

D. Painting may be continued during inclement weather if areas and surfaces to be painted are enclosed and heated within temperature ranges specified by paint manufacturer during application and drying periods.

E. Painting Work by Other Trades:

1. Examine Drawings and Specifications, including requirements specified in other sections for painting work by other trades.
2. Notify Architect in writing of conflicts between Work of this Section and that of other trades and sections, and errors, omissions, or impractical requirements.
3. Paint or finish surfaces that are left unfinished by requirements of their specification as Work of this Section.

1.08 REGULATORY REQUIREMENTS

A. Codes and Standards:

1. Conform work and materials to regulations of State Fire Marshal, Safety Color Coding in conformance with OSHA, Cal/OSHA, and local or State Ordinances having jurisdiction.

    a. Conform to most stringent requirements and authorities having jurisdiction.

B. Comply with applicable codes and regulations of governmental agencies having jurisdiction including those having jurisdiction over airborne emissions and industrial waste disposal.

1. Where those requirements conflict with this Specification, comply with more stringent provisions.
2. Regulatory changes may affect formulation, availability, or use of specified coatings.

    a. Confirm availability of coatings to be used prior to Project bid and before start of painting on Project.

3. Comply with current applicable regulations of following:

    a. California Air Resources Board (CARB)

b. South Coast Air Quality Management Owner (SCAQMD)
c. California Department of Public Health (CDPH)
d. U.S. Environmental Protection Agency (EPA), as applicable.

1.09 MAINTENANCE STOCK

A. Upon completion of Work of this Section, deliver to Owner, extra stock consisting of one gallon of each color, type, and gloss of finish (topcoat) paint used in Work.

1. Tightly seal each container and clearly label contents and location where used.

PART 2 PRODUCTS

2.01 MATERIAL QUALITY

A. Provide best quality commercial grade of various types of coatings as regularly manufactured by acceptable paint materials manufacturers.

1. Materials not displaying manufacturer's identification as standard, best grade product will not be acceptable.

B. Single-Source Responsibility:

1. Obtain products of only one paint manufacturer unless otherwise specified or approved.

a. Obtain primers, thinners, coloring agents, and catalysts for each painting system from same manufacturer as finish coats, or as approved for use by manufacturer of paint, except for materials furnished with shop prime coat by other trades.
b. Use approved thinners only within recommended limits.
c. Factory mix paint materials to correct color, gloss, and consistency for installation to maximum extent feasible.

C. Factory mix paint materials to correct color, gloss, and consistency for installation to maximum extent feasible.

D. Do not use paints in Work which have been packaged longer than six months, except when such products are known to have long package stability when unopened and only when guaranteed by manufacturer.

2.02 MANUFACTURERS

A. Manufacturer's catalog names and numbers as listed are used to aid in establishing kind and quality of material required and are not used as indication of color desired.

B. Opaque Paint Finish Materials:

1. Basis-of-Design:

    a. Paint Systems specified are products of Dunn-Edwards Corporation, Los Angeles, CA, unless indicated otherwise.

2.03 SOURCE QUALITY CONTROL

A. Obtain paint materials of each paint manufacturer for specified systems, as accepted by Architect.

1. Furnish materials as supplied from paint manufacturer's branded paint store or manufacturer-approved dealer.

2. Furnish copies of invoices from paint supplier to manufacturer's representative and Architect.

    a. Furnish to Owner when requested.

2.04 COLORS AND FINISHES

A. Surface treatments and finishes are shown on Drawings and indicated in Schedules on Drawings.

1. Paint colors are shown on Architect's Color Schedule.

B. Colors required or listed by Architect are not necessarily stock colors available in one particular manufacturer's range.

1. Non-availability of colors selected by Architect will be sufficient reason to disqualify manufacturer not capable of providing such colors.

C. Paint Coordination:

1. Provide finish coats which are compatible with prime paints used.
2. Review other sections of these specifications in which prime paints are to be provided to ensure compatibility of total coatings system for various substrates.
3. Upon request from other subcontractors, furnish information on characteristic of specified finish materials, to ensure that compatible prime coats are used.
4. Provide barrier coats over incompatible primers or remove and reprime as required.
5. Notify Architect in writing of anticipated problems using specified coating systems with substrates primed by others.

