



SPURWINK

going the distance

Smith House Renovation
899 Riverside Street
Portland, ME 04103

August 15, 2016

PROJECT MANUAL

SPECIFICATION TABLE OF CONTENTS

DIVISION 01 - GENERAL REQUIREMENTS		No. of Pages
011000	Summary	4
012500	Substitution Procedures	6
012600	Contract Modification Procedures	3
012900	Payment Procedures	5
013100	Project Management and Coordination	9
013300	Submittal Procedures	10
016000	Product Requirements	5
DIVISION 02 - EXISTING CONDITIONS		
Not Used		
DIVISION 03 - CONCRETE		
Not Used		
DIVISION 04 - MASONRY		
Not Used		
DIVISION 05 - METALS		
Not Used		
DIVISION 06 - WOOD, PLASTICS, AND COMPOSITES		
061000	Rough Carpentry	7
062023	Interior Finish Carpentry	4
DIVISION 07 - THERMAL AND MOISTURE PROTECTION		
Not Used		
DIVISION 08 - OPENINGS		
081400	Flush Wood Doors and Steel Frames	7
087100	Door Hardware	20
DIVISION 09 - FINISHES		
092900	Gypsum Board	6
093000	Ceramic Tile	5
096100	Acoustical Tile Ceilings	3
099513	Resilient Base and Accessories	4
096519	Resilient Tile Flooring	6
096816	Carpet Tile	4
099123	Painting	11

SPECIFICATIONS (continued)

DIVISION No. of Pages

DIVISION 10 – SPECIALTIES

101400	Signs	3
102800	Toilet Accessories	6
105113	Lockers	2

DIVISION 11 - EQUIPMENT

110000	Kitchen Equipment
110000	Kitchen Appliances

DIVISION 12 - FURNISHINGS

123200	Manufactured Wood Casework	6
--------	----------------------------	---

DIVISION 13 - 48

Not Used

SECTION 011000 - SUMMARY

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the following:
 - 1. Project information.
 - 2. Work covered by Contract Documents.
 - 3. Access to site.
 - 4. Coordination with occupants.
 - 5. Work restrictions.
 - 6. Specification and drawing conventions.

1.2 PROJECT INFORMATION

- A. Project Identification: Kaufman House – Interior Tenant Fit-out.
 - 1. Project Location: 899 Riverside Street Portland Maine.
- B. Building Owner : Spurwink Services, 899 Riverside Street Portland Maine 04103
- C. Architect Identification: The Contract Documents were prepared for Project by Garrison Consulting, Matthew Winch, Architect, 41 Edgewood Ave, Portland Maine 04103. (207) 450-0750 matthewwinch@earthlink.net

1.3 WORK COVERED BY CONTRACT DOCUMENTS

- A. The Work consists of the following:
 - 1. The Work entailed in this project involves the demolition of existing conditions and the conversion of the existing first and second floor office building to an Institutional (IBC 2009) or Ambulatory Care Facility (NFPA Life Safety 2009). Work for this project includes the new construction of finished spaces for twelve bedrooms, four new bathrooms (renovation of two existing) new dining room, kitchen, living rooms and administrative staff space.

New construction for the project includes but is not limited to wood stud framed walls and gypsum wallboard finishes, interior doors, hardware and trims, windows, utilities, suspended acoustical ceilings, finishes and fixtures, cabinetry, flooring and countertops. The scope of the work is defined on the Architectural drawings and in the Project Manual.

The scope of drawings and the extent of the Project Manual is for architectural components and assemblies. The scope of work also includes and the contractor shall be responsible for:

The scope of drawings and the extent of the Project Manual is for architectural components and assemblies. The scope of work also includes and the contractor shall be responsible for:

1. Procuring HVAC design and construction for a fully functional HVAC system and for HVAC drawings bearing the seal of a Maine licensed Professional Engineer. HVAC systems shall utilize existing mechanical equipment and distribution systems to the extent that they are capable of continued performance.
2. Procuring plumbing design and construction for a fully functional plumbing system connected to existing risers and systems. Systems also include a commercial kitchen with grease separation systems per City of Portland Sanitation requirements
3. Procuring electrical design and construction for a fully functional electrical system and for electrical drawings bearing the seal of a Maine licensed Professional Engineer. Electrical systems shall utilize existing equipment and vertical distribution systems.

1.4 TYPE OF CONTRACT

- A. Project will be constructed under a single prime contract.
- B. Contract Type: AIA A105 - 2007 ed: Standard Form of Agreement Between Owner and Contractor – for a Residential or Small Commercial Project.

1.5 ACCESS TO SITE

- A. General: Contractor shall have limited use of premises for construction operations as indicated on Drawings by the Contract limits.
- B. Use of Site: Limit use of premises to areas within the Contract limits indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.
 1. Driveways and Entrances: Keep driveways and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
 - a. Schedule deliveries to minimize use of driveways and entrances.
 - b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
 2. Driveway entrance to the north of Kaufman House serves the occupants in the adjacent Sue Wright House. Use of this driveway for deliveries or storage of materials will not be allowed.

- C. Condition of Existing Building: Maintain portions of existing building affected by construction operations in a weather tight condition throughout construction period. Repair damage caused by construction operations.

1.6 MANDATORY SITE VISIT

- A. A mandatory site visit will be held by the Owner for bidders and their subcontractors to familiarize themselves with the existing conditions and systems in place.
- B. The date of the site visit will be coordinated once invitations to bid have been accepted.

1.7 COORDINATION WITH OCCUPANTS

- A. Partial Owner Occupancy: Owner will occupy the premises (in adjacent buildings) during entire construction period, with the exception of areas under construction. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's operations. Maintain existing exits, unless otherwise indicated.
 - 1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and authorities having jurisdiction.
 - 2. Provide not less than 72 hours' notice to Owner of activities that will affect Owner's operations.

1.8 WORK RESTRICTIONS

- A. Work Restrictions, General: Comply with restrictions on construction operations.
 - 1. Comply with limitations on use of public streets and other requirements of authorities having jurisdiction.
- B. On-Site Work Hours: Work shall be generally performed during normal business working hours of 7:00 a.m. to 5:00 p.m., Monday through Friday, except otherwise indicated.
 - 1. Weekend Hours: As approved by Owner.
 - 2. Early Morning Hours: As approved by Owner.
 - 3. Hours for Utility Shutdowns: As approved by Owner.
 - 4. Provide 24 hour notice to Architect when performing work other than normal working hours.
- C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
 - 1. Notify Architect not less than two days in advance of proposed utility interruptions.

2. Do not proceed with utility interruptions without Architect's permission.
- D. Controlled Substances: Use of tobacco products and other controlled substances within the building or on the grounds is not permitted.

1.9 SPECIFICATION AND DRAWING CONVENTIONS

- A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
 2. Specification requirements are to be performed by Contractor unless specifically stated otherwise.
- B. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.
- C. Drawing Coordination: Requirements for materials and products identified on the Drawings are described in detail in the Specifications. One or more of the following are used on the Drawings to identify materials and products:
1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
 2. Abbreviations: Materials and products are identified by abbreviations published as part of the U.S. National CAD Standard and scheduled on Drawings.
 3. Keynoting: Materials and products are identified by reference keynotes referencing Specification Section numbers found in this Project Manual.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 011000

SECTION 012500 - SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements for substitutions.
- B. Related Sections:
 - 1. Division 01 Section "Allowances" for products selected under an allowance.
 - 2. Division 01 Section "Alternates" for products selected under an alternate.
 - 3. Divisions 02 through 48 Sections for specific requirements and limitations for substitutions.

1.2 DEFINITIONS

- A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.
 - 1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
 - 2. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required in order to meet other Project requirements but may offer advantage to Contractor or Owner.

1.3 ACTION SUBMITTALS

- A. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
 - 1. Substitution Request Form: Use facsimile of form provided at end of this Section.
 - 2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
 - a. Statement indicating why specified product or fabrication or installation cannot be provided, if applicable.
 - b. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by Owner and separate contractors, that will be necessary to accommodate proposed substitution.
 - c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable

specification section. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.

- d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
 - e. Samples, where applicable or requested.
 - f. Certificates and qualification data, where applicable or requested.
 - g. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
 - h. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
 - i. Research reports evidencing compliance with building code in effect for Project, from ICC-ES.
 - j. Detailed comparison of Contractor's construction schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
 - k. Cost information, including a proposal of change, if any, in the Contract Sum.
 - l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.
 - m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
3. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within three days of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution by addendum.
- a. Use product specified if Architect cannot make a decision on use of a proposed substitution within time allocated or notification is not made by addendum.

1.4 QUALITY ASSURANCE

- A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage qualified testing agency to perform compatibility tests recommended by manufacturers.
- B. Products with asbestos: Asbestos containing materials are not to be purchased or installed in this project.

1.5 PROCEDURES

- A. Coordination: Modify or adjust affected work as necessary to integrate work of the approved substitutions.

PART 2 - PRODUCTS

2.1 SUBSTITUTIONS

- A. Substitutions for Cause: Submit requests for substitution immediately upon discovery of need for change, but not later than 15 days prior to time required for preparation and review of related submittals.
 - 1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:
 - a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
 - b. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
 - c. Substitution request is fully documented and properly submitted.
 - d. Requested substitution will not adversely affect Contractor's construction schedule.
 - e. Requested substitution has received necessary approvals of authorities having jurisdiction.
 - f. Requested substitution is compatible with other portions of the Work.
 - g. Requested substitution has been coordinated with other portions of the Work.
 - h. Requested substitution provides specified warranty.
 - i. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.
- B. Substitutions for Convenience: Architect will consider requests for substitution if received within the time indicated in A701 – Instructions to Bidders. Requests received after that time may be considered or rejected at discretion of Architect.
 - 1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:

- a. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
- b. Requested substitution does not require extensive revisions to the Contract Documents.
- c. Requested substitution is consistent with the Contract Documents and will produce indicated results.
- d. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
- e. Substitution request is fully documented and properly submitted.
- f. Requested substitution will not adversely affect Contractor's construction schedule.
- g. Requested substitution has received necessary approvals of authorities having jurisdiction.
- h. Requested substitution is compatible with other portions of the Work.
- i. Requested substitution has been coordinated with other portions of the Work.
- j. Requested substitution provides specified warranty.
- k. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

PART 3 - EXECUTION (Not Used)

SUBSTITUTION REQUEST FORM

Project: _____ Substitution Request Number: _____
To: _____ From: _____
Re: _____ Date: _____

Specification Title: _____ Description: _____
Section: _____ Page: _____ Article/Paragraph: _____

Proposed Substitution:

Manufacturer: _____ Address: _____ Phone: _____
Trade Name: _____ Model No. _____

Attached data includes product description, specifications, drawings, and performance and test data adequate for evaluation of the request: applicable portions of the data are clearly identified.

Attached data also includes a description of changes to the Contract Documents that the proposed substitutions will require for its proper installation.

The Undersigned certifies:

1. Has investigated proposed Product and determined that it meets or exceeds the quality level of the specified product.
2. Will provide the same warranty for the Substitution as for the specified Product.
3. Will provide no additional cost to the Owner.
4. Will coordinate installation and make changes to other Work that may be required for the Work to be complete with no additional cost to Owner.
5. Waive claims for additional costs or time extension that may subsequently become apparent.
6. Will reimburse Owner and Architect/Engineer for review or redesign services associated with substitution.

Submitted By:

Signed By:

Firm:

Address:

Telephone: _____ Fax:

:

A/E's REVIEW AND ACTION

Submission approved - Make submittals in accordance with Specification Section 013300.

Submission approved as noted - Make submittals in accordance with Specification Section 013300.

Submission rejected - Use specified materials.

Submission request received too late - Use specified materials.

Signed by: _____ Date:

:

Supporting Data Attached: Drawings Product Data Samples Tests
Reports

Other

:

END OF SECTION 012500

SECTION 012600 - CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section specifies administrative and procedural requirements for handling and processing Contract modifications.
- B. Related Sections include the following:
 - 1. Division 01 Section "Product Requirements" for administrative procedures for handling requests for substitutions made after Contract award.

1.2 MINOR CHANGES IN THE WORK

- A. Architect will issue supplemental instructions authorizing Minor Changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on AIA Document G710, "Architect's Supplemental Instructions."

1.3 PROPOSAL REQUESTS

- A. Owner-Initiated Proposal Requests: Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
 - 1. Work Change Proposal Requests issued by Architect are not instructions either to stop work in progress or to execute the proposed change.
 - 2. Within 20 days after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
 - a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts. Spurwink Services is tax exempt.
 - c. Include costs of labor and supervision directly attributable to the change.
 - d. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
- B. Contractor-Initiated Proposals: If latent or unforeseen conditions require modifications to the Contract, Contractor may propose changes by submitting a request for a change to Architect.

1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
4. Include costs of labor and supervision directly attributable to the change.
5. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
6. Comply with requirements in Division 01 Section "Product Requirements" if the proposed change requires substitution of one product or system for product or system specified.
7. Proposal Request Form: Use CSI Form 13.6A, "Change Order Request (Proposal)," with attachments CSI Form 13.6D, "Proposal Worksheet Summary," and Form 13.6C, "Proposal Worksheet Detail."

1.4 ADMINISTRATIVE CHANGE ORDERS

- A. Allowance Adjustment: Refer to Division 01 Section "Allowances" for administrative procedures for preparation of Change Order Proposal for adjusting the Contract Sum to reflect actual costs of allowances.

1.5 CHANGE ORDER PROCEDURES

- A. On Owner's approval of a Proposal Request, Architect will review a Change Order for signatures of Owner and Contractor on AIA Document G701. All Change Orders must be approved by Architect, Owner and Contractor

1.6 CONSTRUCTION CHANGE DIRECTIVE

- A. Construction Change Directive: Architect may issue a Construction Change Directive on AIA Document G714. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
 1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.
- B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.
 1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012600

SECTION 012900 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.

1.2 DEFINITIONS

- A. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

1.3 SCHEDULE OF VALUES

- A. Coordination: Coordinate preparation of the Schedule of Values with preparation of Contractor's Construction Schedule.
 - 1. Correlate line items in the Schedule of Values with other required administrative forms and schedules, including the following:
 - a. Application for Payment forms with Continuation Sheets.
 - b. Submittals Schedule.
 - c. Items required to be indicated as separate activities in Contractor's construction schedule.
 - 2. Submit the Schedule of Values to Architect at earliest possible date but no later than seven days before the date scheduled for submittal of initial Applications for Payment.
 - 3. Schedules for Separate Elements of Work: Where the Contractor's construction schedule defines separate elements of the Work, provide separate schedules showing values correlated with each element.
- B. Format and Content: Use the Project Manual table of contents as a guide to establish line items for the Schedule of Values. Provide at least one line item for each Specification Section.
 - 1. Identification: Include the following Project identification on the Schedule of Values:
 - a. Project name and location.
 - b. Name of Architect.
 - c. Architect's project number 2011-019.
 - d. Contractor's name and address.
 - e. Date of submittal.

2. Submit draft of request for payment form.
3. Arrange the Schedule of Values in tabular form with separate columns to indicate the following for each item listed:
 - a. Related Specification Section or Division.
 - b. Description of the Work.
 - c. Name of subcontractor.
 - d. Name of manufacturer or fabricator.
 - e. Name of supplier.
 - f. Change Orders (numbers) that affect value.
 - g. Dollar value of the following, as a percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.
 - 1) Labor.
 - 2) Materials.
 - 3) Equipment.
4. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Provide several line items for principal subcontract amounts, where appropriate. Include separate line items under required principal subcontracts for operation and maintenance manuals, punch list activities, Project Record Documents, and demonstration and training in the amount of 5 percent of the Contract Sum.
 - a. Include separate line items under Contractor and principal subcontracts for project closeout requirements in an amount totaling five percent of the Contract Sum and subcontract amount.
5. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
6. Provide a separate line item in the Schedule of Values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
 - a. Differentiate between items stored on-site and items stored off-site. If specified, include evidence of insurance or bonded warehousing.
7. Provide separate line items in the Schedule of Values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
8. Allowances: Provide a separate line item in the Schedule of Values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.
9. Each item in the Schedule of Values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.
 - a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the

Schedule of Values or distributed as general overhead expense, at Contractor's option.

10. Schedule Updating: Update and resubmit the Schedule of Values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

1.4 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment following the initial Application for Payment shall be consistent with previous applications and payments as certified by Architect and paid for by Owner.
 1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.
- B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction Work covered by each Application for Payment is the period indicated in the Agreement.
 1. Submit draft copy of Application for Payment seven days prior to due date for review by Architect.
- C. Payment Application Forms: Use AIA Document G702 and AIA Document G703 Continuation Sheets as form for Applications for Payment.
- D. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Architect will return incomplete applications without action.
 1. Entries shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions were made.
 2. Include amounts for work completed following previous Application for Payment, whether or not payment has been received. Include only amounts for work completed at time of Application for Payment.
 3. Include amounts of Change Orders issued before last day of construction period covered by application.
- E. Stored Materials: Include in Application for Payment amounts applied for materials or equipment purchased or fabricated and stored, but not yet installed. Differentiate between items stored on-site and items stored off-site.
 1. Provide certificate of insurance, evidence of transfer of title to Owner, and consent of surety to payment, for stored materials.
 2. Provide supporting documentation that verifies amount requested, such as paid invoices. Match amount requested with amounts indicated on documentation; do not include overhead and profit on stored materials.
 3. Provide summary documentation for stored materials indicating the following:

- a. Value of materials previously stored and remaining stored as of date of previous Applications for Payment.
 - b. Value of previously stored materials put in place after date of previous Application for Payment and on or before date of current Application for Payment.
 - c. Value of materials stored since date of previous Application for Payment and remaining stored as of date of current Application for Payment.
- F. Transmittal: Submit 3 signed and notarized original copies of each Application for Payment to Architect by a method ensuring receipt within 24 hours. One copy shall include waivers of lien and similar attachments if required.
 1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.
- G. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's liens from subcontractors, sub-subcontractors, and suppliers for construction period covered by the previous application.
 1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
 2. When an application shows completion of an item, submit final or full waivers.
 3. The list of subcontractors, principal suppliers and fabricators shall be used to designate which entities involved in the Work must submit waivers. The list shall be approved by the Owner.
 4. Submit final Application for Payment with or preceded by final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.
 5. Waiver Forms: Submit waivers of lien on forms, executed in a manner acceptable to Owner.
- H. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
 1. List of subcontractors.
 2. Schedule of Values.
 3. Contractor's Construction Schedule (preliminary if not final).
 4. Submittals Schedule (preliminary if not final).
 5. List of Contractor's staff assignments.
 6. Copies of building permits.
 7. Initial progress report.
 8. Certificates of insurance and insurance policies.
 9. Performance and payment bonds.
 10. Data needed to acquire Owner's insurance.
 11. Initial settlement survey and damage report if required.
- I. Application for Payment at Substantial Completion: After issuing the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.

1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
 2. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
- J. Final Payment Application: Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
1. Evidence of completion of Project closeout requirements.
 2. Final submittal of record documents and operation and maintenance data.
 3. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
 4. Updated final statement, accounting for final changes to the Contract Sum.
 5. Evidence that claims have been settled.
 6. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
 7. Final, liquidated damages settlement statement.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012900

SECTION 013100 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
 - 1. General project coordination procedures.
 - 2. Administrative and supervisory personnel.
 - 3. Project meetings.
 - 4. Requests for Interpretation (RFIs).

1.2 DEFINITIONS

- A. RFI: Request from Contractor seeking interpretation or clarification of the Contract Documents.

1.3 INFORMATIONAL SUBMITTALS

- A. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:
 - 1. Name, address, and telephone number of entity performing subcontract or supplying products.
 - 2. Number and title of related Specification Section(s) covered by subcontract.
 - 3. Drawing number and detail references, as appropriate, covered by subcontract.
- B. Key Personnel Names: Within 5 days of starting construction operations, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including home, office, and cellular telephone numbers and e-mail addresses. Provide names, addresses, and telephone numbers of individuals assigned as alternates in the absence of individuals assigned to Project.
 - 1. Post copies of list in project meeting room, in temporary field office, and by each temporary telephone. Keep list current at all times.

1.4 GENERAL COORDINATION PROCEDURES

- A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections, that depend on each other for proper installation, connection, and operation.

1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
 2. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.
 3. Make adequate provisions to accommodate items scheduled for later installation.
- B. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.
- C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
1. Preparation of Contractor's Construction Schedule.
 2. Preparation of the Schedule of Values.
 3. Installation and removal of temporary facilities and controls.
 4. Delivery and processing of submittals.
 5. Progress meetings.
 6. Preinstallation conferences.
 7. Project closeout activities.
 8. Startup and adjustment of systems.
- D. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.
1. Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work. Refer to other Sections for disposition of salvaged materials that are designated as Owner's property.

1.5 REQUESTS FOR INTERPRETATION (RFIs)

- A. Procedure: Immediately on discovery of the need for interpretation of the Contract Documents, and if not possible to request interpretation at Project meeting, prepare and submit an RFI in either of the form(s) specified.
1. Architect will return RFIs submitted to Architect by other entities controlled by Contractor with no response.
 2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.
- B. Content of the RFI: Include a detailed, legible description of item needing interpretation and the following:
1. Project name.

2. Project number.
 3. Date.
 4. Name of Contractor.
 5. Name of Architect.
 6. RFI number, numbered sequentially.
 7. RFI subject.
 8. Specification Section number and title and related paragraphs, as appropriate.
 9. Drawing number and detail references, as appropriate.
 10. Field dimensions and conditions, as appropriate.
 11. Contractor's suggested solution(s). If Contractor's solution(s) impact the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
 12. Contractor's signature.
 13. Attachments: Include drawings, descriptions, measurements, photos, Product Data, Shop Drawings, and other information necessary to fully describe items needing interpretation.
 - a. Include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments on attached sketches.
- A. RFI Forms: Software-generated form with substantially the same content as indicated above, acceptable to Architect.
1. Attachments shall be electronic files in Adobe Acrobat PDF format.
- B. Architect's Action: Architect will review each RFI, determine action required, and return it. Allow seven working days for Architect's response for each RFI. RFIs received after 1:00 p.m. will be considered as received the following working day.
1. The following RFIs will be returned without action:
 - a. Requests for approval of submittals.
 - b. Requests for approval of substitutions.
 - c. Requests for approval of Contractor's means and methods.
 - d. Requests for coordination information already indicated in the Contract Documents.
 - e. Requests for adjustments in the Contract Time or the Contract Sum.
 - f. Requests for interpretation of Architect's actions on submittals.
 - g. Incomplete RFIs or RFIs with numerous errors.
 2. Architect's action may include a request for additional information, in which case Architect's time for response will date from time of receipt of additional information.
 3. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Division 01 Section "Contract Modification Procedures."
 - a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect in writing within 10 days of receipt of the RFI response.

- C. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log weekly. Software log with not less than the following:
 - 1. Project name.
 - 2. Name and address of Contractor.
 - 3. Name and address of Architect.
 - 4. RFI number including RFIs that were dropped and not submitted.
 - 5. RFI description.
 - 6. Date the RFI was submitted.
 - 7. Date Architect's response was received.
 - 8. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.
- D. On receipt of Architect's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect within seven days if Contractor disagrees with response.

1.6 PROJECT MEETINGS

- A. General: Schedule and conduct meetings and conferences at Project site, unless otherwise indicated.
 - 1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times.
 - 2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
 - 3. Minutes: Record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner and Architect, within three days of the meeting.
- B. Preconstruction Conference: Architect will schedule a preconstruction conference before starting construction, at a time convenient to Owner and Architect, but no later than 15 days after execution of the Agreement. Hold the conference at Project site or another convenient location. Conduct the meeting to review responsibilities and personnel assignments.
 - 1. Attendees: Authorized representatives of Owner, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
 - 2. Agenda: Discuss items of significance that could affect progress, including the following:
 - a. Tentative construction schedule.
 - b. Phasing.
 - c. Critical work sequencing and long-lead items.
 - d. Designation of key personnel and their duties.
 - e. Procedures for processing field decisions and Change Orders.

- f. Procedures for RFIs.
- g. Procedures for testing and inspecting.
- h. Procedures for processing Applications for Payment.
- i. Distribution of the Contract Documents.
- j. Submittal procedures.
- k. Preparation of Record Documents.
- l. Use of the premises and existing building.
- m. Work restrictions.
- n. Working hours.
- o. Owner's occupancy requirements.
- p. Responsibility for temporary facilities and controls.
- q. Procedures for moisture and mold control.
- r. Procedures for disruptions and shutdowns.
- s. Construction waste management and recycling.
- t. Parking availability.
- u. Office, work, and storage areas.
- v. Equipment deliveries and priorities.
- w. First aid.
- x. Security.
- y. Progress cleaning.

