

Project Manual

Bid Document for Construction

**CITY OF BEVERLY HILLS  
PUBLIC LIBRARY ADDITION OF  
G.I.S. AND F.T.P. SUITES AT  
LEVEL A**

440 North Rexford Drive, Beverly Hills, Ca. 90210

Prepared by:

**RAW International**  
**Planning, Programming, Design, & Management**  
800 S. Figueroa Street, Suite 600  
Los Angeles, CA 90017  
Tel: 213.622.4993  
Fax: 324.614.0533

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SECTION 01 10 00

SUMMARY

PART 1 - GENERAL

1.1 PROJECT INFORMATION

- A. Project Name: City of Beverly Hills Public Library Addition of G.I.S. and F.T.P. Suites at Level A
- B. Project Address: 440 North Rexford Drive  
Beverly Hills, Ca 90210
- C. Owner: City of Beverly Hills Public Library
- D. Architect of Record: RAW International, Inc.  
800 S Figueroa St # 600  
Los Angeles, CA 90017  
(213) 622-4993

1.2 SPECIAL ATTENTION REQUESTED OF ALL BIDDERS

- A. CBH has provided the construction documents for the tenant improvement work by RAW International and MEP, low voltage power and data by Budlong & Associates. CBH is responsible for consolidation of both designs into one single construction contract for bidding and construction.
- B. The scope of work for this CBH project includes Tenant Improvement work.
- C. Contractor to submit material safety data sheets (MSDS) for all materials used on this project for review and approval by CBH prior to use of the materials to avoid any complaints from CBH.
- D. The GC of this contract will be responsible for full cooperation with CBH fire alarm contract and shall meet the fire alarm contractor after the award of this contract. The construction schedule of this contract shall identify a task line for fire alarm work after the GC receives information (the time and duration) from fire alarm contractor. The objective is that CBH does not have any concern. When the CBH accepts the space, all systems must be in place and working for the Public Library's operation.

1.3 PROJECT SUMMARY

- A. Description of Scope of Work, demolition as required:
  - 1. Remove wall or portion of wall and related framing completely, see enlarged construction floor plan for extent of work and location.

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2. Clean, patch, repair and prepare existing floor to receive new finishes.
3. Remove existing light fixtures, sprinklers and other hanging ceiling equipment and devices as required by electrical and mechanical drawings scope.
4. Dust and clean all exposed existing pipes and conduits to remain.
5. Remove existing gypsum board along entire wall on existing Record Storage side. Preserve and retain existing studs in-track. Make repairs as necessary to receive new insulation and drywall. See new construction floor plan for extent of work.
6. Refer to Mechanical, Electrical and Plumbing for additional demolition notes.
7. Coordinate and verify exact location of furniture layout with furniture manufacturer/dealer/ electrical contractor prior to final installation of gypsum board.

B. Description of Tenant Improvement Scope of Work:

1. Build-out as delineated in construction documents. Includes MEP, low voltage and data work.

1.4 Scope of work includes but not limited to:

- A. Using the entire existing storage space and dividing it into 2 office suites, G.I.S. Office Suite and F.T.P. Office Suite. The MEP scope includes modification to existing building infrastructure and installation of new ac ductwork, exhaust system, VAV boxes, power, low voltage, data and lighting.
- B. Both suite entry doors to be installed with a security key pad per CBH standards.

1.5 CONTRACTOR'S USE OF THE PREMISES

- A. The work includes providing supervision, labor, materials, and equipment for such construction.
- B. During the construction period the Contractor shall have limited access to the premises for construction operations. Contractor's use of premises is limited to the areas indicated on the Drawings.
- C. Owner will not occupy premises during construction: Perform construction only during normal working hours, which will be restricted based upon construction activity, unless otherwise agreed to in advance by Owner. Clean up work areas and return to a useable condition at the end of each work period.

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- D. Owner and Contractor to coordinate vacating Work areas defined by this contract according to mutually agreeable construction schedule.

1.6 SPECIFICATION FORMAT AND CONVENTIONS

A. Format:

- 1. Specifications are organized into Divisions and Sections using the 49-division format and the Construction Specifications Institute's (CSI) "MasterFormat" numbering system.
- 2. Sections in Division One Govern the execution of the Work of subsequent specification sections.

B. Titling and arrangements: The order of articles, paragraphs, subparagraphs, and sub-subparagraphs in the Specifications text is defined by a sequence of indentations.

- 1. Article, paragraph and subparagraph titles, and other identifications of subject matter in the Specifications, are intended as aid in locating and recognizing various requirements in the beginning words of a sentence.
- 2. Where the title establishes the subject, the titles are subordinate to and do not define, limit, or otherwise restrict the Specification text.
- 3. Specification text shall govern over titling and shall be understood to be and interpreted as a whole.

C. Interpretation:

- 1. The captions and headings of the various subdivisions of the Contract Documents are intended only as a matter of reference and convenience and in no way define, limit, or prescribe the scope or intent of the Contract Documents or any subdivision thereof.
- 2. Underlining, bolding or capitalizing of words in the text does not signify or mean that such words convey special or unusual meaning.

D. Content: Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by Contractor. Indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.

- 1. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred, as the sense requires.
- 2. Use of the singular number shall be deemed to include the plural and vice versa, whenever the context requires.

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3. The neuter gender shall include the feminine and masculine, the masculine gender shall include the feminine and neuter, the singular number shall include the plural, and the plural shall include the singular, whenever the context requires.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

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SECTION 01 26 13

REQUESTS FOR INFORMATION (RFI)

PART 1 GENERAL

1.1 SUMMARY

- A. This Section describes procedures for requesting information other than that which is shown in the Contract Documents, and discusses conditions under which such requests will be considered.
  
- B. Related work:
  - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
  
- C. Definitions:
  - 1. The word "Contractor," as used in this Section, means the individual or entity who has entered into a Contract with the Owner for performance of the Work outlined in the Contract Documents.
  
  - 2. The word "Work," as used in this Section, means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, material, equipment, and services provided by the Contractor in order to fulfill the Contractor's obligations.

1.2 REQUESTS FOR INFORMATION

- A. Assumption of prior knowledge:
  - 1. The Instructions to Contractors for this Work stipulate that, prior to submitting a bid, contractors become thoroughly familiar with the proposed Contract Documents, and that they request and secure clarification on all matters on which there may be any question as to design intent.
  
  - 2. Reasons for this stipulation include the Owner's desire:
    - a. That the Contractor have complete and adequate knowledge of the proposed Work in order to propose a fair and proper price;
  
    - b. To avoid unnecessary expenditure of time and effort providing information during the course of the Work;

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- c. To discourage frivolous requests for information, while encouraging thorough familiarity with the Drawings, Specifications, and other Contract Documents.
  
- B. Necessity for procedures:
  - 1. Despite the intentions of the above stipulation, it is understood by the Owner and the Architect that inadvertent omissions or conflicts can occur in the Contract Documents, and that further clarifications of data may be required during progress of the Work. Therefore procedures for requesting such information are hereby established.
  
- C. Procedures:
  - 1. Prior to requesting information, the Contractor shall conduct a thorough search of the Contract Documents in order to clearly establish that the desired information is not included in the Documents.
  - 2. The Contractor shall then fill out a "Request for Information," on a form previously approved by the Architect, and deliver it to the Architect.
  - 3. The Architect will then conduct the necessary research to satisfy the Contractor's request.
  - 4. The Architect will respond to the Contractor's request within a reasonable period of time, a maximum of five working days.
    - a. Should the requested information not have been previously available, it will promptly be supplied to the Contractor.
    - b. Should the requested information have already been shown in the Contract Documents, the Owner will deduct the sum of Two Hundred Dollars (\$200.00) from the Contract Sum as reimbursement for time and effort expended in redundant research. This deduction will be issued by the Architect in the form of a deductive Change Order.
  
- D. RFI Urgency: Indicate the urgency, or necessity of the RFI, or how construction activities depend upon a response or answer. State the urgency in terms of work days, or name the calendar date when an answer must be received by the Contractor in order to avoid the completion or start of a given activity. If practicable, indicate whether failure to receive a timely response to any RFI will affect the completion of any construction activity or the overall completion of the contract.
  
- E. RFI Form: The contractor is allowed flexibility as to the form and content of the RFI form. However all RFI forms shall be neat, legible, and present the following information:



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1. Name, address, telephone numbers, Email address, title of the person, and occupation; e.g., subcontracter or supplier.

Name \_\_\_\_\_ Telephone \_\_\_\_\_

Title \_\_\_\_\_ Email \_\_\_\_\_

Address \_\_\_\_\_ City \_\_\_\_\_

Line No.	REQUEST FOR INFORMATION (RFI)	
1	RFI No.	01
2	RFI Date	
3	Subject Matter	
4	Spec Section	
5	Drawing No.	
6	Respond by	
7	Urgent (yes or no)	
8	Information or action requested	
9	Subcontracter	
10	Cost (large or small)	
11	Time extension (yes or no)	
12	Attachment	
13	Date sent to Consultant	
14	Consultant forwarded to	
15	Consultant reply date	
16	Respond to RFI	
17	Response date	
18	Name of Responder	
19	Return of attachment	
20	Further action required	
21	Status (closed or open)	
22	Remarks	

Note: The Contractor may submit communicably available RFI forms or develop his own form.

END OF SECTION

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SECTION 01 30 30

ADMINISTRATIVE REQUIREMENTS

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings, General and Supplementary Conditions of the Contract, and other Division-1 Specification Sections apply to this Section.

1.2 SECTION INCLUDES

- A. Coordination of Work of Contract.
- B. Contractor participation in preconstruction conferences.
- C. Scheduling and administration of progress meetings.
- D. Preinstallation conferences.
- E. Submittals
  - 1. Submittal procedures.
  - 2. Construction progress schedules.
  - 3. Proposed products list.
  - 4. Shop drawings.
  - 5. Product data.
  - 6. Samples.
  - 7. Manufacturers' instructions.
  - 8. Manufacturers' certificates.
- F. Procedures for preparation and submittal of construction Progress Schedules and periodical updating.
- G. Shop Drawings, Product Data, and Samples
  - 1. Procedures for submittals.
  - 2. Schedule of submittals.

1.3 COORDINATION

- A. Description
  - 1. Coordinate scheduling, submittals, and work of the various sections of Specifications to assure efficient and orderly sequence of installation of construction elements, with provisions for accommodating items to be installed

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later.

**B. Meetings**

1. In addition to progress meetings specified in herein, hold coordination meetings and preinstallation conferences with personnel and subcontractors to assure coordination of Work.

**C. Coordination of Submittals**

1. Schedule and coordinate submittals specified herein.
2. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.
3. Coordinate requests for substitutions to assure compatibility of space, of operating elements, and effect on work of other sections.

**D. Coordination of Space**

1. Coordinate use of Project space and sequence of installation of mechanical, and electrical work which is indicated diagrammatically on Drawings. Follow routings shown for pipes, ducts, and conduits as closely as practicable, with due allowance for available physical space; make runs parallel with lines of building. Utilize space efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
2. In finished areas except as otherwise shown, conceal pipes, ducts, and wiring in the construction. Coordinate locations of fixtures and outlets with finish elements.

**E. Parking**

1. Each Subcontractor will coordinate off street parking for the construction of the project.
2. The use of the on site parking structure is solely at the discretion of the general contractor. Each subcontractor is to coordinate availability with the general contractor.

**F. Coordination of Contract Closeout**

1. Coordinate completion and cleanup of work of separate sections in preparation for Substantial Completion of portions of Work designated for Owner partial occupancy.
2. After Owner occupancy of premises, coordinate access to site by various sections for correction of defective work and work not in accordance with

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Contract Documents, to minimize disruption of Owner's activities.

3. Assemble and coordinate closeout submittals.

1.4 PRECONSTRUCTION CONFERENCES

- A. Contractor will schedule conference within 7 days after notice of award.
- B. Attendance: Owner, Architect, General Contractor, and representatives of major subcontractors.
- C. Agenda
  1. Submittal of executed bonds (environmental, utility, or right-of-way improvements).
  2. Submittal of insurance certificates.
  3. Distribution of Contract Documents.
  4. Submittal of list of subcontractors, list of products, schedule of values, and progress schedule.
  5. Designation of responsible personnel.
  6. Procedures and processing of field decisions, submittals, substitutions, applications for payments (insured advances), proposal requests, change orders, and Contract closeout procedures.
  7. Scheduling.
  8. Use of premises by Contractor.
  9. Temporary facilities.
  10. Survey and building layout.
  11. Security and housekeeping procedures.
  12. Schedules.
  13. Procedures for testing.
  14. Procedures for maintaining record documents.
  15. Requirements for startup of equipment.
  16. Inspection and acceptance of equipment put into service during construction period.

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1.5 PROGRESS MEETINGS

A. Progress Meetings

1. Schedule and administer regular construction progress meetings throughout progress of Work and prepare agenda and distribute notice of each meeting to participants.
2. Make physical arrangements.
3. Preside at meetings, record minutes, and distribute copies after meeting to participants and to entities affected by decisions at meetings.
4. Location of Meetings: Contractor's field office.
5. Attendance: Contractor, job superintendent, subcontractors, and suppliers as appropriate to agenda, Owner, Architect and professional consultants as appropriate.
6. Anticipated Agenda:
  - a. Approval of minutes of previous meetings.
  - b. Review of Work progress.
  - c. Field observations, problems, and decisions.
  - d. Identification of problems which impede planned progress.
  - e. Review of submittals schedule and status of submittals.
  - f. Review of off-site fabrication and delivery schedules.
  - g. Maintenance of progress schedule.
  - h. Corrective measures to regain projected schedules.
  - i. Planned progress during succeeding work period.
  - j. Coordination of projected progress.
  - k. Maintenance of quality and work standards.
  - l. Effect of proposed changes on progress schedule and coordination.
  - m. Other business relating to Work.

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B. Safety Meetings

1. Each subcontractor is to conduct a weekly safety meeting with his employees and provide the Contractor with minutes of these meetings.

C. Preinstallation Conferences

1. When required in individual specification Section, convene a preinstallation conference at work site prior to commencing work of the Section.
2. Require attendance of entities directly affecting, or affected by, work of the Section.
3. Notify Architect 4 days in advance of meeting date.
4. Prepare agenda, preside at conference, record minutes, and distribute copies within 2 days after conference to participants, with 2 copies to Architect.
5. Review conditions of installation, preparation and installation procedures, and coordination with related work.

1.6 PROGRESS SCHEDULES

A. Format

1. Prepare network analysis system using the critical path method, as outlined in The Associated General Contractors of America (AGC) publication "The Use of CPM in Construction - A Manual for General Contractors".
2. Sequence of Listings: The chronological order of the start of each item of Work.
3. Scale and Spacing: To provide space for notations and revisions.
4. Sheet Size: Minimum 11 by 17 inches.

B. Content

1. Show complete sequence of construction by activity, with dates for beginning and completion of each element of construction.
2. Identify each item by major Specification section number.
3. Provide sub-schedules to define critical portions of entire Schedule.
4. Show accumulated percentage of completion of each item, and total percentage of Work completed, as of the first day of each month.
5. Provide separate schedule of submittal dates for shop drawings, product data,

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and samples, including dates reviewed submittals will be required from Architect. Show decision dates for selection of finishes.

- C. Revisions to Schedules
  - 1. Indicate progress of each activity to date of submittal, and projected completion date of each activity.
  - 2. Identify activities modified since previous submittal, major changes in scope, and other identifiable changes.
  - 3. Provide narrative report to define problem areas, anticipated delays, and impact on Schedule. Report corrective action taken, or proposed, and its effect.
  - 4. Update regularly.
  
- D. Submittals
  - 1. Submit initial Schedules within 15 days from Notice to Proceed. After review, resubmit required revised data within 15 days.
  - 2. Submit revised Progress Schedules with each Application for Payment.
  - 3. Submit the number of opaque reproductions which Contractor requires, plus two copies which will be retained by Architect.
  - 4. Submit under transmittal letter specified herein.
  
- E. Distribution
  - 1. Distribute copies of reviewed Schedules to job site file, subcontractors, suppliers, and other concerned entities.
  - 2. Instruct recipients to promptly report, in writing, problems anticipated by projections shown in Schedules.

1.7 SUBMITTALS

- A. Procedures
  - 1. Transmit each submittal with Architect accepted form.
  - 2. Sequentially number the transmittal forms. Re-submittals to have original number with an alphabetic suffix.
  - 3. Identify Project, Contractor, Subcontractor or supplier; pertinent Drawing sheet and detail number(s), and specification Section number, as appropriate.

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4. Apply Contractor's stamp, signed or initialed certifying that review, verification of Products required, field dimensions, adjacent construction Work, and coordination of information, is in accordance with the requirements of the Work and Contract Documents.
5. Schedule submittals to expedite the Project, and deliver to Architect at business address. Coordinate submission of related items.
6. Identify variations from Contract Documents and Product or system limitations which may be detrimental to successful performance of the completed Work.
7. Provide space for Contractor, Architect, and Engineer (as applicable) review stamps.
8. Revise and resubmit submittals as required, identify changes made since previous submittal.
9. Distribute copies of reviewed submittals to concerned parties. Instruct parties to promptly report any inability to comply with provisions.
10. All submittals, including shop drawings, product data samples, manufacturer data, etc., shall be submitted within 1 year of start of construction.

**B. Construction Progress Schedules**

1. Submit initial progress schedule in duplicate within 15 days after date established in Notice to Proceed for Architect review.
2. Revise and resubmit as required.
3. Submit revised schedules with each Application for Payment, identifying changes since previous version.
4. Submit network analysis diagram using the critical path method, generally as outlined in Associated General Contractors of America (AGC) publication "The Use of CPM in Construction - A Manual for General Contractors and the Construction Industry".
5. Show complete sequence of construction by activity, identifying Work of separate stages and other logically grouped activities. Indicate the early and late start, early and late finish, float dates, and duration.
6. Indicate estimated percentage of completion for each item of Work at each submission.
7. Indicate submittal dates required for shop drawings, product data, samples, and product delivery dates.



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C. Shop Drawings

1. Submit in the form of one reproducible transparency and one opaque reproduction.
2. After review, reproduce and distribute in accordance with Article on Procedures above and for Record Documents described in Section 01 70 00 - Execution Requirements.

D. Product Data

1. Submit the number of copies which the Contractor requires, plus two copies which will be retained by the Architect.
2. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information unique to this Project.
3. After review, distribute in accordance with Article on Procedures above and provide copies for Record Documents.

E. Samples

1. Submit samples to illustrate functional and aesthetic characteristics of the Product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
2. Submit samples of finishes from the full range of manufacturers' standard colors, textures, and patterns for Architect's selection.
3. Include identification on each sample, with full Project information.
4. Submit the number or samples specified in individual specification Sections; one of which will be retained by Architect.
5. Reviewed samples which may be used in the Work are indicated in individual specification Sections.

F. Manufacturer's Instructions

1. When specified in individual specification Sections, submit manufacturers' printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, in quantities specified for Product Data.
2. Identify conflicts between manufacturers' instructions and Contract Documents.

G. Manufacturer's Certificates

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1. When specified in individual specification Sections, submit manufacturers' certificate to Architect/Engineer for review, in quantities specified for Product Data.
2. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
3. Certificates may be recent or previous test results on material or Product, but must be acceptable to Architect.

