

**Savings Bank of Maine  
Two Canal Plaza  
Portland, Maine**

**GTA #010111**

**SPECIFICATIONS MANUAL**

**DATE: TBD**

Architect:

Gawron Turgeon Architects

29 Black Point Road

Scarborough, Maine 04074

207-883-6307

**Gawron  
Turgeon**  
ARCHITECTS





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SAVINGS BANK OF MAINE  
TWO CANAL PLAZA

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# Schedule

## Savings Bank of Maine – GTA #010111

### Design and Construction Schedule

Design Process Complete	March 22, 2011
Permitting Process	April 5, 2011
Construction Bidding	April 5, 2011 – April 19, 2011
Substantial Completion	June 6, 2011
Bank Open for Business	June 13, 2011





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## Savings Bank of Maine Contact List

### Savings Bank of Maine

Richard E. Lucas  
Senior Exec VP Banking  
151 Water Street  
Gardiner, ME 04345  
Ph: (207)239-9816

### Property Owner

East Brown Cow Management Co.  
Denine Leeman  
100 Commercial Street  
Portland, Maine 04101  
Ph: (207) 775-2252  
[dleeman@eastbrowncow.com](mailto:dleeman@eastbrowncow.com)

### Maine Architect:

Stan Gawron, AIA,  
Principal  
Gawron Turgeon Architects  
29 Black Point Road  
Scarborough, Maine 04074  
Ph: (207) 883-6307  
Fax: (207) 883-0361  
[sgawron@gawronturgeon.com](mailto:sgawron@gawronturgeon.com)

### Interior Design:

Deirdre L. Pio, CSI, CDT  
Project Manager  
Gawron Turgeon Architects  
29 Black Point Road  
Scarborough, Maine 04074  
Ph: (207) 883-6307  
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[dpio@gawronturgeon.com](mailto:dpio@gawronturgeon.com)

### Savings Bank of Maine

Ron Maggiacomo  
Cell: 339-203-0600  
[maggiacomo@aol.com](mailto:maggiacomo@aol.com)

### Interior Design:

Mary Turgeon, AAHID, IIDA, LEED AP  
Project Principal  
Gawron Turgeon Architects  
29 Black Point Road  
Scarborough, Maine 04074  
Ph: (207) 883-6307  
Fax: (207) 883-0361  
[mturgeon@gawronturgeon.com](mailto:mturgeon@gawronturgeon.com)

### Landscape Architect

Rachel Sunnell, RLA  
Landscape Architect  
Department Head  
Gawron Turgeon Architects  
29 Black Point Road  
Scarborough, Maine 04074  
Ph: (207)883-6307  
Fax: (207)883-0361  
[rsunnell@gawronturgeon.com](mailto:rsunnell@gawronturgeon.com)

### Mechanical and Electrical Engineer:

Will Bennett, P. E.  
Bennett Engineering  
7 Bennett Road  
P. O. Box 297  
Freeport, Maine 04032  
Ph: (207) 865-9475  
Fax (207) 865-1800  
[will@bennettengineering.net](mailto:will@bennettengineering.net)



EXHIBIT "D"  
BUILDING RULES AND REGULATIONS

The following rules and regulations shall apply to the Leased Premises and the Building:

1. Sidewalks, doorways, vestibules, halls, stairways, and other similar areas shall not be obstructed by tenants or used by any tenant for purposes other than ingress and egress to and from their respective leased premises and for going from one to another part of the Building.
2. Plumbing, fixtures and appliances shall be used only for the purposes for which designed, and no sweepings, rubbish, rags or other unsuitable material shall be thrown or deposited therein. Damage resulting to any such fixtures or appliances from misuse by a tenant or its agents, employees or invitees, shall be paid by such tenant.
3. No signs, advertisements or notices shall be painted or affixed on or to any windows or doors or other part of the Building without prior written consent of Landlord; however, consent for interior signage shall not be unreasonably withheld. No nails, hooks or screws shall be driven or inserted in any part of the Building except by Building maintenance personnel. Notwithstanding the foregoing, Tenant shall be permitted to insert or drive nails, hooks and screws within the Leased Premises. No curtains or other window treatments shall be placed between the glass and the building standard window treatments.
4. Landlord shall provide and maintain a directory for all tenants in the main lobby of the Building. Landlord shall provide and install, at tenant's cost, all letters and numerals on the door or doors to the tenants' premises. All such letters and numerals shall be in building standard graphics and no other graphics shall be used or permitted in connection with the tenant's premises unless approved in writing by Landlord.
5. Landlord shall provide all door locks in each tenant's leased premises, at the cost of such tenant, and no tenant shall place any additional door locks or replace or rekey any locks in its leased premises without Landlord's prior written consent. Landlord shall furnish to each tenant a reasonable number of keys to such tenant's leased premises, at such tenant's cost, and no tenant shall make a duplicate thereof.
6. Movement in or out of the Building of furniture or office equipment, or dispatch or receipt by tenants of any bulky material, merchandise or materials which require use of elevators or stairways, or movement through the Building entrances or lobby shall be conducted under Landlord's supervision at such times and in such a manner as Landlord may reasonably require. Each tenant assumes all risks of and shall be liable for all damage to articles moved and injury to persons engaged or not engaged in such movement, including equipment, property and personnel of Landlord if damaged or injured as a result of acts in connection with carrying out this service for such tenant.
7. Landlord may prescribe weight limitations and determine the locations for safes and other heavy equipment or items, which shall in all cases be placed in the Building so as to distribute weight in a manner acceptable to Landlord which may include the use of such supporting devices as Landlord may require. All damages to the Building caused by the installation or removal of any property of a tenant, or done by a tenant's property while in the Building, shall be repaired at the expense of such tenant.

8. Corridor doors, when not in use, shall be kept closed. Nothing shall be swept or thrown into the corridors, halls, elevator shafts or stairways. No birds or animals shall be brought into or kept in, on or about any tenant's leased premises. No portion of any tenant's leased premises shall at any time be used or occupied as sleeping or lodging quarters.

9. Tenant shall cooperate with Landlord's employees or agents in keeping the Leased Premises neat and clean. Tenant shall not employ any person for the purpose of such cleaning other than one approved by Landlord, which consent will not be unreasonably withheld, delayed or conditioned.

10. Canvassing, soliciting and peddling in the Building is prohibited and each tenant shall cooperate to prevent the same.

11. Tenant shall not make or permit its officers, employees, agents, invitees and visitors to make any improper, objectionable or unpleasant noises or odors in the Building or otherwise create any nuisance, annoy, disturb or interfere in any way with, other tenants or persons having business with them.

12. No machinery of any kind (other than normal office equipment) shall be operated by any tenant in its leased premises without Landlord's prior written consent, nor shall any tenant use or keep in the Building any flammable or explosive fluid or substance.

13. Except for Landlord's willful acts or omissions, Landlord will not be responsible for lost or stolen personal property, money or jewelry from tenant's leased premises or public or common areas, regardless of whether such loss occurs when the area is locked against entry or not.

14. No vending or dispensing machines of any kind may be maintained in any leased premises without the prior written permission of Landlord, nor shall tenant operate a kitchen, cafeteria or other eating establishment, nor perform any cooking or food preparations on the Leased Premises; provided that tenant may operate a coffee bar on the leased premises which may include a microwave oven and refrigerator.

15. All mail chutes located in the Building shall be available for use by Landlord and all tenants of the Building according to the rules of the United States Postal Service.

16. For purposes of the Building, normal business hours will be from 8:00- a.m. to 6:00 p.m., Monday through Friday, and 9:00 a.m. through 1:00 p.m. on Saturday. Heating or air conditioning service at hours other than normal business hours must be requested in writing and shall be paid for by the Tenant. Landlord shall permit Tenant twenty-four (24) hour access to the Leased Premises.

17. Tenant shall provide at least one (1) Class ABC type fire extinguisher, for each 3,000 square feet of space, and one (1) per floor otherwise.

18. Smoking of any kind shall not be permitted in the Building.

19. Admittance to the roof of the building is done only upon the written consent of Landlord.

20. If Tenant desires communications cabling, alarm or other utility or service connections installed or changed, such work shall be done at the expense of the Tenant, with the prior written approval and under the direction of the Landlord, such approval to be not unreasonably withheld or conditioned.

21. Landlord has the right, but not the obligations, to restrict Tenant from bringing into the Building, or keeping on the Premises, any weapon including but not limited to firearms, knives (excluding kitchen knives) and similar items.