3. Minutes: Architect will record and distribute meeting minutes.

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

1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Architect of scheduled meeting dates.

2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:

- a. The Contract Documents.
- b. Options.
- c. Related RFIs.
- d. Related Change Orders.
- e. Purchases.
- f. Deliveries.
- g. Submittals.
- h. Review of mockups.
- i. Possible conflicts.
- j. Compatibility problems.
- k. Time schedules.
- l. Weather limitations.
- m. Manufacturer's written recommendations.
- n. Warranty requirements.
- o. Compatibility of materials.
- p. Acceptability of substrates.
- q. Temporary facilities and controls.

- r. Space and access limitations.
 - s. Regulations of authorities having jurisdiction.
 - t. Testing and inspecting requirements.
 - u. Installation procedures.
 - v. Coordination with other work.
 - w. Required performance results.
 - x. Protection of adjacent work.
 - y. Protection of construction and personnel.
3. Architect will record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
 4. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present.
 5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.
- D. Progress Meetings: Architect will conduct progress meetings at monthly intervals. Coordinate dates of meetings with preparation of payment requests.
1. Attendees: In addition to representatives of Owner and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
 2. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
 - a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's Construction Schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
 - 1) Review schedule for next period.
 - b. Review present and future needs of each entity present, including the following:
 - 1) Interface requirements.
 - 2) Sequence of operations.
 - 3) Status of submittals.
 - 4) Deliveries.
 - 5) Off-site fabrication.
 - 6) Access.
 - 7) Site utilization.
 - 8) Temporary facilities and controls.
 - 9) Progress cleaning.

- 10) Quality and work standards.
 - 11) Status of correction of deficient items.
 - 12) Field observations.
 - 13) Status of RFIs.
 - 14) Status of proposal requests.
 - 15) Pending changes.
 - 16) Status of Change Orders.
 - 17) Pending claims and disputes.
 - 18) Documentation of information for payment requests.
3. Minutes: Architect will record and distribute to Contractor the meeting minutes.
 4. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present.
 - a. Schedule Updating: Revise Contractor's Construction Schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.
- E. Project Closeout Conference: Architect will schedule and conduct a Project closeout conference, at a time convenient to Owner and Architect, but no later than 30 days prior to the scheduled date of Substantial Completion.
1. Conduct the conference to review requirements and responsibilities related to Project closeout.
 2. Attendees: Authorized representatives of Owner, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the meeting. Participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
 3. Agenda: Discuss items of significance that could affect or delay Project closeout, including the following:
 - a. Preparation of record documents.
 - b. Procedures required prior to inspection for Substantial Completion and for final inspection for acceptance.
 - c. Submittal of written warranties.
 - d. Requirements for preparing sustainable design documentation.
 - e. Requirements for preparing operations and maintenance data.
 - f. Requirements for demonstration and training.
 - g. Preparation of Contractor's punch list.
 - h. Procedures for processing Applications for Payment at Substantial Completion and for final payment.
 - i. Submittal procedures.
 - j. Coordination of separate contracts.
 - k. Owner's partial occupancy requirements.
 - l. Installation of Owner's furniture, fixtures, and equipment.
 - m. Responsibility for removing temporary facilities and controls.
 4. Minutes: Entity conducting meeting will record and distribute meeting minutes.

- F. Coordination Meetings: Conduct Project coordination meetings at regular intervals. Project coordination meetings are in addition to specific meetings held for other purposes, such as progress meetings and preinstallation conferences.
1. Attendees: Each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
 2. Agenda: Review and correct or approve minutes of the previous coordination meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
 - a. Combined Contractor's Construction Schedule: Review progress since the last coordination meeting. Determine whether each contract is on time, ahead of schedule, or behind schedule, in relation to Combined Contractor's Construction Schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
 - b. Schedule Updating: Revise Combined Contractor's Construction Schedule after each coordination meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with report of each meeting.
 - c. Review present and future needs of each contractor present, including the following:
 - 1) Interface requirements.
 - 2) Sequence of operations.
 - 3) Status of submittals.
 - 4) Deliveries.
 - 5) Off-site fabrication.
 - 6) Access.
 - 7) Site utilization.
 - 8) Temporary facilities and controls.
 - 9) Work hours.
 - 10) Hazards and risks.
 - 11) Progress cleaning.
 - 12) Quality and work standards.
 - 13) Change Orders.
 3. Reporting: Record meeting results and distribute copies to Architect and everyone in attendance and to others affected by decisions or actions resulting from each meeting.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013100

SECTION 013300 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes requirements for the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.

1.2 DEFINITIONS

- A. Action Submittals: Written and graphic information and physical samples that require Architect's responsive action. Action submittals are those submittals indicated in individual Specification Sections as "action submittals."
- B. Informational Submittals: Written and graphic information and physical samples that do not require Architect's responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual Specification Sections as "informational submittals."
- C. File Transfer Protocol (FTP): Communications protocol that enables transfer of files to and from another computer over a network and that serves as the basis for standard Internet protocols. An FTP site is a portion of a network located outside of network firewalls within which internal and external users are able to access files.
- D. Portable Document Format (PDF): An open standard file format licensed by Adobe Systems used for representing documents in a device-independent and display resolution-independent fixed-layout document format.

1.3 ACTION SUBMITTALS

- A. Submittal Schedule: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Architect and additional time for handling and reviewing submittals required by those corrections.
 - 1. Coordinate submittal schedule with list of subcontracts, the schedule of values, and Contractor's construction schedule.
 - 2. Initial Submittal: Submit concurrently with startup construction schedule. Include submittals required during the first 60 days of construction. List those submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
 - 3. Final Submittal: Submit concurrently with the first complete submittal of Contractor's construction schedule.

- a. Submit revised submittal schedule to reflect changes in current status and timing for submittals.
4. Format: Arrange the following information in a tabular format:
- a. Scheduled date for first submittal.
 - b. Specification Section number and title.
 - c. Submittal category: Action; informational.
 - d. Name of subcontractor.
 - e. Description of the Work covered.
 - f. Scheduled date for Architect's final release or approval.
 - g. Scheduled date of fabrication.
 - h. Scheduled dates for purchasing.
 - i. Scheduled dates for installation.
 - j. Activity or event number.

1.4 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

- A. Architect's Digital Data Files: Electronic digital data files of the Contract Drawings will not be provided by Architect for Contractor's use in preparing submittals.
- B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
 2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.
 3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.
 4. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
 - a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- C. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
1. Initial Review: Allow 10 business days from receipt for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
 2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.

3. Resubmittal Review: Allow 10 business days from receipt for review of each resubmittal.
 4. Sequential Review: Where sequential review of submittals by Architect's consultants, Owner, or other parties is indicated, allow 15 business days from receipt for initial review of each submittal.
 - a. Sitework submittals.
 - b. Commercial equipment submittals.
 - c. Mechanical submittals.
 - d. Electrical submittals.
 5. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing.
 6. Submittals with Color Selections: Deliver to Architect a list of submittals required for the exterior color package and a list required for the interior color package. The Architect needs to coordinate the colors of all exterior and interior items and will hold submittals with color selections until all materials in the exterior color package have been received. Allow 2 weeks after the last item has been submitted for return of exterior color selections. The Architect will hold submittals with color selections until all materials in the interior color package have been received. Allow 3 weeks after the last item has been submitted for return of interior color selections. Careful coordination of the Submittal Schedule by the Contractor is required so as not to delay the Work.
- D. Paper Submittals: Place a permanent label or title block on each submittal item for identification.
1. Indicate name of firm or entity that prepared each submittal on label or title block.
 2. Provide a space approximately 6 by 8 inches on label or beside title block to record Contractor's review and approval markings and action taken by Architect.
 3. Include the following information for processing and recording action taken:
 - a. Project name.
 - b. Date.
 - c. Name of Architect.
 - d. Name of Contractor.
 - e. Name of subcontractor.
 - f. Name of supplier.
 - g. Name of manufacturer.
 - h. Submittal number or other unique identifier, including revision identifier.
 - 1) Submittal number shall use Specification Section number followed by a decimal point and then a sequential number (e.g., ABCD-061000.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., ABCD-061000.01.A).
 - i. Number and title of appropriate Specification Section.
 - j. Drawing number and detail references, as appropriate.
 - k. Location(s) where product is to be installed, as appropriate.
 - l. Other necessary identification.

4. Additional Paper Copies: Unless additional copies are required for final submittal, and unless Architect observes noncompliance with provisions in the Contract Documents, initial submittal may serve as final submittal.
 - a. Submit one copy of submittal to concurrent reviewer in addition to specified number of copies to Architect.

5. Transmittal for Paper Submittals: Assemble each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Architect will return without review submittals received from sources other than Contractor.
 - a. Transmittal Form for Paper Submittals: Use Contractor's standard transmittal form. Provide locations on form for the following information:
 - 1) Project name.
 - 2) Date.
 - 3) Destination (To:).
 - 4) Source (From:).
 - 5) Name and address of Architect.
 - 6) Name of Construction Manager.
 - 7) Name of Contractor.
 - 8) Name of firm or entity that prepared submittal.
 - 9) Names of subcontractor, manufacturer, and supplier.
 - 10) Category and type of submittal.
 - 11) Submittal purpose and description.
 - 12) Specification Section number and title.
 - 13) Specification paragraph number or drawing designation and generic name for each of multiple items.
 - 14) Drawing number and detail references, as appropriate.
 - 15) Indication of full or partial submittal.
 - 16) Transmittal number, numbered consecutively.
 - 17) Submittal and transmittal distribution record.
 - 18) Remarks.
 - 19) Signature of transmitter.

- E. Options: Identify options requiring selection by Architect.

- F. Deviations and Additional Information: On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Architect on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same identification information as related submittal.

- G. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
 1. Note date and content of previous submittal.
 2. Note date and content of revision in label or title block and clearly indicate extent of revision.

3. Resubmit submittals until they are marked with approval notation from Architect's action stamp.
- H. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- I. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Architect's action stamp.

PART 2 - PRODUCTS

2.1 SUBMITTAL PROCEDURES

- A. General Submittal Procedure Requirements: Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.
1. Action Submittals: Submit three paper copies of each submittal unless otherwise indicated. Architect will return two copies.
 2. Informational Submittals: Submit two paper copies of each submittal unless otherwise indicated. Architect will not return copies.
 3. Certificates and Certifications Submittals: Provide a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
 - a. Provide a notarized statement on original paper copy certificates and certifications where indicated.
- B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
1. If information must be specially prepared for submittal because standard published data are not suitable for use, submit as Shop Drawings, not as Product Data.
 2. Mark each copy of each submittal to show which products and options are applicable.
 3. Include the following information, as applicable:
 - a. Manufacturer's catalog cuts.
 - b. Manufacturer's product specifications.
 - c. Standard color charts.
 - d. Statement of compliance with specified referenced standards.
 - e. Testing by recognized testing agency.
 - f. Application of testing agency labels and seals.
 - g. Notation of coordination requirements.
 - h. Availability and delivery time information.

4. For equipment, include the following in addition to the above, as applicable:
 - a. Wiring diagrams showing factory-installed wiring.
 - b. Printed performance curves.
 - c. Operational range diagrams.
 - d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.
 5. Submit Product Data before or concurrent with Samples.
 6. Submit Product Data in the following format:
 - a. Three paper copies of Product Data unless otherwise indicated. Architect will return two copies.
 - b. Four paper copies of Product Data where sequential review is required. Consultant will retain one copy, Architect will return two copies.
 - c. Electronic submittals of Product Data may be substituted for paper copies provided they are in a .pdf format, can be received via eMail or FTP site and can reviewed, noted and returned electronically in the format and manner by which it was received.
- C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
 - a. Identification of products.
 - b. Schedules.
 - c. Compliance with specified standards.
 - d. Notation of coordination requirements.
 - e. Notation of dimensions established by field measurement.
 - f. Relationship and attachment to adjoining construction clearly indicated.
 - g. Seal and signature of professional engineer if specified.
 2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least.
 3. Submit Shop Drawings in the following format:
 - a. Three opaque copies of each submittal. Architect will retain two copies; remainder will be returned.
 - b. Four opaque copies where sequential review is required. Consultant will retain one copy, Architect will retain two copies; remainder will be returned.
 - c. Electronic submittals of Shop Drawings may be substituted for opaque copies provided they are in a .pdf format, can be received via eMail or FTP site and are accompanied by one full sized opaque copy.

- D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
 2. Identification: Attach label on unexposed side of Samples that includes the following:
 - a. Generic description of Sample.
 - b. Product name and name of manufacturer.
 - c. Sample source.
 - d. Number and title of applicable Specification Section.
 - e. Specification paragraph number and generic name of each item.
 3. For projects where electronic submittals are required, provide corresponding electronic submittal of Sample transmittal, digital image file illustrating Sample characteristics, and identification information for record.
 4. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
 - a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
 - b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.
 5. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
 - a. Number of Samples: Submit one full set of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.
 6. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
 - a. Number of Samples: Submit three sets of Samples. Architect will retain two Sample sets; remainder will be returned. Mark up and retain one returned Sample set as a project record sample.

- 1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
 - 2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three sets of paired units that show approximate limits of variations.
- E. Contractor's Construction Schedule: Comply with requirements specified in Division 01 Section "Construction Progress Documentation."
- F. Application for Payment and Schedule of Values: Comply with requirements specified in Division 01 Section "Payment Procedures."
- G. Test and Inspection Reports and Schedule of Tests and Inspections Submittals: Comply with requirements specified in Division 01 Section "Quality Requirements."
- H. Closeout Submittals and Maintenance Material Submittals: Comply with requirements specified in Division 01 Section "Closeout Procedures."
- I. Maintenance Data: Comply with requirements specified in Division 01 Section "Operation and Maintenance Data."
- J. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.
- K. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification and Procedure Qualification Record on AWS forms. Include names of firms and personnel certified.
- L. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
- M. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
- N. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
- O. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
- P. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.

- Q. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
- R. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:
 - 1. Name of evaluation organization.
 - 2. Date of evaluation.
 - 3. Time period when report is in effect.
 - 4. Product and manufacturers' names.
 - 5. Description of product.
 - 6. Test procedures and results.
 - 7. Limitations of use.
- S. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
- T. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.
- U. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
- V. Design Data: Prepare and submit written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

2.2 DELEGATED-DESIGN SERVICES

- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
 - 1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.
- B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit three paper copies of certificate, signed and

sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.

1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

- A. Action and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.
- B. Project Closeout and Maintenance Material Submittals: See requirements in Division 01 Section "Closeout Procedures."
- C. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.
 1. Stamp or statement shall include the following: "The Contractor represents that he has determined and verified all materials, field measurements, and field construction criteria related thereto or will do so, and that he has checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents."

3.2 ARCHITECT'S ACTION

- A. Action Submittals: Architect will review each submittal, make marks to indicate corrections or revisions required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action.
- B. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.
- C. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Architect.
- D. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.

END OF SECTION 013300

SECTION 016000 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. This 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; product substitutions; and comparable products.
- B. Related Sections include the following:
 - 1. Division 01 Section "Substitution Procedures" for requests for substitutions.

1.2 DEFINITIONS

- A. Products: Items purchased 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, except that products consisting of recycled-content materials are allowed, unless explicitly stated otherwise. Products salvaged or recycled from other projects are not considered new products.
- B. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.
- C. Basis-of-Design Product Specification: Where a specific manufacturer's product is named and accompanied by the words "basis of design," 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 other named manufacturers.

1.3 ACTION SUBMITTALS

- A. Basis-of-Design Product Specification Submittal: Comply with requirements in Division 01 Section "Submittal Procedures." Show compliance with requirements.

1.4 QUALITY ASSURANCE

- A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, product selected shall be 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.
- B. Products with asbestos: Asbestos containing materials are not to be purchased or installed in this project.

1.5 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft. Comply with manufacturer's written instructions.
- B. Delivery and Handling:
 - 1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
 - 2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
 - 3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
 - 4. Inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.
- C. Storage:
 - 1. Store products to allow for inspection and measurement of quantity or counting of units.
 - 2. Store materials in a manner that will not endanger Project structure.
 - 3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
 - 4. Store cementitious products and materials on elevated platforms.
 - 5. Store foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
 - 6. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
 - 7. Protect stored products from damage and liquids from freezing.

1.6 PRODUCT WARRANTIES

- A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.
 - 1. Manufacturer's Warranty: Preprinted written warranty published by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
 - 2. Special Warranty: Written warranty required by or incorporated into the Contract Documents, either to extend time limit provided by manufacturer's warranty or to provide more rights for Owner.
- B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution. Submit a draft for approval before final 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 appropriate form properly executed.
 - 3. Refer to Divisions 02 through 48 Sections for specific content requirements and particular requirements for submitting special warranties.
- C. Submittal Time: Comply with requirements in Division 01 Section "Closeout Procedures."

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

- A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, that 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. Where products are accompanied by the term "match sample," sample to be matched is Architect's.
 - 6. Descriptive, performance, and reference standard requirements in the Specifications establish "salient characteristics" of products.

7. Or Equal: Where products are specified by name and accompanied by the term "or equal" or "or approved equal" or "or approved substitute" or approved," comply with provisions in "Product Substitutions" Article to obtain approval for use of an unnamed product.

B. Product Selection Procedures:

1. Product: Where Specifications name a single manufacturer and product, provide the named product that complies with requirements. 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. 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. Substitutions for Contractor's convenience will be considered, unless otherwise indicated.
 - b. Nonrestricted 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 Division 01 Section "Substitution Procedures" 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, unless otherwise indicated.
 - b. Nonrestricted 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 Division 01 Section "Substitution Procedures" for consideration of an unnamed manufacturer.
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 Division 01 Section "Substitution Procedures" for consideration of an unnamed product or manufacturer.

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

1. If no product available within specified category matches and complies with other specified requirements, comply with requirements in Division 01 Section "Substitution Procedures" for proposal of product.
- D. Visual Selection Specification: Where Specifications include the phrase "as selected by Architect from manufacturer's full range" or similar phrase, select a product that complies with requirements. Architect will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

PART 3 - EXECUTION (Not Used)

END OF SECTION 016000

SECTION 061000 - ROUGH CARPENTRY

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. This Section includes the following:
 1. Framing with dimension lumber.
 2. Wood blocking and nailers.
 3. Wood furring.

1.3 SUBMITTALS

- A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Stack lumber flat with spacers between each bundle to provide air circulation. Provide for air circulation around stacks and under coverings.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

- A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.
 1. Factory mark each piece of lumber with grade stamp of grading agency.
 2. For exposed lumber indicated to receive a stained or natural finish, mark grade stamp on end or back of each piece or omit grade stamp and provide certificates of grade compliance issued by grading agency.

3. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry lumber.
4. Provide dressed lumber, S4S, unless otherwise indicated.

B. Moisture Content of Lumber: Provide kiln dried, unless otherwise indicated.

2.2 WOOD-PRESERVATIVE-TREATED LUMBER

A. Preservative Treatment by Pressure Process: AWWA C2.

1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.
2. For exposed items indicated to receive a stained or natural finish, use chemical formulations that do not require incising, contain colorants, bleed through, or otherwise adversely affect finishes.

B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or does not comply with requirements for untreated material.

C. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.

1. For exposed lumber indicated to receive a stained or natural finish, mark end or back of each piece or omit marking and provide certificates of treatment compliance issued by inspection agency.

D. Application: Treat items indicated on Drawings, and the following:

1. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.
2. Wood sills, sleepers, blocking, furring, and similar concealed members in contact with masonry or concrete.
3. Wood framing and furring attached directly to the interior of below-grade exterior masonry or concrete walls.
4. Wood floor plates that are installed over concrete slabs-on-grade.

2.3 DIMENSION LUMBER FRAMING

A. Framing, Rafters, Joists, and Partitions: No. 2 grade and of the following species:

1. Spruce-pine-fir (south) or Spruce-pine-fir; NELMA, NLGA, WCLIB, or WWPA.

B. Exposed Exterior Framing Indicated to Receive a Stained or Natural Finish: Provide material hand-selected for uniformity of appearance and freedom from characteristics, on exposed surfaces and edges, that would impair finish appearance, including decay, honeycomb, knot-holes, shake, splits, torn grain, and wane.

1. Species and Grade: As indicated above for load-bearing construction of same type.

2.4 MISCELLANEOUS LUMBER

- A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:
 1. Blocking.
 2. Nailers.
 3. Furring.
- B. For items of dimension lumber size, provide Construction or No. 2 grade lumber with 15 percent maximum moisture content of any species.
- C. For blocking not used for attachment of other construction, Utility, Stud, or No. 3 grade lumber of any species may be used provided that it is cut and selected to eliminate defects that will interfere with its attachment and purpose.
- D. For blocking and nailers used for attachment of other construction, select and cut lumber to eliminate knots and other defects that will interfere with attachment of other work.

2.5 FASTENERS

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this Article for material and manufacture.
 1. Where rough carpentry is exposed to weather, in ground contact, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.
 2. Where rough carpentry is pressure-preservative treated and exposed to the weather, provide fasteners of Type 304 stainless steel.
- B. Nails, Brads, and Staples: ASTM F 1667.
- C. Power-Driven Fasteners: NES NER-272.
- D. Wood Screws: ASME B18.6.1.
- E. Lag Bolts: ASME B18.2.1.
- F. Bolts: Steel bolts complying with ASTM A 307, Grade A; with ASTM A 563 hex nuts and, where indicated, flat washers.
- G. Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to 6 times the load imposed when installed in unit masonry assemblies and equal to 4 times the load imposed when installed in concrete as determined by testing per ASTM E 488 conducted by a qualified independent testing and inspecting agency.

1. Material: Carbon-steel components, zinc plated to comply with ASTM B 633, Class Fe/Zn 5.

2.6 METAL FRAMING ANCHORS

- A. Manufacturers: Subject to compliance with requirements, provide products by the following:
 1. Simpson Strong-Tie Co., Inc.
- B. Allowable Design Loads: Provide products with allowable design loads, as published by manufacturer, that meet or exceed those of products of manufacturers listed. Manufacturer's published values shall be determined from empirical data or by rational engineering analysis and demonstrated by comprehensive testing performed by a qualified independent testing agency.
- C. Galvanized Steel Sheet: Hot-dip, zinc-coated steel sheet complying with ASTM A 653/A 653M, G60 coating designation.
 1. Use for interior locations where stainless steel is not indicated.

2.7 MISCELLANEOUS MATERIALS

- A. Sill-Sealer Gaskets: Closed-cell neoprene foam, 1/4 inch thick, selected from manufacturer's standard widths to suit width of sill members indicated.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry to other construction; scribe and cope as needed for accurate fit. Locate furring, nailers, blocking, and similar supports to comply with requirements for attaching other construction.
- B. Framing Standard: Comply with AF&PA's "Details for Conventional Wood Frame Construction," unless otherwise indicated.
- C. Framing with Engineered Wood Products: Install engineered wood products to comply with manufacturer's written instructions.
- D. Metal Framing Anchors: Install metal framing to comply with manufacturer's written instructions.
- E. Install sill sealer gasket to form continuous seal between sill plates and foundation walls.
- F. Do not splice structural members between supports, unless otherwise indicated.

- G. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim.
 - 1. Provide metal clips for fastening gypsum board or lath at corners and intersections where framing or blocking does not provide a surface for fastening edges of panels. Space clips not more than 16 inches o.c.
- H. Sort and select lumber so that natural characteristics will not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.
- I. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:
 - 1. NES NER-272 for power-driven fasteners.
 - 2. Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code.
- J. Use common wire nails, unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood; do not countersink nail heads, unless otherwise indicated.
- K. For exposed work, arrange fasteners in straight rows parallel with edges of members, with fasteners evenly spaced, and with adjacent rows staggered.
 - 1. Use finishing nails, unless otherwise indicated. Countersink nail heads and fill holes with wood filler.

3.2 WOOD BLOCKING, AND NAILER INSTALLATION

- A. Install where indicated and where required for attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.
- B. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces, unless otherwise indicated.

3.3 WOOD FURRING INSTALLATION

- A. Install level and plumb with closure strips at edges and openings. Shim with wood as required for tolerance of finish work.
- B. Furring to Receive Gypsum Board: Install 1-by-2-inch nominal- size furring vertically at 16 inches o.c.