1.8 SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES

A. Definitions:

1. Shop Drawings: Include drawings, diagrams, schedules and other data specially prepared for the Work by Contractor or a subcontractor, sub-subcontractor, manufacturer, supplier or distributor to illustrate some portion of the Work.
2. Product Data: Include illustrations, standard schedules, performance charts, instructions, brochures, diagrams, test data and other information furnished by Contractor to illustrate material, product or system for some portion of the Work.
3. Samples: Are physical examples which illustrate materials, equipment or workmanship and establish standards by which the Work will be judged. Samples include field samples.
4. Quality Control submittals pertain to quality control and Owner information which do not require review and approval by Architect and are to be retained for project file only. If reviewed, project information will be reviewed for compliance with the Contract Documents only. The review will not constitute a detailed review of adequacy of submitted design calculations. The appropriateness and accuracy of calculations is the responsibility of the submitting Contractor (and Contractor's professional engineer when such calculations are required to be professionally sealed). Examples of quality control submittals:
  - a. Design data and calculations.
  - b. Test reports.
  - c. Certifications.
  - d. Manufacturer's installation instructions.
  - e. Manufacturer's field reports.
5. Contract Closeout submittals pertain to contract closeout related information which do not require review and approval by the Architect and are to be retained for project file only. Examples of contract closeout submittals:
  - a. Project record information.

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- b. Warranties.
  - c. Operation and maintenance data.
  - d. Owner instruction reports.
- 6. Administrative Submittals: Include, but are not limited to:
  - a. Permits.
  - b. Applications for payment.
  - c. Performance and payment bonds.
  - d. Insurance certificates.
  - e. List of Subcontractors.
  - f. Schedule of Values.
- B. Shop Drawings
  - 1. Present in a clear and thorough manner original drawings which illustrate the portion of the work showing fabrication, layout, setting, or erection details, prepared by a qualified detailer. Title each drawing with Project and Contract name and number; identify each element of drawings by reference to sheet number and detail, schedule, or room number of Contract Documents.
  - 2. Identify field dimensions; show relation to adjacent or critical features of Work or products.
- C. Product Data
  - 1. Submit only pages which are pertinent; mark each copy of standard printed data to identify pertinent products, referenced to Specification Section and Article number. Show reference standards, performance characteristics, and capacities; wiring and piping diagrams and controls; component parts; finishes; dimensions; and required clearances.
  - 2. Modify manufacturer's standard schematic drawings and diagrams to supplement standard information and to provide information specifically applicable to the Work. Delete information not applicable.
- D. Samples
  - 1. Submit full range of manufacturer's standard finishes except when more restrictive requirements are specified, indicating colors, textures, and patterns, for Architect selection.
  - 2. Submit samples to illustrate functional characteristics of products, including parts and attachments.
  - 3. Approved samples which may be used in the Work are indicated in the Specification section.

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4. Label each sample with identification required for transmittal letter.
  5. Provide field samples of finishes at Project, at location acceptable to Architect, as required by individual Specifications section. Install each sample complete and finished. Acceptable finishes in place may be retained in completed work.
- E. Quality Control and Contract Closeout Submittals:
1. Submit quality control and contract closeout information as indicated in respective specification sections.
    - a. Design data or calculations requiring professional certification shall be properly sealed and signed by a registered professional engineer in State of Local Jurisdiction.
    - b. Closeout Submittals: Submit in accordance with Section 01 70 00.
  2. Submit in same manner as Product Data, except as otherwise specified.
- F. Contractor Review
1. Review submittals prior to transmittal; determine and verify field measurements, field construction criteria, quantities and details, manufacturer's catalog numbers, and conformance of submittal with requirements of Contract Documents.
  2. Coordinate submittals with requirements of Work and of Contract Documents.
  3. Sign or initial in a rubber-stamped review block format, each sheet of shop drawings and product data, and each sample label to certify compliance with requirements of Contract Documents. Notify Architect in writing at time of submittal, of any deviations from requirements of Contract Documents.
  4. Do not fabricate products or begin work which requires submittals until return of submittal with Architect acceptance.
  5. Contractor's responsibility for errors and omissions in submittals is not relieved by Architect's review of submittals.
  6. Contractor's responsibility for deviations in submittals from requirements of Contract Documents is not relieved by Architect's review of submittals, unless Architect gives specific written acceptance of deviations. Architect will review submittals for general conformance to design intent only.
- G. Submittal Requirements
1. Transmit submittals in accordance with approved Progress Schedule and in such sequence to avoid delay in the Work or work of other contracts.

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2. Provide 8 by 4 inch blank space on each submittal for Contractor and Architect stamps.
  3. Apply Contractor's stamp, signed or initialed, certifying to review, verification of products, field dimensions and field construction criteria, and coordination of information with requirements of Work and Contract Documents.
  4. Coordinate submittals into logical groupings to facilitate interrelation of the several items
    - a. Finishes which involve Architect selection of colors, textures, or patterns.
    - b. Associated items which require correlation for efficient function or for installation.
  5. Submit one reproducible transparency and 2 opaque copies of shop drawings.
  6. Submit number of copies of product data and manufacturer's instructions Contractor requires, plus 2 copies which will be retained by Architect.
  7. Submit number of samples specified in individual Specifications sections.
  8. Submit under Architect accepted form transmittal letter. Identify Project by title and number. Identify Work and product by Specification section and Article number.
  9. Submit 4 copies of Quality Control submittals concurrent with Shop Drawing and Product Data submittals. Submit number of Contract Closeout submittals.
  10. Provide complete submittals for each specified product, system or equipment. Partial or incomplete submittals will be returned, without review, for re-submission.
- H. Resubmittals
1. Make resubmittals under procedures specified for initial submittals; identify changes made since previous submittal.
- I. Architect and Engineer Review
1. Architect and consultants will review shop drawings, product data, and samples and return submittals generally within 14 days.
- J. The redevelopment agency of San Jose shall review and approve all submittals and mock-ups relating to quality of finishes, furnishings, materials, and fixtures in all public areas.

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K. Distribution

1. Duplicate and distribute reproductions of shop drawings, copies of product data, and samples, which bear Architect/Engineer stamp of approval, to job site file, Record Documents file, subcontractors, suppliers, and other entities requiring information.

END OF SECTION

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SECTION 01 40 00

QUALITY 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 quality assurance and quality control.
- B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
  - 1. Specific quality-assurance and -control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
  - 2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.
  - 3. Requirements for Contractor to provide quality-assurance and -control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.
  - 4. Specific test and inspection requirements are not specified in this Section.

1.3 DEFINITIONS

- A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.
- B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Architect.

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- C. Mockups: Full-size physical assemblies that are constructed on-site. Mockups are constructed to verify selections made under Sample submittals; to demonstrate aesthetic effects and, where indicated, qualities of materials and execution; to review coordination, testing, or operation; to show interface between dissimilar materials; and to demonstrate compliance with specified installation tolerances. Mockups are not Samples. Unless otherwise indicated, approved mockups establish the standard by which the Work will be judged.
1. Laboratory Mockups: Full-size physical assemblies constructed at testing facility to verify performance characteristics.
  2. Integrated Exterior Mockups: Mockups of the exterior envelope erected separately from the building but on Project site, consisting of multiple products, assemblies, and subassemblies.
  3. Room Mockups: Mockups of typical interior spaces complete with wall, floor, and ceiling finishes, doors, windows, millwork, casework, specialties, furnishings and equipment, and lighting.
- D. Preconstruction Testing: Tests and inspections performed specifically for Project before products and materials are incorporated into the Work, to verify performance or compliance with specified criteria.
- E. Product Testing: Tests and inspections that are performed by an NRTL, an NVLAP, or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.
- F. Source Quality-Control Testing: Tests and inspections that are performed at the source, e.g., plant, mill, factory, or shop.
- G. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.
- H. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.
- I. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.
1. Use of trade-specific terminology in referring to a trade or entity does not require that certain construction activities be performed by accredited or unionized individuals, or that requirements specified apply exclusively to specific trade(s).



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- J. Experienced: When used with an entity or individual, "experienced" means having successfully completed a minimum of five previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

**1.4 CONFLICTING REQUIREMENTS**

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

**1.5 ACTION SUBMITTALS**

- A. Shop Drawings: For integrated exterior or laboratory mockups, provide plans, sections, and elevations, indicating materials and size of mockup construction.
  - 1. Indicate manufacturer and model number of individual components.
  - 2. Provide axonometric drawings for conditions difficult to illustrate in two dimensions.

**1.6 INFORMATIONAL SUBMITTALS**

- A. Contractor's Quality-Control Plan: For quality-assurance and quality-control activities and responsibilities.
- B. Qualification Data : For Contractor's quality-control personnel.
- C. Contractor's Statement of Responsibility: When required by authorities having jurisdiction, submit copy of written statement of responsibility sent to authorities having jurisdiction before starting work on the following systems:
  - 1. Seismic-force-resisting system, designated seismic system, or component listed in the designated seismic system quality-assurance plan prepared by Architect.
  - 2. Main wind-force-resisting system or a wind-resisting component listed in the wind-force-resisting system quality-assurance plan prepared by Architect.

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- D. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.
  
- E. Schedule of Tests and Inspections: Prepare in tabular form and include the following:
  - 1. Specification Section number and title.
  - 2. Entity responsible for performing tests and inspections.
  - 3. Description of test and inspection.
  - 4. Identification of applicable standards.
  - 5. Identification of test and inspection methods.
  - 6. Number of tests and inspections required.
  - 7. Time schedule or time span for tests and inspections.
  - 8. Requirements for obtaining samples.
  - 9. Unique characteristics of each quality-control service.

**1.7 CONTRACTOR'S QUALITY-CONTROL PLAN**

- A. Quality-Control Plan, General: Submit quality-control plan within 10 days of Notice to Proceed, and not less than five days prior to preconstruction conference. Submit in format acceptable to Architect. Identify personnel, procedures, controls, instructions, tests, records, and forms to be used to carry out Contractor's quality-assurance and quality-control responsibilities. Coordinate with Contractor's construction schedule.
  
- B. Quality-Control Personnel Qualifications: Engage qualified full-time personnel trained and experienced in managing and executing quality-assurance and quality-control procedures similar in nature and extent to those required for Project.
  
- C. Submittal Procedure: Describe procedures for ensuring compliance with requirements through review and management of submittal process. Indicate qualifications of personnel responsible for submittal review.
  
- D. Testing and Inspection: In quality-control plan, include a comprehensive schedule of Work requiring testing or inspection, including the following:
  - 1. Contractor-performed tests and inspections including subcontractor-performed tests and inspections. Include required tests and inspections and Contractor-elected tests and inspections.
  - 2. Special inspections required by authorities having jurisdiction and indicated on the "Statement of Special Inspections."
  - 3. Owner-performed tests and inspections indicated in the Contract Documents.
  
- E. Continuous Inspection of Workmanship: Describe process for continuous inspection during construction to identify and correct deficiencies in workmanship in addition to

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testing and inspection specified. Indicate types of corrective actions to be required to bring work into compliance with standards of workmanship established by Contract requirements and approved mockups.

- F. Monitoring and Documentation: Maintain testing and inspection reports including log of approved and rejected results. Include work Architect has indicated as nonconforming or defective. Indicate corrective actions taken to bring nonconforming work into compliance with requirements. Comply with requirements of authorities having jurisdiction.

1.8 REPORTS AND DOCUMENTS

- A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:

1. Date of issue.
2. Project title and number.
3. Name, address, and telephone number of testing agency.
4. Dates and locations of samples and tests or inspections.
5. Names of individuals making tests and inspections.
6. Description of the Work and test and inspection method.
7. Identification of product and Specification Section.
8. Complete test or inspection data.
9. Test and inspection results and an interpretation of test results.
10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
12. Name and signature of laboratory inspector.
13. Recommendations on retesting and reinspecting.

- B. Manufacturer's Technical Representative's Field Reports: Prepare written information documenting manufacturer's technical representative's tests and inspections specified in other Sections. Include the following:

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1. Name, address, and telephone number of technical representative making report.
  2. Statement on condition of substrates and their acceptability for installation of product.
  3. Statement that products at Project site comply with requirements.
  4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
  5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
  6. Statement whether conditions, products, and installation will affect warranty.
  7. Other required items indicated in individual Specification Sections.
- C. Factory-Authorized Service Representative's Reports: Prepare written information documenting manufacturer's factory-authorized service representative's tests and inspections specified in other Sections. Include the following:
1. Name, address, and telephone number of factory-authorized service representative making report.
  2. Statement that equipment complies with requirements.
  3. Results of operational and other tests and a statement of whether observed performance complies with requirements.
  4. Statement whether conditions, products, and installation will affect warranty.
  5. Other required items indicated in individual Specification Sections.
- D. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.9 QUALITY ASSURANCE

- A. General: Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.

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- B. **Manufacturer Qualifications:** A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- C. **Fabricator Qualifications:** A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- D. **Installer Qualifications:** A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.
- E. **Professional Engineer Qualifications:** A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar in material, design, and extent to those indicated for this Project.
- F. **Specialists:** Certain Specification Sections require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.
  - 1. Requirements of authorities having jurisdiction shall supersede requirements for specialists.
- G. **Testing Agency Qualifications:** An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E 329; and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities.
  - 1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
  - 2. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.
- H. **Manufacturer's Technical Representative Qualifications:** An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- I. **Factory-Authorized Service Representative Qualifications:** An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

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J. Preconstruction Testing: Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following:

1. Contractor responsibilities include the following:
  - a. Provide test specimens representative of proposed products and construction.
  - b. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
  - c. Provide sizes and configurations of test assemblies, mockups, and laboratory mockups to adequately demonstrate capability of products to comply with performance requirements.
  - d. Build site-assembled test assemblies and mockups using installers who will perform same tasks for Project.
  - e. Build laboratory mockups at testing facility using personnel, products, and methods of construction indicated for the completed Work.
  - f. When testing is complete, remove test specimens, assemblies, and mockups, and laboratory mockups; do not reuse products on Project.
2. Testing Agency Responsibilities: Submit a certified written report of each test, inspection, and similar quality-assurance service to Architect and Commissioning Authority, with copy to Contractor. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.

K. Mockups: Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:

1. Build mockups in location and of size indicated or, if not indicated, as directed by Architect.
2. Notify Architect seven days in advance of dates and times when mockups will be constructed.
3. Employ supervisory personnel who will oversee mockup construction. Employ workers that will be employed during the construction at Project.
4. Demonstrate the proposed range of aesthetic effects and workmanship.

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5. Obtain Architect's approval of mockups before starting work, fabrication, or construction.
    - a. Allow seven days for initial review and each re-review of each mockup.
  6. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
  7. Demolish and remove mockups when directed unless otherwise indicated.
- L. Integrated Exterior Mockups: Construct integrated exterior mockup according to approved Shop Drawings. Coordinate installation of exterior envelope materials and products for which mockups are required in individual Specification Sections, along with supporting materials.
- M. Room Mockups: Construct room mockups incorporating required materials and assemblies, finished according to requirements. Provide required lighting and additional lighting where required to enable Architect to evaluate quality of the Work.
- N. Laboratory Mockups: Comply with requirements of preconstruction testing and those specified in individual Specification Sections.

1.10 QUALITY CONTROL

- A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.
1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform.
  2. Payment for these services will be made from testing and inspecting allowances, as authorized by Change Orders.
  3. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor.
- B. Contractor Responsibilities: Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Perform additional quality-control activities required to verify that the Work complies with requirements, whether specified or not.
1. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.

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2. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.
    - a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.
  3. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
  4. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
  5. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
  6. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
- C. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing."
- D. Manufacturer's Technical Services: Where indicated, engage a manufacturer's technical representative to observe and inspect the Work. Manufacturer's technical representative's services include participation in preinstallation conferences, examination of substrates and conditions, verification of materials, observation of Installer activities, inspection of completed portions of the Work, and submittal of written reports.
- E. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.
- F. Testing Agency Responsibilities: Cooperate with Architect, and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
1. Notify Architect, and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
  2. Determine the location from which test samples will be taken and in which in-situ tests are conducted.
  3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.



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4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
  5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
  6. Do not perform any duties of Contractor.
- G. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
1. Access to the Work.
  2. Incidental labor and facilities necessary to facilitate tests and inspections.
  3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
  4. Facilities for storage and field curing of test samples.
  5. Delivery of samples to testing agencies.
  6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
  7. Security and protection for samples and for testing and inspecting equipment at Project site.
- H. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
1. Schedule times for tests, inspections, obtaining samples, and similar activities.
- I. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality-control services required by the Contract Documents as a component of Contractor's quality-control plan. Coordinate and submit concurrently with Contractor's construction schedule. Update as the Work progresses.
1. Distribution: Distribute schedule to Owner, Architect, testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.

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1.11 SPECIAL TESTS AND INSPECTIONS

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

PART 2 PRODUCTS NOT USED

PART 3 EXECUTION

3.1 TEST AND INSPECTION LOG

- A. Test and Inspection Log: Prepare a record of tests and inspections. Include the following:
  - 1. Date test or inspection was conducted.
  - 2. Description of the Work tested or inspected.
  - 3. Date test or inspection results were transmitted to Architect.
  - 4. Identification of testing agency or special inspector conducting test or inspection.
  
- B. Maintain log at Project site. Post changes and revisions as they occur. Provide access to test and inspection log for Architect's reference during normal working hours.

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3.2 REPAIR AND PROTECTION

- A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
  - 1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible.
- B. Protect construction exposed by or for quality-control service activities.
- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION

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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 comparable products.

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. Comparable Product: Product that is demonstrated and approved through submittal 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, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of additional manufacturers named in the specification.
- C. "Or equal" specification: When public funding is involved in the project, public law requires that the words "or equal" be used (with few exceptions). As used in this

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contract, "or equal" Specifications shall be true synonyms of "basis of designs" specifications and shall have the exact mutual effect.

**1.4 ACTION SUBMITTALS**

- A. Comparable Product Requests: Submit request for consideration of each comparable product. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
  - 1. Include data to indicate compliance with the requirements specified in "Comparable Products" Article.
  - 2. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within one week of receipt of a comparable product request. Architect will notify Contractor of approval or rejection of proposed comparable product request within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.
    - a. Use product specified if Architect does not issue a decision on use of a comparable product request within time allocated.
- B. Basis-of-Design Product Specification Submittal: Show compliance with requirements.

**1.5 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.
  - 1. Each contractor is responsible for providing products and construction methods compatible with products and construction methods of other contractors.
  - 2. If a dispute arises between contractors over concurrently selectable but incompatible products, Architect will determine which products shall be used.

**1.6 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.

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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 or jeopardize the materials or equipment in any way.
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.
7. Provide a secure location and enclosure at Project site for storage of materials and equipment by Owner's construction forces. Coordinate location with Owner.

1.7 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 Owner.

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2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for Owner.
- 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.