2.05 PAINTABLE CAULK

A. Acrylic latex, one-part, non-sag, mildew resistant, non-bleeding and non-staining, acrylic emulsion component compound conforming to ASTM C 834, Type OP, Grade NS, formulated to be paintable.

1. For use as interior caulk in nonworking joints only.
2. Must be able to accommodate joint movement of not more than 5 percent in both extension and compression for total of 10 percent.
3. Backup and Bond Breaker: Products recommended by caulking manufacturer.
4. Provide one of following products:

    a. AC-20: Pecora Corporation.
    b. Bostik Home Painter's Caulk: Bostik Construction Products.
    c. GE RCS20: Momentive Performance Materials.

5. VOC compliant per SCAQMD Rule 1168.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine substrates and conditions under which painting will be performed for compliance with requirements for application of paint.

1. Do not begin paint application until unsatisfactory conditions have been corrected and surfaces scheduled to receive paint are thoroughly dry.

B. Starting of painting will be construed as applicator's acceptance of surfaces and conditions within particular area.

3.02 SURFACE PREPARATION

A. Clean and prepare surfaces to be painted following paint manufacturer's written instructions and as specified, for each particular substrate condition.

B. Clean surfaces to be painted before applying paint or surface treatments.

1. Remove oil and grease prior to mechanical cleaning.
2. Program cleaning and painting so contaminants from cleaning process will not fall onto wet, newly painted surfaces.
3. Cover surfaces and equipment as necessary to prevent contaminants from cleaning process from falling onto equipment.

C. Clean floors and surfaces in room being painted of loose dirt and dust before painting is started.

D. Moisture Content:

1. Measure moisture content of surfaces using electronic moisture meter.
2. Do not apply finishes unless moisture content of surfaces are below maximum levels specified, or as otherwise recommended by manufacturer.

E. Remove hardware, hardware accessories, switch and receptacle plates, surface-mounted lighting fixtures, escutcheons and plates, surface-mounted equipment, free-standing equipment blocking access to painted surfaces, and other items as required prior to surface preparation and painting operations.

1. Following completion of painting of each space or area, reinstall removed items.

F. Provide barrier coats over incompatible primers or remove and reprime.

G. Gypsum Board:

1. Remove dust, loose particles or other matter that would prevent proper paint adhesion.
2. Check to see that joints and screw heads have been properly covered with joint compound and sanded smooth and flush with adjacent surfaces.
3. Before finishing untextured smooth gypsum board, use damp sponge along edge of joints where nap of paper has been raised by sanding.

H. Wood:

1. Ensure that surfaces are clean and dry.
2. Sandpaper wood (except saw-textured wood, when specified) smooth to provide even surface and then dust off and wipe clean.
3. Touch up knots and pitch pockets with shellac on interior wood.
4. After priming coat has been applied, thoroughly fill nail holes, irregularities and cracks using plastic wood filler for stained or natural finish, and putty for painted work.

I. Ferrous Metals:

1. Clean ungalvanized ferrous metal surfaces that have not been shop coated or are not otherwise specified to receive high performance coatings.
2. Remove oil, grease, dirt, loose mill scale, and other foreign substances.
3. Use solvent (SSPC SP-1) or mechanical cleaning methods (SSPC SP-2 and SP-3) that comply with The Society for Protective Coatings (SSPC) recommendations.
4. Where rust or scale is present, wire brush and sandpaper clean.
5. Clean field welds and abraded portions of field welded and erected ferrous metal components.

J. Galvanized Surfaces:

1. When indicated to be painted, clean galvanized surfaces with non-petroleum-based solvents complying with SSPC SP-1, so surface is free of oil and surface contaminants.

    a. When necessary, brush blast surfaces complying with SSPC SP-7 to remove burrs and rough spots.

2. Remove pretreatment from galvanized sheet metal fabricated from coil stock by mechanical methods.

3. Spot prime field connections, welds, soldered joints, and burned and abraded portions.
4. Sand or etch factory finished surfaces indicated to be repainted to increase adherence of finish coats.