3.4 WALL AND PARTITION FRAMING INSTALLATION

- A. General: Provide single bottom plate and double top plates using members of 2-inch nominal thickness whose widths equal that of studs, except single top plate may be used for non-load-bearing partitions and for load-bearing partitions where framing members bearing on partition are located directly over studs. Fasten plates to supporting construction, unless otherwise indicated.
- B. Construct corners and intersections with three or more studs.
- C. Frame openings with multiple studs and headers. Provide nailed header members of thickness equal to width of studs. Support headers on jamb studs.
 - 1. For non-load-bearing partitions, provide double-jamb studs and headers not less than 4-inch nominal depth for openings 48 inches and less in width, 6-inch nominal depth for openings 48 to 72 inches in width, 8-inch nominal depth for openings 72 to 120 inches in width, and not less than 10-inch nominal depth for openings 10 to 12 feet in width.
 - 2. For load-bearing walls, provide double-jamb studs for openings 60 inches and less in width, and triple-jamb studs for wider openings. Provide headers of depth indicated.

3.5 CEILING JOIST AND RAFTER FRAMING INSTALLATION

- A. Ceiling Joists: Install ceiling joists with crown edge up and complying with requirements specified above for floor joists. Face nail to ends of parallel rafters.
 - 1. Where ceiling joists are at right angles to rafters, provide additional short joists parallel to rafters from wall plate to first joist; nail to ends of rafters and to top plate and nail to first joist or anchor with framing anchors or metal straps. Provide 1-by-8-inch nominal- size or 2-by-4-inch nominal- size stringers spaced 48 inches o.c. crosswise over main ceiling joists.
- B. Rafters: Notch to fit exterior wall plates and use metal framing anchors. Double rafters to form headers and trimmers at openings in roof framing, if any, and support with metal hangers. Where rafters abut at ridge, place directly opposite each other and nail to ridge member or use metal ridge hangers.
 - 1. At valleys, provide double-valley rafters of size indicated or, if not indicated, of same thickness as regular rafters and 2 inches deeper. Bevel ends of jack rafters for full bearing against valley rafters.
 - 2. At hips, provide hip rafter of size indicated or, if not indicated, of same thickness as regular rafters and 2 inches deeper. Bevel ends of jack rafters for full bearing against hip rafter.
- C. Provide collar beams (ties) as indicated or, if not indicated, provide 1-by-6-inch nominal- size boards between every third pair of rafters, but not more than 48 inches o.c. Locate below ridge member, at third point of rafter span. Cut ends to fit roof slope and nail to rafters.

- D. Provide special framing as indicated for eaves, overhangs, dormers, and similar conditions, if any.

END OF SECTION 061000

SECTION 06200 - FINISH CARPENTRY

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the following:
 - 1. Interior standing and running trim.

1.2 SUBMITTALS

- A. Product Data: For each type of process and factory-fabricated product. Include construction details, material descriptions, dimensions of individual components and profiles, textures, and colors.
- B. Samples for Selection:
 - 1. For each species and cut of lumber and panel products with nonfactory-applied finish, with 1/2 of exposed surface finished, 50 sq. in. (300 sq. cm) for lumber and 8 by 10 inches (203 by 250 mm) for panels.
 - 2. For each finish system and color of lumber and panel products with factory-applied finish, 50 sq. in. (300 sq. cm) for lumber and 8 by 10 inches (203 by 250 mm) for panels.

1.3 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who has completed finish carpentry work similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Protect materials against weather and contact with damp or wet surfaces. Stack lumber, plywood, and other panels. Provide for air circulation within and around stacks and under temporary coverings.
- B. Deliver interior finish carpentry only when environmental conditions meet requirements specified for installation areas. If finish carpentry must be stored in other than installation areas, store only where environmental conditions meet requirements specified for installation areas.

1.5 PROJECT CONDITIONS

- A. Environmental Limitations: Do not deliver or install interior finish carpentry until building is enclosed and weatherproof, wet work in space is completed and nominally dry, and HVAC system is operating and maintaining temperature and relative humidity at occupancy levels during the remainder of the construction period.

- B. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit work to be performed according to manufacturer's written instructions and warranty requirements and at least one coat of specified finish to be applied without exposure to rain, snow, or dampness.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

- A. Lumber: DOC PS 20 and applicable grading rules of inspection agencies certified by the American Lumber Standards' Committee Board of Review.
 - 1. Factory mark each piece of lumber with grade stamp of inspection agency indicating grade, species, moisture content at time of surfacing, and mill.
 - 2. For exposed lumber, mark grade stamp on end or back of each piece, or omit grade stamp and provide certificates of grade compliance issued by inspection agency.
- B. Softwood Plywood: DOC PS 1.
- C. Hardwood Plywood: HPVA HP-1.
- D. Hardboard: AHA A135.4
- E. Medium-Density Fiberboard: ANSI A208.2, Grade MD.
- F. Particleboard: ANSI A208.1, Grade M-2.

2.2 EXTERIOR STANDING AND RUNNING TRIM

- A. Wood Trim for Stained Applications: Kiln-dried lumber with saw-textured face and of the following species and grade:
 - 1. Grade: No. 4 eastern white pine; NELMA, NLGA.

2.3 EXTERIOR SIDING

- A. Wood Siding for Stained Applications: Ship-Lap, kiln-dried lumber with saw-textured face and of the following species and grade:
 - 1. Grade: No. 4 eastern white pine; NELMA, NLGA.

2.4 INTERIOR STANDING AND RUNNING TRIM

- A. Wood Trim for Transparent Finish (Stain or Clear Finish): Kiln-dried finished lumber (S4S) of the following species and grades:
 - 1. Grade: No. 3 eastern white pine; NELMA, NLGA.

2.5 MISCELLANEOUS MATERIALS

- A. Fasteners for Exterior Finish Carpentry: Provide nails or screws of the following materials, in sufficient length to penetrate minimum of 1-1/2 inches (38 mm) into substrate, unless otherwise recommended by manufacturer:
 - 1. Stainless steel.
- B. Fasteners for Interior Finish Carpentry: Nails, screws, and other anchoring devices of type, size, material, and finish required for application indicated to provide secure attachment, concealed where possible.
 - 1. Where finish carpentry materials are exposed in areas of high humidity, provide fasteners and anchorages with hot-dip galvanized coating complying with ASTM A 153/A 153M.
- C. Fasteners for Exterior Decking: Provide No. TC-2 Softwood Fastener by TigerClaw or approved substitute.
- D. Glue: Aliphatic- or phenolic-resin wood glue recommended by manufacturer for general carpentry use.
- E. Sealants: Comply with requirements in Division 7 Section "Joint Sealants" for materials required for sealing siding work.

2.6 FABRICATION

- A. Wood Moisture Content: Comply with requirements of specified inspection agencies and with manufacturer's written recommendations for moisture content of finish carpentry at relative humidity conditions existing during time of fabrication and in installation areas.
- B. Back out or kerf backs of the following members, except members with ends exposed in finished work:
 - 1. Exterior standing and running trim wider than 5 inches (125 mm).
 - 2. Interior standing and running trim, except shoe and crown molds.
 - 3. Wood board paneling.
 - 4. One kerf for every 3 inches in width of board.
- C. Ease edges of lumber less than 1 inch (25 mm) in nominal thickness to 1/16-inch (1.5-mm) radius and edges of lumber 1 inch (25 mm) or more in nominal thickness to 1/8-inch (3-mm) radius.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Clean substrates of projections and substances detrimental to application.
- B. Before installing finish carpentry, condition materials to average prevailing humidity in installation areas for a minimum of 24 hours.

- C. Prime lumber for exterior applications to be painted, including both faces and edges. Cut to required lengths and prime ends. Comply with requirements in Division 9 Section "Painting."

3.2 INSTALLATION, GENERAL

- A. Do not use materials that are unsound, warped, improperly treated or finished, inadequately seasoned, or too small to fabricate with proper jointing arrangements.
 - 1. Do not use manufactured units with defective surfaces, sizes, or patterns.
- B. Install finish carpentry level, plumb, true, and aligned with adjacent materials. Use concealed shims where necessary for alignment.
 - 1. Scribe and cut finish carpentry to fit adjoining work. Refinish and seal cuts as recommended by manufacturer.
 - 2. Countersink fasteners, fill surface flush, and sand where face fastening is unavoidable.
 - 3. Install to tolerance of 1/8 inch in 96 inches (3 mm in 2438 mm) for level and plumb. Install adjoining finish carpentry with 1/32-inch (0.8-mm) maximum offset for flush installation and 1/16-inch (1.5-mm) maximum offset for reveal installation.
 - 4. Coordinate finish carpentry with materials and systems in or adjacent to it. Provide cutouts for mechanical and electrical items that penetrate finish carpentry.

3.3 STANDING AND RUNNING TRIM INSTALLATION

- A. Install with minimum number of joints practical, using full-length pieces from maximum lengths of lumber available. Do not use pieces less than 24 inches (610 mm) long, except where necessary. Stagger joints in adjacent and related standing and running trim. Cope at returns and miter at corners to produce tight-fitting joints with full-surface contact throughout length of joint. Use scarf joints for end-to-end joints. Plane backs of casings to provide uniform thickness across joints, where necessary for alignment.
 - 1. Match color and grain pattern across joints.
 - 2. Install trim after gypsum board joint finishing operations are completed.
 - 3. Fit exterior joints to exclude water. Apply flat grain lumber with bark side exposed to weather.

3.4 ADJUSTING

- A. Replace finish carpentry that is damaged or does not comply with requirements. Finish carpentry may be repaired or refinished if work complies with requirements and shows no evidence of repair or refinishing. Adjust joinery for uniform appearance.

3.5 CLEANING

- A. Clean finish carpentry on exposed and semiexposed surfaces. Touch up factory-applied finishes to restore damaged or soiled areas.

END OF SECTION

SECTION 082110 - FLUSH WOOD DOORS AND STEEL FRAMES

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the following:
 - 1. Solid-core doors with wood-veneer faces.
 - 2. Factory finishing flush wood doors.
 - 3. Factory fitting flush wood doors to frames and factory machining for hardware.
 - 4. Steel frames

1.2 SUBMITTALS

- A. Product Data: For each type of door. Include details of core and edge construction and trim for openings. Include factory-finishing specifications.
- B. Shop Drawings: Indicate location, size, and hand of each door; elevation of each kind of door; construction details not covered in Product Data; location and extent of hardware blocking; and other pertinent data.
 - 1. Indicate dimensions and locations of mortises and holes for hardware.
 - 2. Indicate dimensions and locations of cutouts.
 - 3. Indicate doors to be factory finished and finish requirements.
 - 4. Indicate fire ratings for fire doors.
- C. Door Schedule: Submit schedule of doors using same reference numbers for details and openings as those on Contract Drawings.
 - 1. Indicate coordination of glazing frames and stops with glass and glazing requirements.
- D. Samples for Selection: Color charts consisting of actual materials in small sections for the following:
 - 1. Faces of Factory-Finished Doors: Show the full range of colors available for stained finishes.

1.3 QUALITY ASSURANCE

- A. Source Limitations: Obtain flush wood doors through one source from a single manufacturer.
- B. Quality Standard: Comply with WDMA I.S.1-A, "Architectural Wood Flush Doors."
- C. Fire-Rated Wood Doors: Doors complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to NFPA 252.
 - 1. Temperature-Rise Rating: At exit enclosures, provide doors that have a temperature-rise rating of 450 deg F (250 deg C) maximum in 30 minutes of fire exposure.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Protect doors during transit, storage, and handling to prevent damage, soiling, and deterioration. Comply with requirements of referenced standard and manufacturer's written instructions.
 - 1. Compare pre-finished doors to approved finish sample upon delivery. Notify the Architect if sample does not match.
- B. Package doors individually in plastic bags.
- C. Mark each door on top and bottom rail with opening number used on Shop Drawings.

1.5 PROJECT CONDITIONS

- A. Environmental Limitations: Do not deliver or install doors until building is enclosed, and any wet work is complete.

1.6 WARRANTY

- A. General: The special warranty specified in this Article shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and will be in addition to and run concurrent with other warranties made by the Contractor under requirements of the Contract Documents.
- B. Special Warranty: Manufacturer's standard form, signed by manufacturer, Installer, and Contractor, in which manufacturer agrees to repair or replace doors that are defective in materials or workmanship, have warped (bow, cup, or twist) more than 1/4 inch (6.4 mm) in a 42-by-84-inch (1067-by-2134-mm) section, or show telegraphing of core construction in face veneers exceeding 0.01 inch in a 3-inch (0.25 mm in a 75-mm) span.
 - 1. Warranty shall also include unloading, distribution, installation, glass, glazing and finishing that may be required due to repair or replacement of defective doors.
 - 2. Warranty shall be in effect during the following period of time from date of Substantial Completion:
 - a. Solid-Core Interior Doors: Life of installation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Flush Wood Doors:

- a. Algoma Hardwoods Inc.
 - b. Eggers Industries; Architectural Door Division.
 - c. Marshfield Door Systems, Inc.: Signature Series.
 - d. Masonite International Corporation: Flush Door Series
 - e. Mohawk Flush Doors, Inc.
2. Steel Frames:
- a. Ceco Door Products; a United Dominion Company.
 - b. Curries Company.
 - c. Steelcraft; a division of Ingersoll-Rand.

2.2 DOOR CONSTRUCTION, GENERAL

- A. Doors for Transparent Finish:
- 1. Grade: Premium, with Grade A faces.
 - 2. Species and Cut: Select Red Oak, rotary cut.
 - 3. Match between Veneer Leaves: Book match.
 - 4. Assembly of Veneer Leaves on Door Faces: Balance match.
 - 5. Pair and Set Match: Provide for doors hung in same opening or separated only by mullions. Select the veneer for compatibility of color.
 - 6. Stiles: Same species as faces.

2.3 SOLID-CORE DOORS

- A. Particleboard Cores: Comply with the following requirements:
- 1. Particleboard: ANSI A208.1, Grade 1-LD-2.
- B. Interior Veneer-Faced Doors:
- 1. Core: Particleboard.
 - 2. Blocking: Provide wood blocking in particleboard-core doors as needed to eliminate through-bolting hardware.
 - 3. Provide doors with structural composite lumber cores instead of particleboard cores at locations where oversized glass lites are indicated.
 - 4. Construction: Five plies with stiles and rails bonded to core, then entire unit abrasive planed before veneering.
- C. Fire-Rated Doors:
- 1. Construction: Construction and core specified above for type of face indicated or manufacturer's standard mineral-core construction as needed to provide fire rating indicated.
 - 2. Blocking: For mineral-core doors, provide composite blocking with improved screw-holding capability approved for use in doors of fire ratings indicated as needed to eliminate through-bolting hardware.
 - 3. Edge Construction: At hinge stiles, provide manufacturer's standard laminated-edge construction with improved screw-holding capability and split resistance and with outer stile matching face veneer.
 - 4. Pairs: Provide fire-rated pairs with fire-retardant stiles matching face veneer that are labeled and listed for kinds of applications indicated without formed-steel edges and astragals.

2.4 LIGHT FRAMES

- A. Wood Beads for Light Openings in Wood Doors:
 - 1. Wood Species: Same species as door faces.
 - 2. Profile: Manufacturer's standard shape.
 - 3. At 20-minute, fire-rated, wood-core doors, provide wood beads and metal glazing clips approved for such use.
- B. Metal Frames for Light Openings in Fire Doors: Manufacturer's standard frame formed of 0.0478-inch- (1.2-mm-) thick, cold-rolled steel sheet; factory primed and approved for use in doors of fire rating indicated.

2.5 FRAMES

- A. General: Provide steel frames for doors, transoms, sidelights, borrowed lights, and other openings that comply with ANSI A250.8 and with details indicated for type and profile. Conceal fastenings, unless otherwise indicated.
- B. Frames of 0.053-inch- (1.3-mm-) (16 gage) thick steel sheet for:
 - 1. Door openings wider than 48 inches (1220 mm).
 - 2. Level 2 steel doors.
 - 3. Wood doors.
- C. Frames of 0.067-inch- (1.7-mm-) (14 gage) thick steel sheet for:
 - 1. Exterior, Level 3 steel doors.
- D. Door Silencers: Except on weather-stripped frames, fabricate stops to receive three silencers on strike jambs of single-door frames and two silencers on heads of double-door frames.
- E. Supports and Anchors: Fabricated from not less than 0.042-inch- (1.0-mm-) thick, electrolytic zinc-coated or metallic-coated steel sheet.
- F. Inserts, Bolts, and Fasteners: Manufacturer's standard units. Where zinc-coated items are to be built into exterior walls, comply with ASTM A 153/A 153M, Class C or D as applicable.

2.6 FABRICATION

- A. Fabricate doors in sizes indicated for Project-site fitting.
- B. Factory fit doors to suit frame-opening sizes indicated, with the following uniform clearances and bevels, unless otherwise indicated:
 - 1. Comply with clearance requirements of referenced quality standard for fitting. Comply with requirements in NFPA 80 for fire-rated doors.
- C. Factory machine doors for hardware that is not surface applied. Locate hardware to comply with DHI-WDHS-3. Comply with final hardware schedules, door frame Shop Drawings, DHI A115-W series standards, and hardware templates.
 - 1. Coordinate measurements of hardware mortises in metal frames to verify dimensions and alignment before factory machining.

- D. Openings: Cut and trim openings through doors to comply with applicable requirements of referenced standards for kind(s) of door(s) required.
 - 1. Light Openings: Trim openings with moldings of material and profile indicated.

2.7 FACTORY FINISHING

- A. General: Comply with referenced quality standard for factory finishing.
- B. Finish doors at factory.
- C. Transparent Finish:
 - 1. Grade: Premium.
 - 2. Finish: Manufacturer's standard finish with performance comparable to AWI System TR-4 conversion varnish or AWI System TR-6 catalyzed polyurethane.
 - 3. Staining: As selected by Architect from manufacturer's full range.
 - 4. Effect: Open-grain finish.
 - 5. Sheen: Satin.

2.8 STEEL SHEET FINISHES

- A. Surface Preparation: Solvent-clean surfaces to comply with SSPC-SP 1 to remove dirt, oil, grease, and other contaminants that could impair paint bond. Remove mill scale and rust, if present, from uncoated steel to comply with SSPC-SP 5 (White Metal Blast Cleaning) or SSPC-SP 8 (Pickling).
- B. Pretreatment: Immediately after surface preparation, apply a conversion coating of type suited to organic coating applied over it.
- C. Prime Finish: Manufacturer's standard, factory-applied, baked, coat of rust-inhibiting primer complying with ANSI A250.10 for acceptance criteria.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine doors and installed door frames before hanging doors.
 - 1. Verify that frames comply with indicated requirements for type, size, location, and swing characteristics and have been installed with level heads and plumb jambs.
 - 2. Reject doors with defects.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. General: Install steel doors, frames, and accessories according to Shop Drawings, manufacturer's data, and as specified.
- B. At exterior walls and masonry walls, coat inside of frame profile with bituminous coating to a thickness of 1/16 inch (1.5 mm).

- C. Placing Frames: Comply with provisions in SDI 105, unless otherwise indicated. Set frames accurately in position, plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is completed, remove temporary braces and spreaders, leaving surfaces smooth and undamaged.
 - 1. Except for frames located in existing walls or partitions, place frames before construction of enclosing walls and ceilings.
 - 2. In wood-stud partitions, provide at least three wall anchors per jamb; install adjacent to hinge location on hinge jamb and at corresponding heights on strike jamb. Attach wall anchors to studs with screws.
 - 3. Install fire-rated frames according to NFPA 80.
 - 4. For openings 90 inches (2286 mm) or more in height, install an additional anchor at hinge and strike jambs.

- D. Door Installation: Comply with ANSI A250.8. Fit hollow-metal doors accurately in frames, within clearances specified in ANSI A250.8. Shim as necessary to comply with SDI 122 and ANSI/DHI A115.1G.
 - 1. Fire-Rated Doors: Install within clearances specified in NFPA 80.
 - 2. Smoke-Control Doors: Install to comply with NFPA 105.

- E. Hardware: For installation, see Division 8 Section "Door Hardware."

- F. Manufacturer's Written Instructions: Install doors to comply with manufacturer's written instructions, referenced quality standard, and as indicated.
 - 1. Install fire-rated doors in corresponding fire-rated frames according to NFPA 80.
 - 2. All locks, exit devices, door closers and other hardware shall be installed in accordance with the manufacturers instructions. Pilot holes of recommended size, for wood screws required to fasten the hardware, shall be drilled by the installing contractor before screws are fastened to the wood doors. In particular, wood fire rated doors, require pre-drilling for all screw holes, to prevent splitting the door edges

- G. Factory-Fitted Doors: Align in frames for uniform clearance at each edge.

- H. Factory-Finished Doors: Restore finish before installation if fitting or machining is required at Project site.

3.3 ADJUSTING AND CLEANING

- A. Operation: Rehang or replace doors that do not swing or operate freely.

- B. Finished Doors: Replace doors that are damaged or do not comply with requirements. Doors may be repaired or refinished if work complies with requirements and shows no evidence of repair or refinishing.

- C. Galvanizing Repair Paint: High-zinc-dust-content paint for regalvanizing welds in galvanized steel, with dry film containing not less than 94 percent zinc dust by weight, and complying with DOD-P-21035 or SSPC-Paint 20.

- D. Prime-Coat Touchup: Immediately after installation, sand smooth any rusted or damaged areas of prime coat and apply touch up of compatible air-drying primer.

- E. Protection Removal: Immediately before final inspection, remove protective wrappings from doors and frames.

END OF SECTION

SECTION 087110 - DOOR HARDWARE

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the following:
 - 1. Commercial door hardware for the following:
 - a. Swinging doors.
 - 2. Cylinders for doors specified in other Sections.
- B. Products furnished, but not installed, under this Section include the following. Coordinating, purchasing, delivering, and scheduling remain requirements of this Section.
 - 1. Cylinders for locks on aluminum entrance doors.
 - 2. Cylinders for locks on overhead coiling shutters and grilles, and sectional overhead doors.

1.2 SUBMITTALS

- A. Product Data: Include installation details, material descriptions, dimensions of individual components and profiles, and finishes.
- B. Samples for Verification: 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 door hardware indicated.
- C. Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing fabrication and assembly of door hardware, as well as procedures and diagrams. Coordinate the final Door Hardware Schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.
 - 1. Format: Comply with scheduling sequence and vertical format in DHI's "Sequence and Format for the Hardware Schedule."
 - 2. Organization: Organize the Door Hardware Schedule into door hardware sets indicating complete designations of every item required for each door or opening.
 - a. Organize door hardware sets in same order as in the Door Hardware Schedule at the end of Part 3.
 - 3. Content: Include the following information:
 - a. Type, style, function, size, label, hand, and finish of each door hardware item.
 - b. Manufacturer of each item.
 - c. Fastenings and other pertinent information.
 - d. Location of each door hardware set, cross-referenced to Drawings, both on floor plans and in door and frame schedule.
 - e. Explanation of abbreviations, symbols, and codes contained in schedule.
 - f. Mounting locations for door hardware.
 - g. Door and frame sizes and materials.
 - 4. Submittal Sequence: Submit initial draft of final schedule along with essential Product Data to facilitate the fabrication of other work that is critical in the Project

construction schedule. Submit the final Door Hardware Schedule after Samples, Product Data, coordination with Shop Drawings of other work, delivery schedules, and similar information has been completed and accepted.

- D. Keying Schedule: Prepared by or under the supervision of supplier, detailing Owner's final keying instructions for locks. Include schematic keying diagram and index each key set to unique door designations.
- E. Product Certificates: Signed by manufacturers of electrified door hardware certifying that products furnished comply with requirements.
 - 1. Certify that door hardware approved for use on types and sizes of labeled fire doors complies with listed fire door assemblies.
- F. Product Test Reports: Based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified testing agency, indicating current products comply with requirements.
- G. Maintenance Data: For each type of door hardware to include in maintenance manuals specified in Division 1.
- H. Warranties: Special warranties specified in this Section.