**PART 2 PRODUCTS**

**2.1 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. Owner 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. Or Equal: For products specified by name and accompanied by the term "or equal," or "or approved equal," or "or approved," comply with requirements in "Comparable Products" Article to obtain approval for use of an unnamed product.
- B. Product Selection Procedures:

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1. Product: Where Specifications name a single manufacturer and product, provide the named product that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
  2. Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
  3. Products:
    - a. Restricted List: Where Specifications include a list of names of both manufacturers and products, provide one of the products listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will be considered when submitted for review.
    - b. Non-restricted List: Where Specifications include a list of names of both available manufacturers and products, provide one of the products listed, or an unnamed product, that complies with requirements. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product.
  4. Manufacturers:
    - a. Restricted List: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will be considered when submitted for review.
    - b. Non-restricted List: Where Specifications include a list of available manufacturers, provide a product by one of the manufacturers listed, or a product by an unnamed manufacturer, that complies with requirements. Comply with requirements in "Comparable Products" Article for consideration of an unnamed manufacturer's product.
  5. Basis-of-Design Product: Where Specifications name a product, or refer to a product indicated on Drawings, and include a list of manufacturers, provide the specified or indicated product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product by one of the other named manufacturers.
- 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.



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- 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 color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

2.2 COMPARABLE PRODUCTS

- A. Conditions for Consideration: Architect will consider Contractor's request for comparable product (or equal) when the following conditions are satisfied. If the following conditions are not satisfied, Architect may return requests without action, except to record noncompliance with these requirements:
1. Evidence that the proposed product does not require revisions to the Contract Documents, that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
  2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
  3. Evidence that proposed product provides specified warranty.
  4. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
  5. Samples, if requested.

END OF SECTION

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SECTION 01 70 01

EXECUTION

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 general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:
  - 1. Construction layout.
  - 2. Field engineering and surveying.
  - 3. Installation of the Work.
  - 4. Cutting and patching.
  - 5. Daily Progress cleaning.
  - 6. Starting and adjusting.
  - 7. Protection of installed construction.
  - 8. Correction of the Work.

1.3 DEFINITIONS

- A. Cutting: Removal of in-place construction necessary to permit installation or performance of other work.
- B. Patching: Fitting and repair work required to restore construction to original conditions after installation of other work.

1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For land surveyor or professional engineer.
- B. Certificates: Submit certificate signed by land surveyor or professional engineer certifying that location and elevation of improvements comply with requirements.
- C. Cutting and Patching Plan: Submit plan describing procedures at least 10 days prior to the time cutting and patching will be performed. Include the following information:
  - 1. Extent: Describe reason for and extent of each occurrence of cutting and patching.

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2. Changes to In-Place Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building appearance and other significant visual elements.
  3. Products: List products to be used for patching and firms or entities that will perform patching work.
  4. Dates: Indicate when cutting and patching will be performed.
  5. Utilities and Mechanical and Electrical Systems: List services and systems that cutting and patching procedures will disturb or affect. List services and systems that will be relocated and those that will be temporarily out of service. Indicate length of time permanent services and systems will be disrupted.
    - a. Include description of provisions for temporary services and systems during interruption of permanent services and systems.
- D. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.
- E. Certified Surveys: Submit two copies signed by land surveyor or professional engineer.
- F. Final Property Survey: Submit 10 copies showing the Work performed and record survey data.

1.5 QUALITY ASSURANCE

- A. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.
- B. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.
  1. Structural Elements: When cutting and patching structural elements, notify Architect of locations and details of cutting and await directions from Architect before proceeding. Shore, brace, and support structural elements during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection
  2. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety. Operational elements include the following:
    - a. Primary operational systems and equipment.
    - b. Fire separation assemblies.

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- c. Air or smoke barriers.
  - d. Fire-suppression systems.
  - e. Mechanical systems piping and ducts.
  - f. Control systems.
  - g. Communication systems.
  - h. Fire-detection and -alarm systems.
  - i. Conveying systems.
  - j. Electrical wiring systems.
  - k. Operating systems of special construction.
3. Other Construction Elements: Do not cut and patch other construction elements or components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety. Other construction elements include but are not limited to the following:
- a. Water, moisture, or vapor barriers.
  - b. Membranes and flashings.
  - c. Exterior curtain-wall construction.
  - d. Sprayed fire-resistive material.
  - e. Equipment supports.
  - f. Piping, ductwork, vessels, and equipment.
  - g. Noise- and vibration-control elements and systems.
4. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.
- C. Cutting and Patching Conference: Before proceeding, meet at Project site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.
- D. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products and equipment.

**PART 2 PRODUCTS**

**2.1 MATERIALS**

- A. General: Comply with LEED requirements.
- B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.

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1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to Architect for the visual and functional performance of in-place materials.

**PART 3 EXECUTION**

**3.1 EXAMINATION**

- A. Existing Conditions: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities, mechanical and electrical systems, and other construction affecting the Work.
  1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; underground electrical services, and other utilities.
  2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.
- B. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
  1. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
  2. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
  3. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
- C. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:
  1. Description of the Work.
  2. List of detrimental conditions, including substrates.
  3. List of unacceptable installation tolerances.
  4. Recommended corrections.
- D. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

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**3.2 PREPARATION**

- A. Existing Utility Information: Furnish information to local utility or Owner that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.
- B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
- C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of Contractor, submit a request for information to Architect .

**3.3 CONSTRUCTION LAYOUT**

- A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Architect promptly.
- B. General: Engage a land surveyor or professional engineer to lay out the Work using accepted surveying practices.
  - 1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.
  - 2. Establish limits on use of Project site.
  - 3. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
  - 4. Inform installers of lines and levels to which they must comply.
  - 5. Check the location, level and plumb, of every major element as the Work progresses.
  - 6. Notify Architect when deviations from required lines and levels exceed allowable tolerances.

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7. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.
- C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and rim and invert elevations.
- D. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.
- E. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Architect.

**3.4 FIELD ENGINEERING**

- A. Identification: Owner will identify existing benchmarks, control points, and property corners.
- B. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.
  1. Do not change or relocate existing benchmarks or control points without prior written approval of Architect. Report lost or destroyed permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to Architect before proceeding.
  2. Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.
- C. Benchmarks: Establish and maintain a minimum of two permanent benchmarks on Project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.
  1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.
  2. Where the actual location or elevation of layout points cannot be marked, provide temporary reference points sufficient to locate the Work.
  3. Remove temporary reference points when no longer needed. Restore marked construction to its original condition.

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- D. Certified Survey: On completion of foundation walls, major site improvements, and other work requiring field-engineering services, prepare a certified survey showing dimensions, locations, angles, and elevations of construction and sitework.
- E. Final Property Survey: Engage a land surveyor or professional engineer to prepare a final property survey showing significant features (real property) for Project. Include on the survey a certification, signed by land surveyor or professional engineer, that principal metes, bounds, lines, and levels of Project are accurately positioned as shown on the survey.
  - 1. Show boundary lines, monuments, streets, site improvements and utilities, existing improvements and significant vegetation, adjoining properties, acreage, grade contours, and the distance and bearing from a site corner to a legal point.
  - 2. Recording: At Substantial Completion, have the final property survey recorded by or with authorities having jurisdiction as the official "property survey."

**3.5 INSTALLATION**

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
  - 1. Make vertical work plumb and make horizontal work level.
  - 2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
  - 3. Conceal pipes, ducts, and wiring in finished areas unless otherwise indicated.
  - 4. Maintain minimum headroom clearance of 96 inches (2440 mm) in occupied spaces and 90 inches (2300 mm) in unoccupied spaces.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- E. Sequence the Work and allow adequate clearances to accommodate movement of construction items on site and placement in permanent locations.
- F. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.



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- G. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.
  
- H. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.
  - 1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
  
  - 2. Allow for building movement, including thermal expansion and contraction.
  
  - 3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
  
- I. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
  
- J. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

**3.6 CUTTING AND PATCHING**

- A. Cutting and Patching, General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
  - 1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
  
- B. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during installation or cutting and patching operations, by methods and with materials so as not to void existing warranties.
  
- C. Temporary Support: Provide temporary support of work to be cut.
  
- D. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.

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- E. Adjacent Occupied Areas: Where interference with use of adjoining areas or interruption of free passage to adjoining areas is unavoidable, coordinate cutting and patching with the Owner.
- F. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to minimize or prevent interruption to occupied areas.
- G. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
  - 1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
  - 2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
  - 3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
  - 4. Excavating and Backfilling: Comply with requirements in applicable Sections where required by cutting and patching operations.
  - 5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
  - 6. Proceed with patching after construction operations requiring cutting are complete.
- H. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other work. Patch with durable seams that are as invisible as practicable. Provide materials and comply with installation requirements specified in other Sections, where applicable.
  - 1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
  - 2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will minimize evidence of patching and refinishing.

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- a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
  - b. Restore damaged pipe covering to its original condition.
3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
- a. Where patching occurs in a painted surface, prepare substrate and apply primer and intermediate paint coats appropriate for substrate over the patch, and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.
4. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition and ensures thermal and moisture integrity of building enclosure.
- I. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

**3.7 DAILY PROGRESS CLEANING**

- A. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.
1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
  2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F (27 deg C).
  3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
    - a. Use containers intended for holding waste materials of type to be stored.
  4. Coordinate progress cleaning for joint-use areas where Contractor and other contractors are working concurrently.

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- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
  - 1. Remove liquid spills promptly.
  - 2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
- D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
- F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
- G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways.
- H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- J. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

**3.8 STARTING AND ADJUSTING**

- A. Coordinate startup and adjusting of equipment and operating components with "General Commissioning Requirements."
- B. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.
- C. Adjust equipment for proper operation. Adjust operating components for proper operation without binding.

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- D. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- E. Manufacturer's Field Service: Comply with qualification requirements in Section 014000 "Quality Requirements."

3.9 PROTECTION OF INSTALLED CONSTRUCTION

- A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.
- B. Comply with manufacturer's written instructions for temperature and relative humidity.

END OF SECTION

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SECTION 01 70 02

CLOSEOUT REQUIREMENTS

PART 1 GENERAL

1.1 SUMMARY

- A. Comply with execution and closeout requirements specified.

1.2 CLOSEOUT PROCEDURES

- A. Submit written certification that Contract Documents have been reviewed, Work has been inspected, and that Work is complete in accordance with Contract Documents and ready for Architect/Engineer's review.
- B. Provide submittals to Architect/Engineer and Owner required by authorities having jurisdiction.
- C. Submit final Application for Payment identifying total adjusted Contract Sum, previous payments, and sum remaining due.

1.3 FINAL CLEANING

- A. Owner will provide final cleaning after final acceptance.
- B. Clean interior and exterior glass, surfaces exposed to view; remove temporary labels, stains and foreign substances, and polish transparent and glossy surfaces.
- C. Clean equipment and fixtures to sanitary condition with cleaning materials appropriate to surface and material being cleaned.
- D. Clean debris from roofs, gutters, downspouts, and drainage systems.
- E. Clean site; sweep paved areas, rake clean landscaped surfaces.
- F. Remove waste and surplus materials, rubbish, and construction facilities from site.

1.4 STARTING OF SYSTEMS

- A. Coordinate schedule for start-up of various equipment and systems.
- B. Notify Architect/Engineer and Owner seven days prior to start-up of each item.
- C. Verify each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, and for conditions which may cause damage.

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- D. Verify tests, meter readings, and specified electrical characteristics agree with those required by equipment or system manufacturer.
- E. Verify wiring and support components for equipment are complete and tested.
- F. Execute start-up under supervision of applicable manufacturer's representative and Contractors' personnel in accordance with manufacturers' instructions.

**1.5 DEMONSTRATION AND INSTRUCTIONS**

- A. Demonstrate operation and maintenance of products to Owner's personnel two weeks prior to date of Substantial Completion.
- B. Demonstrate Project equipment and instruct in classroom environment located at the site and instructed by qualified manufacturer's representative who is knowledgeable about the Project.
- C. For equipment or systems requiring seasonal operation, perform demonstration for other season within six months.
- D. Utilize operation and maintenance manuals as basis for instruction. Review contents of manual with Owner's personnel in detail to explain all aspects of operation and maintenance.
- E. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of each item of equipment at agreed time, at designated location.
- F. Prepare and insert additional data in operations and maintenance manuals when need for additional data becomes apparent during instruction.
- G. Required instruction time for each item of equipment and system is specified in individual sections.

**1.6 PROTECTING INSTALLED CONSTRUCTION**

- A. Protect installed Work and provide special protection where specified in individual specification sections.
- B. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.
- C. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.
- D. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.

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- E. Prohibit traffic or storage upon waterproofed or roofed surfaces. When traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.
- F. Prohibit traffic from landscaped areas.

**1.7 PROJECT RECORD DOCUMENTS**

- A. Maintain on site one set of the following record documents; record actual revisions to the Work:
  - 1. Drawings.
  - 2. Specifications.
  - 3. Addenda.
  - 4. Change Orders and other modifications to the Contract.
  - 5. Reviewed Shop Drawings, Product Data, and Samples.
  - 6. Manufacturer's instruction for assembly, installation, and adjusting.
- B. Ensure entries are complete and accurate, enabling future reference by Owner.
- C. Store record documents separate from documents used for construction.
- D. Record information concurrent with construction progress, not less than weekly.
- E. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:
  - 1. Manufacturer's name and product model and number.
  - 2. Product substitutions or alternates utilized.
  - 3. Changes made by Addenda and modifications.
- F. Record Drawings and Shop Drawings: Legibly mark each item to record actual construction including:
  - 1. Measured depths of foundations in relation to finish [first] [main] floor datum.
  - 2. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
  - 3. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
  - 4. Field changes of dimension and detail.



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- 5. Details not on original Contract drawings.
- G. Submit documents to Architect/Engineer with claim for final Application for Payment.

1.8 OPERATION AND MAINTENANCE DATA

- A. Submit data bound in 8-1/2 x 11 inch (A4) text pages, three D side ring binders with durable plastic or cloth covers.
- B. Prepare binder cover with printed title "OPERATION AND MAINTENANCE INSTRUCTIONS", title of project, and subject matter of binder when multiple binders are required.
- C. Internally subdivide binder contents with permanent page dividers, logically organized as described below; with tab titling clearly printed under reinforced laminated plastic tabs.
- D. Drawings: Provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.
- E. Contents: Prepare Table of Contents for each volume, with each product or system description identified, typed on white paper, in three parts as follows:
  - 1. Part 1: Directory, listing names, addresses, and telephone numbers of Architect/Engineer, Contractor, Subcontractors, and major equipment suppliers.
  - 2. Part 2: Operation and maintenance instructions, arranged by [system] [process flow] and subdivided by specification section. For each category, identify names, addresses, and telephone numbers of Subcontractors and suppliers. Identify the following:
    - a. Significant design criteria.
    - b. List of equipment.
    - c. Parts list for each component.
    - d. Operating instructions.
    - e. Maintenance instructions for equipment and systems.
    - f. Maintenance instructions for [special] finishes, including recommended cleaning methods and materials, and special precautions identifying detrimental agents.
  - 3. Part 3: Project documents and certificates, including the following:

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- a. Shop drawings and product data.
- b. Air and water balance reports.
- c. Certificates.
- d. Originals or Photocopies of warranties and bonds.

**1.9 MANUAL FOR MATERIALS AND FINISHES**

- A. Submit two copies of preliminary draft or proposed formats and outlines of contents before start of Work. Architect/Engineer will review draft and return one copy with comments.
- B. For equipment, or component parts of equipment put into service during construction and operated by Owner, submit documents within ten days after acceptance.
- C. Submit one copy of completed volumes 15 days prior to final inspection. Draft copy be reviewed and returned [after final inspection], with Architect/Engineer comments. Revise content of document sets as required prior to final submission.
- D. Submit two sets of revised final volumes in final form within 10 days after final inspection.
- E. Building Products, Applied Materials, and Finishes: Include product data, with catalog number, size, composition, and color and texture designations. [Include information for re-ordering custom manufactured products.
- F. Instructions for Care and Maintenance: Include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
- G. Moisture Protection and Weather Exposed Products: Include product data listing applicable reference standards, chemical composition, and details of installation. Include recommendations for inspections, maintenance, and repair.
- H. Additional Requirements: As specified in individual product specification sections.
- I. Include listing in Table of Contents for design data, with tabbed fly sheet and space for insertion of data.

**1.10 MANUAL FOR EQUIPMENT AND SYSTEMS**

- A. Submit two copies of preliminary draft or proposed formats and outlines of contents before start of Work. Architect/Engineer will review draft and return one copy with comments.
- B. For equipment, or component parts of equipment put into service during construction and operated by Owner, submit documents within ten days after acceptance.

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- C. Submit one copy of completed volumes 15 days prior to final inspection. Draft copy be reviewed and returned after final inspection, with Architect/Engineer comments. Revise content of document sets as required prior to final submission.
- D. Submit two sets of revised final volumes in final form within 10 days after final inspection.
- E. Each Item of Equipment and Each System: Include description of unit or system, and component parts. Identify function, normal operating characteristics, and limiting conditions. Include performance curves, with engineering data and tests, and complete nomenclature and model number of replaceable parts.
- F. Panelboard Circuit Directories: Provide electrical service characteristics, controls, and communications; typed or by label machine.
- G. Include color coded wiring diagrams as installed.
- H. Operating Procedures: Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and special operating instructions.
- I. Maintenance Requirements: Include routine procedures and guide for preventative maintenance and trouble shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
- J. Include servicing and lubrication schedule, and list of lubricants required.
- K. Include manufacturer's printed operation and maintenance instructions.
- L. Include sequence of operation by controls manufacturer.
- M. Include original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
- N. Include control diagrams by controls manufacturer as installed.
- O. Include Contractor's coordination drawings, with color coded piping diagrams as installed.
- P. Include charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
- Q. Include list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.
- R. Additional Requirements: As specified in individual product specification sections.

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- S. Include listing in Table of Contents for design data, with tabbed dividers and space for insertion of data.

**1.11 SPARE PARTS AND MAINTENANCE PRODUCTS**

- A. Furnish spare parts, maintenance, and extra products in quantities specified in individual specification sections.
- B. Deliver to and place in location as directed by Owner; obtain receipt prior to final payment.

**1.12 PRODUCT WARRANTIES AND PRODUCT BONDS**

- A. Obtain warranties and bonds executed in duplicate by responsible subcontractors, suppliers, and manufacturers, within ten days after completion of applicable item of work.
- B. Execute and assemble transferable warranty documents and bonds from subcontractors, suppliers, and manufacturers.
- C. Verify documents are in proper form, contain full information, and are notarized.
- D. Co-execute submittals when required.
- E. Include Table of Contents and assemble in three D side ring binder with durable plastic or cloth cover.
- F. Submit prior to final Application for Payment.
- G. Time of Submittals:
  - 1. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within ten days after acceptance.
  - 2. Make other submittals within ten days after Date of Substantial Completion, prior to final Application for Payment.
  - 3. For items of Work for which acceptance is delayed beyond Date of Substantial Completion, submit within ten days after acceptance, listing date of acceptance as beginning of warranty or bond period.

END OF SECTION

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SECTION 02 41 14

SELECTIVE DEMOLITION AND DECONSTRUCTION

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the following:
  - 1. Demolition, deconstruction, and removal of selected portions of building or structure.
  - 2. Salvage of existing items to be reused or recycled.
- B. See Bid Documents for disposal of demolished materials.

1.2 DEFINITIONS

- A. Remove: Detach items from existing construction and legally dispose of them off-site, unless indicated to be removed and salvaged or removed and reinstalled.
- B. Remove and Salvage: Detach items from existing construction and deliver them to Owner.
- C. Remove and Reinstall: Detach items from existing construction, prepare them for reuse, and reinstall them where indicated.
- D. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.
- E. Deconstruction: To remove items and break them down into components; dismantle and disassemble.