K. Paintable Caulk Installation:

1. Comply with general sealant installation requirements in Section 09 9200.
2. Use only for caulking of followings joints in dry areas:

a. Perimeter caulking of:

1) Interior door frames.
2) Casework not subject to moisture.

3. Joint Design:

a. Width of joint should be approximately12 times anticipated movement and fall within range of 1/4 inch to 3/4 inch

3.03 MATERIAL PREPARATION

A. Mix and prepare painting materials in field following manufacturer's directions.

B. Store materials not in actual use in tightly covered containers.

1. Maintain containers used in storage, mixing and application of paint in clean condition, free of foreign materials and residue.

C. Stir materials before application to produce mixture of uniform density:

1. Stir as required during application.
2. Do not stir surface film into material.
3. Remove film and, if necessary, strain material before using.

3.04 APPLICATION

A. Apply paint following manufacturer's directions.

1. Use applicators and techniques best suited for substrate and type of material being applied.
2. Mix to proper consistency.
3. On brush-applied work, brush out smooth leaving minimum of brush marks, with paint uniformly flowed on.

B. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, and conditions otherwise detrimental to formation of durable paint film.

C. Apply paint to clean, dry, prepared surfaces only.

1. Apply paint material evenly, smoothly flowed on without runs, sags, or holidays.

D. Provide finish coats compatible with primers used.

E. Minimum Coating Thickness:

1. Apply each material at not less than manufacturer's recommended spreading rate, to provide a total dry film thickness of not less than 5.0 mils for entire coating system of prime and finish coats for 3 coat work.
2. Provide total dry film thickness of not less than 3.5 mils for entire coating system of prime and finish coat for 2 coat work.

F. Number of coats and film thickness required is same regardless of application method.

1. Do not apply succeeding coats until previous coat has cured as recommended by manufacturer.
2. Sand between applications where sanding is required to produce even smooth surface following manufacturer's directions.

G. Apply additional coats when undercoats, stains or other conditions show through final coat of paint, until paint film is of uniform finish, color and appearance.

1. Give special attention to ensure that surfaces, including edges, corners, crevices, welds, and exposed fasteners, receive dry film thickness equivalent to that of flat surfaces.
2. Number of coats specified herein are minimum to be applied.

a. Apply additional coats in event full coverage is not obtained or required total thickness of paint does not comply with mil thickness recommended by paint manufacturer.

H. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces.

I. Included Work:

1. Finish tops, bottoms, and edges of doors same as balance of door.
2. Where walls are specified to be painted, include columns, arrises, reveals, soffits, returns, and like surfaces.

J. Priming:

1. Where shop coats and touch-up painting are specified under other sections of Work, omit prime coat.

K. Completed Work:

1. Match approved samples for color, texture, and coverage.
2. Remove, refinish, or repaint work not in compliance with specified requirements.

3.05 CLEANING AND PROTECTION

A. Cleaning:

1. At end of each work day, remove empty cans, rags, rubbish, and other discarded paint materials from Project Site.
2. Remove paint, varnish and brush marks from glazing material
3. Upon completion of painting work, wash and polish glazing material both sides.

    a. Remove and replace glazing material, which has been damaged by painting operations, with new material.

4. Comply with additional cleaning requirements specified in Section 01 74 23.

B. Protection:

1. Protect work of other trades, whether to be painted or not, against damage by painting.
2. Correct damage by cleaning, repairing or replacing, and repainting, as acceptable to Architect.

C. Protect floors and adjacent surfaces from paint smears, spatters, and droppings:

1. Use dropcloths to protect floors.
2. Cover fixtures and mask off areas where required.

D. Provide “Wet Paint” signs and barricades to protect newly painted finishes.

1. Remove temporary protective wrappings provided by others for protection of their work, after completion of painting operations.