1.3 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who has completed door hardware similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.
- B. Supplier Qualifications: Door hardware supplier with warehousing facilities in Project's vicinity and who is or employs a qualified Architectural Hardware Consultant, available during the course of the Work to consult with Contractor, Architect, and Owner about door hardware and keying.
 - 1. Scheduling Responsibility: Preparation of door hardware and keying schedules.
- C. Architectural Hardware Consultant Qualifications: A person who is currently certified by the Door and Hardware Institute as an Architectural Hardware Consultant and who is experienced in providing consulting services for door hardware installations that are comparable in material, design, and extent to that indicated for this Project.
- D. Source Limitations: Obtain each type and variety of door hardware from a single manufacturer, unless otherwise indicated.
 - 1. Provide electrified door hardware from same manufacturer as mechanical door hardware, unless otherwise indicated. Manufacturers that are listed to perform electrical modifications, by a testing and inspecting agency acceptable to authorities having jurisdiction, are acceptable.
- E. Regulatory Requirements: Comply with the Americans with Disabilities Act (ADA) and with code provisions as adopted by authorities having jurisdiction.
 - 1. Door Hardware: Provide hardware as required by accessibility regulations and requirements of authorities having jurisdiction. These include, but are not limited to, the following:

- a. Handles, Pulls, Latches, Locks, and other Operating Devices: Shape that is easy to grasp with one hand and does not require tight grasping, tight pinching, or twisting of the wrist.
 - b. Door Closers: Comply with the following maximum opening-force requirements indicated:
 - 1) Interior Hinged Doors: 5 lbf applied perpendicular to door.
 - 2) Sliding or Folding Doors: 5 lbf applied parallel to door at latch.
 - 3) Fire Doors: Minimum opening force allowable by authorities having jurisdiction.
 - c. Thresholds: Not more than 1/2 inch high. Bevel raised thresholds with a slope of not more than 1:2.
2. NFPA 101: Comply with the following for means of egress doors:
- a. Latches, Locks, and Exit Devices: Not more than 15 lbf to release the latch. Locks shall not require the use of a key, tool, or special knowledge for operation.
 - b. Delayed-Egress Locks: Lock releases within 15 seconds after applying a force not more than 15 lbf for not more than 3 seconds.
 - c. Door Closers: Not more than 30 lbf to set door in motion and not more than 15 lbf to open door to minimum required width.
 - d. Thresholds: Not more than 1/2 inch high.
3. Electrified Door Hardware: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction.

F. Fire-Rated Door Assemblies: Provide door hardware for assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to NFPA 252.

G. Keying Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination." Incorporate keying conference decisions into final keying schedule after reviewing door hardware keying system including, but not limited to, the following:

- 1. Function of building, flow of traffic, purpose of each area, degree of security required, and plans for future expansion.
- 2. Preliminary key system schematic diagram.
- 3. Requirements for key control system.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Inventory door hardware on receipt and provide secure lock-up for door hardware delivered to Project site.
- B. Tag each item or package separately with identification related to the final Door Hardware Schedule, and include basic installation instructions with each item or package.
- C. Deliver keys to manufacturer of key control system.

1.5 COORDINATION

- A. Templates: Obtain and distribute to the parties involved templates for doors, frames, and other work specified to be factory prepared for installing door hardware. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.

1.6 WARRANTY

- A. General Warranty: Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.
- B. Special Warranty: Written warranty, executed by manufacturer agreeing to repair or replace components of door hardware that fail in materials or workmanship within specified warranty period. Failures include, but are not limited to, the following:
 - 1. Structural failures including excessive deflection, cracking, or breakage.
 - 2. Faulty operation of operators and door hardware.
 - 3. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
- C. Warranty Period: One year from date of Substantial Completion, unless otherwise indicated.
- D. Warranty Period for Manual Closers: 10 years from date of Substantial Completion.

1.7 MAINTENANCE SERVICE

- A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance, and removal and replacement of door hardware.

PART 2 - PRODUCTS

2.1 SCHEDULED DOOR HARDWARE

- A. General: Provide door hardware for each door to comply with requirements in this Section and the Door Hardware Schedule at the end of Part 3.
 - 1. Door Hardware Sets: Provide quantity, item, size, finish or color indicated, and named manufacturer's products.
- B. Designations: Requirements for design, grade, function, finish, size, and other distinctive qualities of each type of door hardware are indicated in the Door Hardware Schedule at the end of Part 3. Products are identified by using door hardware designations, as follows:
 - 1. Named Manufacturer's Products: Product designation and manufacturer are listed for each door hardware type required for the purpose of establishing minimum requirements. Manufacturers' names are abbreviated in the Door Hardware Schedule.

2.2 HINGES

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Hinges:
 - a. Hager Companies (HAG).
 - b. McKinney Products Company; Div. of ESSEX Industries, Inc. (MCK).
 - c. Stanley Commercial Hardware; Div. of The Stanley Works (STH).
- B. Quantity: Provide the following, unless otherwise indicated:
1. Two Hinges: For doors with heights up to 60 inches.
 2. Three Hinges: For doors with heights 61 to 90 inches.
 3. Four Hinges: For doors with heights 91 to 120 inches.
 4. For doors with heights more than 120 inches, provide 4 hinges, plus 1 hinge for every 30 inches of door height greater than 120 inches.
- C. The following is a guide for hinge size and type required for this project.

	Manufacturer	Interior:	Exterior
1-3/4" Doors up to 3'-0" wide	Stanley	FBB179-4 1/2"	FBB191-4 1/2"
	Hager	BB1279-4 1/2"	BB1191-4 1/2"
	McKinney	TA-TB2714-4 1/2"	TA-TB2314-4 1/2"
1-3/4" Doors over 3'-0" wide	Stanley	FBB168-4 1/2"	FBB199-4 1/2"
	Hager	BB1168-4 1/2"	BB1199-4 1/2"
	McKinney	T4A-T4B3786-4 1/2"	T4A-T4B3386-4 1/2"

- D. Template Requirements: Except for hinges and pivots to be installed entirely (both leaves) into wood doors and frames, provide only template-produced units.
- E. Hinge Options: Comply with the following where indicated in the Door Hardware Schedule or on Drawings:
1. Nonremovable Pins: Provide set screw in hinge barrel that, when tightened into a groove in hinge pin, prevents removal of pin while door is closed; for the following applications:
 - a. Outswinging exterior doors.
 - b. Outswinging corridor doors with locks.
 2. Corners: Square.
- F. Fasteners: Comply with the following:
1. Machine Screws: For metal doors and frames. Install into drilled and tapped holes.
 2. Wood Screws: For wood doors and frames.
 3. Threaded-to-the-Head Wood Screws: For fire-rated wood doors.
 4. Screws: Phillips flat-head screws; machine screws (drilled and tapped holes) for metal doors, wood screws for wood doors and frames. Finish screw heads to match surface of hinges.

2.3 MORTISED LOCKS AND LATCHES

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Mechanical Locks and Latches:
 - a. Best Lock Corporation (BLC).
 - b. Corbin Russwin Architectural Hardware; Div. of Yale Security Inc. (CR).
 - c. Sargent Manufacturing Company; Div. of ESSEX Industries, Inc. (SGT).
 - d. Schlage Lock Company; an Ingersoll-Rand Company (SCH).
- B. Mortise Locks: Stamped steel case with steel or brass parts; BHMA Grade 1; Series 1000.
1. Provide one of the following manufacturers and designs:
 - a. Best H Series
 - b. Corbin/Russwin ML2000 Series
 - c. Sargent 8200 Series
 - d. Schlage L9000 Series
- C. Lock Trim: Comply with the following:
1. Lever: Cast.
 2. Escutcheon (Rose): Forged.
 3. Dummy Trim: Match lever lock trim and escutcheons.
 4. Lockset Designs: Provide the lockset design designated below or, if sets are provided by another manufacturer, provide designs that match those designated:
 - a. Best, 14 design
 - b. Corbin/Russwin, Newport design
 - c. Sargent, LNL design
 - d. Schlage, 06A design
- D. Lock Functions: Lock functions as indicated in the hardware schedule shall be as follows:

FUNCTION	SARGENT	SCHLAGE	CORBIN/RUSSWIN	BEST
A	04	80	57	EW
B	05	50	51	E
C	15	10	10	N
D	37	70	55	J
E	16	60	42	F
F	65	40	30	LF

- E. Lock Throw: Comply with testing requirements for length of bolts to comply with labeled fire door requirements, and as follows:
1. Mortise Locks: Minimum 3/4-inch latchbolt throw.
 2. Deadbolts: Minimum 1-inch bolt throw.
- F. Backset: 2-3/4 inches, unless otherwise indicated.

2.4 BORED LOCKS AND LATCHES

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Mechanical Locks and Latches:
 - a. Best Lock Corporation (BLC).
 - b. Corbin Russwin Architectural Hardware; Div. of Yale Security Inc. (CR).

- c. Sargent Manufacturing Company; Div. of ESSEX Industries, Inc. (SGT).
 - d. Schlage Lock Company; an Ingersoll-Rand Company (SCH).
- B. Bored Locks: BHMA Grade 1; Series 4000.
- 1. Provide one of the following manufacturers and designs:
 - a. Best: 9K Series
 - b. Corbin Russwin: CL3300 Series.
 - c. Sargent: 10 Line
 - d. Schlage: D Series
- C. Auxiliary Locks: BHMA Grade 1.
- D. Lock Trim: Comply with the following:
- 1. Lever: Cast.
 - 2. Escutcheon (Rose): Forged.
 - 3. Dummy Trim: Match lever lock trim and escutcheons.
 - 4. Lockset Designs: Provide the lockset design designated below or, if sets are provided by another manufacturer, provide designs that match those designated:
 - a. Best: 15 C
 - b. Corbin Russwin: NZD
 - c. Sargent: LL
 - d. Schlage: Rhodes
- E. Lock Functions: Lock functions as indicated in the hardware schedule shall be as follows:

FUNCTION	SARGENT	SCHLAGE	CORBIN/RUSWIN	BEST
(1)	04	80	57	D
(2)	05	53	51	AB
(3)	15	10	10	N
(4)	37	70	55	R
(5)	16	60	20	C
(6)	65	40	72	L

- F. Lock Throw: Comply with testing requirements for length of bolts to comply with labeled fire door requirements, and as follows:
- 1. Mortise Locks: Minimum 3/4-inch latchbolt throw.
 - 2. Deadbolts: Minimum 1-inch bolt throw.
- G. Backset: 2-3/4 inches, unless otherwise indicated.

2.5 DOOR BOLTS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
- 1. Flush Bolts:
 - a. Burns Manufacturing Incorporated (BM).
 - b. Glynn-Johnson; an Ingersoll-Rand Company (GJ).
 - c. Hager Companies (HAG).
 - d. Ives: H. B. Ives (IVS).

e. Rockwood Manufacturing Company (RM).

B. Standards: Comply with the following:

1. Manual Flush Bolts: BHMA A156.16.

C. Surface Bolts: BHMA Grade 1.

1. Flush Bolt Heads: Minimum of 1/2-inch- diameter rods of brass, bronze, or stainless steel with minimum 12-inch- long rod for doors up to 84 inches in height. Provide longer rods as necessary for doors exceeding 84 inches.

D. Flush Bolts: BHMA Grade 1, designed for mortising into door edge.

E. Bolt Throw: Comply with testing requirements for length of bolts to comply with labeled fire door requirements, and as follows:

1. Dutch-Door Bolts: Minimum 3/4-inch throw.

2. Mortise Flush Bolts: Minimum 3/4-inch throw.

F. Provide manual flush bolts at non-label doors.

Glynn Johnson Door Controls Rockwood

Manual	HM	FB6	780	555
	WD	FB6W	790	557

1. Dust Proof Strikes shall be furnished at all floor locations.

2.6 EXIT DEVICES

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Precision Hardware, Inc. (PH).

2. Sargent Manufacturing Company; Div. of ESSEX Industries, Inc. (SGT).

3. Von Duprin; an Ingersoll-Rand Company (VD).

B. Products: All exit devices for this project shall be one of the following:

1. Precision Olympian Series

2. The 80 Series exit device by Sargent & Co.

3. 98 Series by Von Duprin Division

C. Standard: BHMA A156.3.

1. BHMA Grade: Grade 1.

D. Certified Products: Provide exit devices listed in BHMA's "Directory of Certified Exit Devices."

E. Panic Exit Devices: Listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for panic protection, based on testing according to UL 305.

F. Fire Exit Devices: Complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire and panic protection, based on testing according to UL 305 and NFPA 252.

- G. Outside Trim: Pull with cylinder; material and finish to match locksets, unless otherwise indicated.
 - 1. Match design for locksets and latchsets, unless otherwise indicated.
- H. Through Bolts: For exit devices and trim on fire-rated wood doors.
- I. The following functions shall be required where specified:

FUNCTION	VON DUPRIN	SARGENT	PRECISION
A	CD99NL-OP	16-8804	1103CD x 1123-38
B	CD99EO	16-8810	1101CD x 1123-38
C	99L	8813ET	1108 x 39L x 1123-38
D	99L-BE	8815ET	1108A x 39L x 1123-38
E	99EO-F	12-8810	FL-1101 x 1123-38
F	99L-F	12-8813ET	FL-1108 x 39L x 1123-38
G	99L-F-BE	12-8815ET	FL-1108A x 39L x 1123-38
H	CD9927EO	16-8710	1201CD x 1123-38
I	9927L	8713ET	1208 x 39L x 1123-38
J	9927L-BE	8715ET	1208A x 39L x 1123-38
K	CD9927EO x LBR	16-PP/PR8710	1201CD x 1123-38 x LBR
L	9927L x LBR	PP/PR8713ET	1208 x 39L x 1123-38 x LBR
M	9927L-BE x LBR	PP/PR8715ET	1208A x 39L x 1123-38 x LBR
N	9927EO-F	12-8710	FL-1201 x 1123-38
O	9927L-F	12-8713ET	FL-1208 x 39L x 1123-38
P	9927L-F-BE	12-8715ET	FL-1208A x 39L x 1123-38
Q	9927EO-F x LBR	12-PP/PR8710	FL-1201 x 1123-38 x LBR
R	9927L-F x LBR	12-PP/PR8713ET	FL-1208 x 39L x 1123-38 x LBR
S	9927-L-F-BE x LBR	12-PP/PR8715ET	FL-1208A x 39L x 1123-38 xLBR

2.7 SIGNALING ELECTROMAGNETIC DOOR HOLDS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Edwards Signaling
 - 2. Sargent
- B. Products: All exit devices for this project shall be one of the following:
 - 1. Electromagnetic Door Holders
 - 2. 1560 Series Electromagnetic Door Holders
- C. Standard: BHMA A156.15.
 - 1. BHMA Grade: Grade 1.
- D. Power Supply / Controllers: Listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for devices outlined in NFPA 80 and 101, based on testing according to UL .

2.8 DELAYED EGRESS LOCKS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Maglocks.
 - 2. Schlage
 - 3. Dortronics
- B. Products: All exit devices for this project shall be one of the following:
 - 1. Precision Olympian Series
 - 2. Schlage Electronics M490DE Delayed Egress Electromagnetic Lock System
 - 3. 7101 Delayed Egress Lock System
- C. Standard: BHMA A156.24.
 - 1. BHMA Grade: Grade 1.
- D. Certified Products: Provide devices listed in BHMA's "Directory of Delayed Egress Locks."
- E. Power Supply / Controllers: Listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for panic protection, based on testing according to UL .
 - 1. The delayed egress control system shall comply with NFPA Life Safety Code 101.
 - a) When the system is armed and a pressure of no more than 15 pounds is applied to the releasing device for no more than 3 seconds, the lock shall release within 25 seconds.
 - b) The initiation of the release process shall activate the sounder on the console panel located in the vicinity of the door.
 - c) Once the door has been released by an attempted exit sequence, the door shall remain unlocked until manually reset through the keypad, (see #7600 Annunciator / Controller).

2.9 CYLINDERS AND KEYING

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Cylinders for Interior Doors: Same manufacturer as for locks and latches.
 - 2. Cylinders for Exterior Doors:
 - a. Best Lock Corporation (BLC).
 - b. High Security Grand Master by Corbin Russwin.
 - c. Medeco High Security Locks, Inc. (MED).
 - d. Sargent Signature Series by Sargent Manufacturing Company.
 - e. Primus by Schlage Lock Company.
 - 3. Key Control Systems:
 - a. Key Control Systems, Inc. (KCS).
 - b. Telkee, Inc.
- B. Standards: Comply with the following:
 - 1. Cylinders: BHMA A156.5.
 - 2. Key Control System: BHMA A156.5.

- C. Cylinder Grade: BHMA Grade 1.
- D. Cylinders: Manufacturer's standard tumbler type, constructed from brass or bronze, stainless steel, or nickel silver, and complying with the following:
 - 1. Number of Pins: Six and Seven.
 - 2. Mortise Type: Threaded cylinders with rings and straight- or clover-type cam.
 - 3. Rim Type: Cylinders with back plate, flat-type vertical or horizontal tailpiece, and raised trim ring.
 - 4. Bored-Lock Type: Cylinders with tailpieces to suit locks.
- E. Construction Keying: Comply with the following:
 - 1. Construction Master Keys: Provide cylinders with feature that permits voiding of construction keys without cylinder removal. Provide 5 construction master keys.
- F. Keying System: Unless otherwise indicated, provide a factory-registered keying system complying with the following requirements:
 - 1. Master Key System: Cylinders are operated by a change key and a master key.
 - 2. Keyed Alike: Key all cylinders to the same change key.
 - a. Cylinders shall be master keyed.
- G. Keys: Provide nickel-silver keys complying with the following:
 - 1. Stamping: Permanently inscribe each key with a visual key control number and include the following notation:
 - a. Notation: Information to be furnished by Owner.
 - 2. Quantity: In addition to one extra blank key for each lock, provide the following:
 - a. Cylinder Change Keys: Three.
 - b. Master Keys: Five.
- H. Key Control System: BHMA Grade 1 system, including key-holding hooks, labels, two sets of key tags with self-locking key holders, key-gathering envelopes, and temporary and permanent markers. Contain system in metal cabinet with baked-enamel finish.
 - 1. Wall-Mounted Cabinet: Cabinet with hinged-panel door equipped with key-holding panels and pin-tumbler cylinder door lock.
 - 2. Capacity: Able to hold keys for 150 percent of the number of locks.
 - 3. Cross-Index System: Set up by key control manufacturer, complying with the following:
 - a. Card Index: Furnish four sets of index cards for recording key information. Include three receipt forms for each key-holding hook.

2.10 STRIKES

- A. Standards: Comply with the following:
 - 1. Strikes for Bored Locks and Latches: BHMA A156.2.
 - 2. Strikes for Mortise Locks and Latches: BHMA A156.13.
 - 3. Dustproof Strikes: BHMA A156.16.
- B. Strikes: Provide manufacturer's standard strike with strike box for each latch or lock bolt, with curved lip extended to protect frame, finished to match door hardware set, unless otherwise indicated, and as follows:
 - 1. Flat-Lip Strikes: For locks with three-piece antifriction latchbolts, as recommended by manufacturer.
 - 2. Extra-Long-Lip Strikes: For locks used on frames with applied wood casing trim.

3. Aluminum-Frame Strike Box: Provide manufacturer's special strike box fabricated for aluminum framing.

C. Dustproof Strikes: BHMA Grade 1.

2.11 OPERATING TRIM

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Baldwin Hardware Corporation (BH).
2. Burns Manufacturing Incorporated (BM).
3. Don-Jo Mfg., Inc. (DJO).
4. Ives: H. B. Ives (IVS).
5. Rockwood Manufacturing Company (RM).
6. Stanley Commercial Hardware; Div. of The Stanley Works (STH).

B. Standard: Comply with BHMA A156.6.

C. Materials: Fabricate from stainless steel, unless otherwise indicated.

1. Push-Pull Design: Door Pulls: 1inch diameter by 10 inches long.

Rockwood 111
Burns 26C
Quality 163-10"

2. Push/Pull Bars: 1inch diameter.

Rockwood BF11147 x T1006 Mounting
Burns BF26C x 442 x Sim. Mounting as Above
Quality BF482 x Sim. Mounting as Above

2.12 CLOSERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Surface-Mounted Closers:
 - a. LCN Closers; an Ingersoll-Rand Company (LCN).
 - b. Sargent Manufacturing Company; Div. of ESSEX Industries, Inc. (SGT).

B. Standards: Comply with the following:

1. Closers: BHMA A156.4.

C. Surface Closers: BHMA Grade 1.

D. Certified Products: Provide door closers listed in BHMA's "Directory of Certified Door Closers."

E. Size of Units: Unless otherwise indicated, provide the following. Provide factory-sized closers, adjustable to meet field conditions and requirements for opening force.

1. LCN:
 - a. Exterior: 4040 Series
 - b. Interior: 4010 Series
2. Sargent:
 - a. Exterior: 281
 - b. Interior: 281

2.13 PROTECTIVE TRIM UNITS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 1. Metal Protective Trim Units:
 - a. Burns Manufacturing Incorporated (BM).
 - b. Hager Companies (HAG).
 - c. Ives: H. B. Ives (IVS).
 - d. Rockwood Manufacturing Company (RM).
- B. Standard: Comply with BHMA A156.6.
- C. Materials: Fabricate protection plates from the following:
 1. Stainless Steel: 0.050 inch thick; beveled top and 2 sides.
- D. Fasteners: Provide manufacturer's standard exposed fasteners for door trim units consisting of either machine or self-tapping screws.
- E. Fabricate protection plates as follows:
 1. Push Plates: 16" high by 8" wide.
 2. Kick Plates: 10" high by 1-1/2" less than door width for single doors and 1" less than door width for pairs of doors. Kick plates shall be applied to push side of all doors where noted.

2.14 STOPS AND HOLDERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 1. Stops and Bumpers:
 - a. Burns Manufacturing Incorporated (BM).
 - b. Glynn-Johnson; an Ingersoll-Rand Company (GJ).
 - c. Hager Companies (HAG).
 - d. Ives: H. B. Ives (IVS).
 - e. Rockwood Manufacturing Company (RM).
- B. Standards: Comply with the following:
 1. Stops and Bumpers: BHMA A156.16.
 2. Door Silencers: BHMA A156.16.
- C. Wall Stops: BHMA Grade 1. Wall type bumpers with concealed type flange shall be used where ever possible and shall be one of the following:
 1. Ives - 407 1/2

2. Door Controls - 3211T
 3. Rockwood - 409
- D. Floor Stops: Where wall type bumpers cannot be used, provide dome type, floor mounted stops of the proper height as follows:
1. Ives - 436, 438
 2. Door Controls - 3310X, 3320X
 3. Rockwood - 440, 442
 4. Do not mount floor stops where they will impede traffic.
- E. Exterior doors striking masonry and doors specified to have door stops and holders, shall have cast bronze wall or floor type door stops with hook or staple type holders to selectively hold doors in open position. The following will be acceptable:
1. Ives - 445, 446
 2. Door Controls - 3237X, 3347X
 3. Rockwood - 473, 477
- F. Provide matching finishes for hardware units at each door or opening, to the greatest extent possible, and except as otherwise indicated. Reduce differences in color and textures as much as commercially possible where the base metal or metal forming process is different for individual units of hardware exposed at the same door or opening. In general, match items to the manufacturer's standard finish for the latch and lock set (or push-pull units if no latch-lock sets) for color and texture.
- G. Silencers for Metal Door Frames: BHMA Grade 1; neoprene or rubber, minimum diameter 1/2 inch; fabricated for drilled-in application to frame.

2.15 DOOR GASKETING

- A. Standard: BHMA A156.22.
- B. General: Provide continuous weather-strip gasketing on exterior doors and provide smoke, light, or sound gasketing on interior doors where indicated or scheduled. Provide noncorrosive fasteners for exterior applications and elsewhere as indicated.
1. Perimeter Gasketing: Apply to head and jamb, forming seal between door and frame. Basis-of-Design Product, No. A626A by National Guard Products or approved substitute.
 2. Meeting Stile Gasketing: Fasten to meeting stiles, forming seal when doors are closed. Basis-of-Design Product, No. 600A by National Guard Products or approved substitute.
 3. Door Bottoms: Apply to bottom of door, forming seal with threshold when door is closed. Basis-of-Design Product, No. 95WH by National Guard Products or approved substitute.
- C. Air Leakage: Not to exceed 0.50 cfm per foot of crack length for gasketing other than for smoke control, as tested according to ASTM E 283.
- D. Fire-Labeled Gasketing: Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to NFPA 252.
1. Test Pressure: Test at atmospheric pressure.

2. Basis-of-Design Product, No. 9440 by National Guard Products or approved substitute.

E. Replaceable Seal Strips: Provide only those units where resilient or flexible seal strips are easily replaceable and readily available from stocks maintained by manufacturer.

2.16 THRESHOLDS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Hager Companies (HAG).
2. National Guard Products, Inc. (NGP).
3. Pemko Manufacturing Co., Inc. (PEM).
4. Reese Enterprises, Inc. (RE).
5. Zero International, Inc. (ZRO).