22. Landlord shall have the right to make such further rules and regulations as it deems reasonably necessary, provided they are uniformly promulgated and applied against all tenants and do not increase the Tenant's obligations or costs and are not inconsistent with the text of this Lease.

23. Landlord agrees to promulgate and enforce all rules-and regulations uniformly among all Tenants.



SECTION 00100

INSTRUCTIONS TO BIDDERS

PART 1 – GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Bid Documents
- B. Definitions
- C. Invitation to Bid
- D. Addenda
- E. Bidders Representation
- F. Bidding Procedures
- G. Examination of Bidding Documents
- H. Substitutions
- I. Qualifications of Bidders
- J. General Contractor List

1.02 BID DOCUMENTS

- A. Bid documents are available on April 5, 2011 at Spillers Reprographics, 224 Gorham Road, Scarborough, Maine 04074. Telephone: 207-883-4725 and fax: 207-883-4634.
- B. **Partial sets or individual drawings will not be distributed.**
- C. Bidders are required to pay for their own copies at Spillers

Plans and specifications may be examined at:

Architect's Office:

Gawron Turgeon Architects  
29 Black Point Road  
Scarborough, Maine 04074  
(207) 883-6037  
(207) 883-0361 Fax

1.03 DEFINITIONS

- A. The following terms as used in this Project Manual are respectively defined as follows:
  - 1. "Savings Bank of Maine": As noted in current contract documents has been changed to The Bank of Maine. All future reference shall note this name change.

2. "Contractor": A person, firm or corporation with whom the contract is made by the Owner.
  3. "Subcontractor": A person, firm or corporation supplying labor and materials or only labor for work at the site of the project for and under separate contract or agreement with the Contractor.
- B. "Work on (at) Project: Work to be performed at the location of this project, including the transportation of materials and supplies to or from the location of the project by employees of the contractor or subcontractor.

#### 1.04 INVITATION TO BID

- A. Sealed bids shall be filed with the Architect, Gawron Turgeon Architects, at its office at 29 Black Point Road, Scarborough, Maine **before 2:00 P.M. on April 19, 2011**. No bids will be accepted after the specified time.
- B. The Project consists of interior renovations and site modifications. Refer to Section 01100 Summary of the Work for additional description.
- C. Submit letter from bonding agency confirming bonding ability.
- D. No bids may be withdrawn within a period of Sixty (60) days after opening of bids.
- E. Each contractor is required to provide a Construction Schedule located on the Bid Form.
- F. Notice to Proceed will be issued within ten (10) days of the execution of the Contract by the Owner.
- G. Construction will proceed on or about April 19, 2011.
- H. The Owner reserves the right to accept or reject any or all bids and to waive all formalities and to accept any bid deemed advantageous.
- I. In case of ambiguity in stating the price of the bid, the Owner reserves the right to consider the most advantageous construction thereof or to reject all bid.
- J. The Owner reserves the right to have final approval of the General Contractor's designated Site Supervisor and shall be on site full time.
- K. The Owner will require a 10% retainage for the duration of the project

#### 1.05 ADDENDA

- A. All bidders shall acknowledge, in the space provided on the proposal form, receipt of all addenda issued during bidding phase. Failure to do so will result in rejection of the bid.

#### 1.06 BIDDERS REPRESENTATION

- A. In submitting a proposal, the bidder acknowledges that he has familiarized himself with the local conditions affecting the cost of the work, and with a contract document consisting of the Instruction to Bidders, General Conditions



and Supplemental Conditions, Specifications, Drawings and all addenda issued.

1.07 BIDDING PROCEDURES

- A. Bid shall be submitted on the proposal form included herein. Proposals shall be submitted in a sealed envelope addressed to the Owner and identified on the outside as Proposal for General Construction Interior/Exterior Renovations of Two Canal Plaza, Portland, Maine. Proposals shall be received in the office of the Architect.

1.08 EXAMINATION OF THE BIDDING DOCUMENTS

- A. Contract documents including plans and specifications are available for examination at the office of the Architect, Monday through Friday, 8:00am to 5:00pm.

1.09 SUBSTITUTIONS

- A. In general, items shall be provided as specified. Where items specified are found to be unavailable or where the time of delivery is unacceptable, the contractor may request a substitution. Request for substitutions will only be considered as described in Section 01600 Substitutions and Product Options.