E. At completion of work of other trades, touch-up and restore damaged and defaced painted surfaces.

3.06 PAINT SYSTEM SCHEDULES – GENERAL

A. Provide following paint systems for substrate indicated.

1. Products must meet or exceed current applicable regulations of agencies listed in Regulatory Requirements Article.

3.07 SCHEDULE OF EXTERIOR PAINT SYSTEMS

A. Paint System Type 1:

1. Type and Gloss: 100 percent Acrylic, Flat
2. Use: Portland Cement Plaster

    a. Primer (1st Coat):

1) SLPR00-2-WH SUPER-LOC Premium

b. 2nd and 3rd Coats:

1) EVSH10-2 EVERSHIELD Exterior Flat

B. Paint System Type 2:

1. Type and Gloss: 100 percent Acrylic, Eggshell
2. Use: Portland Cement Plaster

a. Primer (1st Coat):

1) SLPR00-2-WH SUPER-LOC Premium

b. 2nd and 3rd Coats:

1) EVSH30-3 EVERSHIELD Exterior Eggshell

C. Paint System Type 4:

1. Type and Gloss: 100 percent Acrylic, Flat
2. Use: Concrete Masonry Units (CMU)

a. Primer (1st Coat):

1) SBPR00 Smooth BLOCFIL Premium

b. 2nd Coat:

1) SSHL 10 SPARTASHIELD Flat

D. Paint System Type 5:

1. Type and Gloss: 100 percent Acrylic, Semi-Gloss
2. Use: Concrete Masonry Units (CMU)

a. Primer (1st Coat):

1) SBPR00 Smooth BLOCFIL Premium

b. 2nd and 3rd Coats:

1) SSHL50 SPARTASHIELD Semi-Gloss Exterior Semi-Gloss

E. Paint System Type 6:

1. Type and Gloss: 100 percent Acrylic, Flat
2. Use: Brick Masonry, Concrete

a. Primer (1st Coat):

1) ESPR00 EFF-STOP Premium

b. 2nd Coat:

1) EVSH10 EVERSHIELD Exterior Flat Ultra Premium

F. Paint System Type 7:

1. Type and Gloss: Enamel, Semi-Gloss.
2. Use: Wood, Wood Doors, Medium Density Overlay (MDO) Doors
3. Application Method on Doors: Shortnap roIIer

a. Primer (1st Coat):

1) EZPR00 E-Z PRIME Premium

b. 2nd and 3rd Coats:

1) ASHL50 ARISTOSHIELD Interior/Exterior Ultra Premium

G. Paint System Type 9:

1. Type and Gloss: 100 percent Acrylic, Flat
2. Use: Galvanized Metal, Aluminum

a. Pretreatment:

1) SC-ME-01 Krud Kutter Metal Clean & Etch

b. Primer (1st Coat):

1) UGPR00 ULTRA-GRIP Premium, *or*
2) ULGM00-WH ULTRASHIELD Interior/Exterior Galvanized Metal Primer

c. 2nd and 3rd Coats:

1) EVSH10 EVERSHIELD Exterior Flat Ultra Premium

H. Paint System Type 10:

1. Type and Gloss: Enamel, Semi-Gloss, as indicated
2. Use· Galvanized Metal, Aluminum

a. Pretreatment:

1) SC-ME-01 Krud Kutter Metal Clean & Etch

b. Primer (1st Coat):

1) UGPR00 ULTRA-GRIP Premium, *or*

2) ULGM00-WH ULTRASHIELD Interior/Exterior Galvanized Metal Primer

c. 2nd and 3rd Coats:

1) ASHL50 ARISTOSHIELD Semi-Gloss Interior/Exterior, or
2) ENCT50 ENDURA-COAT Semi-Gloss

3.08 SCHEDULE OF INTERIOR PAINT SYSTEMS

A. Paint System Type 16:

1. Type and Gloss: Flat
2. Use· Gypsum Plaster, Concrete, Brick

a. Primer (1st Coat):

1) UGPR00 Ultra-Grip Premium

b. 2nd and 3rd Coats:

1) SZRO10 SPARTAZERO Low Odor, Zero VOC, Interior Flat

B. Paint System Type 17:

1. Type and Gloss: Eggshell
2. Use· Gypsum Plaster, Concrete, Brick

a. Primer (1st Coat):