1.3 SUBMITTALS

- A. Schedule of Selective Demolition Activities: Indicate detailed sequence of selective demolition and removal work, with starting and ending dates for each activity, interruption of utility services, use of elevator and stairs, and locations of temporary partitions and means of egress.
- B. Pre demolition Photographs or Videotapes: Show existing conditions of adjoining construction and site improvements, including finish surfaces, that might be misconstrued as damage caused by selective demolition operations.
- C. Landfill Records: Indicate receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes.

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1.4 QUALITY ASSURANCE

- A. Demolition Firm Qualifications: An experienced firm that has specialized in demolition work similar in material and extent to that indicated for this Project.
- B. Refrigerant Recovery Technician Qualifications: Certified by an EPA-approved certification program.
- C. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- D. Standards: Comply with ANSI A10.6 and NFPA 241.
- E. Pre demolition Conference: Conduct conference at Project site.

1.5 PROJECT CONDITIONS

- A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.
- B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
  - 1. Before selective demolition, Owner will remove the following items:
    - a. Lighting Ballasts.
- C. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
- D. Hazardous Materials: Hazardous materials are present in construction to be selectively demolished. A report on the presence of hazardous materials is on file for review and use. Examine report to become aware of locations where hazardous materials are present.
  - 1. Hazardous material remediation is specified elsewhere in the Contract Documents.
  - 2. Do not disturb hazardous materials or items suspected of containing hazardous materials except under procedures specified elsewhere in the Contract Documents.
- E. Storage or sale of removed items or materials on-site is not permitted.
- F. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
  - 1. Maintain fire-protection facilities in service during selective demolition operations.

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1.6 WARRANTY

- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials so as not to void existing warranties.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that utilities have been disconnected and capped.
- B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- C. Inventory and record the condition of items to be removed and reinstalled and items to be removed and salvaged.
- D. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Architect.
- E. Engage a professional engineer to survey condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during selective demolition operations.
- F. Survey of Existing Conditions: Record existing conditions by use of measured drawings.
- G. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.

3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

- A. Existing Services/Systems: Maintain services/systems indicated to remain and protect them against damage during selective demolition operations.
- B. Service/System Requirements: Locate, identify, disconnect, and seal or cap off indicated utility services and mechanical/electrical systems serving areas to be selectively demolished.
  - 1. Arrange to shut off indicated utilities with utility companies.
  - 2. If services/systems are required to be removed, relocated, or abandoned, before proceeding with selective demolition provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
  - 3. Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit after bypassing.

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**3.3 PREPARATION**

- A. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
  - 1. Comply with requirements for access and protection specified in Division 1 Section "Temporary Facilities and Controls."
- B. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
- C. Temporary Shoring: Provide and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.

**3.4 SELECTIVE DEMOLITION**

- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
  - 1. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
  - 2. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
  - 3. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain fire watch and portable fire-suppression devices during flame-cutting operations.
  - 4. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
- B. Removed and Reinstalled Items:
  - 1. Clean and repair items to functional condition adequate for intended reuse. Paint equipment to match new equipment.
  - 2. Pack or crate items after cleaning and repairing. Identify contents of containers.
  - 3. Protect items from damage during transport and storage.



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4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.
- C. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.

**3.5 DECONSTRUCTION**

- A. General: Employ skilled workers to perform deconstruction. Proceed with dismantling and disassembling at the earliest feasible time and complete without delay. Carefully remove existing Work to be salvaged and reinstalled. Protect and store for reuse into the Work. Verify compatibility and suitability of existing substrates before starting the Work.
- B. Where the Work requires blast cleaning of existing surfaces in order to receive new materials secured by cementitious, adhesive or chemical bond, completely remove existing finishes, stains, oil, grease, bitumen, mastic and adhesives or other substances deleterious to the new bonding or fastening of new Work. Utilize wet sand blasting for interior surfaces and for exterior surfaces where necessary to prevent objectionable production of dust.
- C. Cutting: Cut existing construction using methods least likely to damage elements retained or adjoining Work. Where practicable, review proposed procedures with the original manufacturer; comply with the original manufacturer's recommendations.
1. In general, where cutting, use hand or small power tools designed for sawing or grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
  2. To avoid marring existing finished surfaces, cut or drill from the exposed or finished side into concealed surfaces.
  3. Sheet Metal: Remove back to joint, lap, or connection. Secure loose or unfastened ends or edges and seal watertight.
  4. Glass: Remove cracked, broken, or damaged glass and clean rebates and stops of setting materials.
- D. Patching: Patch with durable seams that are as invisible as possible or as inconspicuous as practicable, subject to approval by the Architect.
1. Where feasible, inspect and test patched areas to demonstrate integrity of the installation. Verify conditions of existing substrates prior to executing Work.

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2. Restore exposed finishes of patched areas and extend finish restoration into retaining adjoining construction in a manner that will eliminate all conspicuous evidence of patching and refinishing.
3. Metal Fabrications: Items to remain exposed shall have their edges cut and ground smooth and rounded.
4. Sheet Metal: Replace removed or damaged sheet metal items as required for new Work.
5. Glass: Install matching glass and re-seal exterior glass assemblies.
6. Painting: Prepare areas to be patched, patch and paint colors as selected by the Architect.

**3.6 DISPOSAL OF DEMOLISHED MATERIALS**

- A. General: Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, remove demolished materials from Project site and legally dispose of them in an EPA-approved landfill.
  1. Comply with requirements specified in Bid Documents.
- B. Burning: Do not burn demolished materials.
- C. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

**3.7 CLEANING**

- A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION

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SECTION 06 40 20

INTERIOR ARCHITECTURAL WOODWORK

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. Furnish and install interior architectural woodwork as indicated on the drawings and specified.

1.3 DEFINITIONS

- A. Interior architectural woodwork includes wood furring, blocking, shims, and hanging strips for installing woodwork items, unless concealed within other construction before woodwork installation.
- B. Rough carriages for stairs are a part of interior architectural woodwork. Platform framing, headers, partition framing, and other rough framing associated with stairwork are a part of "Rough Carpentry."

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated, including cabinet hardware and accessories, handrail brackets, and finishing materials and processes.
- B. Product Data: For medium-density fiberboard, particleboard, plywood, thermoset decorative overlay, cabinet hardware and accessories.
- C. Shop Drawings: Show location of each item, dimensioned plans and elevations, large-scale details, attachment devices, and other components.
  - 1. Show details full size.
  - 2. Show locations and sizes of furring, blocking, and hanging strips, including concealed blocking and reinforcement specified in other Sections.
  - 3. Show locations and sizes of cutouts and holes for plumbing fixtures, faucets, and other items installed in architectural woodwork.

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4. Show veneer leaves with dimensions, grain direction, exposed face, and identification numbers indicating the flitch and sequence within the flitch for each leaf.
  5. Apply WIC-certified compliance label to first page of Shop Drawings.
- D. Samples for Initial Selection: Manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available for each type of material indicated.
1. Shop-applied transparent finishes.
  2. Thermoset decorative overlays.
- E. Samples for Verification: For the following:
1. Lumber with or for transparent finish, 50 sq. in., for each species and cut, finished on 1 side and 1 edge.
  2. Veneer leaves representative of and selected from flitches to be used for transparent-finished woodwork.
  3. Wood-veneer-faced panel products with or for transparent finish, 8 by 10 inches, for each species and cut. Include at least one face-veneer seam and finish as specified.
  4. Lumber and panel products with shop-applied opaque finish, 50 sq. inches for lumber and 8 by 10 inches for panels, for each finish system and color, with 1/2 of exposed surface finished.
  5. Thermoset decorative-overlay surfaced panel products, 8 by 10 inches, for each type, color, pattern, and surface finish.
  6. Corner pieces as follows:
    - a. Cabinet front frame joints between stiles and rail, as well as exposed end pieces, 18 inches high by 18 inches wide by 6 inches deep.
    - b. Miter joints for standing trim.
  7. Exposed cabinet hardware and accessories, one unit for each type and finish.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who has completed architectural woodwork similar in material, design, and extent to that indicated for this Project and

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whose work has resulted in construction with a record of successful in-service performance.

- B. Fabricator Qualifications: A firm experienced in producing architectural woodwork similar to that indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- C. Source Limitations: Engage a qualified woodworking firm to assume undivided responsibility for production and installation of interior architectural woodwork with sequence-matched wood veneers, including wood doors where veneer matching includes door faces.
- D. Quality Standard: Unless otherwise indicated, comply with WI's "Manual of Millwork" for grades of interior architectural woodwork, construction, finishes, and other requirements.
  - 1. Provide WI-certified compliance certificate indicating that woodwork complies with requirements of grades specified.
  - 2. Provide WI-certified compliance certificate for installation.
  - 3. The Contract Documents contain selections chosen from options in the quality standard and additional requirements beyond those of the quality standard. Comply with such selections and requirements in addition to the quality standard.
  - 4. The fabricator and installer need NOT be a member of WI.
- E. Mockups: Before fabricating and installing interior architectural woodwork, build mockups for each form of construction and finish required to verify selections made under sample Submittals and to demonstrate aesthetic effects and qualities of materials and execution. Build mockups to comply with the following requirements, using materials indicated for the completed Work:
  - 1. Build mockups in the location and of the size indicated or, if not indicated, as directed by Architect.
  - 2. Notify Architect seven days in advance of dates and times when mockups will be fabricated and installed.
  - 3. Demonstrate the proposed range of aesthetic effects and workmanship.
  - 4. Obtain Architect's approval of mockups before starting interior architectural woodwork fabrication.
  - 5. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.

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6. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Do not deliver woodwork until painting and similar operations that could damage woodwork have been completed in installation areas. If woodwork must be stored in other than installation areas, store only in areas where environmental conditions exist.

1.7 PROJECT CONDITIONS

- A. Environmental Limitations: Do not deliver or install woodwork until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature and relative humidity at occupancy levels during the remainder of the construction period.
- B. Environmental Limitations: Do not deliver or install woodwork until building is enclosed, wet work is complete, and HVAC system is operating and will maintaining temperature between 60 and 90 deg F and relative humidity between 17 and 55 percent during the remainder of the construction period.
- C. Field Measurements: Where woodwork is indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

1.8 COORDINATION

- A. Coordinate sizes and locations of framing, blocking, furring, reinforcements, and other related units of Work specified in other Sections to ensure that interior architectural woodwork can be supported and installed as indicated.
- B. Hardware Coordination: Distribute copies of approved hardware schedule to fabricator of architectural woodwork; coordinate Shop Drawings and fabrication with hardware requirements.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Provide materials (other than teak) that comply with requirements of the WI Premium Grade quality standard for each type of woodwork and quality grade specified.
- B. Wood Species and Cut for Transparent Finish: White oak, rift sawn or cut, White ash, plain sawn or sliced.

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- C. Wood Species for Opaque Finish: Any closed-grain hardwood or Eastern white pine, sugar pine, or western white pine.
- D. Wood Products: Comply with the following:
  - 1. Hardboard: AHA A135.4.
  - 2. Medium-Density Fiberboard: ANSI A208.2, Grade MD.
  - 3. Particleboard: ANSI A208.1, Grade M-2.
  - 4. Softwood Plywood: DOC PS 1, Medium Density Overlay.
  - 5. Hardwood Plywood and Face Veneers: HPVA HP-1.
- E. Thermoset Decorative Overlay: Particleboard complying with ANSI A208.1, Grade M-2, or medium-density fiberboard complying with ANSI A208.2, Grade MD, with surface of thermally fused, melamine-impregnated decorative paper complying with LMA SAT-1.
- F. High-Pressure Decorative Laminate: NEMA LD 3, grades as indicated, or if not indicated, as required by woodwork quality standard. Subject to compliance with requirements, provide high-pressure decorative laminates by one of the following manufacturers.
  - 1. Formica Corporation.
  - 2. Wilsonart Inc.
  - 3. Laminart.
  - 4. Pioneer Plastics Corp.
  - 5. Westinghouse Electric Corp.; Specialty Products Div.
- G. Adhesive for Bonding Plastic Laminate: Unpigmented contact cement.

**2.2 CABINET HARDWARE AND ACCESSORIES**

- A. General: Provide cabinet hardware and accessory materials associated with architectural cabinets, as selected by the Owner.
- B. Hardware Standard: Comply with BHMA A156.9 for items indicated by referencing BHMA numbers or items referenced to this standard.
- C. Butt Hinges: 2-3/4-inch (70-mm), 5-knuckle steel hinges made from 0.095-inch thick metal.
- D. Frameless Concealed Hinges (European Type): BHMA A156.9, B01602.
- E. Back-Mounted Pulls: BHMA A156.9, B02011.
- F. Catches: Magnetic catches, BHMA A156.9, B03141.

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- G. Adjustable Shelf Standards and Supports: BHMA A156.9, B04071; with shelf rests, B04081.
- H. Shelf Rests: BHMA A156.9, B04013.
- I. Drawer Slides: Side-mounted, full-extension, zinc-plated steel drawer slides with steel ball bearings, BHMA A156.9, B05091, and rated for 75 lbf or greater.
- J. Plastic or Aluminum Slides for Sliding Glass Doors: BHMA A156.9, B07063.
- K. Door Locks: BHMA A156.11, E07121.
- L. Drawer Locks: BHMA A156.11, E07041.
- M. Grommets for Cable Passage through Countertops: 1-1/4 inch molded-plastic grommets and matching plastic caps with slot for wire passage,color as selected by the Architect.
- N. Exposed Hardware Finishes: For exposed hardware, provide finish that complies with BHMA A156.18 for BHMA finish number indicated, as selected from the following:
  - 1. Dark, Oxidized, Satin Bronze, Oil Rubbed: BHMA 613 for bronze base; BHMA 640 for steel base; match Architect's sample.
  - 2. Bright Brass, Clear Coated: BHMA 605 for brass base; BHMA 632 for steel base.
  - 3. Satin Brass, Blackened, Bright Relieved, Clear Coated: BHMA 610 for brass base; BHMA 636 for steel base.
  - 4. Satin Chromium Plated: BHMA 626 for brass or bronze base; BHMA 652 for steel base.
  - 5. Bright Chromium Plated: BHMA 625 for brass or bronze base; BHMA 651 for steel base.
  - 6. Satin Stainless Steel: BHMA 630.
- O. For concealed hardware, provide manufacturer's standard finish that complies with product class requirements in BHMA A156.9.

**2.3 INSTALLATION MATERIALS**

- A. Furring, Blocking, Shims, and Hanging Strips: Softwood or hardwood lumber, kiln-dried to less than 15 percent moisture content.
- B. Furring, Blocking, Shims, and Hanging Strips: Fire-retardant-treated softwood lumber, kiln-dried to less than 15 percent moisture content.



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~~Rough Carriages for Stairs: Comply with requirements for "Rough Carpentry." Kiln dry to less than 15 percent moisture content.~~

- ~~D. Anchors: Select material, type, size, and finish required for each substrate for secure anchorage. Provide nonferrous metal or hot dip galvanized anchors and inserts on inside face of exterior walls and elsewhere as required for corrosion resistance. Provide toothed steel or lead expansion sleeves for drilled in place anchors.~~
- ~~E. Handrail Brackets: Subject to selection by the Architect, provide Cast or Extruded from malleable iron, aluminum, bronze or stainless steel with wall flange drilled and tapped for concealed hanger bolt and with support arm for screwing to underside of rail. Sized to provide 1 1/2 inch clearance between handrail and wall.~~
- ~~F. Handrail/Bumper Rail Brackets: Pairs of extruded aluminum channels; one for fastening to back of rail and one for fastening to face of wall. They are then assembled in overlapping fashion and fastened together top and bottom with self tapping screws. Sized to provide 1 1/2 inch clearance between handrail and wall.~~

**2.4 FABRICATION**

- A. Interior Woodwork Grade: Provide Premium grade interior woodwork complying with the WI quality standard.
- B. Wood Moisture Content: Comply with requirements of referenced quality standard for wood moisture content in relation to ambient relative humidity during fabrication and in installation areas.
- C. Fabricate woodwork to dimensions, profiles, and details indicated. Ease edges to radius indicated for the following:
  - 1. Corners of Cabinets and Edges of Solid-Wood (Lumber) Members 3/4 Inch Thick or Less: 1/16 inch.
  - 2. Edges of Rails and Similar Members More Than 3/4 Inch Thick: 1/8 inch.
  - 3. Corners of Cabinets and Edges of Solid-Wood (Lumber) Members and Rails: 1/16 inch.
- D. Complete fabrication, including assembly, finishing, and hardware application, to maximum extent possible, before shipment to Project site. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.
  - 1. Notify Architect seven days in advance of the dates and times woodwork fabrication will be complete.

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2. Trial fit assemblies at fabrication shop that cannot be shipped completely assembled. Install dowels, screws, bolted connectors, and other fastening devices that can be removed after trial fitting. Verify that various parts fit as intended and check measurements of assemblies against field measurements indicated on Shop Drawings before disassembling for shipment.
- E. Shop cut openings, to maximum extent possible, to receive hardware, appliances, plumbing fixtures, electrical work, and similar items. Locate openings accurately and use templates or roughing-in diagrams to produce accurately sized and shaped openings. Sand edges of cutouts to remove splinters and burrs.
  1. Seal edges of openings in countertops with a coat of varnish.
- F. Install glass to comply with applicable requirements in Division 8 Section "Glazing" and in GANA's "Glazing Manual." For glass in wood frames, secure glass with removable stops.

**2.5 FINISHING**

- A. Quality Standard: Comply with WI Premium Grade.
  1. Grade: Provide finishes of same grades as items to be finished.
- B. Finish architectural woodwork at fabrication shop or at the place of installation. Defer only final touchup, cleaning, and polishing until after installation. The entire finish of interior architectural woodwork is specified in this Section, regardless of whether shop applied or applied after installation. The extent to which the final finish is applied at fabrication shop is Contractor's option, except shop apply at least the prime coat before delivery.
- C. Preparations for Finishing: Comply with Premium Grade quality standard for sanding, filling countersunk fasteners, sealing concealed surfaces, and similar preparations for finishing architectural woodwork, as applicable to each unit of work.
- D. Backpriming: Apply one coat of sealer or primer, compatible with finish coats, to concealed surfaces of woodwork. Apply two coats to back of paneling and to end-grain surfaces. Concealed surfaces of plastic-laminate-clad woodwork do not require backpriming when surfaced with plastic laminate, backing paper, or thermoset decorative overlay.
- E. Transparent Finish: Comply with requirements indicated below for grade, finish system, staining, and sheen, with sheen measured on 60-degree gloss meter per ASTM D 523, Premium Grade, color and gloss are subject to approval by the Architect.
- F. Opaque Finish: Comply with requirements indicated below for grade, finish system, color, effect, and sheen, with sheen measured on 60-degree gloss meter per ASTM D 523, premium Grade, color and gloss as selected by the Architect.

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**PART 3 EXECUTION**

**3.1 PREPARATION**

- A. Condition woodwork to average prevailing humidity conditions in installation areas before installation.
- B. Before installing architectural woodwork, examine shop-fabricated work for completion and complete work as required, including removal of packing and backpriming.