B. Standard: Comply with BHMA A156.21.

C. Provide No. 896 with door bottom sweep No. 95WH by National Guard Products or approved substitute.

2.17 FABRICATION

A. Manufacturer's Nameplate: Do not provide manufacturers' products that have manufacturer's name or trade name displayed in a visible location (omit removable nameplates) except in conjunction with required fire-rated labels and as otherwise approved by Architect.

1. Manufacturer's identification will be permitted on rim of lock cylinders only.

B. Base Metals: Produce door hardware units of base metal, fabricated by forming method indicated, using manufacturer's standard metal alloy, composition, temper, and hardness. Furnish metals of a quality equal to or greater than that of specified door hardware units and BHMA A156.18 for finishes. Do not furnish manufacturer's standard materials or forming methods if different from specified standard.

C. Fasteners: Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. Provide screws according to commercially recognized industry standards for application intended. Provide Phillips flat-head screws with finished heads to match surface of door hardware, unless otherwise indicated.

1. Concealed Fasteners: For door hardware units that are exposed when door is closed, except for units already specified with concealed fasteners. Do not use through bolts for installation where bolt head or nut on opposite face is exposed unless it is the only means of securely attaching the door hardware. Where through bolts are used on hollow door and frame construction, provide sleeves for each through bolt.
2. Steel Machine or Wood Screws: For the following fire-rated applications:
 - a. Mortise hinges to doors.
 - b. Strike plates to frames.
 - c. Closers to doors and frames.

3. Steel Through Bolts: For the following fire-rated applications, unless door blocking is provided:
 - a. Surface hinges to doors.
 - b. Closers to doors and frames.
 - c. Surface-mounted exit devices.
4. Spacers or Sex Bolts: For through bolting of hollow metal doors.
5. Fasteners for Wood Doors: Comply with requirements of DHI WDHS.2, "Recommended Fasteners for Wood Doors."

2.18 FINISHES

- A. Standard: Comply with BHMA A156.18.
- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.
- D. Provide the following finishes:
 1. Butts and Hinges: 26D
 2. Locks & Lock Trim: 26D
 3. Exit Devices: 32D
 4. Door Controls - Closers: Sprayed Alum. Finish
 5. Mortise Locks & Latches: 26D
 6. Door Stops: 26D/32D
 7. Weatherstripping: Aluminum
 8. Threshold: Aluminum
 9. Kickplates: 32D
 10. Pulls: 32D

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine doors and frames, with Installer present, for compliance with requirements for installation tolerances, labeled fire door assembly construction, wall and floor construction, and other conditions affecting performance.
- B. Examine roughing-in for electrical power systems to verify actual locations of wiring connections before electrified door hardware installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Steel Doors and Frames: Comply with DHI A115 series.
 - 1. Surface-Applied Door Hardware: Drill and tap doors and frames according to SDI 107.
- B. Wood Doors: Comply with DHI A115-W series.

3.3 INSTALLATION

- A. Mounting Heights: Mount door hardware units at heights indicated in following applicable publications, unless specifically indicated or required to comply with governing regulations:
 - 1. Standard Steel Doors and Frames: DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."
 - 2. Wood Doors: DHI WDHS.3, "Recommended Locations for Architectural Hardware for Wood Flush Doors."
- B. Install each door hardware item to comply with manufacturer's written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work specified in Division 9 Sections. Do not install surface-mounted items until finishes have been completed on substrates involved.
 - 1. Set units level, plumb, and true to line and location. Adjust and reinforce attachment substrates as necessary for proper installation and operation.
 - 2. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.
- C. Key Control System: Place keys on markers and hooks in key control system cabinet, as determined by final keying schedule.
- D. Thresholds: Set thresholds for exterior and acoustical doors in full bed of sealant complying with requirements specified in Division 7 Section "Joint Sealants."

3.4 FIELD QUALITY CONTROL

- A. Independent Architectural Hardware Consultant: Owner will engage a qualified independent Architectural Hardware Consultant to perform inspections and to prepare inspection reports.
 - 1. Independent Architectural Hardware Consultant will inspect door hardware and state in each report whether installed work complies with or deviates from requirements, including whether door hardware is properly installed and adjusted.

3.5 ADJUSTING

- A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.

1. Door Closers: Adjust sweep period 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.
- B. Six-Month Adjustment: Approximately six months after date of Substantial Completion, Installer shall perform the following:
 1. Examine and readjust each item of door hardware as necessary to ensure function of doors, door hardware, and electrified door hardware.
 2. Consult with and instruct Owner's personnel on recommended maintenance procedures.
 3. Replace door hardware items that have deteriorated or failed due to faulty design, materials, or installation of door hardware units.

3.6 CLEANING AND PROTECTION

- A. Clean adjacent surfaces soiled by door hardware installation.
- B. Clean operating items as necessary to restore proper function and finish.
- C. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of Substantial Completion.

3.7 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain door hardware and door hardware finishes.

3.8 DOOR HARDWARE SCHEDULE

- A. The hardware sets listed below indicate the items of hardware required for each opening. It is the bidders responsibility to accurately furnish the proper quantities, items, sizes, weights and functions as required by the plans and specifications. If an opening has, through error, been omitted from the following hardware sets, it shall be the bidders responsibility to supply hardware of equivalent quality and quantity, as that which is specified for a comparable opening.

EXTERIOR DOORS

HWA

Doors 100, 121, 122

Delayed Egress Lock
Closer
Weather-stripping
Door Stops
Silencers
Threshold

STAFF AREA DOORS

HWB

Doors 101, 112

Bored Locks and Latches (function 2)

Hinges

Door Stops

Silencers

BATHROOMS

HWC

Doors 102, 107, 117, 205, 210, 219

Mortised Locks (function B)

Hinges

Closer

Door Stops

Silencers

STAFF OFFICE

HWD

Doors 103, 104, 115, 204, 206, 207, 208

Bored Locks and Latches (function 3)

Hinges

Door Stops

Silencers

CLOSETS

HWE

Doors 105, 110, 118, 215

Dummy Lever

Hinges

Closer

Silencer

Door Stop

LIFE SPACES

HWG

Doors 106, 216

Mortised Locks (function A)

Hinges

Closer

Door Stops

Silencers

DOUBLE DOORS

HWH

Doors 108, 109

Passage Set

Hinges

Door Bolts (Foot and Head)

Silencers

Door Stops

BEDROOMS (PASSAGE SETS)

HWI

Doors 111, 114, 116, 119, 120, 201, 202, 203, 211, 212, 213, 214, 217, 218

Bored Passage Set

Hinges

Silencers

Door Stops

SMOKE SEPERATION DOORS

HWX

Doors 200, 209

Bored Passage Set

Signaling Electromagnetic Hold Open

Hinges

Silencers

Door Stops

END OF SECTION

SECTION 092500 – GYPSUM BOARD ASSEMBLIES

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the following:
 - 1. Interior gypsum wallboard.
 - 2. Tile backing panels.

1.2 DEFINITIONS

- A. Gypsum Board Terminology: Refer to ASTM C 11 for definitions of terms for gypsum board assemblies not defined in this Section or in other referenced standards.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Samples: For the following products:
 - 1. Trim Accessories: Full-size sample in 12-inch- (300-mm-) long length for each aluminum trim accessory indicated.

1.4 QUALITY ASSURANCE

- A. Fire-Test-Response Characteristics: For gypsum board assemblies with fire-resistance ratings, provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing and inspecting agency acceptable to authorities having jurisdiction.
 - 1. Fire-Resistance-Rated Assemblies: Indicated by design designations from UL's "Fire Resistance Directory" and GA-600, "Fire Resistance Design Manual."
- B. Sound Transmission Characteristics: For gypsum board assemblies with STC ratings, provide materials and construction identical to those tested in assembly indicated according to ASTM E 90 and classified according to ASTM E 413 by a qualified independent testing agency.
 - 1. STC-Rated Assemblies: Indicated by design designations from GA-600, "Fire Resistance Design Manual."

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in original packages, containers, or bundles bearing brand name and identification of manufacturer or supplier.
- B. Store materials inside under cover and keep them dry and protected against damage from weather, direct sunlight, surface contamination, corrosion, construction traffic, and other causes. Stack gypsum panels flat to prevent sagging.

1.6 PROJECT CONDITIONS

- A. Environmental Limitations: Comply with ASTM C 840 requirements or gypsum board manufacturer's written recommendations, whichever are more stringent.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. Gypsum Board and Related Products:
 - a. G-P Gypsum Corp.
 - b. National Gypsum Company.
 - c. United States Gypsum Co.

2.2 INTERIOR 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. Gypsum Wallboard: ASTM C 36.
 - 1. Type X:
 - a. Thickness: 5/8 inch (15.9 mm).
 - b. Long Edges: Tapered.
 - c. Location: Vertical surfaces, unless otherwise indicated.
- C. Moisture- and Mold-Resistant Type: With moisture- and mold-resistant core and surfaces.
 - 1. Back and face side: Glass fiber mat resists growth of mold or mildew (per ASTM D 3273).
 - 2. Core: Noncombustible gypsum core (ASTM E 136).
 - 3. Thickness: 5/8 inch.
 - 4. Long edges: Tapered.
 - 5. Basis of design Product: "DensArmor Plus" as manufactured by G-P Gypsum.

2.3 TRIM ACCESSORIES

- A. Interior Trim: ASTM C 1047.
 - 1. Material:
 - a. Galvanized steel sheet or rolled zinc at corners.
 - b. Plastic where abutting exterior metal doors and windows.
 - 2. Shapes:
 - a. Cornerbead: Use at outside corners, unless otherwise indicated.

- b. LC-Bead: J-shaped; exposed long flange receives joint compound; use at exposed panel edges or where abutting different materials.
- c. Expansion (Control) Joint:
 - 1) Metal zinc control joint: .093 by USG or Gold Bond. Use where indicated on the drawings
 - 2) Plastic E-Z Strip control joint by Gold Bond, use where not indicated on the drawings. Install over door jambs or in walls at a maximum of 30 feet on center.

2.4 JOINT TREATMENT MATERIALS

- A. General: Comply with ASTM C 475.
- B. Joint Tape:
 - 1. Interior Gypsum Wallboard: Paper.
 - 2. Mold-Resistant Gypsum Wallboard: 10-by-10 glass mesh.
- C. Joint Compound for Interior Gypsum Wallboard: For each coat use formulation that is compatible with other compounds applied on previous or for successive coats.
 - 1. Prefilling: At open joints and damaged surface areas, use setting-type taping compound.
 - 2. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use setting-type taping compound or drying-type, all-purpose compound.
 - a. Use setting-type compound for installing paper-faced metal trim accessories.
 - 3. Fill Coat: For second coat, use setting-type, sandable topping compound or drying-type, all-purpose compound.
 - 4. Finish Coat: For third coat, use drying-type, all-purpose compound.
 - 5. Skim Coat: For final coat of Level 5 finish, use drying-type, all-purpose compound.
- D. Joint Compound for Interior Mold-Resistant Gypsum Wallboard: For each coat use formulation that is compatible with other compounds applied on previous or for successive coats.
 - 1. Prefilling: At open joints and damaged surface areas, use setting-type taping compound.
 - 2. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use setting-type taping compound.
 - 3. Fill Coat: For second coat, use setting-type, sandable topping compound or drying-type, all-purpose compound.
 - 4. Finish Coat: For third coat, use drying-type, all-purpose compound.

2.5 ACOUSTICAL SEALANT

- A. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. Acoustical Sealant for Exposed and Concealed Joints:
 - a. Pecora Corp.; AC-20 FTR Acoustical and Insulation Sealant.
 - b. United States Gypsum Co.; SHEETROCK Acoustical Sealant.

- B. Acoustical Sealant for Exposed and Concealed Joints: Nonsag, paintable, nonstaining, latex sealant complying with ASTM C 834 that effectively reduces airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.

2.6 AUXILIARY MATERIALS

- A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written recommendations.
- B. Steel Drill Screws: ASTM C 1002, unless otherwise indicated.
 - 1. Use screws complying with ASTM C 954 for fastening panels to wood members.
 - 2. For fastening cementitious backer units, use screws of type and size recommended by panel manufacturer.
- C. Sound Attenuation Blankets: As specified in Division 7 Section "Building Insulation."

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and substrates, with Installer present, and including welded hollow-metal frames, cast-in anchors, and structural framing, for compliance with requirements and other conditions affecting performance. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 APPLYING AND FINISHING PANELS, GENERAL

- A. Gypsum Board Application and Finishing Standards: ASTM C 840 and GA-216.
- B. Install sound attenuation blankets before installing gypsum panels, unless blankets are readily installed after panels have been installed on one side.
- C. Install ceiling board panels across framing to minimize the number of abutting end joints and to avoid abutting end joints in the central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.
- D. Install gypsum panels with face side out. Butt panels together for a light contact at edges and ends with not more than 1/16 inch (1.5 mm) of open space between panels. Do not force into place.
- E. Locate edge and end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions. Do not make joints other than control joints at corners of framed openings.
- F. Attach gypsum panels to steel studs so leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.

- G. Attach gypsum panels to framing provided at openings and cutouts.
- H. Do not attach gypsum panels across the flat grain of wide-dimension lumber, including floor joists and headers. Float gypsum panels over these members using resilient channels, or provide control joints to counteract wood shrinkage.
- I. Form control and expansion joints with space between edges of adjoining gypsum panels.
- J. Cover both faces of steel stud partition framing with gypsum panels in concealed spaces (above ceilings, etc.), except in chases braced internally.
 - 1. Unless concealed application is indicated or required for sound, fire, air, or smoke ratings, coverage may be accomplished with scraps of not less than 8 sq. ft. (0.7 sq. m) in area.
 - 2. Fit gypsum panels around ducts, pipes, and conduits.
 - 3. Where partitions intersect open concrete coffers, concrete joists, and other structural members projecting below underside of floor/roof slabs and decks, cut gypsum panels to fit profile formed by coffers, joists, and other structural members; allow 1/4- to 3/8-inch- (6.4- to 9.5-mm-) wide joints to install sealant.
- K. Isolate perimeter of non-load-bearing gypsum board partitions at structural abutments, except floors. Provide 1/4- to 1/2-inch- (6.4- to 12.7-mm-) wide spaces at these locations, and trim edges with LC-bead edge trim where edges of gypsum panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.
- L. Floating Construction: Where feasible, including where recommended in writing by manufacturer, install gypsum panels over wood framing, with floating internal corner construction.
- M. STC-Rated Assemblies: Seal construction at perimeters, behind control and expansion joints, and at openings and penetrations with a continuous bead of acoustical sealant. Install acoustical sealant at both faces of partitions at perimeters and through penetrations. Comply with ASTM C 919 and manufacturer's written recommendations for locating edge trim and closing off sound-flanking paths around or through gypsum board assemblies, including sealing partitions above acoustical ceilings.
- N. Smoke-Rated Gypsum Board Assemblies: Provide a tight, taped joint at the top of smoke-rated assemblies and around any penetrations to assemblies at both side of the assembly. The use of acoustical sealant will be acceptable to fill gaps up to 3/8 inch wide.
- O. Space fasteners in gypsum panels according to referenced gypsum board application and finishing standard and manufacturer's written recommendations.
 - 1. Space screws a maximum of 12 inches (304.8 mm) o.c. for vertical applications.
- P. Space fasteners in panels that are tile substrates a maximum of 8 inches (203.2 mm) o.c.

3.3 PANEL APPLICATION METHODS

- A. Single-Layer Application:
 - 1. On ceilings, apply gypsum panels before wall/partition board application to the greatest extent possible and at right angles to framing, unless otherwise indicated.
 - 2. On partitions/walls, apply gypsum panels horizontally (perpendicular to framing), unless otherwise indicated or required by fire-resistance-rated assembly, and minimize end joints.
 - a. Stagger abutting end joints not less than one framing member in alternate courses of board.
 - b. At stairwells and other high walls, install panels horizontally, unless otherwise indicated or required by fire-resistance-rated assembly.
- B. Single-Layer Fastening Methods: Apply gypsum panels to supports with steel drill screws.

3.4 INSTALLING TRIM ACCESSORIES

- A. General: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.
- B. Control Joints: Install control joints at locations indicated on Drawings, or if not indicated, install control joints not over 30 feet apart and in specific locations approved by Architect for visual effect.

3.5 FINISHING GYPSUM BOARD ASSEMBLIES

- A. General: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.
- B. Prefill open joints and damaged surface areas.
- C. Apply joint tape over gypsum board joints, except those with trim having flanges not intended for tape.
- D. Gypsum Board Finish Levels: Finish panels to levels indicated below, according to ASTM C 840, for locations indicated:
 - 1. Level 1: Embed tape at joints in ceiling plenum areas, concealed areas, and where indicated, unless a higher level of finish is required for fire-resistance-rated assemblies and sound-rated assemblies.
 - 2. Level 4: Embed tape and apply separate first, fill, and finish coats of joint compound to tape, fasteners, and trim flanges at panel surfaces that will be exposed to view, and for fire-resistance-rated and sound-rated assemblies, unless otherwise indicated.

END OF SECTION

SECTION 093000 – CERAMIC TILE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:

- 1. Quarry tile.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.

- B. Samples for Verification:

- 1. Full-size units of each type and composition of tile and for each color and finish required.
- 2. Metal edge strips in 6-inch lengths.

1.4 QUALITY ASSURANCE

- A. Source Limitations for Tile: Obtain tile of each type and color or finish from one source or producer.

- 1. Obtain tile of each type and color or finish from same production run and of consistent quality in appearance and physical properties for each contiguous area.

- B. Source Limitations for Setting and Grouting Materials: Obtain ingredients of a uniform quality for each mortar, adhesive, and grout component from one manufacturer and each aggregate from one source or producer.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver and store packaged materials in original containers with seals unbroken and labels intact until time of use. Comply with requirements in ANSI A137.1 for labeling tile packages.

- B. Store tile and cementitious materials on elevated platforms, under cover, and in a dry location.
- C. Store aggregates where grading and other required characteristics can be maintained and contamination can be avoided.
- D. Store liquid materials in unopened containers and protected from freezing.
- E. Handle tile that has temporary protective coating on exposed surfaces to prevent coated surfaces from contacting backs or edges of other units. If coating does contact bonding surfaces of tile, remove coating from bonding surfaces before setting tile.

1.6 PROJECT CONDITIONS

- A. Environmental Limitations: Do not install tile until construction in spaces is complete and ambient temperature and humidity conditions are maintained at the levels indicated in referenced standards and manufacturer's written instructions.

PART 2 - PRODUCTS

2.1 PRODUCTS, GENERAL

- A. ANSI Ceramic Tile Standard: Provide tile that complies with ANSI A137.1 for types, compositions, and other characteristics indicated.
 - 1. Provide tile complying with Standard grade requirements unless otherwise indicated.
- B. ANSI Standards for Tile Installation Materials: Provide materials complying with ANSI A108.02, ANSI standards referenced in other Part 2 articles, ANSI standards referenced by TCA installation methods specified in tile installation schedules, and other requirements specified.
- C. Factory Blending: For tile exhibiting color variations within ranges, blend tile in factory and package so tile units taken from one package show same range in colors as those taken from other packages and match approved Samples.

2.2 TILE PRODUCTS

- A. Unglazed Quarry Tile: Provide square-edged flat tile complying with the following requirements:
 - 1. Wearing Surface: Natural textured finish.
 - 2. Facial Dimensions: 6 by 6 inches
 - 3. Thickness: 1/2 inch
 - 4. Face: Pattern of design indicated.
 - 5. Static Coefficient of Friction: Level Surfaces, minimum 0.6.

6. Tile Type/Products: Available products include the following:
 - a. Quarry Naturals by American Olean.
 - b. Quarry Textures by Daltille.

2.3 SETTING MATERIALS

A. Latex-Portland Cement Mortar (Thin Set): ANSI A118.4.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Bonsal American; an Oldcastle company.
 - b. Bostik, Inc.
 - c. C-Cure.
 - d. Custom Building Products.
 - e. Laticrete International, Inc.
 - f. MAPEI Corporation.
2. Provide prepackaged, dry-mortar mix containing dry, redispersible, vinyl acetate or acrylic additive to which only water must be added at Project site.
3. For wall applications, provide mortar that complies with requirements for nonsagging mortar in addition to the other requirements in ANSI A118.4.

2.4 GROUT MATERIALS

A. Polymer-Modified Tile Grout: ANSI A118.7.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Bonsal American; an Oldcastle company.
 - b. Bostik, Inc.
 - c. C-Cure.
 - d. Custom Building Products.
 - e. Laticrete International, Inc.
 - f. MAPEI Corporation.
2. Polymer Type: Ethylene vinyl acetate or acrylic additive, in dry, redispersible form, prepackaged with other dry ingredients.

2.5 ELASTOMERIC SEALANTS

- A. General: Provide manufacturer's standard sanded acrylic caulking containing a mildew-cide or antimicrobial protection.
- B. Colors: Provide colors of exposed sealants to match colors of grout in tile adjoining sealed joints unless otherwise indicated.
- C. Products: Available products include the following:

1. Keracaulk™ S by Mapei
2. CeramaSeal by Bostik Findley

2.6 MIXING MORTARS AND GROUT

- A. Mix mortars and grouts to comply with referenced standards and mortar and grout manufacturers' written instructions.
- B. Add materials, water, and additives in accurate proportions.
- C. Obtain and use type of mixing equipment, mixer speeds, mixing containers, mixing time, and other procedures to produce mortars and grouts of uniform quality with optimum performance characteristics for installations indicated.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Blending: For tile exhibiting color variations, verify that tile has been factory blended and packaged so tile units taken from one package show same range of colors as those taken from other packages and match approved Samples. If not factory blended, either return to manufacturer or blend tiles at Project site before installing.

3.2 TILE INSTALLATION

- A. Comply with TCA's "Handbook for Ceramic Tile Installation" for TCA installation methods specified in tile installation schedules. Comply with parts of the ANSI A108 Series "Specifications for Installation of Ceramic Tile" that are referenced in TCA installation methods, specified in tile installation schedules, and apply to types of setting and grouting materials used.
- B. Accurately form intersections and returns. Perform cutting and drilling of tile without marring visible surfaces. Carefully grind cut edges of tile abutting trim, finish, or built-in items for straight aligned joints. Fit tile closely to electrical outlets, piping, fixtures, and other penetrations so plates, collars, or covers overlap tile.
- C. Jointing Pattern: Lay tile in grid pattern unless otherwise indicated. Lay out tile work and center tile fields in both directions in each space or on each wall area. Lay out tile work to minimize the use of pieces that are less than half of a tile. Provide uniform joint widths unless otherwise indicated.
 1. Where tiles are specified or indicated to be whole integer multiples of adjoining tiles on floor, base, walls, or trim, align joints unless otherwise indicated.
- D. Joint Widths: Unless otherwise indicated, install tile with the following joint widths:
 1. Ceramic Floor Tile: 3/16 inch.
 2. Ceramic Wall Tile: 3/16 inch.

- E. Lay out tile wainscots to dimensions indicated or to next full tile beyond dimensions indicated.

3.3 CLEANING AND PROTECTING

- A. Cleaning: On completion of placement and grouting, clean all ceramic tile surfaces so they are free of foreign matter.
 - 1. Remove latex-portland cement grout residue from tile as soon as possible.
 - 2. Clean grout smears and haze from tile according to tile and grout manufacturer's written instructions but no sooner than 10 days after installation. Use only cleaners recommended by tile and grout manufacturers and only after determining that cleaners are safe to use by testing on samples of tile and other surfaces to be cleaned. Protect metal surfaces and plumbing fixtures from effects of cleaning. Flush surfaces with clean water before and after cleaning.
 - 3. Remove temporary protective coating by method recommended by coating manufacturer and that is acceptable to tile and grout manufacturer. Trap and remove coating to prevent drain clogging.
- B. Before final inspection, remove protective coverings and rinse neutral protective cleaner from tile surfaces.

3.4 INTERIOR TILE INSTALLATION SCHEDULE

- A. Interior Wall Installations, Wood Studs or Furring:
 - 1. Tile Installation W243: Thin-set mortar on gypsum board; TCA W243.
 - a. Tile Type: Ceramic wall tile.
 - b. Thin-Set Mortar: Latex- portland cement mortar.
 - c. Grout: Polymer-modified unsanded grout.

END OF SECTION

SECTION 095100 - ACOUSTICAL CEILINGS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Suspended metal grid ceiling system and perimeter trim.
- B. Acoustic panels.