1) UGPR00 ULTRA-GRIP Premium

b. 2nd and 3rd Coats:

1) SWLL30 SPARTAWALL Low Odor, Zero VOC, Interior Eggshell

C. Paint System Type 18:

1. Type and Gloss: Semi-Gloss
2. Use: Gypsum Plaster, Concrete, Brick

a. Primer (1st Coat):

1) UGPR00 Ultra-Grip Premium

b. 2nd Coat:

1) SWLL50 SPARTAWALL Low Odor, Zero VOC Interior Semi-Gloss

D. Paint System Type 19:

1. Type and Gloss: Flat
2. Use: Concrete Masonry Units (CMU)

    a. Primer (1st Coat):

        1) SBPR00 Smooth Block Filler

    b. 2nd and 3rd Coats:

        1) SZRO10 SPARTAZERO Low Odor, Zero VOC, Interior Flat

E. Paint System Type 20:

1. Type and Gloss: Eggshell
2. Use· Concrete Masonry Units (CMU)

    a. Primer (1st Coat):

        1) SBPR00 Smooth Block Filler

    b. 2nd and 3rd Coats:

        1) SWLL30 SPARTAWALL Low Odor, Zero VOC, Interior Eggshell

F. Paint System Type 21:

1. Type and Gloss: Semi-Gloss
2. Use: Concrete Masonry Units (CMU)

    a. Primer (1st Coat):

        1) W6329 Concrete Block Filler

    b. 2nd and 3rd Coats:

        1) SWLL50 SPARTAWALL Low Odor, Zero VOC Interior Semi-Gloss

G. Paint System Type 22:

1. Type and Gloss: Flat
2. Use: Exposed, interior ferrous metal surfaces indicated, including hollow metal doors, frames, access doors, panels, and other metal surfaces indicated.

    a. Primer (1st Coat):

        1) UGPR00-1 ULTRA-GRIP Premium, Multi Purpose Primer, or
        2) BRPR00 Bloc-Rust Rust Preventive Primer

    b. 2nd and 3rd Coats:

        1) SZRO10 SPARTAZERO, Interior Zero VOC, Flat

H. Paint System Type 23:

1. Type and Gloss: Eggshell
2. Use: Exposed, interior ferrous metal surfaces indicated, including hollow metal doors, frames, access doors, panels, and other metal surfaces indicated.

    a. Primer (1st Coat):

        1) UGPR00-1 ULTRA-GRIP Premium, Multi Purpose Primer, *or*
        2) BRPR00 Bloc-Rust Rust Preventive Primer

    b. 2nd and 3rd Coats:

        1) SWLL30 SPARTAWALL Low Odor, Zero VOC, InteriorEggshell, or
        2) ASHL30 ARISTOSHIELD Interior/Exterior Ultra Low VOC, Eggshell

I. Paint System Type 24:

1. Type and Gloss: Semi-Gloss
2. Use: Exposed, interior ferrous metal surfaces indicated, including hollow metal doors, frames, access doors, panels, and other metal surfaces indicated.

    a. Primer (1st Coat):

        1) UGPR00-1 ULTRA-GRIP Premium, Multi Purpose Primer, *or*
        2) ASHL50 ARISTOSHIELD Semi-Gloss Interior/Exterior

    b. 2nd and 3rd Coats:

        1) SWLL50 SPARTAWALL Low Odor, Zero VOC, Interior Semi-Gloss, *or*
        2) ASHL50 ARISTOSHIELD Semi-Gloss Interior/Exterior Ultra-Low VOC

J. Paint System Type 25:

1. Type and Gloss: Flat
2. Use: Galvanized Metal, Aluminum

    a. Pretreatment: SC-ME-01 Krud Kutter Metal Clean & Etch
    b. Primer (1st Coat):

        1) ULGM00-WH ULTRASHIELD Interior/Exterior Galvanized Metal Primer

    c. 2nd and 3rd Coats:

        1) SZRO10 SPARTAZERO-Low Odor, Zero VOC, Interior Flat

K. Paint System Type 26:

1. Type and Gloss: Eggshell
2. Use: Galvanized Metal, Aluminum

    a. Pretreatment:

        1) SC-ME-01 Krud Kutter Metal Clean & Etch

    b. Primer (1st Coat):

        1) ULGM00-WH ULTRASHIELD Interior/Exterior Galvanized Metal Primer

    c. 2nd and 3rd Coats:

        1) SWLL30 SPARTAWALL Low Odor, Zero VOC, Interior Eggshell, *or*
        2) ASHL30 ARISTOSHIELD Eggshell Interior/Exterior Ultra-Low VOC

L. Paint System Type 27:

1. Type and Gloss: Semi-Gloss
2. Use: Galvanized Metal, Aluminum

    a. Pretreatment:

        1) SC-ME-01 Krud Kutter Metal Clean & Etch

    b. Primer (1st Coat):

        1) ULGM00-WH Ultrashield Interior/Exterior Galvanized Metal Primer

    c. 2nd and 3rd Coats:

        1) SWLL50 Spartawall Low Odor, Zero VOC, Interior Semi-Gloss, *or*
        2) ASHL50 Aristoshield Semi-Gloss Interior/Exterior Ultra-Low VOC

M. Paint System Type 28:

1. Type and Gloss: Flat
2. Use: Gypsum Board

    a. Primer (1st Coat):

        1) VNPR00-1 VINYLASTIC Premium Interior Wall Sealer

    b. 2'" and 3'" Coats:

        1) SWLL10 SPARTAWALL Low Odor, Zero VOC, Interior Flat

N. Paint System Type 29:

1. Type and Gloss: Eggshell
2. U se: Gypsum Board

a. Primer (1st Coat):

1) VNPR00-1 VINYLASTIC Premium Interior Wall Sealer

b. 2nd and 3rd Coats:

1) SWLL30 SPARTAWALL Low Odor, Zero VOC, Interior Eggshell

O. Paint System Type 30:

1. Type and Gloss: Semi-Gloss
2. Use: Gypsum Board

a. Primer (1st Coat):

1) VNPR00-1 VINYLASTIC Premium Interior Wall Sealer

b. 2nd and 3rd Coats:

1) SWLL50 SPARTAWALL Low Odor, Zero VOC, Interior Semi-Gloss

P. Paint System Type 31:

1. Type and Gloss: Semi-Gloss
2. Use: Wood and Hardboard; Wood Doors, Opaque (Medium Density Overlay (MDO), or as specified
3. RoIIer application by shortnap roller.

a. Primer (1st Coat):

1) UGPR00 ULTRA-GRIP Premium Primer

b. 2nd and 3rd Coats:

1) SWLL50 SPARTAWALL Low Odor, Zero VOC, Interior Semi-Gloss

3.09 SPECIAL TREATMENT OF SPECIFIC SURFACES

A. Paint System Type 38:

1. Type and Gloss: Flat Black
2. Use:

a. Ducts visible through grilles and registers
b. Reveals at ceiling edges
c. Structure visible through glass above ceiling line, unless indicated otherwise
d. Primer (1st Coat): UGPR00 ULTRA-GRIP Premium
e. 2nd Coat:

1) SZRO10 SPARTAZERO Low Odor, Zero VOC, Interior Flat

B. Paint System Type 42:

1. Miscellaneous Mechanical and Electrical Work:

a. Paint exposed surfaces of mechanical and electrical Work not otherwise specified, including but not limited to following:

1) Interior plumbing, HVAC, and electrical, factory-primed equipment, apparatus, pipes and fittings.
2) Vents, ducts, miscellaneous supports and hangers.
3) Electrical conduit, fittings, pull boxes, outlet boxes, and other unfinished surfaces of mechanical and electrical Work.
4) Miscellaneous factory-primed metal cabinets, and panels.

2. Provide paint systems for each type of material in accordance with paint manufacturer's recommendations, unless otherwise indicated.

a. Make submittals of each system for Architect's review, in accordance with requirements of this Section and Section 01 33 00.

3. Colors: As scheduled.

END OF SECTION 09 91 00