**3.2 INSTALLATION**

- A. Quality Standard: Install woodwork to comply with WIC Section 26 for the same grade specified in Part 2 of this Section for type of woodwork involved.
- B. Install woodwork level, plumb, true, and straight. Shim as required with concealed shims. Install level and plumb (including tops) to a tolerance of 1/8 inch in 96 inches.
- C. Scribe and cut woodwork to fit adjoining work, and refinish cut surfaces and repair damaged finish at cuts.
- D. Anchor woodwork to anchors or blocking built in or directly attached to substrates. Secure with countersunk, concealed fasteners and blind nailing as required for complete installation. Use fine finishing nails or finishing screws for exposed fastening, countersunk and filled flush with woodwork and matching final finish if transparent finish is indicated.
- E. Standing and Running Trim: Install with minimum number of joints possible, using full-length pieces (from maximum length of lumber available) to greatest extent possible. Do not use pieces less than 60 inches long, except where shorter single-length pieces are necessary. Scarf running joints and stagger in adjacent and related members.
  - 1. Fill gaps, if any, between top of base and wall with plastic wood filler, sand smooth, and finish same as wood base, if finished.
  - 2. Install wall railings on indicated metal brackets securely fastened to wall framing.
  - 3. Install standing and running trim with no more variation from a straight line than 1/8 inch in 96 inches.
- F. Cabinets: Install without distortion so doors and drawers fit openings properly and are accurately aligned. Adjust hardware to center doors and drawers in openings and to provide unencumbered operation. Complete installation of hardware and accessory items as indicated.

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1. Install cabinets with no more than 1/8 inch in 96 inch sag, bow, or other variation from a straight line.
  2. Maintain veneer sequence matching of cabinets with transparent finish.
  3. Fasten wall cabinets through back, near top and bottom, at ends and not more than 16 inches o.c. with No. 10 wafer-head screws sized for 1 inch penetration into wood framing, blocking, or hanging strips or No. 10 wafer-head sheet metal screws through metal backing or metal framing behind wall finish.
- G. Countertops: Anchor securely by screwing through corner blocks of base cabinets or other supports into underside of countertop.
1. Align countertops and form seams to comply with manufacturer's written recommendations using adhesive in color to match countertop. Carefully dress joints smooth, remove surface scratches, and clean entire surface.
  2. Install countertops with no more than 1/8 inch in 96-inch sag, bow, or other variation from a straight line.
  3. Secure backsplashes to tops with concealed metal brackets at 16 inches o.c. and to walls with adhesive.
  4. Calk space between backsplash and wall with elastomeric sealant, color as selected by the Architect.
- H. Paneling: Anchor paneling to supporting substrate with concealed panel-hanger clips or splined connection strips. Do not use face fastening.
1. Install flush paneling with no more than 1/16 inch in 96-inch vertical cup or bow and 1/8 inch in 96-inch horizontal variation from a true plane.
- I. Stairwork and Rails: Cut carriages to accurately fit treads and risers and securely anchor to supporting substrates. Glue treads to risers, and glue and nail treads and risers to carriages. Glue and wedge treads and risers to housed stringers or glue and dowel or pin balusters to treads and railings, and railings to newel posts, or Support wall railings on indicated metal brackets securely fastened to wall framing.
1. Install stairwork with treads and risers no more than 1/8 inch from indicated position and no more than 1/16 inch out of position for adjacent treads and risers. Install rails with no more than 1/8 inch in 96-inch variation from a straight line.

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3.3 ADJUSTING AND CLEANING

- A. Repair damaged and defective woodwork, where possible, to eliminate functional and visual defects; where not possible to repair, replace woodwork. Adjust joinery for uniform appearance.
- B. Clean, lubricate, and adjust hardware.
- C. Clean woodwork on exposed and semi-exposed surfaces. Touch up shop-applied finishes to restore damaged or soiled areas.

END OF SECTION

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SECTION 08 12 13

HOLLOW STEEL DOOR FRAMES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Furnish and install hollow steel frames as indicated on the drawings and specified.

1.3 QUALITY ASSURANCE

- A. Conform to requirements of ANSI A250.8-1998 (SDI-100), ANSI A151.1, and other specifications herein named. Test reports shall be submitted upon request.
- B. Underwriters' Laboratories and Warnock Hersey, labeled fire frames:
  - 1. All labeled fire frames shall be of a type which has been investigated and tested in accordance with either UL-10(b), ASTM E-152, NFPA 252, ANSI A2.2, or UL-10(c), UBC 7-2-1997.
  - 2. Underwriters' Laboratories labeled frames shall be manufactured under the UL factory inspection program and in strict compliance to UL procedures, and shall provide the degree of fire protection, heat transmission and panic loading capability indicated by the opening class.
  - 3. Warnock Hersey labeled frames shall be manufactured to meet the specific requirements of that labeling agency's current procedure for the tested hourly rating designated and shall be subject to inspection by representatives of the labeling agency.
  - 4. A physical label or approved marking shall be affixed to the fire rated frame, at an authorized facility as evidence of compliance with procedures of the labeling agency.

1.4 SUBMITTALS

- A. Submit shop drawings (and product data) under provisions of Section 01 33 00.
- B. Indicate frame configuration, anchor types and spacings, location of cutouts for hardware, reinforcement, and finish.

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- C. Submit manufacturer's installation instructions.
- D. Submit the manufacturer's complete line of finishes. After selection of color samples, submit actual factory applied finishes for verification and approval.

1.5 DELIVERY, STORAGE AND PROTECTION

- A. Storage of Frames: Frames shall be stored under cover on 4" (101.6 mm) wood sills on floors in a manner that will prevent rust and damage. Do not use non-vented plastic or canvas shelters, which create a humidity chamber and promote rusting.
- B. Assembled frames shall be stored in a vertical position, five units maximum in a stack. Provide a 1/4" (6.35 mm) space between frames to promote air circulation.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Frames and frame components shall be manufactured from commercial quality carbon steel conforming to ASTM designation A568 and A569.
- B. All frames and frame components shall be cleaned, phosphatized and finished as standard with one coat of rust inhibiting prime paint in accordance with ANSI A250.10.
- C. Finish painted frames shall be cleaned, phosphatized and shop primed with a rust-inhibiting paint in accordance with ANSI A250.3.
  - 1. Submit the manufacturer's color choices for selection.
- D. All existing frames and frame components to remain shall be repainted to match the color of the new frames, which shall be factory finished.

2.2 HOLLOW STEEL FRAMES

- A. Manufacturers: Subject to compliance with specified requirements, including color selection by the Architect, provide the product indicated in the drawings or products by one of the following (or equal):
  - 1. Amweld Building Products, Inc.
  - 2. Fenestra, Inc.
  - 3. Steelcraft; a division of Ingersoll-Rand.
- B. Interior frames shall be 16 gage (1.6 mm) commercial quality carbon steel or hot dipped galvanized steels.

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- C. Construction Frames: Provide F-Series flush frames shall be formed from 16 gage (1.6 mm) commercial quality carbon steel or galvanized steel.
1. Steel plaster guards shall be provided for all mortised cutouts. All hinge and strike reinforcements shall be projection welded to the frame. Reinforcements for surface applied door closers shall be 14 gage (2 mm) steel.
  2. Galvanized frames shall have galvanized hardware reinforcements. Adequate reinforcements shall be provided for other hardware when required. F-Series frames shall be furnished with a minimum of six wall anchors and two adjustable base anchors of manufacturer's standard design.

2.3 FABRICATION

- A. All hollow metal door frames shall have welded corners. Wrap-around knockdown type frames, fabricated from 16-gauge steel sheet. Fabricate frames with miter corners reinforced with C concealed snap-lock type corner clips. Mortise and reinforce frames to receive schedule hardware.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Frames shall be installed in accordance with ANSI/DHI A115.IG "Installation Guide for Doors and Frames" and the installation instructions of the manufacturer.
- B. Label frames shall be installed per NFPA-80.

END OF SECTION



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SECTION 08 14 10

SOLID CORE WOOD DOORS

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. Furnish and install solid core wood doors as indicated on the drawings and specified.

1.3 SYSTEM DESCRIPTION

- A. Design Requirements: Drawings indicate sizes, locations and general details of wood door construction and installation.
- B. Regulatory Requirements:
  - 1. Fire rated doors shall be listed by a nationally recognized testing and certification agency in accordance with local building codes and acceptable to the authorities having jurisdiction. The listed doors shall meet or exceed the requirements of UL10B, NFPA 252 and NFPA 80. All door requiring fire-rating shall carry either a UL or ITS (Intertek Testing Services-Warnock Hersey) label.
  - 2. Comply with CBC requirements. Provide products that have been tested and passed as an assembly in compliance with CBC Standard 7-2 positive pressure smoke testing requirements.
  - 3. ASTM E 2074 – Standard Test Method for Fire Tests of Door Assemblies, Including Positive Pressure on Side-Hinged and Pivoted Swinging Door Assemblies.

1.4 ACTION SUBMITTALS

- A. Shop Drawings: Submit schedules, plans, elevations and details indicating door construction details, opening identification symbols, sizes, door type and grade, fire classification, swing, light and louver cutout size and locations, and undercuts.
- B. Product Data: Submit manufacturer's technical data for each specified door type, including details of wood species, design and construction, factory finishing specifications and installation instructions.

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- C. Construction Samples: Submit 3 samples of not less than 6 inches by 6 inches for each type of door to be furnished, showing face, edge and core construction.
- D. Color/finish Samples: Submit 3 samples of not less than 4 inches by 6 inches on representative door finish and 3 samples of 3 inches by 8 inches for the exposed edges. Each sample shall bear a label identifying the job name, Architect, Contractor and the Woodwork Institute finish system number.
- E. Certificates:
  - 1. Submit Certificate that solid core fire doors comply with all requirements of ANSI/WDMA I.S. 1A-97.
  - 2. Submit certification that doors comply with CBC 7-2 or UL 10B.

**1.5 QUALITY ASSURANCE**

- A. Wood doors shall conform to industry standard and all requirements of the American National Standards Institute, Inc., the Window & Door Manufacturers Association's Architectural Wood Flush Door Section standard ANSI / WDMA I.S. 1A-97 including the latest revisions, and special requirements herein specified.
- B. All doors shall be fabricated by the manufacturer to the dimensions specified.
- C. Doors shall be products of one manufacturer.
- D. Door modifications are not permitted, unless reviewed by the Architect.

**1.6 DELIVERY, STORAGE AND HANDLING**

- A. Deliver materials in manufacturers original, unopened, undamaged containers with identification labels intact.
- B. Deliver doors to the Project site only after building has been provided with design temperature and humidity.
- C. Store and handle in accordance with ANSI / WDMA I.S.1A-97. Store doors protected from exposure to harmful conditions and at temperature and humidity conditions recommended by the manufacturer.

**1.7 PROJECT CONDITIONS**

- A. Do not install doors until building is enclosed and ambient conditions are within the temperature and humidity range recommended by door manufacturer.

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1.8 WARRANTY

- A. Manufacturer shall provide a 2 year material warranty for exterior doors.
- B. Manufacturer shall provide a life time material warranty for interior doors.
- C. Installer shall provide a 2 year labor warranty for all doors.

PART 2 PRODUCTS

2.1 SOLID CORE WOOD DOORS

- A. Subject to compliance with specified requirements, provide the product indicated on the drawings or products manufactured by one of the following (or equal):
  - 1. Algoma Hardwood Inc.
  - 2. Brentwood Manufacturing.
  - 3. Eggers Industries.
  - 4. Mohawk Flush Door, Inc.
  - 5. Western Oregon Door.
- B. Doors shall be Transparent Finished (Stained): Custom grade, birch veneer, solid wood core flush veneered, 5 ply minimum, faced both sides with faced veneer, fully bonded to core.
  - 1. Cores shall be low density, thoroughly kiln-dried wood blocks not more than 2-1/2 inches wide, with joints staggered, and random lengths, or or high density particle board, or structural fiberboard.
  - 2. Edge strips: Kiln-dried birch, maple or other material as indicated.
  - 3. Full stile edge strip shall be not less that 1-1/2 inches wide, 2 ply stile. Stiles shall be fully bonded to the core. The outer face stile shall be full length 3/4 inch birch or maple. The inner back stile shall be 3/4 inch of similar species which may have two finger joints fully bonded to core.
  - 4. Top and bottom edge rails shall be full length and may be of glued up stock of similar species as edge strip, white fir or douglas fir, minimum density 24.33 pounds or higher per cubic foot. Top rail shall be minimum of 2 inches. Bottom rail shall be minimum of 5 inches fully bonded to core.
  - 5. Crossbanding: Doors shall be furnished with full width crossbanding of properly dried hardwood or engineered fiber composite material, 1/16 inch thick, with a density of 52 pounds or higher per cubic foot.

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6. Face Veneer for Transparent Finished Doors: Custom grade, veneer shall be Grade "A". Minimum thickness shall be 0.0277 inches before sanding and 0.020 inches after sanding of specified face veneer.
7. Adhesive and Bonding: Bonding between veneer plies of wood face panel, and between door faces, frame and core unit shall be fabricated with type I or II waterproof adhesives for interior doors.
8. Openings: Openings for lights, louvers and grilles shall be performed by the manufacturer, or in a certified door service mill in accordance with manufacturer's details, and in compliance with testing agency requirements.
9. Louvers:
  - a. Louvers for interior doors shall be furnished with at least 12 gauge cold rolled steel frames and security grill welded to 18 gauge blades: Anemostat PLSL, Air Louvers Inc. Model 1500-A, or equal.
  - b. For fire rated doors: Anemostat FLDL-UL-SG2, Air Louvers Inc. Model 1900-ASG, or equal.
  - c. Light Proof Louvers (at Dark Rooms): Anemostat Model DRDL, Air Louvers Inc. Model 1000, or equal.
  - d. Install louvers with tamperproof-head through bolts.

**2.3 FACTORY FINISHING:**

- A. Factory finishing shall be Custom Grade and include all necessary preparation, materials and labor to complete a Stained Transparent finish.
  1. Color as selected by the Architect.

**2.4 JOB SITE FINISHING:**

- A. Doors indicated to be job site finished shall be factory back primed.
  1. Doors Scheduled for Opaque Paint finish: Prime with one coat of wood primer indicated on the drawings.
  2. Doors Schedules for Transparent Finish: Prime with stain and first coat of finish as indicated on the drawings.

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**PART 3 EXECUTION**

**3.1 INSTALLATION**

- A. Install Work of this section as specified in the Woodwork Institute Manual of Millwork, Section 12 and provide a Woodwork Institute Certified Compliance Certificate for Installation at Substantial Completion. Install fire doors in accordance with NFPA 80.
- B. Provide each door accurately cut, trimmed, and fitted to its frame and hardware. Clearance at lock and hanging stile and at top shall be 1/8 inch, and bottom shall not exceed 1/4 inch except where otherwise indicated. Arises shall be rounded to a 1/16 inch radius, and lock rail edges shall be slightly beveled. Screws for hardware shall not be driven but screwed into pre-drilled holes.
- C. Doors shall operate freely, but not loosely, without sticking or binding, without hinge-bind conditions and with hardware properly adjusted and functioning.

**3.2 CLEAN UP**

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

**3.3 PROTECTION**

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

**END OF SECTION**

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SECTION 08 71 00

DOOR HARDWARE

PART 1 GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Extent of finish hardware required is indicated on drawings and in schedules.
- B. Types of finish hardware required include but are not limited to the following:
  - 1. Hinges
  - 2. Locks, cylinders and keys
  - 3. Flush Bolts
  - 4. Exit devices
  - 5. Closers
  - 6. Overhead holders
  - 7. Protection plates
  - 8. Seals
  - 9. Thresholds

1.3 REGULATORY REQUIREMENTS

- A. Code References:
  - 1. Uniform Building Code (UBC).
  - 2. National Fire Protection Association (NFPA) Fire Doors and Windows Code 80.
  - 3. California Administrative Code (CCR), regulations and handicapped requirements.
- B. Exit doors in buildings, including but not limited to doors of toilets and storage rooms, shall conform with the requirements of Section 3304 Title 24 CCR.
- C. Exit doors shall be openable from the inside with non-grip openable hardware that does not require the use of a key or any special knowledge or effort.

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1.4 QUALITY ASSURANCE

- A. Manufacturer: Obtain each type of hardware as differentiated in this Section's "Manufacturers" list from a single manufacturer, although several may be indicated as offering products complying with requirements.
- B. Supplier: Must be a direct factory contract finish hardware supplier, with warehousing facilities, who has been furnishing hardware in the project's vicinity for a period of not less than 5 years. The supplier must employ an experienced architectural hardware consultant who is available, at reasonable times during the course of the work, for consultation about project's hardware requirements, to Owner, Architect and Contractor.
- C. Fire-Rated Openings: Provide hardware for fire-rated openings in compliance with NFPA Standard No. 80 and local building code requirements. Provide only hardware which has been tested and listed by UL or WHI for types and sizes of doors required and complies with requirements of door and door frame labels.
  - 1. Where emergency exit devices are required on fire-rated doors, (with supplementary marking on doors' UL or WHI labels indicating "Fire Door to be Equipped with Fire Exit Hardware") provide UL or WHI label on exit devices indicating "Fire Exit Hardware".
- D. Warranty: All hardware shall be warranted for a period of two years from date of Substantial Completion. Defects in materials and workmanship occurring during the warranty period shall be corrected to the complete satisfaction of the architect. A 10-year warranty for door closers.

1.5 ACTION SUBMITTALS

- A. Product Data: Submit manufacturers technical product data for each item of hardware in accordance with Division-1 section "Submittals". Include whatever information may be necessary to show compliance with requirements, and include instructions for installation and for maintenance of operating parts and finishes.
- B. Hardware Schedule: Submit vertical format hardware schedule in manner indicated below. Coordinate hardware with doors, frames and related work to ensure proper size, thickness, hand, function and finish of hardware.
  - 1. Final Hardware Schedule Content: Based on finish hardware indicated, organize hardware schedule into "hardware sets" indicating complete designations of every item required for each door or opening. Include the following information:
    - a. Type, style, function, size and finish of each hardware item.
    - b. Name and manufacturer of each item.

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- c. Fastenings and other pertinent information.
  - d. Location of hardware set cross-referenced to indications on Drawings both on floor plans and in door and frame schedule.
  - e. Explanation of all abbreviations, symbols, codes, etc. contained in schedule.
  - f. Mounting locations for hardware.
  - g. Door and frame sizes and materials.
  - h. Keying information.
2. Submittal Sequence: Submit schedule at earliest possible date particularly where acceptance of hardware schedule must precede fabrication of other work (e.g., hollow metal frames) which is critical in the project construction schedule. Include with schedule the product data, samples, shop drawings of other work affected by finish hardware, and other information essential to the coordinated review of hardware schedule.
  3. Keying Schedule: Submit separate detailed schedule indicating clearly how the Owner's final instructions on keying of locks has been fulfilled.
  4. Samples: When so requested by the Architect and prior to submittal of the final hardware schedule, submit one sample of each type of exposed hardware unit, finished as required, and tagged with full description for coordination with schedule.
  5. Samples will be returned to the supplier. Units which are acceptable and remain undamaged through submittal, review and field comparison procedures may, after final check of operation, be used in the work, within limitations of keying coordination requirements.
  6. Templates: Furnish hardware templates to each fabricator of doors, frames and other work to be factory-prepared for the installation of hardware. Upon request, check shop drawings of such other work, to confirm that adequate provisions are made for proper location and installation of hardware.