1.2 SYSTEM DESCRIPTION

- A. Suspension System: Rigidly secure acoustic ceiling system including integral mechanical and electrical components with maximum deflection of 1:360.

1.3 SUBMITTALS

- A. Product Data: Provide data on metal grid system components, and acoustic units.
- B. Shop Drawings: Indicate grid layout and related dimensioning, junctions with other work or ceiling finishes, interrelation of mechanical and electrical items related to system.
- C. Samples: Submit two samples illustrating material and finish of acoustic units.
- D. Samples: Submit two samples of suspension system main runner, cross runner and perimeter molding.

1.4 REGULATORY REQUIREMENTS

- A. Conform to applicable code for fire rated assembly.
- B. Conform to BOCA, ASTM and ANSI standards for seismic restraints.

1.5 EXTRA MATERIALS

- A. Provide one box of each type panels to Owner.

PART 2 PRODUCTS

2.1 SUSPENSION SYSTEM MATERIALS

- A. Manufacturers:
 - 1. Chicago Metallic Corp.
 - 2. Donn Corp.
 - 3. National Rolling Mills.
 - 4. Armstrong World Industries.
- B. Non-fire Rated Grid: ASTM C635, intermediate duty; exposed T; components die cut and interlocking.
- C. Grid Materials: Commercial quality cold rolled steel with galvanized coating.
- D. Exposed Grid Surface Width: 9/16 inch (24 mm).
- E. Grid Finish: White.

- F. Accessories: Stabilizer bars, clips, splices, perimeter moldings, and hold down clips required for suspended grid system.
- G. Support Channels and Hangers: Galvanized steel; size and type to suit application, seismic requirements, and ceiling system flatness requirement specified.

2.2 ACOUSTIC UNIT MATERIALS

- A. Manufacturers:
 - 1. Armstrong World Industries.
 - 2. U.S.G.
- B. Acoustic Tile: ASTM E1264, 24" x 24" x 3/4" with beveled tegular edge, CAC 35; NRC .40, Color: white. Provide "Cirrus Tegular Lay In" as manufactured by Armstrong World Industries.

2.3 ACCESSORIES

- A. Acoustic Sealant For Perimeter Moldings: Specified in Section 07920.
- B. Touch-up Paint: Type and color to match acoustic and grid units.
- C. Hold down clips: Provide hold down clips to secure tiles in place.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Above-ceiling review: Prior to the installation of ceilings, provide a review of construction completion for fire stopping, mechanical, electrical and other items that will not be visible once the ceilings have been installed.

3.2 INSTALLATION - LAY-IN GRID SUSPENSION SYSTEM

- A. Install suspension system in accordance with manufacturer's instructions and as supplemented in this section.
- B. Install system in accordance with ASTM E580.
- C. Install system capable of supporting imposed loads to a deflection of 1/360 maximum.
- D. Suspension Systems: Install in compliance with ASTM C 636 and E 580-91 (seismic restraint), with hangers supported only from building structural members. Locate hangers not less than 6" from each end and spaced 4'-0" along each carrying channel or direct-hung runner, unless otherwise indicated, leveling to tolerance of 1/8" in 12'-0".

3.3 INSTALLATION - ACOUSTIC UNITS

- A. Install acoustic units in accordance with manufacturer's instructions.
- B. Cutting Acoustic Units:
 - 1. Cut to fit irregular grid and perimeter edge trim.
- C. Install hold-down clips to retain panels tight to grid system within 10 ft (3 m) of an exterior door.

3.4 ERECTION TOLERANCES

- A. Maximum Variation from Flat and Level Surface: 1/8 inch in 10 feet (3 mm in 3 m).
- B. Maximum Variation from Plumb of Grid Members Caused by Eccentric Loads: 2 degrees.

END OF SECTION

SECTION 096513 - RESILIENT BASE AND ACCESSORIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
 - 1. Resilient molding accessories.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Samples for Selection: For each type of product indicated.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Store resilient products 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.

1.5 PROJECT CONDITIONS

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

PART 2 - PRODUCTS

2.1 RUBBER WALL BASE

A. Rubber Wall Base:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

- a. Roppe.

B. Material: Rubber.

C. Profile and Dimensions:

1. Profile: Standard Cove
2. Gauge: 1/8" (3.2 mm)
3. Heights: 6" (152.4 mm)
4. Lengths: 120' (36.58 m) Coils
5. Factory Corners: Inside & Outside Corners in 2 1/2" (63.5 mm), 4" (101.6 mm), 6" (152.4 mm) heights with 3" (76.2 mm) returns

D. Colors and Patterns: As selected by Architect from full range of industry colors.

2.2 RESILIENT MOLDING ACCESSORY

A. Resilient Molding Accessory:

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

- a. Johnsonite.

B. Material: Vinyl.

C. Profile and Dimensions:

1. Transition Strip between Carpet/Ceramic Tile: CE-XX-A by Johnsonite or approved substitute.
2. Transition Strip between sheet vinyl and Carpet: CE-XX-A by Johnsonite or approved substitute.

D. 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 manufacturer for applications indicated.
- B. Adhesives: Water-resistant type recommended by manufacturer to suit resilient products and substrate conditions indicated.
 - 1. Use adhesives that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
 - a. Rubber Floor Adhesives: Not more than 60 g/L.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Prepare substrates according to manufacturer's written instructions to ensure adhesion of resilient products.
- B. Concrete Substrates for Resilient Accessories: 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 manufacturer. Do not use solvents.
- C. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound and remove bumps and ridges to produce a uniform and smooth substrate.
- D. Do not install resilient products until they are same temperature as the space where they are to be installed.
 - 1. Move resilient products and installation materials into spaces where they will be installed at least 48 hours in advance of installation.
- E. Sweep and vacuum clean substrates to be covered by resilient products immediately before installation.

3.2 RESILIENT ACCESSORY INSTALLATION

- A. Comply with manufacturer's written instructions for installing resilient accessories.
- B. Resilient Molding Accessories: Butt to adjacent materials and tightly adhere to substrates throughout length of each piece. Install reducer strips at edges of carpet and resilient floor covering that would otherwise be exposed.

3.3 CLEANING AND PROTECTION

- A. Comply with manufacturer's written instructions for cleaning and protection of resilient products.
- B. Perform the following operations immediately after completing resilient product installation:
 - 1. Remove adhesive and other blemishes from exposed surfaces.
 - 2. Sweep and vacuum surfaces thoroughly.
 - 3. Damp-mop surfaces to remove marks and soil.
- C. Protect resilient products from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.

END OF SECTION

SECTION 096516 - RESILIENT SHEET 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. Section Includes:
 - 1. Vinyl sheet floor covering, with backing.
 - 2. Resilient strip flooring

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Samples for Verification: In manufacturer's standard size, but not less than 6-by-9-inch sections of each different color and pattern of floor covering required.
- C. Seam Samples: For seamless-installation technique indicated and for each floor covering 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.
- D. Product Schedule: For floor coverings. Use same designations indicated on Drawings.
- E. Maintenance Data: For each type of floor covering to include in maintenance manuals.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified installer who employs workers for this Project who are competent in techniques required by manufacturer for floor covering installation indicated.
 - 1. Engage an installer who employs workers for this Project who are trained or certified by floor covering manufacturer for installation techniques required.
- B. Fire-Test-Response Characteristics: 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.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store floor coverings 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.

1.6 PROJECT 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 floor coverings during the following time periods:
 1. 48 hours before installation.
 2. During installation.
 3. 48 hours after installation.
- B. Until Substantial 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 floor covering installation.
- D. Close spaces to traffic for 48 hours after floor covering installation.
- E. Install floor coverings after other finishing operations, including painting, have been completed.

1.7 EXTRA MATERIALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 1. Floor Covering: Furnish quantity not less than 10 linear feet for every 500 linear feet or fraction thereof, in roll form and in full roll width for each color, pattern, and type of floor covering installed.

PART 2 - PRODUCTS

2.1 VINYL SHEET FLOOR COVERING (Type 1)

- A. Products: Subject to compliance with requirements, provide the following:
 1. Tarkett Vinyl Sheet Flooring: Fiber Floor: Easy Living #14301 (Type 3).
- B. Vinyl Sheet Floor Covering with Backing: ASTM F 1303.

1. Type (Binder Content): Type I, minimum binder content of 90 percent.
2. Wear-Layer Thickness: Grade 2.
3. Overall Thickness: 0.10" (2.5mm).
4. Interlayer Material: None.
5. Backing Class: Class A (fibrous).

C. Wearing Surface:

D. Sheet Width: 12 feet.

E. Seaming Method: Full Spread Permanent.

F. Colors and Patterns: Standard Colors.

2.2 VINYL SHEET FLOOR COVERING (Type 2)

A. Products: Subject to compliance with requirements, provide the following:

1. Coratec Vinyl Plan: Engineered Vinyl Plank:

B. Vinyl Sheet Floor Covering with Backing: ASTM F 1303.

1. Type (Binder Content): Type I, minimum binder content of 90 percent.
2. Wear-Layer Thickness: Grade 2.
3. Overall Thickness: 0.32" (8mm).
4. Interlayer Material: None.
5. Backing Class:

C. Wearing Surface: Dimpled.

D. Plank Size: 5" x 48"

E. Seaming Method: Glueless Click.

F. Colors and Patterns: Standard Chipped Colors.

2.3 RESILIENT TILE FLOORING (Type 3)

A. Products: Subject to compliance with requirements, provide the following:

1. Roppe:

B. Recycled rubber tiles: ASTM F 1700.

1. Type (Content): A minimum 39% post-consumer, 33% pre-consumer recycled content.
2. Edges: Square.
3. Tile Size: 18" X 18".
4. Overall Thickness: 1/8" (3mm).
5. Material: Recycled rubber tile.

6. Backing Class: Class A (fibrous).

C. Colors and Patterns: Manufacturer's standard.

2.4 INSTALLATION MATERIALS

A. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement based or blended hydraulic-cement-based formulation provided or approved by manufacturer for applications indicated.

B. Adhesives: Water-resistant type recommended by manufacturer to suit floor covering and substrate conditions indicated.

1. Use adhesives that have a VOC content of not more than 50 g/L when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

C. Seamless-Installation Accessories:

1. Chemical-Bonding Compound: Manufacturer's product for chemically bonding seams.

a. VOC Content: Not more than 510 g/L. when calculated according to 40 CFR 59, Subpart D (EPA method 24).

D. Floor Polish: Provide protective liquid floor polish products as recommended by manufacturer (Type 1 flooring only).

PART 3 - EXECUTION

3.1 PREPARATION

A. Prepare substrates according to manufacturer's written instructions to ensure adhesion of floor coverings.

B. Concrete Substrates: Prepare according to ASTM F 1482.

1. Verify that substrates are dry, clean and free of solvents, sealers, and imperfections.

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 manufacturer. Do not use solvents.

C. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound and remove bumps and ridges to produce a uniform and smooth substrate.

D. Do not install floor coverings until they are same temperature as space where they are to be installed.

1. Move floor coverings and installation materials into spaces where they will be installed at least 48 hours in advance of installation.
- E. Sweep and vacuum clean substrates to be covered by floor coverings immediately before installation.

3.2 SUBSTRATE TESTING

- A. Internal Relative Humidity Testing: Conduct internal relative humidity testing of spaces or rooms to receive floor coverings or coatings in accordance with ASTM F-2170.
1. Proceed with installation only after substrates have a maximum 75 percent relative humidity level measurement.
- B. Submit all test results to the Architect, flooring installer and manufacturer of the flooring materials before installation of the flooring materials.

3.3 FLOOR COVERING INSTALLATION

- A. Comply with manufacturer's written instructions for installing floor coverings.
- B. Unroll floor coverings and allow them to stabilize before cutting and fitting.
- C. Lay out floor coverings as follows:
1. Maintain uniformity of floor covering direction.
 2. Minimize number of seams; place seams in inconspicuous and low-traffic areas, at least 6 inches away from parallel joints in floor covering substrates.
 3. Match edges of floor coverings for color shading at seams.
 4. Avoid cross seams.
- D. Scribe and cut floor coverings to butt neatly and tightly to vertical surfaces, permanent fixtures, and built-in furniture including cabinets, pipes, outlets, and door frames.
- E. Extend floor coverings into toe spaces, door reveals, closets, and similar openings.
- F. Maintain reference markers, holes, or openings that are in place or marked for future cutting by repeating on floor coverings as marked on substrates. Use chalk or other nonpermanent marking device.
- G. Install floor coverings on covers for telephone and electrical ducts and similar items in installation areas. Maintain overall continuity of color and pattern between pieces of floor coverings installed on covers and adjoining floor covering. Tightly adhere floor covering edges to substrates that abut covers and to cover perimeters.
- H. Adhere floor coverings 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.

- I. Seamless Installation:
 - 1. Mechanically heat-welded seams: Heat weld seams as per manufacturers written instructions. Prepare seams and apply welds to produce tightly-fitted seams without gaps, overlays, or excess joint width on floor covering surfaces.
- J. Coved Installation: Where flooring is coved up wall surfaces and other abutments, installation shall be in accordance with manufacturer's written flooring instructions for conditions present.
 - 1. At standard wall finishes: Use vinyl cap strip to accommodate sheet vinyl to a height as indicated; adhere with contact tape.

3.4 CLEANING AND PROTECTION

- A. Comply with manufacturer's written instructions for cleaning and protection of floor coverings.
- B. Perform the following operations immediately after completing floor covering install:
 - 1. Remove adhesive and other blemishes from floor covering surfaces.
 - 2. Sweep and vacuum floor coverings thoroughly.
 - 3. Damp-mop floor coverings to remove marks and soil.
- C. Protect floor coverings 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, visible adhesive, and surface blemishes from floor covering before applying liquid floor polish.
 - 1. Apply one coat.
- E. Cover floor coverings until Substantial Completion.

END OF SECTION 096516

SECTION 096810 - CARPET TILE

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes carpet tile and installation.

1.2 SUBMITTALS

- A. Product Data: For each type of product indicated. Include manufacturer's written data on physical characteristics, durability, and fade resistance. Include installation methods.
- B. Samples: For each of the following products and for each color and texture required. Label each Sample with manufacturer's name, material description, color, pattern, and designation indicated on Drawings and in schedules.
 - 1. Carpet Tile: Full-size Sample.
 - 2. Exposed Edge Stripping and Accessory: 12-inch- long Samples.
- C. Product Schedule: Use same room and product designations indicated on Drawings and in schedules.
- D. Maintenance Data: For carpet tile to include in maintenance manuals specified in Division 1. Include the following:
 - 1. Methods for maintaining carpet tile, including cleaning and stain-removal products and procedures and manufacturer's recommended maintenance schedule.
 - 2. Precautions for cleaning materials and methods that could be detrimental to carpet tile.

1.3 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who is certified by the Floor Covering Installation Board or who can demonstrate compliance with its certification program requirements.
- B. Fire-Test-Response Characteristics: Provide products with the critical radiant flux classification indicated in Part 2, as determined by testing identical products per ASTM E 648 by an independent testing and inspecting agency acceptable to authorities having jurisdiction.
- C. Product Options: Products and manufacturers named in Part 2 establish requirements for product quality in terms of appearance, construction, and performance. Other manufacturers' products comparable in quality to named products and complying with requirements may be considered. Refer to Division 1 Section "Product Requirements."

1.4 DELIVERY, STORAGE, AND HANDLING

- A. General: Comply with CRI 104, Section 5, "Storage and Handling."

1.5 PROJECT CONDITIONS

- A. General: Comply with CRI 104, Section 6.1, "Site Conditions; Temperature and Humidity."
- B. Environmental Limitations: Do not install carpet tile until wet work in spaces is complete and dry, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.
- C. Do not install carpet tile over concrete slabs until slabs have cured and are sufficiently dry to bond with adhesive and concrete slabs have pH range recommended by carpet tile manufacturer.
- D. Where demountable partitions or other items are indicated for installation on top of carpet tile, install carpet tile before installing these items.

1.6 WARRANTY

- A. General Warranty: Special warranty specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.
- B. Special Carpet Tile Warranty: Written warranty, signed by carpet tile manufacturer agreeing to replace carpet tile that does not comply with requirements or that fails within specified warranty period. Warranty does not include deterioration or failure of carpet tile due to unusual traffic, failure of substrate, vandalism, or abuse. Failures include, but are not limited to, more than 10 percent loss of face fiber, edge raveling, snags, runs, and delamination.
 - 1. Warranty Period: 10 years from date of Substantial Completion.

1.7 EXTRA MATERIALS

- A. Furnish extra materials described below, before installation begins, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Carpet Tile: Full-size units equal to 5 percent of amount installed for each type indicated, but not less than 10 sq. yd..

PART 2 - PRODUCTS

2.1 CARPET TILE

- A. Product: To be determined.

- B. Allow \$28 per square yard for material and installation.

2.2 INSTALLATION ACCESSORIES

- A. Trowelable Leveling and Patching Compounds: Latex-modified, hydraulic-cement-based formulation provided by or recommended by carpet tile manufacturer.
- B. Adhesives: Water-resistant, mildew-resistant, nonstaining type to suit products and subfloor conditions indicated, that complies with flammability requirements for installed carpet tile and that is recommended by carpet tile manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions for compliance with requirements for maximum moisture content, alkalinity range, installation tolerances, and other conditions affecting carpet tile performance. Verify that substrates and conditions are satisfactory for carpet tile installation and comply with requirements specified.
- B. Concrete Subfloors: Verify that concrete slabs comply with ASTM F 710 and the following:
 - 1. Slab substrates are dry and free of curing compounds, sealers, hardeners, and other materials that may interfere with adhesive bond. Determine adhesion and dryness characteristics by performing bond and moisture tests recommended by carpet tile manufacturer.
 - 2. Subfloor finishes comply with requirements specified in Division 3 Section "Cast-in-Place Concrete" for slabs receiving carpet tile.
 - 3. Subfloors are free of cracks, ridges, depressions, scale, and foreign deposits.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. General: Comply with CRI 104, Section 6.2, "Site Conditions; Floor Preparation," and carpet tile manufacturer's written installation instructions for preparing substrates indicated to receive carpet tile installation.
- B. Use trowelable leveling and patching compounds, according to manufacturer's written instructions, to fill cracks, holes, and depressions in substrates.
- C. Remove coatings, including curing compounds, and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, without using solvents. Use mechanical methods recommended in writing by carpet tile manufacturer.
- D. Broom and vacuum clean substrates to be covered immediately before installing carpet tile. After cleaning, examine substrates for moisture, alkaline salts, carbonation, or

dust. Proceed with installation only after unsatisfactory conditions have been corrected.

3.3 INSTALLATION

- A. General: Comply with CRI 104, Section 13, "Carpet Modules (Tiles)."
- B. Installation Method: As recommended in writing by carpet tile manufacturer.
- C. 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.
- D. Extend carpet tile into toe spaces, door reveals, closets, open-bottomed obstructions, removable flanges, alcoves, and similar openings.
- E. 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.
- F. Install pattern parallel to walls and borders.

3.4 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 15, "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

SECTION 09900 - PAINTING

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes surface preparation and field painting of the following:
 - 1. Exposed exterior items and surfaces.
 - 2. Exposed interior items and surfaces.
 - 3. Surface preparation, priming, and finish coats specified in this Section are in addition to shop priming and surface treatment specified in other Sections.
- B. Paint exposed surfaces, except where the paint schedules indicate that a surface or material is not to be painted or is to remain natural. If the paint schedules do not specifically mention an item or a surface, paint the item or surface the same as similar adjacent materials or surfaces whether or not schedules indicate colors. If the schedules do not indicate color or finish, the Architect will select from standard colors and finishes available.
 - 1. Painting includes field painting of exposed bare and covered pipes and ducts (including color coding), hangers, exposed steel and iron work, and primed metal surfaces of mechanical and electrical equipment.
- C. Do not paint prefinished items, concealed surfaces, finished metal surfaces, operating parts, and labels.

1.2 SUBMITTALS

- A. Product Data: For each paint system specified. Include block fillers and primers.
 - 1. Material List: Provide an inclusive list of required coating materials. Indicate each material and cross-reference specific coating, finish system, and application. Identify each material by manufacturer's catalog number and general classification.
 - 2. Manufacturer's Information: Provide manufacturer's technical information, including label analysis and instructions for handling, storing, and applying each coating material proposed for use.
 - 3. Certification by the manufacturer that products supplied comply with local regulations controlling use of volatile organic compounds (VOCs).
- B. Samples for Selection: Manufacturer's color chips showing the full range of colors available for each type of finish-coat material indicated.
 - 1. After color selection, the Architect will furnish color list of color selections for surfaces to be coated.

1.3 QUALITY ASSURANCE

- A. Applicator Qualifications: Engage an experienced applicator who has completed painting system applications similar in material and extent to that indicated for this Project with a record of successful in-service performance.

- B. Source Limitations: Obtain block fillers, primers, and undercoat materials for each coating system from the same manufacturer as the finish coats.
- C. Benchmark Samples (Mockups): Provide a full-coat benchmark finish sample of each type of coating and substrate required on the Project. Comply with procedures specified in PDCA P5. Duplicate finish of approved prepared samples.
 - 1. The Architect will select one room or surface to represent surfaces and conditions for each type of coating and substrate to be painted.
 - a. Wall Surfaces: Provide samples on at least 100 sq. ft. (9 sq. m) of wall surface.
 - b. Small Areas and Items: The Architect will designate an item or area as required.
 - 2. After permanent lighting and other environmental services have been activated, apply coatings in this room or to each surface according to the Schedule or as specified. Provide required sheen, color, and texture on each surface.
 - a. After finishes are accepted, the Architect will use the room or surface to evaluate coating systems of a similar nature.
 - 3. Final approval of colors will be from job-applied samples.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to the Project Site in manufacturer's original, unopened packages and containers bearing manufacturer's name and label, and the following information:
 - 1. Product name or title of material.
 - 2. Product description (generic classification or binder type).
 - 3. Manufacturer's stock number and date of manufacture.
 - 4. Contents by volume, for pigment and vehicle constituents.
 - 5. Thinning instructions.
 - 6. Application instructions.
 - 7. Color name and number.
 - 8. VOC content.
- B. Store materials not in use in tightly covered containers in a well-ventilated area at a minimum ambient temperature of 45 deg F (7 deg C). Maintain containers used in storage in a clean condition, free of foreign materials and residue.
 - 1. Protect from freezing. Keep storage area neat and orderly. Remove oily rags and waste daily. Take necessary measures to ensure that workers and work areas are protected from fire and health hazards resulting from handling, mixing, and application.

1.5 PROJECT CONDITIONS

- A. Apply water-based paints only when the temperature of surfaces to be painted and surrounding air temperatures are between 50 and 90 deg F (10 and 32 deg C).
- B. Apply solvent-thinned paints only when the temperature of surfaces to be painted and surrounding air temperatures are between 45 and 95 deg F (7.2 and 35 deg C).
- C. Do not apply paint in snow, rain, fog, or mist; or when the relative humidity exceeds 85 percent; or at temperatures less than 5 deg F (3 deg C) above the dew point; or to damp or wet surfaces.

1. Painting may continue during inclement weather if surfaces and areas to be painted are enclosed and heated within temperature limits specified by manufacturer during application and drying periods.

1.6 EXTRA MATERIALS

- A. Furnish extra paint materials from the same production run as the materials applied in the quantities described below. Package paint materials in unopened, factory-sealed containers for storage and identify with labels describing contents. Deliver extra materials to the Owner.
 1. Quantity: Furnish the Owner with an additional 5 percent, but not less than 1 gal. (3.785 L) or 1 case, as appropriate, of each material and color applied.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products listed in the paint schedules.
 1. California Paint Co. (Cal).
 2. Benjamin Moore & Co. (Moore).
 3. ICI Dulux Paints (ICI)
 4. PPG Industries, Inc. (PPG).
 5. Sherwin-Williams Co. (S-W).

2.2 PAINT MATERIALS, GENERAL

- A. Material Compatibility: Provide block fillers, primers, undercoats, and finish-coat materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
- B. Material Quality: Provide manufacturer's best-quality professional paint material of the various coating types specified. Paint-material containers not displaying manufacturer's product identification will not be acceptable.
 1. Proprietary Names: Use of manufacturer's proprietary product names to designate colors or materials is not intended to imply that products named are required to be used to the exclusion of equivalent products of other manufacturers. Furnish manufacturer's material data and certificates of performance for proposed substitutions.
- C. Colors: Provide color selections made by the Architect. Allow for up to 10 different color selections.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with the Applicator present, under which painting will be performed for compliance with paint application requirements.
 - 1. Do not begin to apply paint until unsatisfactory conditions have been corrected and surfaces receiving paint are thoroughly dry.
 - 2. Start of painting will be construed as the Applicator's acceptance of surfaces and conditions within a particular area.
- B. Coordination of Work: Review other Sections in which primers are provided to ensure compatibility of the total system for various substrates. On request, furnish information on characteristics of finish materials to ensure use of compatible primers.
 - 1. Notify the Architect about anticipated problems using the materials specified over substrates primed by others.

3.2 PREPARATION FOR SURFACES

- A. General: Remove hardware and hardware accessories, plates, machined surfaces, lighting fixtures, and similar items already installed that are not to be painted. If removal is impractical or impossible because of the size or weight of the item, provide surface-applied protection before surface preparation and painting.
 - 1. After completing painting operations in each space or area, reinstall items removed using workers skilled in the trades involved.
- B. Cleaning: Before applying paint or other surface treatments, clean the substrates of substances that could impair the bond of the various coatings. Remove oil and grease before cleaning.
 - 1. Schedule cleaning and painting so dust and other contaminants from the cleaning process will not fall on wet, newly painted surfaces.
- C. Surface Preparation: Clean and prepare surfaces to be painted according to manufacturer's written instructions for each particular substrate condition and as specified.
 - 1. Provide barrier coats over incompatible primers or remove and reprime.
 - 2. Cementitious Materials: Prepare concrete, concrete masonry block, cement plaster, and mineral-fiber-reinforced cement panel surfaces to be painted. Remove efflorescence, chalk, dust, dirt, grease, oils, and release agents. Roughen as required to remove glaze. If hardeners or sealers have been used to improve curing, use mechanical methods of surface preparation.
 - a. Use abrasive blast-cleaning methods if recommended by paint manufacturer.
 - b. Determine alkalinity and moisture content of surfaces by performing appropriate tests. If surfaces are sufficiently alkaline to cause the finish paint to blister and burn, correct this condition before application. Do not paint surfaces where moisture content exceeds that permitted in manufacturer's written instructions.
 - c. Clean concrete floors to be painted with a 5 percent solution of muriatic acid or other etching cleaner. Flush the floor with clean water to remove acid, neutralize with ammonia, rinse, allow to dry, and vacuum before painting.

3. Wood: Clean surfaces of dirt, oil, and other foreign substances with scrapers, mineral spirits, and sandpaper, as required. Sand surfaces exposed to view smooth and dust off.
 - a. Scrape and clean small, dry, seasoned knots, and apply a thin coat of white shellac or other recommended knot sealer before applying primer. After priming, fill holes and imperfections in finish surfaces with putty or plastic wood filler. Sand smooth when dried.
 - b. Prime, stain, or seal wood to be painted immediately on delivery. Prime edges, ends, faces, undersides, and backsides of wood, including cabinets, counters, cases, and paneling.
 - c. When transparent finish is required, backprime with spar varnish.
 - d. Backprime paneling on interior partitions where masonry, plaster, or other wet wall construction occurs on backside.
 - e. Seal tops, bottoms, and cutouts of unprimed wood doors with a heavy coat of varnish or sealer immediately on delivery.
 4. Ferrous Metals: Clean ungalvanized ferrous-metal surfaces that have not been shop coated; remove oil, grease, dirt, loose mill scale, and other foreign substances. Use solvent or mechanical cleaning methods that comply with the Steel Structures Painting Council's (SSPC) recommendations.
 - a. Blast steel surfaces clean as recommended by paint system manufacturer and according to requirements of SSPC-SP 10.
 - b. Treat bare and sandblasted or pickled clean metal with a metal treatment wash coat before priming.
 - c. Touch up bare areas and shop-applied prime coats that have been damaged. Wire-brush, clean with solvents recommended by paint manufacturer, and touch up with the same primer as the shop coat.
 - d. Piece Marks: Remove piece marks or numbers and characters that identify components for erection prior to field painting. Applying a primer to cover the marks will also be acceptable.
 5. Galvanized Surfaces: Clean galvanized surfaces with a palm sander and 60 grit sandpaper so surface is free of surface contaminants. Remove pretreatment from galvanized sheet metal fabricated from coil stock by mechanical methods.
 6. Gypsum Board Substrates: Do not begin paint application until finishing compound is dry and sanded smooth.
- D. Materials Preparation: Mix and prepare paint materials according to manufacturer's written instructions.
1. Maintain containers used in mixing and applying paint in a clean condition, free of foreign materials and residue.
 2. Stir material before application to produce a mixture of uniform density. Stir as required during application. Do not stir surface film into material. If necessary, remove surface film and strain material before using.
 3. Use only thinners approved by paint manufacturer and only within recommended limits.
- E. Tinting: Tint primer of colors such as reds, yellows, and oranges with a gray basecoat system designed to help provide color coverage.
1. Do not tint prime or base coat for multi-colored finishes.

3.3 APPLICATION

- A. General: Apply paint according to manufacturer's written instructions. Use applicators and techniques best suited for substrate and type of material being applied.
1. Paint colors, surface treatments, and finishes are indicated in the schedules.
 2. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to formation of a durable paint film.
 3. Provide finish coats that are compatible with primers used.
 4. The term "exposed surfaces" includes areas visible when permanent or built-in fixtures, convector covers, covers for finned-tube radiation, grilles, and similar components are in place. Extend coatings in these areas, as required, to maintain the system integrity and provide desired protection.
 5. Paint surfaces behind movable equipment and furniture the same as similar exposed surfaces. Before the final installation of equipment, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
 6. Paint interior surfaces of ducts with a flat, nonspecular black paint where visible through registers or grilles.
 7. Paint back sides of access panels and removable or hinged covers to match exposed surfaces.
 8. Finish exterior doors on tops, bottoms, and side edges the same as exterior faces.
 9. Finish interior of wall and base cabinets and similar field-finished casework to match exterior.
 10. Sand lightly between each succeeding enamel or varnish coat.
- B. Scheduling Painting: Apply first coat to surfaces that have been cleaned, pretreated, or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.
1. The number of coats and the film thickness required are the same regardless of application method. Do not apply succeeding coats until the previous coat has cured as recommended by the manufacturer. If sanding is required to produce a smooth, even surface according to manufacturer's written instructions, sand between applications.
 2. Omit primer on metal surfaces that have been shop primed and touchup painted.
 3. If undercoats, stains, or other conditions show through final coat of paint, apply additional coats until paint film is of uniform finish, color, and appearance. Give special attention to ensure edges, corners, crevices, welds, and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces. When using colors such as red, yellow or orange, an extra coat of finish may be necessary. Notify Architect when additional coats do not fix the problem.
 4. Allow sufficient time between successive coats to permit proper drying. Do not recoat surfaces until paint has dried to where it feels firm, does not deform or feel sticky under moderate thumb pressure, and where application of another coat of paint does not cause the undercoat to lift or lose adhesion.
- C. Application Procedures: Apply paints and coatings by brush, roller, spray, or other applicators according to manufacturer's written instructions.
1. Brushes: Use brushes best suited for the type of material applied. Use brush of appropriate size for the surface or item being painted.
 2. Rollers: Use rollers of carpet, velvet back, or high-pile sheep's wool as recommended by the manufacturer for the material and texture required.
 3. Spray Equipment: Use airless spray equipment with orifice size as recommended by the manufacturer for the material and texture required.

- D. Minimum Coating Thickness: Apply paint materials no thinner than manufacturer's recommended spreading rate. Provide the total dry film thickness of the entire system as recommended by the manufacturer.
- E. Mechanical and Electrical Work: Painting of mechanical and electrical work is limited to items exposed in equipment rooms and in occupied spaces.
- F. Prime Coats: Before applying finish coats, apply a prime coat of material, as recommended by the manufacturer, to material that is required to be painted or finished and that has not been prime coated by others. Recoat primed and sealed surfaces where evidence of suction spots or unsealed areas in first coat appears, to ensure a finish coat with no burn through or other defects due to insufficient sealing.
- G. Pigmented (Opaque) Finishes: Completely cover surfaces as necessary to provide a smooth, opaque surface of uniform finish, color, appearance, and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections will not be acceptable.
- H. Transparent (Clear) Finishes: Use multiple coats to produce a glass-smooth surface film of even luster. Provide a finish free of laps, runs, cloudiness, color irregularity, brush marks, orange peel, nail holes, or other surface imperfections.
 - 1. Provide satin finish for final coats.
- I. Completed Work: Match approved samples for color, texture, and coverage. Remove, refinish, or repaint work not complying with requirements.

3.4 CLEANING

- A. Cleanup: At the end of each workday, remove empty cans, rags, rubbish, and other discarded paint materials from the site.
 - 1. After completing painting, clean glass and paint-spattered surfaces. Remove spattered paint by washing and scraping. Be careful not to scratch or damage adjacent finished surfaces.

3.5 PROTECTION

- A. Protect work of other trades, whether being painted or not, against damage by painting. Correct damage by cleaning, repairing or replacing, and repainting, as approved by Architect.
- B. Provide "Wet Paint" signs to protect newly painted finishes. Remove temporary protective wrappings provided by others to protect their work after completing painting operations.
 - 1. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces. Comply with procedures specified in PDCA P1.

3.6 EXTERIOR PAINT SCHEDULE

- A. Ferrous Metal: Provide the following finish systems over exterior ferrous metal. Primer is not required on shop-primed items.
 - 1. Semigloss, Acrylic-Enamel Finish: 2 finish coats over a rust-inhibitive primer.
 - a. Primer: Rust-inhibitive metal primer applied at spreading rate recommended by the manufacturer.
 - 1) Cal: Larcoloid Latex Metal Primer 51108.
 - 2) ICI: 4020-XXXX, Devflex DTM Flat Interior/Exterior Waterborne Primer & Finish.
 - 3) Moore: DTM Acrylic Semi-Gloss M29.
 - 4) PPG: 6-208 Speedhide Interior/Exterior Rust Inhibitive Steel Primer.
 - 5) S-W: DTM Acrylic Primer/Finish B66W1 Series.
 - b. First and Second Coats: Semigloss, exterior, acrylic-latex enamel applied at spreading rate recommended by the manufacturer.
 - 1) Cal: 100 % Acrylic Latex Satin Gloss 2010 402XX.
 - 2) ICI: 4206-XXXX, Devflex Interior/Exterior Acrylic Semi-Gloss Enamel.
 - 3) Moore: DTM Acrylic Semi-Gloss M29.
 - 4) PPG: Speedhide Exterior Semi-Gloss Latex, 6-900 Series.
 - 5) S-W: DTM Acrylic Coating Gloss (Waterborne) B66W200 Series.

3.7 INTERIOR PAINT SCHEDULE

- A. Hi-Build Primer for Mold Resistant Gypsum Board: Provide the following finish systems over interior mold-resistant gypsum board surfaces:
 - 1. High-Build Primer: Latex-based, interior primer applied at spreading rate recommended by the manufacturer.
 - a. Cal: Hide-A-Spray, 91-20.
 - b. ICI: 1040-1200, Prep & Prime High Build Fill & Seal.
 - c. SW: PrepRite High Build Interior Latex Primer/Surfacer B28W601.
- B. Gypsum Board: Provide the following finish systems over interior gypsum board surfaces:
 - 1. Flat Acrylic Ceiling Finish: 2 finish coats over a primer.
 - a. Primer: Latex-based, interior primer applied at spreading rate recommended by the manufacturer.
 - 1) Cal: ProPrime Undercoater Primer-Sealer 54500.
 - 2) ICI: 1000-1200, Dulux Ultra Interior Latex Wall Primer.
 - 3) Moore: Super Spec Latex Enamel Undercoater & Primer Sealer #253.
 - 4) PPG: Speedhide Interior Latex Primer Sealer, 6-2.
 - 5) S-W: PrepRite 200 Latex Primer B28W200 Series.
 - b. First and Second Coats: Flat, acrylic-latex-based, interior paint applied at spreading rate recommended by the manufacturer.
 - 1) Cal: Premium Acrylic Latex Flat 533XX.
 - 2) ICI: 1210-XXXX, Ultra-Hide Latex Flat Interior Wall Paint.
 - 3) Moore: Super Spec Latex Flat #275.
 - 4) PPG: Speedhide Interior Flat Latex, 6-70 Series.
 - 5) S-W: ProMar 200 Latex Flat Wall Paint B30W200 Series.
 - 2. Low-Luster, Acrylic-Enamel Wall Finish: 2 finish coats over a primer.
 - a. Primer: Latex-based, interior primer applied at spreading rate recommended by the manufacturer.
 - 1) Cal: ProPrime Undercoater Primer-Sealer 54500.
 - 2) ICI: 1000-1200, Dulux Ultra Interior Latex Wall Primer.

- 3) Moore: Super Spec Latex Enamel Undercoater & Primer Sealer #253.
 - 4) PPG: Speedhide Interior Latex Primer Sealer, 6-2.
 - 5) S-W: PrepRite 200 Latex Primer B28W200 Series.
- b. First and Second Coats: Low-luster (eggshell or satin), acrylic-latex, interior enamel applied at spreading rate recommended by the manufacturer.
- 1) Cal: Premium 100% Acrylic Latex Eggshell 531XX.
 - 2) ICI: 1412-XXXX, Ultra-Hide Latex Eggshell or 1414-XXXX, Ultra-Hide Satin Latex Enamel.
 - 3) Moore: Super Spec Latex Eggshell Enamel #274.
 - 4) PPG: Speedhide Interior Eggshell Latex Enamel, 6-411 Series.
 - 5) S-W: ProMar 200 Interior Latex Eggshell B20W200 Series.
- C. Woodwork: Provide the following paint finish systems over new, interior wood surfaces:
1. Semigloss, Acrylic-Enamel Finish: 2 finish coats over a wood undercoater.
 - a. Undercoat: Alkyd- or acrylic-latex-based, interior wood undercoater, as recommended by the manufacturer for this substrate, applied at spreading rate recommended by the manufacturer.
 - 1) Cal: ASAP "30" 50300.
 - 2) ICI: 1020-1200, Ultra-Hide Acrylic Primer Interior Wood Undercoater.
 - 3) Moore: Super Spec Latex Enamel Undercoater & Primer Sealer #253.
 - 4) PPG: Speedhide Interior Acrylic Enamel Undercoater, 6-855.
 - 5) S-W: PrepRite Classic Latex Primer B28W101 Series.
 - b. First and Second Coats: Semigloss, acrylic-latex, interior enamel applied at spreading rate recommended by the manufacturer.
 - 1) Cal: Premium 100% Acrylic Semi-Gloss 563XX.
 - 2) ICI: 1416-XXXX, Ultra-Hide Latex Semi-Gloss Interior Wall and Trim Enamel.
 - 3) Moore: Super Spec Latex Semi-Gloss Enamel #276.
 - 4) PPG: Speedhide Interior Semi-Gloss Latex Enamel, 6-510 Series.
 - 5) S-W: ProMar 200 Interior Latex Semi-Gloss B31W200 Series.
- D. Stained Woodwork: Provide the following stained finishes over new, interior woodwork:
1. Waterborne, Satin-Varnish Finish: 2 finish coats of a waterborne, clear-satin varnish over a sealer coat and a waterborne, interior wood stain. Wipe wood filler before applying stain.
 - a. Stain Coat: Interior wood stain applied at spreading rate recommended by the manufacturer.
 - 1) Moore: Benwood Penetrating Stain #234.
 - b. Sealer Coat: Clear sanding sealer applied at spreading rate recommended by the manufacturer.
 - 1) ICI: 1802-0000, Woodpride Interior Waterborne Polyurethane Satin
 - 2) Moore: Moore's Interior Wood Finishes Quick-Dry Sanding Sealer No. 413.
 - c. First and Second Finish Coats: Waterborne, varnish finish applied at spreading rate recommended by the manufacturer.
 - 1) ICI: 1802-0000, Woodpride Interior Waterborne Polyurethane Satin

- 2) Moore: Benwood Interior Wood Finishes Polyurethane Finishes Low Lustre No. 435.

E. Ferrous Metal at Exposed Office Area: Provide the following finish systems over exposed ferrous metal in the office area:

1. Semigloss, Alkyd Finish: One finish coat over an alkyd undercoater and a primer.
 - a. Primer: Quick-drying, rust-inhibitive, alkyd-based or epoxy-metal primer, as recommended by the manufacturer for this substrate, applied at spreading rate recommended by the manufacturer.
 - 1) ~~Cal: Larcoloid Rust Inhibiting Metal Primer 21150.~~
 - 2) ~~ICI: 4360 7100, Devguard Low VOC Universal Primer. (338g/L)~~
 - 3) **Moore: P14 Super Spec HP Shop Coat Alkyd Metal Primer**
 - 4) ~~PPG: 6 208 Speedhide Interior/Exterior Rust Inhibitive Steel Primer.~~
 - 5) ~~S-W: DTM Acrylic Primer/Finish B66W1 Series.~~
 - b. Undercoat: Semigloss, interior acrylic-latex, as recommended by the manufacturer for this substrate, applied at spreading rate recommended by the manufacturer.
 - 1) Cal: Submit equivalent system and adhesion test for installed primer.
 - 2) ICI: Submit equivalent system and adhesion test for installed primer.
 - 3) Moore: P29 Direct to Metal Acrylic Semi-Gloss
 - 4) PPG: Submit equivalent system and adhesion test for installed primer.
 - 5) S-W: Submit equivalent system and adhesion test for installed primer.
 - c. Finish Coat: Semigloss, acrylic-latex, interior enamel applied at spreading rate recommended by the manufacturer.
 - 1) Cal: Submit equivalent system and adhesion test for installed primer.
 - 2) ICI: Submit equivalent system and adhesion test for installed primer.
 - 3) Moore: P29 Direct to Metal Acrylic Semi-Gloss
 - 4) PPG: Submit equivalent system and adhesion test for installed primer.
 - 5) S-W: Submit equivalent system and adhesion test for installed primer.

F. Ferrous Metal at the Warehouse: Provide the following finish systems over exposed ferrous metal in the Warehouse area:

1. Semigloss, Alkyd Finish: One finish coat over an alkyd undercoater and a primer.
 - a. Primer: Quick-drying, rust-inhibitive, alkyd-based or epoxy-metal primer, as recommended by the manufacturer for this substrate, applied at spreading rate recommended by the manufacturer.
 - 1) ~~Cal: Larcoloid Rust Inhibiting Metal Primer 21150.~~
 - 2) ~~ICI: 4360 7100, Devguard Low VOC Universal Primer. (338g/L)~~
 - 3) **Moore: P14 Super Spec HP Shop Coat Alkyd Metal Primer**
 - 4) ~~PPG: 6 208 Speedhide Interior/Exterior Rust Inhibitive Steel Primer.~~
 - 5) ~~S-W: DTM Acrylic Primer/Finish B66W1 Series.~~
 - b. Topcoat: Flat, interior Alkyd dry-fall, as recommended by the manufacturer for this substrate, applied at spreading rate recommended by the manufacturer.
 - 1) Cal: Submit equivalent system and adhesion test for installed primer.
 - 2) ICI: Submit equivalent system and adhesion test for installed primer.
 - 3) Moore: Super Spec Direct to Metal Sweep-Up Alkyd Flat 154
 - 4) PPG: Submit equivalent system and adhesion test for installed primer.

- 5) S-W: Submit equivalent system and adhesion test for installed primer.

END OF SECTION

SECTION 101400 - SIGNS

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. This Section includes the following types of signs:
 - 1. Panel signs.

1.3 DEFINITIONS

- A. ADA-ABA Accessibility Guidelines: U.S. Architectural & Transportation Barriers Compliance Board's "Americans with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities; Architectural Barriers Act (ABA) Accessibility Guidelines."

1.4 SUBMITTALS

- A. Product Data: For each type of sign specified, including details of construction relative to materials, dimensions of individual components, profiles, and finishes.
- B. Samples for Selection: Manufacturer's color charts consisting of actual units or sections of units showing the full range of colors available.

1.5 QUALITY ASSURANCE

- A. Sign Fabricator Qualifications: Firm experienced in producing signs similar to those indicated for this Project, with a record of successful in-service performance, and sufficient production capacity to produce sign units required without causing delay in the Work.
- B. Single-Source Responsibility: For each separate sign type required, obtain signs from one source of a single manufacturer.
- C. Design Concept: The Drawings indicate sizes, profiles, and dimensional requirements of signs and are based on the specific types and models indicated. Sign units by other manufacturers may be considered provided deviations in dimensions and profiles do not change the design concept as judged by the Architect. The burden of proof of equality is on the proposer.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Acrylic Sheet: ASTM D 4802, Category A-1 (cell-cast sheet), Type UVA (UV absorbing).
- B. ABS Plastic: Provide high-impact thermoplastic composed of copolymers of acrylonitrile, butadiene, and styrene.

2.2 PANEL SIGNS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the Work include, but are not limited to, the following:
 - 1. Mohawk Sign Systems.
 - 2. Welch Architectural Signage.
- B. Substrate: Fabricate signs from 1/8 inch thick matte clear acrylic with edges mechanically and smoothly finished to eliminate cut marks. Background color to be subsurface.
 - 1. Background Color: As selected by the Architect from manufacturer's standard colors.
 - 2. Edge Condition: Straight.
 - 3. Corner Condition: Rounded to 3/8 inch radius.
 - 4. Size: 6 by 6 inch, unless noted otherwise.
- C. Copy: Helvetica.
- D. Letterform: route copy into face of substrate 1/32 inch deep. Chemically weld (inlay) computer precision cut tactile copy into routed letter openings so that tactile copy is embedded in substrate and remains at least 1/32" above surface of substrate.
 - 1. Height: 5/8 inch minimum letter height.
- E. Braille: Use engrave process for all Braille areas. Engrave Braille dots into surface of clear material.
- F. Symbols of Accessibility:
 - 1. Accessible elements: Provide international symbol of accessibility.
 - a. Provide male and female symbols as required for toilets.
 - 2. Elevators: Provide symbol containing person on stairs with flame.
- G. Provide characters complying with ADA Accessibility Guidelines and ICC/ANSI A117.1. Text shall be accompanied by Grade 2 braille.

2.3 FINISHES

- A. Colors and Surface Textures: For exposed sign material that requires selection of materials with integral or applied colors, surface textures or other characteristics related to appearance, provide color matches indicated, or if not indicated, as selected by the Architect from the manufacturer's standards.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Locate sign units and accessories where indicated, using mounting methods of the type described and in compliance with the manufacturer's instructions.
 - 1. Install signs level, plumb, and at the height indicated, with sign surfaces free from distortion or other defects in appearance.
 - 2. Interior Wall Signs: Install signs on walls adjacent to latch side of door where applicable. Where not indicated or possible, such as double doors, install signs on nearest adjacent walls. Locate to allow approach within 3 inches of sign without encountering protruding objects or standing within swing of door.
- B. Wall-Mounted Signs: Comply with sign manufacturer's written instructions except where more stringent requirements apply.
 - 1. Two-Face Tape: Mount signs to smooth, nonporous surfaces. Do not use this method for vinyl-covered or rough surfaces.
 - 2. Signs Mounted on Glass: Provide matching opaque plate on opposite side of glass to conceal mounting materials.

3.2 CLEANING AND PROTECTION

- A. After installation, clean soiled sign surfaces according to the manufacturer's instructions. Protect units from damage until acceptance by the Owner.

3.3 PANEL SIGN SCHEDULE

A. Types:	Sizes:	Quantity:
Bathroom	Provide 8" x 6"	one for each room
Exit	Provide 8" x 6"	one for each exit
Dining Room	Provide 8" x 6"	one for each room
Living Room	Provide 8" x 6"	one for each room
Office	Provide 8" x 6"	one for each room
Bedroom	Provide 8" x 6"	one for each room

END OF SECTION

SECTION 105113 - METAL LOCKERS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Locker units with hinged doors.
- B. Metal bases and filler panels.

1.2 SUBMITTALS

- A. Product Data: Provide data on locker types, sizes and accessories.
- B. Shop Drawings: Indicate locker plan layout, numbering plan.
- C. Samples: Submit two color charts or of available colors.
- D. Manufacturer's Installation Instructions: Indicate component installation assembly.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. DeBourgh Manufacturing Co.; Model as scheduled.
- B. Interior/Medart; Model as scheduled.
- C. Lyon Metal Products, Inc.; Model as scheduled.