**1.6 PRODUCT HANDLING**

- A. Tag each item or package separately, with identification related to final hardware schedule, and include basic installation instructions with each item or package.
- B. Inventory hardware jointly with representatives of hardware supplier and hardware installer until each is satisfied that count is correct.



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- C. Deliver individually packaged hardware items at the proper times to the proper locations (shop or project site) for installation.
- D. Provide secure lock-up for hardware delivered to the project, but not yet installed.

**PART 2 PRODUCTS**

**2.1 SCHEDULED HARDWARE ON THE DRAWINGS**

- A. Requirements for design, grade, function, finish, size and other distinctive qualities of each type of finish hardware is indicated on the drawings.
  - 1. **Manufacturer's Product Designations:** One or more manufacturers are listed for each hardware type required. Provide either the product designated, or, where more than one manufacturer is listed, the comparable product of one of the other manufacturers which comply with requirements including those specified elsewhere in this section.

**2.2 MATERIALS AND FABRICATION**

- A. **General:**
  - 1. **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.
    - a. **Base Metals:** Produce hardware units of basic metal and forming method indicated, using manufacturer's standard metal alloy, composition, temper and hardness, but in no case of lesser (commercially recognized) quality than specified for applicable hardware units by applicable ANSI A156 series standard.
  - 2. **Fasteners:** Provide hardware manufactured to conform to published templates, generally prepared for machine screw installation. Do not provide hardware which has been prepared for self-tapping sheet metal screws, except as specifically indicated.
  - 3. **Furnish screws for installation, with each hardware item.** Provide Phillips flat-head screws except as otherwise indicated. Finish exposed (exposed under any condition) screws to match hardware finish or, if exposed in surfaces of other work, to match finish of such other work as closely as possible, including surfaces to receive painted finish.
  - 4. **Provide sex nuts and bolts for door closers and exit devices.**

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5. Provide machine screws and anchors for all thresholds to be installed over concrete floor material.
6. Tools and Maintenance Instructions for Maintenance: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance, and removal and replacement of finish hardware.

**2.3 HINGES**

- A. Templates: Except for hinges and pivots to be installed entirely (both leaves) into wood doors and frames, provide only template-produced units.
- B. Screws: Furnish Phillips flat-head or machine screws for installation of units, except furnish Phillips flat-head or wood screws for installation of units into wood. Finish screw heads to match surface of hinges or pivots.
- C. Hinges:
  1. Number of hinges: Provide number of hinges indicated but not less than 3 hinges for door leaf for doors 90" or less in height and one additional hinge for each 30" or less of additional height.
  2. Furnish 4½" x 4" hinges, except at the following door widths:  
Heavy Weight 5" x 4" at doors 3'6" or wider.
  3. Furnish hinges of sufficient width to permit maximum door swing.
  4. Furnish heavy-weight hinges where specified, and at all doors weighing more than 150 lbs., and at all doors with overhead stops or stop arm closers.

**2.4 LOCK CYLINDERS AND KEYING**

- A. General: Supplier will meet with Owner to finalize keying requirements and obtain final instructions in writing.
- B. Keying System: All cylinders shall be furnished for an existing key system. Provide cylinders and keys in existing keyways as directed by the Owner for different door locations.
- C. Provide all permanent cores 1-bitted. Final pinning of permanent cores and cutting key of keys by the Owner.
- D. Metals: Construct lock cylinder parts from brass/bronze, stainless steel or nickel silver.
- E. Permanently inscribe each key with notation "DO NOT DUPLICATE".
- G. Key Material: Provide keys of nickel silver only.

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- H. Furnish three 1-bitted keys per permanent and 2 control keys per keyway, shipped directly to the Owner via registered means. Furnish 5 construction masterkeys and 2 construction control keys..

2.5 LOCKS, LATCHES AND BOLTS

- A. Strikes: Provide manufacturer's standard wrought box strike for each latch or lock bolt, with curved lip extended to protect frame, finished to match hardware set.
- B. Lock Throw: Comply with UL requirements for throw of bolts and latch bolts on rated fire openings.
- C. Lever Trim: Typical Lever use Cylindrical ND Series-SPARTA Lever and Mortise L9000 - 17A Lever.

2.6 EXIT DEVICES

- A. Furnish modern push-pad type, reversible stainless steel exit devices with heavy duty metal chassis and touchbar with metal end caps.

2.7 CLOSERS

- A. Surface mounted closers shall be full rack and pinion type with pressure cast shell, with no more than 2-1/8" projection from the door surface.
  - 1. Provide drop plates, brackets, mortise shoes, long arms and low profile arms as required.
  - 2. Provide non-handed door closers with sized or multi-sized springs, with separate adjustable valves for latch, sweep speed, and back check.
  - 3. Template and adjust closers per manufacturer's recommendations and to meet barrier free requirements.
  - 4. Mount surface closers on side of door away from corridor, inside rooms. Provide regular or parallel rigid arm (EDA) closers as required.
- B. Provide adjustable closer units complying with ANSI A117.1, Title 24 CCR and ADA provisions for door opening force and delayed action closing. The sweep period of the door closers shall be adjusted so that from an open position of 70 degrees the door will take at least 3 seconds to move to a point 3 inches from the latch, measured to the leading edge of the door.
- C. The maximum force for pushing or pulling open a door shall be as follows:
  - 1. Fire doors shall have the minimum opening force allowable by the appropriate administrative authority.

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2. Other Doors:

- a. Interior hinged, non-labeled doors: 5 lbs.
- b. Exterior hinged, non-labeled doors: 8½ lbs.

2.8 DOOR TRIM SETS

A. Fabricate protection plates (armor, kick or mop) by the height indicated.

1. Metal Plates:

- a. Stainless steel, minimum 0.062" with heavy-beveled all four edges.
- b. Countersunk oval head fasteners.

2.9 STOPS

A. Furnish carpet risers for floor stops where required.

B. Where specified floor or wall stop would present a pedestrian hazard or cannot be used, furnish Rixson (or approved equal) model overhead stop or (at outswing doors only) provide closer with integral spring cushion stop as appropriate.

2.10 SILENCERS

A. Furnish silencers at hollow metal or wood door frames that are without seals in quantities as follows:

- 1. Single Doors: 3 silencers
- 2. Pairs: 4 silencers

2.11 SEALS

A. General: Except as otherwise indicated, provide continuous seals each edge of every exterior or fire-rated door leaf. Provide type, sizes and profiles shown or scheduled. Provide stainless steel fasteners for extruded seals and dark bronze fasteners at dark bronze finish.

2.12 THRESHOLDS

A. General: Except as otherwise indicated provide standard metal threshold unit of type, size and profile as shown or scheduled. Furnish all thresholds with Return Closed Ends (RCE).

- 1. Where required by fire code, furnish appropriate model thresholds at openings where combustible floor material extends through the door opening.
- 2. Provide thresholds with ¼-20 stainless steel machine screws and anchors.

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2.13 HARDWARE FINISHES

A. The designations used in schedules and elsewhere to indicate hardware finishes are those listed in ANSI A156.18 "Materials & Finishes Standard".

1. Dull Chrome Plated-Steel (US26D, 652)
- Dull Chrome Plated-Brass (US26D, 626)
- Satin Stainless Steel (US32D, 630)
- Anodized Aluminum (US28, 628)
- Sprayed Aluminum Paint (689)
- Satin Aluminum, Clear Coated (627)

2.14 MANUFACTURERS

A. Manufacturers: Substitutions with architect's written approval prior to bidding only.

<u>Item</u>	<u>Listed</u>	<u>Approved Mfrs.</u>
Hinges	STA Stanley	Hager, McKinney, Ives
Cont. Pin-and-Barrel Hinges	MAR Markar	Stanley, ABH, Select, Ives
Continuous Gear Hinges	SEL Select	None
Push/Pull Plates	TRM Trimco	Ives, Rockwood
Pulls	TRM Trimco	Ives, Rockwood
Locks and Latchsets	SCH Schlage	None
Exit Devices	VON Von Duprin	None
Cylinders	BES Best	None
Surface Closers	LCN LCN	Norton
Overhead Concealed Closers	RIX Rixson	None
Kick, Mop, and Armor Plates	TRM Trimco	Ives, Rockwood
Surface Edge Guards	MAR Markar	Stanley, ABH, Select, Ives
Mortise Edge Guards	ROC Rockwood	Ives, Trimco
Stops	TRM Trimco	Rockwood, Ives
Overhead Stops	RIX Rixson	ABH, Glynn Johnson
Thresholds & Seals	PEM Pemko	National Guard, Zero
Fixed Door Bottoms	PEM Pemko	National Guard, Zero
Automatic Door Bottoms	ZER Zero	None
Adhesive Seals w/3M Tape	ZER Zero	Or Equal
Alarm Contacts (by Div. 28)	INT Interlogix	
Bluetooth Wall Mounted Lock	MAS Master Lock	

PART 3 EXECUTION

3.1 INSTALLATION

A. Door opening hardware shall be centered between 30 and 44 inches above the floor as indicated on the drawings.

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- B. Location of Hand-Operable Hardware shall be as follows unless otherwise indicated or approved:
  - 1. Door levers, centered 38" above floor.
  - 2. Door pulls, centered 42" above floor.
  - 3. Strike of rim or mortise exit devices, centered 40-5/16" from floor.
- C. Install each hardware item in compliance with the manufacturer's instructions and recommendations.
- D. Set units level, plumb and true to line and location. Adjust and reinforce the attachment substrate as necessary for proper installation and operation.
- E. Drill and countersink units which are not factory-prepared for anchorage fasteners.
- F. Set thresholds for exterior doors in full bed of butyl-rubber or polyisobutylene mastic sealant.

3.2 ADJUST AND CLEAN

- A. Adjust and check each operating item of hardware and each door, to ensure proper operation or function of every unit. Adjust door control devices to compensate for final operation of heating and ventilating equipment.
- B. Clean adjacent surfaces soiled by hardware installation.
- C. Instruct Owner's Personnel in proper adjustment and maintenance of hardware and hardware finishes, during the final adjustment of hardware.

END OF SECTION

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SECTION 09 29 00

GYPSUM BOARD SYSTEMS

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. All labor, materials and equipment necessary for gypsum board systems (Drywall Construction) as indicated on the Contract Drawings and in these Specifications, including:
  - 1. Taping, spackling and sanding of wallboard surfaces.
  - 2. Metal framing for wallboard ceilings and ceiling access panels.
- B. Regulatory Agency: California Building Code (CBC).
- C. References Standards:
  - 1. GA216-85 Recommended Specifications for the Application and Finishing of Gypsum Board.
  - 2. ASTM C1177-Glass Mat Gypsum Substrate for use as sheathing.

1.3 ACTION SUBMITTALS

- A. Product Data: Submit the following:
  - 1. Materials list of items proposed to be provided under this Section.
  - 2. Manufacturer's recommended installation procedures, when approved by the Owner, will become the basis of accepting or rejecting actual installation procedures used on the work.
- B. Samples: Submit samples of all types of gypsum board to receive a painted finish. Submit sample with a completed finish to confirm that all types take the finish similarly.

1.4 JOBSITE REQUIREMENTS

- A. Product Handling:

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1. To be arranged for delivery and storage of adequate supplies of drywall materials to the job-site to permit uninterrupted progress of the work.
  2. Deliver materials and accessories to the job-site in their original containers or bundles properly identified with manufacturer's name and brand name. Store as directed by the Owner and protect against damage during the extent of the Contract.
  3. Store drywall finish materials in flat area, protected from moisture, on flat and solid supports off the floor surface.
- B. Scaffolding: In accordance with Federal, State, County of Los Angeles Safety Rules and Regulations and CAL/OSHA. Avoid interference with work of other trades.
- C. Protection:
1. Adequately protect all existing and/or new work in place against damage.
  2. Keep floor surfaces covered to prevent staining by spackling materials.

**PART 2 PRODUCTS**

**2.1 MANUFACTURERS**

- A. Manufacturer: Likely sources for products are as follows:
1. Steel Framing and Furring:
    - a. Bostwick Steel Framing Co.
    - b. Gold Bond Building Products Div., National Gypsum Co.
    - c. United States Gypsum Co.
  2. Grid Suspension Systems:
    - a. Chicago Metallic Corp.
    - b. National Rolling Mills Co.
  3. Gypsum Boards and Related Products:
    - a. Louisiana Pacific Corp.
    - b. Georgia-Pacific Corp.
    - c. Gold Bond Building Products Div., National Gypsum Co.
    - d. United States Gypsum Co.



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2.2 GYPSUM WALLBOARD

- A. Panel Size: Provide in maximum lengths and widths available that will minimize joints in each area and correspond with support system indicated.
- B. Wallboard shall conform to Fed. Spec. SS-L-30D, in 48" widths by lengths as will minimize cross joints, and as follows:
  - 1. Fire-retardant wallboard, type III, grade X, class 1, 5/8" thick and shall bear label (U.L.) for 1-hour fire rating.
  - 2. Water-resistant wallboard shall conform to ASTM C-630, type "X" conforming to L.A. County Building Code and 5/8" thick except as otherwise noted on the Contract Drawings.
- C. Screws: Type "W" bugle head drywall screws, conforming to ASTM C664, 1 1/4-inch long, except where longer length is required by Code.
- D. Tape: U.S. Gypsum "Perf-A-Tape" or equal.
- E. Taping Compound: As recommended by the wallboard manufacturer.

2.3 ACCESSORIES

- A. Metal Trim: Form from zinc-coated steel not lighter than 26 gage, conforming to ASTM C1047.
- B. Casings (for all free edges of exposed gypsum wallboard): U.S. Gypsum No. 200-4 metal trim, U-shaped and of 1/2-inch size.
- C. Corner Reinforcement: "Perf-A-Bead", a metal corner reinforcement of galvanized steel with 1-3/16-inch wide "Perf-A-Tape" wings to receive joint compound, as manufactured by U.S. Gypsum, or equal.
- D. All other accessories, as necessary for a complete installation.
- E. Access Panels: Inryco/Milcor Style DW; 24-inch x 24-inch. Flush hinges and screwdriver operated cam latch.
- F. Sound Deadening Board: Fiber or gypsum sound deadening board 1/2-inch thick as supplied by Georgia-Pacific Corporation, or equal.
- G. Edge Beads at Perimeter of Ceilings: Angle shapes with wings not less than 3/4" wide, with concealed wing perforated for nailing and exposed wing edge folded flat and factory finished white.

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2.4 JOINTING SYSTEM

- A. Materials: Reinforcing tape and compound, designed to be used together as recommended by the wallboard manufacturer.
- B. Jointing compound may be used for finishing if so recommended by its manufacturer.

2.5 ACCESS DOORS

- A. In Partitions and Ceilings: Provide for access to mechanical and/or electrical installations.
- B. Types:
  - 1. 24" x 24" metal access doors with concealed hinges to metal frame and with Allen key lock.
  - 2. Where to be located in fire-rated partitions, access doors to have the same fire-rating.
  - 3. For tile surfaces and toilet room access doors and frames to be stainless steel with satin finish.
  - 4. Other access doors of steel, prime coated to be finish painted as specified in Section 09900-PAINTING of these Specifications.

PART 3 EXECUTION

3.1 INSTALLATION OF WALLBOARD

- A. Project Conditions: Examine all parts of the work for any conditions which would affect the soundness or correctness of drywall work. Verify all corrective work to be done before proceeding with drywall construction operations.
- B. Cooperation: Required, with all other trades involved in the work of placing of work, building-in, and embedding into drywall construction of all fixtures, anchors, backing, sleeves, inserts; providing of openings, chases to the extent necessary for proper and secure installation, attachments, and passing of other work.
- C. All new piping, conduit, and fixtures to be concealed by wallboard or to penetrate drywall finish to be in place, tested, and approved before start of application of wallboard.
- D. Install sound deadening board at locations indicated on the Drawings. Secure to framing with drywall screws as specified for wallboard in Subsections 2.2B of this Section.
- E. General:

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1. In accordance with Contract Drawings and with the separate boards in moderate contact but not forced in place.
  2. At internal and external corners, conceal the cut edges by overlapping covered edges of abutting boards.
  3. Stagger the boards so that corners of any four boards will not meet at a common point except in vertical corners.
- F. Cutting: By scoring and breaking, or by sawing. Do all cutting from the face side. Sandpaper cut edges for neat jointing in finished work. Cutouts for pipes, fixtures, or other small openings to be scored before knocking out or cut out with saw.
1. Openings are not to be punched out. Scribe gypsum wallboard finish to intersecting or abutting surfaces.
- G. Ceilings: Secure boards along perimeters of ceilings, around edges of openings to all furring channels. Place boards with long dimensions perpendicular to supports, screw in place at 12-inches on center in the field and 8-inches on center along board edges. Locate screws not less than 1/8-inch from board edges.
- H. Walls and/or Vertical Planes: Place wallboard horizontally or vertically in accordance with manufacturer's recommendations for the particular situation for minimum taping. Secure wallboard to structural supports with drywall screws spaced 12-inches on center in the field and 8-inches on center staggered along each board edge. Use 1-1/4-inch long screws for fastening single layer of wallboards.
- I. Fasteners: Firmly fasten boards to supporting framing member with fasteners not cutting surface paper or fracturing the gypsum core. Where a fastener has cut surface paper, provide another screw fastener approximately 1-1/2-inches from the defective fastener and remove the defective fastener. Butt join vertical joints of wallboard at supports and stagger on opposite faces of partitions.
- J. Casings or Trim: Provide at all exposed edges and/or ends of wallboard and where intersecting with other materials. At exterior corners of wallboard joints secure in place specified corner reinforcements ready for taping compound.
- K. Sealants: Where indicated on the Contract Drawings, provide a bead of sealant where trim or casings abut adjacent construction.
- L. Access Doors:
1. By careful coordination with the Drawings and with the trades involved, install the specified access doors where required.

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2. Anchor firmly into position, and align properly to achieve an installation flush with the finished surface.

3.2 JOINT TREATMENT AND FINISHING

A. General:

1. Inspect areas to be joint treated, verifying that the gypsum wallboard fits snugly against supporting framework.
2. In areas where joint treatment and compound finishing will be performed, maintain a temperature of not less than 55 degrees for 24 hours prior to commencing the treatment, and until joint and finishing compounds have dried.
3. Apply the joint treatment and finishing compound by machine or hand tool.
4. Provide a minimum drying time of 24 hours between coats, with additional drying time in poorly ventilated areas.
5. Provide a GA214 Level 4 Finish, at locations that will be exposed to view in the finished work.

B. Embedding compounds:

1. Apply to gypsum wallboard joints and depressed fastener heads in a thin uniform layer.
2. Spread the compound not less than 3" wide at joints, center the reinforcing tape in the joint, and embed the tape in the compound. Then spread a thin layer of compound over the tape.
3. After this treatment has dried, apply a second coat of embedding compound to joints and fastener heads, spreading in a thin uniform coat to not less than 6" wide at joints, and feather edged.
4. Sandpaper between coats as required.
5. When thoroughly dry, sandpaper to eliminate ridges and high points.

C. Finishing Compounds:

1. After embedding compound is thoroughly dry and has been completely sanded, apply a coat of finishing compound to joints and depressed fastener heads.
2. Feather the finishing compound to not less than 12" wide.

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3. When thoroughly dry, sandpaper to obtain a uniformly smooth surface, taking care to not scuff the paper surface of the wallboard.
- D. Screw Heads: To be depressed slightly and to have at least 3 coats of spackle, each coat applied at same time as the spackling of joint and to be thoroughly dry before application of succeeding coats.
- E. Where Gypsum Board to Receive Vinyl or Other Coverings: Leave all surfaces clean and in acceptable conditions to receive subsequent finish work of other trades.

**3.3 CORNER TREATMENT**

- A. Internal Corners: Treat as specified for joints, except fold the reinforcing tape lengthwise through the middle and fit neatly into the corner.
- B. External Corners:
  1. Install the specified corner bead, fitting neatly over the corner and securing with the same type fasteners used for installing the wallboard.
  2. Space the fasteners approximately 6" on centers, and drive through the wallboard into the framing or furring member.
  3. After the corner bead has been secured into position, treat the corner with joint compound and reinforcing tape as specified for joints, feathering the joint compound out from 8" to 10" on each side of the corner.

**3.4 OTHER METAL TRIM**

- A. General: The Drawings do not purport to show all locations and requirements for metal trim.
  1. Carefully study the Drawings and the installation, and provide all metal trim normally recommended by the manufacturer of the gypsum wallboard approved for use in this work.

**3.5 CLEANING UP**

- A. In addition to other requirements for cleaning, use necessary care to prevent scattering gypsum wallboard scraps and dust, and to prevent tracking gypsum and joint finishing compound onto floor surfaces.
- B. At completion of each segment of installation in a room or space, promptly pick up and remove from the working area all scrap, debris, and surplus material of this Section.

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- C. Provide final protection and maintain conditions, in a manner suitable to Installer, which ensures gypsum drywall construction being without damage or deterioration at time of Completion.

END OF SECTION

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SECTION 09 51 13

ACOUSTICAL CLOUD PANEL CEILINGS

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. Furnish and install acoustical cloud panel ceilings as indicated on the drawings and specified.

1.3 PREINSTALLATION MEETINGS

- A. Pre-installation Conference: Conduct conference at Project site.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples: For each exposed product and for each color and texture specified, 6 inches (150 mm) in size.
- C. Samples for Initial Selection: For components with factory-applied color finishes.
- D. Samples for Verification: For each component indicated and for each exposed finish required, prepared on Samples of size indicated below.
  - 1. Acoustical Panel: Set of full-size or 6-inch- (150-mm-) square Samples of each type, color, profile, and texture.
  - 2. Exposed Suspension-System Members, Moldings, and Trim: Set of 6-inch- (150-mm-) long Samples of each type, finish, and color.

1.5 INFORMATIONAL SUBMITTALS

- A. Coordination Drawings: Reflected ceiling plans, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of the items involved:
  - 1. Suspended ceiling components.
  - 2. Structural members to which suspension systems will be attached.

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3. Size and location of acoustical cloud panels.
4. Items penetrating finished ceiling.
5. Perimeter moldings.

- B. Qualification Data: For testing agency.
- C. Product Test Reports: For each acoustical cloud panel ceiling, for tests performed by manufacturer and witnessed by a qualified testing agency or a qualified testing agency.
- D. Evaluation Reports: For each acoustical cloud panel ceiling suspension system and anchor and fastener type, from ICC-ES.
- E. Field quality-control reports.

1.6 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For finishes to include in maintenance manuals.

1.7 MOCKUPS

- A. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
  1. Build mockup of typical ceiling area as shown on Drawings.
  2. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Deliver acoustical panels, suspension-system components, and accessories to Project site in original, unopened packages and store them in a fully enclosed, conditioned space where they will be protected against damage from moisture, humidity, temperature extremes, direct sunlight, surface contamination, and other causes.
- B. Before installing acoustical cloud panels, permit them to reach room temperature and a stabilized moisture content.
- C. Handle acoustical cloud panels carefully to avoid chipping edges or damaging units in any way.

1.9 FIELD CONDITIONS

- A. Environmental Limitations: Do not install acoustical cloud panel ceilings until spaces are enclosed and weatherproof, wet work in spaces is complete and dry, work above ceilings is complete, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.



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**PART 2 PRODUCTS**

**2.1 PERFORMANCE REQUIREMENTS**

- A. Seismic Performance: Acoustical cloud ceiling shall withstand the effects of earthquake motions determined according to ASCE/SEI 7, Seismic Zone 4.
- B. Surface-Burning Characteristics: Comply with ASTM E 84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
  - 1. Flame-Spread Index: Comply with ASTM E 1264 for Class A materials.
  - 2. Smoke-Developed Index: 50 or less.

**2.2 ACOUSTICAL PRODUCTS**

- A. Source Limitations:
  - 1. Acoustical cloud Ceiling Panel: Obtain each type from single source from single manufacturer.
  - 2. Suspension System: Obtain each type from single source from single manufacturer.
- B. Manufacturers: Subject to compliance with specified requirements, provide products by the manufacturer indicated on the drawings or an Architect acceptable product by one of the following:
  - 1. USG Interiors
  - 2. Armstrong World Industries
  - 3. Certainteed Corp.
- C. Acoustical Panel Colors and Profiles: Match appearance characteristics indicated for each product type.
  - 1. Where appearance characteristics of acoustical cloud panels are indicated by referencing pattern designations in ASTM E 1264 and not manufacturers' proprietary product designations, provide products selected by Architect from each manufacturer's full range that comply with requirements indicated for type, profile, color, light reflectance, acoustical performance, edge detail, and size.

**2.3 ACOUSTICAL UNITS**

- A. Classification: Provide panels complying with ASTM E 1264 for type, form, and pattern as indicated on the drawings.

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- B. Color: As selected from manufacturer's full range or Match Architect's sample.
- C. Thickness: As indicated on Drawings.
- D. Thickness: As indicated on Drawings.
- E. Modular Size: As indicated on Drawings.

**2.4 METAL SUSPENSION SYSTEMS**

- A. Metal Suspension-System Standard: Provide manufacturer's standard direct-hung metal suspension systems of types, structural classifications, and finishes indicated that comply with applicable requirements in ASTM C 635/C 635M.
- B. Attachment Devices: Size for five times the design load indicated in ASTM C 635/C 635M, Table 1, "Direct Hung," unless otherwise indicated. Comply with seismic design requirements.
- C. Wire Hangers, Braces, and Ties: Provide wires complying with the following requirements:
  - 1. Zinc-Coated, Carbon-Steel Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper.
  - 2. Stainless-Steel Wire: ASTM A 580/A 580M, Type 304, nonmagnetic.
  - 3. Nickel-Copper-Alloy Wire: ASTM B 164, nickel-copper-alloy UNS No. N04400.
  - 4. Size: Select wire diameter so its stress at three times hanger design load (ASTM C 635/C 635M, Table 1, "Direct Hung") will be less than yield stress of wire, but provide not less than 0.106-inch- (2.69-mm-) diameter wire.
- D. Seismic Stabilizer Bars: Manufacturer's standard perimeter stabilizers designed to accommodate seismic forces.
- E. Seismic Struts: Manufacturer's standard compression struts designed to accommodate seismic forces.
- F. Seismic Clips: Manufacturer's standard seismic clips designed and spaced to secure acoustical cloud panels in place.
- G. Steel Suspension System: Main and cross runners roll formed from cold-rolled steel sheet; prepainted, electrolytically zinc coated, or hot-dip galvanized according to ASTM A 653/A 653M, not less than G30 (Z90) coating designation; with prefinished 02/11-inch- (24-mm-) wide metal caps on flanges.

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**PART 3 EXECUTION**

**3.1 INSTALLATION**

- A. General: Install acoustical cloud panel ceilings to comply with ASTM C 636/C 636M and seismic design requirements indicated, according to manufacturer's written instructions and CISCA's "Ceiling Systems Handbook."
- B. Secure bracing wires to ceiling suspension members and to supports with a minimum of four tight turns. Suspend bracing from building's structural members as required for hangers, without attaching to permanent metal forms, steel deck, or steel deck tabs. Fasten bracing wires into concrete with cast-in-place or postinstalled anchors.
- C. Install suspension-system runners so they are square and securely interlocked with one another. Remove and replace dented, bent, or kinked members.
- D. Install acoustical cloud panels with undamaged edges and fit accurately into suspension-system runners and edge moldings.
- E. Clean exposed surfaces of acoustical panel ceilings, including trim, edge moldings, and suspension-system members. Comply with manufacturer's written instructions for cleaning and touchup of minor finish damage. Remove and replace ceiling components that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

**END OF SECTION**

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SECTION 09 65 19

RESILIENT TILE FLOORING

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. Furnish and install resilient tile flooring as indicated on the drawings and specified.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: For each type of flooring. Include flooring layouts, locations of seams, edges, columns, doorways, enclosing partitions, built-in furniture, cabinets, and cutouts.
  - 1. Show details of special patterns.
- C. Samples: For each exposed product and for each color and texture specified in manufacturer's standard size.
  - 1. For heat-welding bead, manufacturer's standard-size Samples, but not less than 9 inches long, of each color required.
- D. Samples for Initial Selection: For each type of resilient flooring indicated.
- E. Samples for Verification: In manufacturer's standard size, but not less than 6-by-9-inch sections of each different color and pattern of resilient flooring required.
  - 1. For heat-welding bead, manufacturer's standard-size Samples, but not less than 9 inches long, of each color required.
- F. Welded-Seam Samples: For seamless-installation technique indicated and for each resilient flooring product, color, and pattern required; with seam running lengthwise and in center of 6-by-9-inch Sample applied to a rigid backing and prepared by Installer for this Project.

1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.

1.5 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For each type of resilient flooring to include in maintenance manuals.

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1.6 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified installer who employs workers for this Project who are competent in techniques required by manufacturer for resilient flooring installation and seaming method indicated.
  - 1. Engage an installer who employs workers for this Project who are trained or certified by resilient flooring manufacturer for installation techniques required.
- B. Mockups: Build mockups to verify selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
  - 1. Build mockups for resilient flooring including resilient base and accessories.
    - a. Size: Minimum 100 sq. ft. for each type, color and pattern in locations directed by Architect.
  - 2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
  - 3. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Store resilient flooring and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended by manufacturer, but not less than 50 deg F or more than 90 deg F. Store rolls upright.

1.8 FIELD CONDITIONS

- A. Maintain ambient temperatures within range recommended by manufacturer, but not less than 70 deg F or more than 85 deg F, in spaces to receive resilient flooring during the following time periods:
  - 1. 48 hours before installation.
  - 2. During installation.
  - 3. 48 hours after installation.
- B. After installation and until Final Completion, maintain ambient temperatures within range recommended by manufacturer, but not less than 55 deg F or more than 95 deg F.
- C. Close spaces to traffic during resilient flooring installation.
- D. Close spaces to traffic for 48 hours after resilient flooring installation.
- E. Install resilient flooring after other finishing operations, including painting, have been completed.

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**PART 2 - PRODUCTS**

**2.1 PERFORMANCE REQUIREMENTS**

- A. Fire-Test-Response Characteristics: For resilient flooring, as determined by testing identical products according to ASTM E 648 or NFPA 253 by a qualified testing agency.
  - 1. Critical Radiant Flux Classification: Class I, not less than 0.45 W/sq. cm.
- B. FloorScore Compliance: Resilient flooring shall comply with requirements of FloorScore certification.
- C. Low-Emitting Materials: Flooring system shall comply with the testing and product requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

**2.2 RESILIENT FLOORING (SHEET AND TILE)**

- A. Products: Subject to compliance with requirements, provide the products indicated on the drawings or an acceptable substitute of one of the following:
  - 1. Armstrong World Industries, Inc.
  - 2. Forbo Industries, Inc.
  - 3. Johnsonite; A Tarkett Company.
  - 4. Mannington Mills, Inc.
- B. Product Standard: ASTM F 1913.
- C. Thickness: Minimum 0.096 inch.
- D. Wearing Surface: Smooth or Embossed as selected by the Architect.
- E. Seamless-Installation Method: Heat welded or chemically bonded as directed by the Architect.
- F. Colors and Patterns: As selected by Architect from full range of industry colors.

**2.3 INSTALLATION MATERIALS**

- A. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement based or blended hydraulic-cement-based formulation provided or approved by resilient flooring manufacturer for applications indicated.
- B. Adhesives: Water-resistant type recommended by flooring and adhesive manufacturers to suit resilient flooring and substrate conditions indicated.
  - 1. Adhesives shall have a VOC content of 50 g/L or less.
- C. Seamless-Installation Accessories:
  - 1. Heat-Welding Bead: Manufacturer's solid-strand product for heat welding seams.

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- a. Color: As selected by Architect from manufacturer's full range of products.
- 2. Chemical-Bonding Compound: Manufacturer's product for chemically bonding seams.
  - a. Bonding compound shall have a VOC content of 510 g/L or less.
- D. Integral-Flash-Cove-Base Accessories:
  - 1. Cove Strip: 1-inch radius provided or approved by resilient flooring manufacturer.
  - 2. Cap Strip: Square metal, vinyl, or rubber cap provided or approved by resilient flooring manufacturer.
  - 3. Corners: Metal inside and outside corners and end stops provided or approved by resilient flooring manufacturer.
- E. Floor Polish: Provide protective, liquid floor-polish products recommended by resilient flooring manufacturer.

**PART 3 - EXECUTION**

**3.1 EXAMINATION**

- A. Examine substrates, with Installer present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
  - 1. Verify that finishes of substrates comply with tolerances and other requirements specified in other Sections and that substrates are free of cracks, ridges, depressions, scale, and foreign deposits that might interfere with adhesion of resilient flooring.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

**3.2 PREPARATION**

- A. Prepare substrates according to resilient flooring manufacturer's written instructions to ensure adhesion of resilient flooring.
- B. Concrete Substrates: Prepare according to ASTM F 710.
  - 1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.
  - 2. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by resilient flooring manufacturer. Do not use solvents.
  - 3. Alkalinity and Adhesion Testing: Perform tests recommended by resilient flooring manufacturer. Proceed with installation only after substrate alkalinity

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falls within range on pH scale recommended by manufacturer in writing, but not less than 5 or more than 9 pH.

4. Moisture Testing: Proceed with installation only after substrates pass testing according to resilient flooring manufacturer's written recommendations, but not less stringent than the following:
  - a. Perform anhydrous calcium chloride test according to ASTM F 1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. in 24 hours.
  - b. Perform relative humidity test using in situ probes according to ASTM F 2170. Proceed with installation only after substrates have a maximum 75 percent relative humidity level.
- C. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound; remove bumps and ridges to produce a uniform and smooth substrate.
- D. Do not install resilient flooring until it is the same temperature as the space where it is to be installed.
  1. At least 48 hours in advance of installation, move flooring and installation materials into spaces where they will be installed.
- E. Immediately before installation, sweep and vacuum clean substrates to be covered by resilient flooring.

**3.3 RESILIENT TILE FLOORING INSTALLATION**

- A. Comply with manufacturer's written instructions for installing resilient flooring.
- B. Lay out flooring as follows:
  1. Maintain uniformity of flooring direction.
  2. Minimize number of seams; place seams in inconspicuous and low-traffic areas, at least 6 inches away from parallel joints in flooring substrates.
  3. Match edges of flooring for color shading at seams.
  4. Avoid cross seams.
- C. Scribe and cut resilient flooring to butt neatly and tightly to vertical surfaces, permanent fixtures, and built-in furniture including cabinets, pipes, outlets, and door frames.
- D. Extend resilient flooring into toe spaces, door reveals, closets, and similar openings.
- E. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on resilient flooring as marked on substrates. Use chalk or other nonpermanent marking device.



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- F. Install resilient flooring on covers for telephone and electrical ducts and similar items in installation areas. Maintain overall continuity of color and pattern between pieces of flooring installed on covers and adjoining flooring. Tightly adhere flooring edges to substrates that abut covers and to cover perimeters.
- G. Adhere resilient flooring to substrates using a full spread of adhesive applied to substrate to produce a completed installation without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, and other surface imperfections.
- H. Seamless Installation:
  - 1. Heat-Welded Seams: Comply with ASTM F 1516. Rout joints and heat weld with welding bead to permanently fuse sections into a seamless flooring. Prepare, weld, and finish seams to produce surfaces flush with adjoining flooring surfaces.
  - 2. Chemically Bonded Seams: Bond seams with chemical-bonding compound to permanently fuse sections into a seamless flooring. Prepare seams and apply compound to produce tightly fitted seams without gaps, overlays, or excess bonding compound on flooring surfaces.
- I. Integral-Flash-Cove Base: Cove resilient flooring 6 inches up vertical surfaces. Support flooring at horizontal and vertical junction with cove strip. Butt at top against cap strip.
  - 1. Install metal corners at inside and outside corners.

**3.4 CLEANING AND PROTECTION**

- A. Comply with manufacturer's written instructions for cleaning and protecting resilient flooring.
- B. Perform the following operations immediately after completing resilient flooring installation:
  - 1. Remove adhesive and other blemishes from surfaces.
  - 2. Sweep and vacuum surfaces thoroughly.
  - 3. Damp-mop surfaces to remove marks and soil.
- C. Protect resilient flooring from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.
- D. Floor Polish: Remove soil, adhesive, and blemishes from flooring surfaces before applying liquid floor polish.
  - 1. Apply not less than two coats.
- E. Cover resilient flooring until Substantial Completion.

END OF SECTION

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SECTION 09 68 00

CARPET TILE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Furnish and install carpet tile as indicated on the drawings and specified.

1.3 ACTION SUBMITTALS

- A. Shop Drawings: Submit dimensioned layout of carpet details for binder bars.
- B. Samples:
  - 1. Submit 3 labeled carpet tiles with proper backing, Samples from each dye lot of carpet required for the Work.
  - 2. Trim and accessories: Submit 12-inch long Samples of each type trim proposed for the Work.
- C. Product Data: Submit the following:
  - 1. Carpet manufacturer's published technical data fully describing carpet materials, construction, and recommended installation directions.
  - 2. Technical data and installation instructions for each adhesive and sealer material.
  - 3. Carpet manufacturer's published instructions for maintenance, care, cleaning and repair of carpet.
- D. Certificate: Submit a certificate from carpet manufacturer that materials supplied comply with fire hazard resistance standards specified.

1.4 QUALITY ASSURANCE

- A. Comply with the following as a minimum requirements:
  - 1. All materials shall comply with the recommendations of the ADA Accessibility Guide.

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- 2. Comply with South Coast Air Quality Management District (SCAQMD) limitation as to Volatile Organic Compound (VOC).
- B. Requirements of Regulatory Agencies: Carpeting shall meet requirements of federal, state and local regulatory agencies for flammability, static control, or other properties as specified.
- C. Carpet Installation: Comply with CRI 104 - Standard for Installation of Textile Floor Covering Materials.
- D. Each color of carpet shall be of the same dye lot.