2.2 MATERIALS

- A. Sheet Steel: Mild, cold rolled and leveled unfinished steel; to the following minimum thicknesses:
 - 1. Body and Shelf: 24 gage, 0.024 inch (0.6 mm)
 - 2. Door Face: 16 gage, 0.058 inch (1.5 mm)
 - 3. Door Frame: 16 gage, 0.058 inch (1.5 mm)
 - 4. Hinges: 14 gage, 0.075 inch (1.9 mm)
 - 5. Base: 20 gage, 0.036 inch (0.9 mm)
 - 6. Sloping Top: 20 gage, 0.036 inch (0.9 mm)
 - 7. Trim: 20 gage, 0.036 inch (0.9 mm)

2.3 ACCESSORIES

- A. For Each Locker: Two double prong wall hooks and hat shelf.
- B. Recess Trim: Manufacturer's standard; fabricated from minimum 0.0478-inch- (1.20-mm-) thick steel sheet, minimum 2-1/2-inch (64-mm) face width, and finished to match lockers. Fabricate trim in lengths as long as practicable.

2.4 FABRICATION

- A. Locker Units:
 - Width: 12 inches (450 mm).
 - Depth: 15 inches (450 mm).
 - Height: 60 inches (1830 m).
 - Configuration: Single tier.

Mounting:	Surface mounted.
Base:	Wood base.
Base Height:	4 inch (100 mm).
Locking:	Equipped for padlock hasps.
Ventilation Method:	Door louvers.
Class	Conventional

- B. Locker Body: Formed and flanged; with steel stiffener ribs; electric spot welded.
- C. Frames: Formed channel shape, welded and ground flush, welded to body.
- D. Doors: Hollow channel construction, 1 3/16 inch (30 mm) thick; welded construction, channel reinforced top and bottom with intermediate stiffener ribs, grind and finish edges smooth.
- E. Hinges: Two for doors under 42 inches (1 050 mm) high; three for doors over 42 inches (1 050 mm) high; weld securely to locker body and door.
- F. Number Plates: Provide rectangular shaped aluminum plates. Form numbers 1/2 inch (13 mm) high of block font style, in contrasting color.
- G. Provide ventilation openings at top and bottom of each locker.
- H. Form recess for operating handle and locking device.
- I. Finish edges smooth without burrs.
- J. Provide recess trim around lockers. Fabricate trim in lengths as long as practicable.

2.5 FINISHES

- A. Clean, degrease, and neutralize metal; prime and finish with one coat of baked enamel.
- B. Color: Color as selected from manufacturer's standard range.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Install in accordance with manufacturer's instructions.

END OF SECTION

SECTION 10800

TOILET AND BATH ACCESSORIES

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the following:
 - 1. Toilet and bath accessories.

1.2 SUBMITTALS

- A. Product Data: Include construction details, material descriptions and thicknesses, dimensions, profiles, fastening and mounting methods, specified options, and finishes for each type of accessory specified.
- B. Setting Drawings: For cutouts required in other work; include templates, substrate preparation instructions, and directions for preparing cutouts and installing anchoring devices.
- C. Product Schedule: Indicating types, quantities, sizes, and installation locations by room of each accessory required. Use designations indicated in the Toilet and Bath Accessory Schedule and room designations indicated on Drawings in product schedule.
- D. Maintenance Data: For accessories to include in maintenance manuals specified in Division 1. Provide lists of replacement parts and service recommendations.

1.3 QUALITY ASSURANCE

- A. Source Limitations: Provide products of same manufacturer for each type of accessory unit and for units exposed to view in same areas, unless otherwise approved by Architect.
- B. Product Options: Accessory requirements, including those for materials, finishes, dimensions, capacities, and performance, are established by specific products indicated in the Toilet and Bath Accessory Schedule.
 - 1. Other manufacturers' products with equal characteristics may be considered. See Division 1 Section "Product Requirements."
 - 2. Do not modify aesthetic effects, as judged solely by Architect, except with Architect's approval. Where modifications are proposed, submit comprehensive explanatory data to Architect for review.
- C. Regulatory Requirements: Comply with the Americans with Disabilities Act (ADA) and with code provisions as adopted by authorities having jurisdiction.

1. Toilet and Bath Accessories: Provide accessories as required by accessibility regulations and requirements of authorities having jurisdiction. These include, but are not limited to, the following:
 - a. Grab Bars:
 - 1) Size and Spacing of Handrails:
 - a) Grab Bar Diameter: 1-1/4 to 1-1/2 inches (32 to 38 mm).
 - b) Space between Wall and Rails: 1-1/2 inches (38 mm).
 - c) Either round ends of grab bars or return ends of grab bars smoothly to floor, wall or post.
 - d) Grab bars shall not rotate within their fittings.
 - 2) Locations: Refer to Code for the various locations of grab bars in toilet stall and showers.
 - 3) Mount the top of grab bar gripping surface between 34 and 38 inches (865 and 965 mm) above floor surface.
 - b. Mirrors: Mount bottom edge of reflecting surface not more than 40 inches (1015 mm) above finish floor.
 - c. Shower Seats:
 - 1) Mount seat 17 to 19 inches (430 to 485 mm) above the floor.
 - 2) 36 by 36 inch (915 by 915 mm) stall: Mount fixed seat opposite controls and full length of wall.
 - 3) 30 by 60 inch (760 by 1525 mm) stall: Mount folding seat adjacent to controls.
2. Notify Architect of details or specifications not conforming to code.

1.4 COORDINATION

- A. Coordinate accessory locations with other work to prevent interference with clearances required for access by disabled persons, proper installation, adjustment, operation, cleaning, and servicing of accessories.
- B. Deliver inserts and anchoring devices set into concrete or masonry as required to prevent delaying the Work.

1.5 WARRANTY

- A. General Warranty: Special warranty specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.
- B. Manufacturer's Mirror Warranty: Written warranty, executed by mirror manufacturer agreeing to replace mirrors that develop visible silver spoilage defects within minimum warranty period indicated.
 1. Minimum Warranty Period: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering accessories that may be incorporated into the Work include, but are not limited to, the following:
 - 1. Toilet and Bath Accessories:
 - a. American Specialties, Inc.
 - b. Bobrick Washroom Equipment, Inc.
 - c. Bradley Corporation.
 - d. Gamco (General Accessory Manufacturing Company)
- B. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, those indicated in the Toilet and Bath Accessory Schedule at the end of Part 3.

2.2 MATERIALS

- A. Stainless Steel: ASTM A 666, Type 304, with No. 4 finish (satin), in 0.0312-inch (0.8-mm) minimum nominal thickness, unless otherwise indicated.
- B. Sheet Steel: ASTM A 366/A 366M, cold rolled, commercial quality, 0.0359-inch (0.9-mm) minimum nominal thickness; surface preparation and metal pretreatment as required for applied finish.
- C. Galvanized Steel Sheet: ASTM A 653/A 653M, G60 (Z180).
- D. Chromium Plating: ASTM B 456, Service Condition Number SC 2 (moderate service), nickel plus chromium electrodeposited on base metal.
- E. Baked-Enamel Finish: Factory-applied, gloss-white, baked-acrylic-enamel coating.
- F. Mirror Glass: ASTM C 1036, Type I, Class 1, Quality q2, nominal 6.0 mm thick, with silvering, electroplated copper coating, and protective organic coating complying with FS DD-M-411.
- G. Galvanized Steel Mounting Devices: ASTM A 153/A 153M, hot-dip galvanized after fabrication.
- H. Fasteners: Screws, bolts, and other devices of same material as accessory unit, tamper and theft resistant when exposed, and of galvanized steel when concealed.

2.3 FABRICATION

- A. General: One, maximum 1-1/2-inch- (38-mm-) diameter, unobtrusive stamped manufacturer logo, as approved by Architect, is permitted on exposed face of accessories. On interior surface not exposed to view or back surface of each accessory, provide printed, waterproof label or stamped nameplate indicating manufacturer's name and product model number.
- B. General: Names or labels are not permitted on exposed faces of accessories. On interior surface not exposed to view or on back surface of each accessory, provide printed, waterproof label or stamped nameplate indicating manufacturer's name and product model number.

- C. Surface-Mounted Toilet Accessories: Unless otherwise indicated, fabricate units with tight seams and joints, and exposed edges rolled. Hang doors and access panels with continuous stainless-steel hinge. Provide concealed anchorage where possible.
- D. Framed Glass-Mirror Units: Fabricate frames for glass-mirror units to accommodate glass edge protection material. Provide mirror backing and support system that permits rigid, tamper-resistant glass installation and prevents moisture accumulation.
 - 1. Provide galvanized steel backing sheet, not less than 0.034 inch (0.85 mm) and full mirror size, with nonabsorptive filler material. Corrugated cardboard is not an acceptable filler material.
- E. Mirror-Unit Hangers: Provide mirror-unit mounting system that permits rigid, tamper- and theft-resistant installation, as follows:
 - 1. One-piece, galvanized steel, wall-hanger device with spring-action locking mechanism to hold mirror unit in position with no exposed screws or bolts.
 - 2. Heavy-duty wall brackets of galvanized steel, equipped with concealed locking devices requiring a special tool to remove.
- F. Keys: Provide universal keys for internal access to accessories for servicing and resupplying. Provide minimum of six keys to Owner's representative.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install accessories according to manufacturers' written instructions, using fasteners appropriate to substrate indicated and recommended by unit manufacturer. Install units level, plumb, and firmly anchored in locations and at heights indicated.
- B. Secure mirrors to walls in concealed, tamper-resistant manner with special hangers, toggle bolts, or screws. Set units level, plumb, and square at locations indicated, according to manufacturer's written instructions for substrate indicated.
- C. Install grab bars to withstand a downward load of at least 250 lbf (1112 N), when tested according to method in ASTM F 446.

3.2 ADJUSTING AND CLEANING

- A. Adjust accessories for unencumbered, smooth operation and verify that mechanisms function properly. Replace damaged or defective items.
- B. Remove temporary labels and protective coatings.
- C. Clean and polish exposed surfaces according to manufacturer's written recommendations.

3.3 TOILET AND BATH ACCESSORY SCHEDULE

- A. Automatic Paper Towel Dispenser: Where this designation is indicated, provide motion activated paper towel dispenser, battery operated.
1. Products: Available products include the following:
 - a. Kimberly Clark, model H-1184.
 - b. Bradley, model 2490.
 - c. San Jamar, model T1490TBK.
- B. Toilet Tissue Dispenser: Where this designation is indicated, provide toilet tissue dispenser complying with the following:
1. Products: Available products include the following:
 - a. Bobrick No. B-2888.
 2. Type: Roll-in-reserve dispenser with hinged front secured with tumbler lockset.
 3. Mounting: Surface mounted with concealed anchorage.
 4. Material: Stainless steel.
 5. Operation: Noncontrol delivery with mfr's standard spindle.
 6. Capacity: Designed for 4-1/2- or 5-inch- (114- or 127-mm-) diameter-core tissue rolls.
- C. Soap Dispenser: Where this designation is indicated, provide soap dispenser complying with the following:
1. Products: Available products include the following:
 - a. Bobrick No. B-2112.
 2. Liquid Soap Dispenser, Horizontal-Tank Type: Surface-mounted type, minimum 40-oz. (1182.9-mL) capacity tank with stainless-steel piston, springs, and internal parts designed to dispense soap in measured quantity by pump action; and stainless-steel cover with unbreakable window-type refill indicator.
 - a. Soap Valve: Designed for dispensing soap in liquid form.
- D. Grab Bars: Where this designation is indicated, provide stainless-steel grab bar complying with the following:
1. Products: Available products include the following:
 - a. Bobrick No. B-5806 Series.
 2. Stainless-Steel Nominal Thickness: Minimum 0.05 inch (1.3 mm).
 3. Mounting: Concealed with manufacturer's standard flanges and anchors.
 4. Gripping Surfaces: Manufacturer's standard slip-resistant texture.
 5. Outside Diameter: 1-1/4 inches (32 mm) for medium-duty applications.
- E. Sanitary Napkin Vendor: Where this designation is indicated, provide stainless-steel sanitary napkin vendor complying with the following:
1. Products: Available products include the following:
 - a. Bobrick: B-352 25.
 2. General: Fabricate cabinet of all-welded construction. Provide seamless door with returned edges and secured by tumbler lockset. Provide identification reading "Napkins" and "Tampons"; brand-name advertising is not allowed. Capacity not less than 30 napkins and 27 tampons.
 3. Mounting: Fully recessed type designed for nominal 4-inch (100-mm) wall depth.
 4. Operation: Single-coin operation, 25 cents.
- F. Sanitary Napkin Disposal Unit: Where this designation is indicated, provide stainless-steel sanitary napkin disposal unit complying with the following:
1. Products: Available products include the following:

- a. Bobrick No. B-254.
 - 2. Surface-Mounted Type: With seamless exposed walls; self-closing top cover; locking bottom panel with stainless-steel, continuous hinge; and removable, reusable receptacle.
- G. Mirror Unit: Where this designation is indicated, provide mirror unit complying with the following:
- 1. Products: Available products include the following:
 - a. Bobrick No. B-165 2436.
 - 2. Stainless-Steel, Channel-Framed Mirror: Fabricate frame from stainless-steel channels in manufacturer's standard satin or bright finish with square corners mitered to hairline joints and mechanically interlocked.
- H. Shower Curtain Rod: Where this designation is indicated, provide stainless-steel shower curtain rod with 3-inch (75-mm) stainless-steel flanges designed for exposed fasteners, in length required for shower opening indicated, and complying with the following:
- 1. Products: Available products include the following:
 - a. Bobrick No. B-6047.
 - 2. Extra Heavy-Duty Rod: 1-1/4-inch (32-mm) OD; fabricated from nominal 0.05-inch- (1.3-mm-) thick stainless steel.
- I. Shower Curtain: Where this designation is indicated, provide shower curtain complying with the following:
- 1. Products: Available products include the following:
 - a. Bobrick No. 204-2.
 - 2. Vinyl Shower Curtain: Minimum 0.006-inch- (0.15-mm-) thick, opaque, matte vinyl with hemmed edges and corrosion-resistant grommets at minimum 6 inches (152 mm) o.c. through top hem.
 - a. Size: Minimum 6 inches (152 mm) wider than opening by 72 inches (1828 mm) high.
 - b. Color: White.
 - 3. Shower Curtain Hooks: Chrome-plated or stainless-steel, spring wire curtain hooks with snap fasteners, sized to accommodate specified curtain rod. Provide one hook per curtain grommet.
- J. Mop and Broom Holder: Where this designation is indicated, provide mop and broom holder complying with the following:
- 1. Products: Available products include the following:
 - a. Bobrick No. B-223 x 36.
 - 2. Mop and Broom Holder: 36-inch- (914-mm-) long unit fabricated of minimum nominal 0.0375-inch- (0.95-mm-) thick, stainless-steel hat channel with four spring-loaded, rubber, cam-type, mop/broom holders.
- K. Robe Hook:
- 1. Products: Available products include the following:
 - a. Similar to No. B-7671 by Bobrick.
 - 2. Single-Prong Unit: Stainless-steel, single-prong robe hook with rectangular wall bracket and backplate for concealed mounting.

END OF SECTION

SECTION 123200 - MANUFACTURED WOOD CASEWORK

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Laminate-faced kitchen cabinets.
2. Laminate faced countertops.

1.2 DEFINITIONS

- A. Exposed Surfaces of Casework: Surfaces visible when doors and drawers are closed, including visible surfaces in open cabinets or behind glass doors.
- B. Semiexposed Surfaces of Casework: Surfaces behind opaque doors or drawer fronts, including interior faces of doors and interiors and sides of drawers. Bottoms of wall cabinets are defined as "semiexposed."
- C. Concealed Surfaces of Casework: Surfaces not usually visible after installation, including sleepers, web frames, dust panels, bottoms of drawers, and ends of cabinets installed directly against and completely concealed by walls or other cabinets. Tops of wall cabinets and utility cabinets are defined as "concealed."

1.3 SUBMITTALS

A. Product Data: For the following:

1. Cabinets.
2. Counter.
3. Cabinet hardware.

B. Shop Drawings: For cabinets and countertops. Include plans, elevations, details, and attachments to other work. Show materials, finishes, filler panels, hardware, edge and backsplash profiles, cutouts for plumbing fixtures, and methods of joining countertops.

C. 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 exposed to view.

D. Samples for Verification: For the following materials; in sets showing the full range of color, texture, and pattern variations expected:

1. Plastic laminate for casework finish, 8 by 10 inches.
2. Plastic laminate for countertops, 8 by 10 inches.
3. One unit of each type of exposed hardware.

- E. Samples for Verification: As follows:
1. One full-size, finished base cabinet complete with hardware, doors, and drawers, but without countertop.
 2. One full-size, finished wall cabinet complete with hardware, doors, and adjustable shelves.
 3. Plastic laminate for countertops, 8 by 10 inches.
- F. Product Certificates: Signed by manufacturers of casework certifying that products furnished comply with requirements.

1.4 QUALITY ASSURANCE

- A. Source Limitations for Cabinets: Obtain cabinets through one source from a single manufacturer.
- B. Product Designations: Drawings indicate size, configurations, and finish material of casework by referencing designated manufacturer's catalog numbers. Other manufacturers' casework of similar sizes, similar door and drawer configurations, same finish material, and complying with the Specifications may be considered. Refer to Division 1 Section "Product Requirements."
- C. Quality Standards: Unless otherwise indicated, comply with the following standards:
1. Cabinets: KCMA A161.1.
 - a. KCMA Certification: Provide cabinets with KCMA's "Certified Cabinet" seal affixed in a semiexposed location of each unit and showing compliance with the above standard.
 2. Plastic-Laminate Countertops: KCMA A161.2.

1.5 PROJECT CONDITIONS

- A. Environmental Limitations: Do not deliver or install kitchen casework until building is enclosed, wet-work is complete, and HVAC system is operating and will maintain temperature and relative humidity at occupancy levels during the remainder of the construction period.
- B. Established Dimensions: Where kitchen casework is indicated to fit to other construction, establish dimensions for areas where casework is to fit. Coordinate construction to ensure that actual dimensions correspond to established dimensions. Provide fillers and scribes to allow for trimming and fitting.
- C. Field Measurements: Where kitchen casework is indicated to fit to existing construction, verify dimensions of existing construction by field measurements before fabrication and indicate measurements on Shop Drawings. Provide fillers and scribes if necessary.

- D. Field Measurements for Countertops: Verify dimensions of countertops by field measurements after base cabinets are installed but before countertop fabrication is complete. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

1.6 COORDINATION

- A. Coordinate layout and installation of blocking and reinforcement in partitions for support of kitchen casework.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Cabinets: Echelon.
 - 2. Laminate Material for Countertops: Wilsonart.
- B. Products:
 - 1. Cabinets: Provide Norwich door style with standard color finish.
 - 2. Solid Surfacing: Provide Wilsonart HD, color as selected by Architect.

2.2 CABINET MATERIALS

- A. Exposed Materials: Comply with the following:
 - 1. Exposed Wood Species: Any clear hardwood lumber.
 - 2. Solid Wood: Clear hardwood lumber of species indicated, free of defects, selected for compatible grain and color, and kiln dried to 7 percent moisture content.
 - 3. Plywood: Hardwood plywood complying with HPVA HP-1 with face veneer of species indicated, selected for compatible color and grain with Grade A faces and Grade C backs of same species as faces.
 - a. Edge band exposed edges with minimum 1/8-inch- thick, solid-wood edging of same species as face veneer.
- B. Semiexposed and Concealed Materials: Unless otherwise indicated, provide the following:

1. Thermoset Decorative Panels: Medium-density particleboard complying with ANSI A208.1, Grade M-2; with surface of thermally fused, melamine-impregnated decorative paper complying with LMA SAT-1.
 - a. Provide thermoset decorative overlay on both sides of shelves, dividers, drawer bodies, and other components with two semiexposed surfaces.
 - b. Provide PVC or polyester edge banding complying with LMA EDG-1 on components with semiexposed edges.

2.3 COUNTERTOP MATERIALS

- A. Laminate Faced MDF:

2.4 CASEWORK HARDWARE

- A. General: Manufacturer's standard units complying with BHMA A156.9, of type, material, size, and finish as selected from manufacturer's standard choices.
- B. Hinges: Concealed European-style hinges.
- C. Drawer Guides: Epoxy-coated-metal, self-closing drawer guides; designed to prevent rebound when drawers are closed; with nylon-tired, ball-bearing rollers; and complying with BHMA A156.9, Type B05091.
- D. Pulls: As selected by the Architect.

2.5 CABINET CONSTRUCTION

- A. Face Style: Flush overlay; door and drawer faces cover cabinet body members or face frames with only enough space between faces for operating clearance.
- B. Face Frames: Frameless.
- C. Door and Drawer Fronts: Laminate-faced MDF stiles and rails, 5/8 inch thick, with 1/4-inch-thick, solid-wood center panels.
- D. Exposed Cabinet Ends: Laminate-faced MDF.
- E. Cabinet Ends: 5/8-inch-thick particleboard or 1/2-inch-thick plywood.
- F. Cabinet Tops and Bottoms: 5/8-inch-thick particleboard or 1/2-inch-thick plywood, fully supported by and secured in rabbets in end panels, front frame, and back rail.

- G. Back, Top, and Bottom Rails: 3/4-by-2-1/2-inch solid wood, interlocking with end panels and rabbeted to receive top and bottom panels. Back rails secured under pressure with glue and with mechanical fasteners.
- H. Wall-Hung Unit Back Panels: 3/16-inch- thick plywood fastened to rear edge of end panels and to top and bottom rails.
- I. Base Unit Back Panels: 3/16-inch- thick plywood fastened to rear edge of end panels and to top and bottom rails.
- J. Front Frame Drawer Rails: 3/4-by-1-1/4-inch solid wood mortised and fastened into face frame.
- K. Drawers: Fabricate with exposed fronts fastened to subfront with mounting screws from interior of body.
 - 1. Join subfronts, backs, and sides with glued rabbeted joints supplemented by mechanical fasteners or with glued dovetail joints.
 - 2. Subfronts, Backs, and Sides: 1/2-inch- thick solid wood.
 - 3. Bottoms: 1/4-inch- thick plywood.
- L. Shelves: 3/4-inch- thick particleboard or 5/8-inch- thick plywood.
- M. Joinery: Rabbet backs flush into end panels and secure with concealed mechanical fasteners. Connect tops and bottoms of wall cabinets and bottoms and stretchers of base cabinets to ends and dividers with mechanical fasteners. Rabbet tops, bottoms, and backs into end panels.
- N. Factory Finishing: To greatest extent possible, finish casework at factory. Defer only final touchup until after installation.

2.6 LAMINATE COUNTERTOPS

- A. Configuration: Provide countertops with the following front and backsplash style:
 - 1. Front: Straight, slightly eased at top.
 - 2. Backsplash: Straight, slightly eased at corner.
- B. Construction: 1/2-inch- thick, solid-surfacing-material countertops with front edge of countertops built up with same material; 3/4 inch thick AC plywood backer.
- C. Construction: 3/4-inch- thick, solid-surfacing-material backsplashes.
- D. Fabrication: Fabricate tops in one piece with shop-applied backsplashes and edges, unless otherwise indicated. Comply with laminate manufacturer's written instructions for adhesives, sealers, fabrication, and finishing.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install casework with no variations in flushness of adjoining surfaces; use concealed shims. Where casework abuts other finished work, scribe and cut for accurate fit. Provide filler strips, scribe strips, and moldings in finish to match casework face.
- B. Install casework without distortion so doors and drawers fit openings and are aligned. Complete installation of hardware and accessories as indicated.
- C. Install casework and countertop level and plumb to a tolerance of 1/8 inch in 8 feet.
- D. Fasten cabinets to adjacent units and to backing.
 - 1. Fasten wall cabinets through back, near top and bottom, at ends and not less than 24 inches o.c. with No. 10 wafer-head screws sized for 1-inch penetration into wood framing, blocking, or hanging strips.
 - 2. Fasten wall cabinets through back, near top and bottom, at ends and not less than 24 inches o.c., with toggle bolts through metal backing behind gypsum board.
- E. Fasten solid-surfacing-material countertops by screwing through corner blocks of base units into underside of countertop. Align adjacent surfaces, and form seams to comply with manufacturer's written instructions using adhesive in color to match countertop. Carefully dress joints smooth, remove surface scratches, and clean entire surface.

3.2 ADJUSTING AND CLEANING

- A. Adjust casework and hardware so doors and drawers are centered in openings and operate smoothly without warp or bind. Lubricate operating hardware as recommended by manufacturer.
- B. Clean casework on exposed and semiexposed surfaces. Touch up factory-applied finishes to restore damaged or soiled areas.

END OF SECTION