1.5 DELIVERY, STORAGE AND HANDLING

- A Carpet tile shall be cut, packaged and identified by the factory. Distributor, dealer, or vendor cutting, re-packaging, and re-labeling is not permitted.
- B. Store material at least 24 hours at room temperature prior to installation.
- C. Deliver fire-rated materials with testing agency labels and required fire classification numbers attached and legible.

1.6 JOB CONDITIONS

- A. Ventilation and Temperature: Verify areas to be carpeted are ventilated to remove fumes from installation materials, and areas are within temperature range recommended by the various material manufacturers for Project site installation conditions.
- B. Protection: Prohibit traffic on carpet for at least 12 hours after installation. Cover carpet with heavy non-staining kraft paper in areas where the Work of other trades is to be performed and/or traffic and passage areas. Protect carpet from damage or soiling. Maintain protection in place until Substantial Completion.

1.7 WARRANTY

- A. Installer shall provide a 2 year labor warranty.
- B. Manufacturer shall provide a 10 year material warranty.
- C. Manufacturer shall provide a 10 year material warranty for colorfastness and texture retention.

1.8 EXTRA MATERIALS FOR MAINTENANCE

- A. Deliver extra materials for maintenance to Owner. Furnish 2% extra materials matching the products installed, packaged with protective covering for storage and identified with labels.

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1.9 INSTRUCTION

- A. Before Substantial Completion of the Work, provide a one hour Owner instruction period for proper maintenance of carpeting.
- B. Instruction shall be provided by technical representative of the carpet tile manufacturer.

PART 2 - PRODUCTS

2.1 CARPET TILE

- A. Carpet tile material and design shall be the product indicated on the drawings or “or equal” products of one of the following:
  - 1. Interface flooring Systems.
  - 2. Mannington Carpets Inc.
  - 3. Bentley Prince Street
  - 4. Mohawk.
- B. Carpet shall have the following properties:
  - 1. Carpet tile shall have flame spread rating of not greater than 25 on the Steiner Tunnel Test (ASTM E84) or shall have a critical radiant flux value of not less than 0.22 watts per square centimeter on the NBS Flooring Radiant Panel Test.
  - 2. Carpet tile shall have a smoke development rating of not greater than 450 when flaming, using the National Bureau of Standards Smoke Chamber Test, or no greater than 200 when using the Steiner Tunnel Test (ASTM E84).
  - 3. Carpet tile shall not build up a static level exceeding 3.0 KV when tested by the AATCC Test Method 134.
- B. Carpet tile shall meet the following minimum standards:
  - 1. Dye Method: 100 percent Solution Dyed Method
  - 2. Anti-Microbial Protection: Required both and top bottom.
  - 3. Moisture impermeable: Carpet shall be unaffected by water and moisture.
  - 4. Calcium Chloride: Carpet shall be able to be installed with 5 lbs. hydrostatic pressure or better (pounds) per 1000 square feet per 24 hours with a written documentation from manufacturer, per CRI-104.
  - 5. Stain and Soil Protection: BASF Zeftron 2000, 10 year stain removal guarantee.

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6. Fluorochemical Treatment: Minimum of 500 parts per million: per CRI-102; after two hot extractions (AATCC171), minimum 400 Parts Per Million per CRI TM-102.
  7. Zippering Warranty: Carpet will not zipper or develop continuous pile yarn runners in the body of the carpet for a minimum of 20 years from the date of Substantial Completion.
  8. Edge Ravel: Carpet will not have continuous pile yarn coming out at seams for a minimum of 20 years from the date of Substantial Completion.
  9. Texture Retention Warranty: The manufacturer warrants that the carpet tile will substantially maintain its physical surface texture against crushing, matting and walking out for 10 years from the date of Substantial Completion.
  10. Color fastness to light: Carpet will not fade for 10 years due to exposure to sunlight.
  11. Color fastness to atmospheric: Carpet will not fade for 5 years due to atmospheric conditions.
  12. Run Resistant Strength: Not less than 25 lbs., in accordance with the Loop Pile Run Resistance test (TP 155-86), wet or dry for a minimum of 20 years.
  13. Indoor Air Quality: Carpet shall meet or exceed CRI and EPA guidelines (green label certified and labeled).
  14. Recycling Program: Carpet shall be eligible to qualify for a close-loop recycling program (close-loop is a carpet that upon recycling is turned back into carpet and no part of the reclaimed carpet enters a landfill) either through the carpet manufacturer or fiber manufacturer.
- C. Carpet shall be from one dye lot, unless otherwise reviewed by the Architect.
- D. Carpet shall be cut, packaged, and identified by the factory. Distributors, dealers and vendor cutting, re-packaging, and re-labeling is not permitted.
- E. Carpet Edge Strips: Provide A-600-SH Silver Clamp Down manufactured by Universal Metals, or equal.
- F. Stair Nosing: Universal Moldings No. A-544-BA 1 commercial (butt to nosing) type or equal, installed with recommended sized screws.
- G. Adhesive: Water-resistant latex-based releasable adhesive recommended by carpet manufacturer for direct glue-down carpet installation. Where primers or sealers are furnished, verify their compatibility with adhesive.
- H. Patching Compounds: Cementitious type, Ardex SD-F, Durabond's Webcrete No. 95, or equal, as recommended by carpet manufacturer.

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**PART 3 - EXECUTION**

**3.1 INSTALLATION**

- A. General: Comply with CRI 104, Section 14, "Carpet Modules," and with carpet tile manufacturer's written installation instructions.
- B. Installation Method: Glue down and install carpet tile as recommended by the product manufacturer, adhering every tile with full-spread, using releasable, pressure-sensitive adhesive.
- C. Maintain dye lot integrity. Do not mix dye lots in same area.
- D. Cut and fit carpet tile to butt tightly to vertical surfaces, permanent fixtures, and built-in furniture including cabinets, pipes, outlets, edgings, thresholds, and nosings. Bind or seal cut edges as recommended by carpet tile manufacturer.
- E. Extend carpet tile into toe spaces, door reveals, closets, open-bottomed obstructions, removable flanges, alcoves, and similar openings.
- F. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on finish flooring as marked on subfloor. Use nonpermanent, nonstaining marking device.
- G. Install pattern parallel to walls and borders.
- H. Install CPT-1 and CPT-2 monolithically.

**3.2 CLEANING AND PROTECTION**

- A. Perform the following operations immediately after installing carpet tile:
  - 1. Remove excess adhesive, seam sealer, and other surface blemishes using cleaner recommended by carpet tile manufacturer.
  - 2. Remove yarns that protrude from carpet tile surface.
  - 3. Vacuum carpet tile using commercial machine with face-beater element.
- B. Protect installed carpet tile to comply with CRI 104, Section 16, "Protection of Indoor Installations."
- C. Protect carpet tile against damage from construction operations and placement of equipment and fixtures during the remainder of construction period. Use protection methods indicated or recommended in writing by carpet tile manufacturer.

END OF SECTION

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SECTION 09 81 33

ACOUSTICAL INSULATION

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.

1.1 SUMMARY

- A. Provide insulation work as indicated or noted on the Contract Drawings and in these Specifications, including the exterior walls of the existing structure.

1.2 QUALITY ASSURANCE

- A. Manufacturer: Manufacturer shall mark insulation with the manufacturer's name or trademark; thermal resistance "R" value, (insulation only) and the thickness to obtain this "R" value. Markings shall be at no more than 8-foot intervals.

1.3 ACTION SUBMITTALS

- A. Product Data: Submit to the Owner after award of Contract.

1.4 PRODUCT HANDLING

- A. Delivery: Insulation materials to be delivered to the job-site in their original and properly marked and unbroken packages.
- B. Storage: Store all materials at the job-site undercover, protected from weather, moisture and damage from any cause, with all labels intact and legible at time of installation.

1.5 INSPECTION

- A. Required by the Owner prior to closing-in of walls, lathing and other construction.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Thermal Insulation containing recycled materials is required.
- B. The minimum required recycled materials content by weight are:

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1. Rock Wool: 75 percent slag
2. Fiberglass: 20 to 25 percent glass cullet
3. Rigid Insulation:
4. Do not provide asbestos-containing materials.

**2.2 DETAILED REQUIREMENTS**

- A. Thermal and Acoustical Building Insulation: Owens-Corning, Certainteed, or equal, Fiberglass 3 inch thick blankets or batts with or without vapor seal Kraft paper on one face extending to form stapling flanges on both edges; width to fit between studs.
- B. Thermal Insulation on Underside of Roof Structure:
  1. Insulating mineral wool fiber batts or blankets with a vapor-seal backing paper, Fed. Spec., HH-1-521E as approved by the Owner and having a thermal conductivity "K" factor not exceeding 0.27 Btu.

**PART 3 EXECUTION**

**3.1 SURFACE CONDITIONS**

- A. Required: Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the work. Do not proceed until such detrimental conditions are corrected.
- B. Remove or protect against, projections in the construction framing which may damage or prevent proper installation of the insulation.

**3.2 INSTALLATION**

- A. General: Install work of this Section in accordance with the original design, requirements of governmental agencies having jurisdiction. Install materials to conform to the California Building Code and the manufacturer's recommended installation procedures as approved by the Owner or the Consultant, fastening all components firmly into position where indicated on the Contract Drawings.
- B. Locations: Within studs in partitions separating all toilet rooms from other occupied rooms or areas and elsewhere indicated on the Contract Drawings.

**3.3 INSTALLATION OF BATTS AND BLANKETS**

- A. Completely fill spaces between framing members; snugly butt adjacent batts together; to provide continuous insulation between framing members.
  1. Face vapor barrier flanges of insulation material inward.



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2. Cut neatly to fit angles, irregular spaces, for proper fastening and tight insulation.
3. Split and wrap around conduit, pipe, or other obstructions, as required to maintain continuity of installation.
4. Repair or replace any break or tear of the insulation as recommended by the insulation manufacturer.
5. Cut blankets to required length to extend from top of wall or partition to floor level, fasten to each stud secured in place by weaving horizontal galvanized light gage wire at 12-inch spacings or by stitch stapling the flanges together through web openings not to exceed 8-inches O.C.

END OF SECTION

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SECTION 09 81 36

ACOUSTICAL SEALANTS

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. This section defines the applicable requirements for furnishing and installing the acoustical sealant throughout the project.
- B. The Contractor shall be responsible for supplying the sub-contractors with the specification set forth herein. The sub-contractors shall obtain pertinent data from the vendors and supply them to the contractor. The vendors shall be responsible for the content of the data in all cases.

1.3 ACTION SUBMITTALS

- A. Submit samples of the acoustical sealant materials to be utilized and catalog cuts shall be submitted to the Architect for acceptance.

PART 2 PRODUCTS

2.1 ACOUSTICAL SEALANTS

- A. Where indicated on the drawings and /or described in the specifications, acoustical sealant shall be provided to prevent the transmission of airborne sound through cracks in the construction.
- B. The acoustical sealant compound shall be of the non-hardening polysulphide type, or elastic water-base type.
- C. The material shall be Tremco Acoustical Sealant, United States Gypsum Acoustical Sealant, or an acceptable substitute.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Partition Perimeters: Seal partitions where shown on drawings. Gypsum panels may have joint treatment applied in the normal manner over sealed joints, or panels shall be finished with base or trim as desired.

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- B. Openings: Apply a 1/4" minimum round head of sealant around all cut-outs, such as at electrical boxes, and air conditioning ducts to seal openings.

END OF SECTION

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SECTION 09 91 21

INTERIOR PAINTING (LOW ODOR, LOW VOC)

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. Furnish and apply interior painting, low odor and low VOC, as indicated on the drawings and specified.

1.3 DEFINITIONS

- A. Gloss Level 1: Not more than 5 units at 60 degrees and 10 units at 85 degrees, according to ASTM D 523.
- B. Gloss Level 2: Not more than 10 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.
- C. Gloss Level 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.
- D. Gloss Level 4: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D 523.
- E. Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D 523.
- F. Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D 523.
- G. Gloss Level 7: More than 85 units at 60 degrees, according to ASTM D 523.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product. Include preparation requirements and application instructions.
- B. Samples for Initial Selection: For each type of topcoat product.
- C. Samples for Verification: For each type of paint system and in each color and gloss of topcoat.
  - 1. Submit Samples on rigid backing, 8 inches (200 mm) square.
  - 2. Step coats on Samples to show each coat required for system.
  - 3. Label each coat of each Sample.
  - 4. Label each Sample for location and application area.

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- D. Product List: For each product indicated, include the following:
1. Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules.
  2. Printout of current "MPI Approved Products List" for each product category specified in Part 2, with the proposed low odor and zero VOC product highlighted.
  3. VOC content.

1.5 QUALITY ASSURANCE

- A. Mockups: Apply mockups of each paint system indicated and each color and finish selected to verify preliminary selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
1. Architect will select one surface to represent surfaces and conditions for application of each paint system specified in Part 3.
    - a. Vertical and Horizontal Surfaces: Provide samples of at least 100 sq. ft. (9 sq. m).
    - b. Other Items: Architect will designate items or areas required.
  2. Final approval of color selections will be based on mockups.
    - a. If preliminary color selections are not approved, apply additional mockups of additional colors selected by Architect at no added cost to Owner.
  3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
  4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F (7 deg C).
1. Maintain containers in clean condition, free of foreign materials and residue.
  2. Remove rags and waste from storage areas daily.

1.7 FIELD CONDITIONS

- A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F (10 and 35 deg C).

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- B. Do not apply paints when relative humidity exceeds 85 percent; at temperatures less than 5 deg F (3 deg C) above the dew point; or to damp or wet surfaces.

**PART 2 - PRODUCTS**

**2.1 INTERIOR PAINTING (LOW ODOR LOW VOC)**

- A. Manufacturers: Subject to compliance with requirements, provide products of the manufacturer indicated on the drawings, or "or equal" products of one of the following:
  - 1. Behr Process Corporation.
  - 2. Benjamin Moore & Co.
  - 3. Dunn-Edwards Corporation.
  - 4. Frazee Paint.
  - 5. ICI Paints.
  - 6. PPG Architectural Finishes, Inc.
  - 7. Sherwin-Williams Company (The).
  - 8. Vista Paint.
- B. MPI Standards: Provide products that comply with MPI low odor and low VOC standards indicated and that are listed in its "MPI Approved Products List."
- C. Material Compatibility:
  - 1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
  - 2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.
- D. VOC Content: Zerp when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
- E. Colors: As selected by Architect from manufacturer's full range or Match Architect's samples.

**2.2 SOURCE QUALITY CONTROL**

- A. Testing of Paint Materials: Owner reserves the right to invoke the following procedure:
  - 1. Owner will engage the services of a qualified testing agency to sample paint materials. Contractor will be notified in advance and may be present when samples are taken. If paint materials have already been delivered to Project site, samples may be taken at Project site. Samples will be identified, sealed, and certified by testing agency.
  - 2. Testing agency will perform tests for compliance with product requirements.
  - 3. Owner may direct Contractor to stop applying coatings if test results show materials being used do not comply with product requirements. Contractor shall remove noncomplying paint materials from Project site, pay for testing,

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and repaint surfaces painted with rejected materials. Contractor will be required to remove rejected materials from previously painted surfaces if, on repainting with complying materials, the two paints are incompatible.

**PART 3 - EXECUTION**

**3.1 EXAMINATION**

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
- B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
  - 1. Concrete: 12 percent.
  - 2. Masonry (Clay and CMU): 12 percent.
  - 3. Wood: 15 percent.
  - 4. Gypsum Board: 12 percent.
  - 5. Plaster: 12 percent.
- C. Gypsum Board Substrates: Verify that finishing compound is sanded smooth.
- D. Plaster Substrates: Verify that plaster is fully cured.
- E. Spray-Textured Ceiling Substrates: Verify that surfaces are dry.
- F. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.
- G. Proceed with coating application only after unsatisfactory conditions have been corrected.
  - 1. Application of coating indicates acceptance of surfaces and conditions.

**3.2 PREPARATION**

- A. Comply with manufacturer's written instructions and recommendations in "MPI Manual" applicable to substrates indicated.
- B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
  - 1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.
- C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.

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1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.
- D. Concrete Substrates: Remove release agents, curing compounds, efflorescence, and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions.
- E. Masonry Substrates: Remove efflorescence and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces or mortar joints exceed that permitted in manufacturer's written instructions.
- F. Steel Substrates: Remove rust, loose mill scale, and shop primer, if any. Clean using methods recommended in writing by paint manufacturer, but not less than the following:
  1. SSPC-SP 2, "Hand Tool Cleaning."
  2. SSPC-SP 3, "Power Tool Cleaning."
  3. SSPC-SP 7/NACE No. 4, "Brush-off Blast Cleaning."
  4. SSPC-SP 11, "Power Tool Cleaning to Bare Metal."
- G. Shop-Primed Steel Substrates: Clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with the same material as used for shop priming to comply with SSPC-PA 1 for touching up shop-primed surfaces.
- H. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal fabricated from coil stock by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.
- I. Aluminum Substrates: Remove loose surface oxidation.
- J. Wood Substrates:
  1. Scrape and clean knots, and apply coat of knot sealer before applying primer.
  2. Sand surfaces that will be exposed to view, and dust off.
  3. Prime edges, ends, faces, undersides, and backsides of wood.
  4. After priming, fill holes and imperfections in the finish surfaces with putty or plastic wood filler. Sand smooth when dried.
- K. Cotton or Canvas Insulation Covering Substrates: Remove dust, dirt, and other foreign material that might impair bond of paints to substrates.

**3.3 APPLICATION**

- A. Apply paints according to manufacturer's written instructions and to recommendations in "MPI Manual."
  1. Use applicators and techniques suited for paint and substrate indicated.



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2. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
  3. Paint front and backsides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.
  4. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
  5. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to topcoat manufacturers.
- B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.
- C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.
- D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.
- E. Painting Fire Suppression, Plumbing, HVAC, Electrical, Communication, and Electronic Safety and Security Work:
1. Paint the following work where exposed in equipment rooms:
    - a. Equipment, including panelboards and switch gear.
    - b. Uninsulated metal piping.
    - c. Uninsulated plastic piping.
    - d. Pipe hangers and supports.
    - e. Metal conduit.
    - f. Plastic conduit.
    - g. Tanks that do not have factory-applied final finishes.
    - h. Duct, equipment, and pipe insulation having cotton or canvas insulation covering or other paintable jacket material.
  2. Paint the following work where exposed in occupied spaces:
    - a. Equipment, including panelboards.
    - b. Uninsulated metal piping.
    - c. Uninsulated plastic piping.
    - d. Pipe hangers and supports.
    - e. Metal conduit.
    - f. Plastic conduit.
    - g. Duct, equipment, and pipe insulation having cotton or canvas insulation covering or other paintable jacket material.

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3. Paint portions of internal surfaces of metal ducts, without liner, behind air inlets and outlets that are visible from occupied spaces.

3.4 FIELD QUALITY CONTROL

- A. Dry Film Thickness Testing: Owner may engage the services of a qualified testing and inspecting agency to inspect and test paint for dry film thickness.
  1. Contractor shall touch up and restore painted surfaces damaged by testing.
  2. If test results show that dry film thickness of applied paint does not comply with paint manufacturer's written recommendations, Contractor shall pay for testing and apply additional coats as needed to provide dry film thickness that complies with paint manufacturer's written recommendations.

3.5 CLEANING AND PROTECTION

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

END OF SECTION