1.10 QUALIFICATIONS OF BIDDERS

- A. Bidders shall, upon request by the Owner, provide evidence that the Contractor has performed in the capacity as a General Contractor in the State of Maine for a period of two (2) years. They shall provide evidence that they have constructed projects of similar or equal nature and shall provide evidence that bonding capacity is available to bond this project for 100% of the bid amount. The Owner reserves the right to judge the qualification of the bidders and to reject any or all bidders.

1.11 GENERAL CONTRACTORS LIST

- A. The following list of General Contractors is approved to bid on this project:
1. Blane C. Casey  
Blane Casey Building Contractor Inc.  
P O Box 360  
South China ME 04358-0360  
(207) 445-4686  
[bcasey@blanecasey.com](mailto:bcasey@blanecasey.com)

2. Benchmark Construction  
Kevin Reilly, President  
34 Thomas Drive  
Westbrook, ME 04094  
(207) 591-7600  
[kreilley@benchmarkconstruction.org](mailto:kreilley@benchmarkconstruction.org)
  
3. Dennis Landry  
Landry French Construction  
68 Mussey Street  
Scarborough, ME 04074  
(207) 730-5566  
[dlandry@landryfrenchconstruction.com](mailto:dlandry@landryfrenchconstruction.com)

SECTION 00300

BID FORM

BIDDER:

TO THE OWNER/TENANT:      The Bank of Maine  
   190 Water Street  
   P. O. Box 190  
   Gardiner, Maine 04345

1. The undersigned bids to furnish all labor and materials required for construction of The Bank of Maine in accordance with the Instructions to Bidders and the Documents for the contract price specified herein.
2. The undersigned, having become thoroughly familiar with the terms and conditions of the proposed Contract Documents and with local conditions affecting the performance and costs of the Work at the place where the Work is to be completed, and having fully inspected the site in all particulars, hereby proposes and agrees to fully perform the Work within the time stated and in strict accordance with the proposed Contract Documents.
3. This bid includes Addenda and RFI numbers and Request for Information: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
4. Construction Schedule:
5. Bid Alternates
  - a. \_\_\_\_\_
6. Bid Unit Prices:
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_
  - d. \_\_\_\_\_
  - e. \_\_\_\_\_

- 7. To perform the following Work:  
I understand that the Owner reserves the right to reject this bid, but that this bid shall remain open and not be withdrawn for a period of Sixty (60) days from the date prescribed for its opening.
  
- 8. If written notice of the acceptance of this bid is mailed or delivered to the undersigned within Thirty (30) days after the date set for the opening of this bid, or at any other time thereafter before it is withdrawn, the undersigned will enter into a Contract for Construction with the Owner in accordance with this bid as accepted, and will also furnish and deliver to the Owner the Performance Bond, Labor and Material Payment Bond and proof of insurance coverage.
  
- 9. Notice of acceptance may be addressed to the undersigned at the address set forth below.
  
- 10. Subcontractor List:
  - a.
  
- 11. Divisional Breakdown:
  - a. Refer to Exhibit A
  - b. Refer to Divisional Breakdown Form
  
- 12. The names of all persons interested in the foregoing bid as principals are:  
(IMPORTANT NOTICE: If bidder or other interested person is a corporation, give legal name of corporation, state where incorporated, and names of president and secretary; if a partnership, give name of firm and names of all individual copartners composing the firm; if bidder or other interested person is an individual, give first and last name in full.)

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---

---

Signature of Bidder:

---

Date

---

Date

---

Date

NOTE: If bidder is a corporation, set forth the legal name of the corporation together with the signature of the officer or officers authorized to sign contracts on behalf of the corporation. If bidder is a partnership, set forth the name of the firm together with the signature of the partner or partners authorized to sign contracts on behalf of the partnership.

Business Address: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Telephone Number: \_\_\_\_\_

Date of Proposal: \_\_\_\_\_

Bidder agrees to perform all the work described in the Contract Documents for the following prices:

DIVISIONAL BREAKDOWN WITH LUMP SUM: \_\_\_\_\_

\_\_\_\_\_

#### Construction Schedule

The Bidder agrees to perform all work as described in the Contract Documents \_\_\_\_\_  
\_\_\_\_\_ (months) from the date as specified in the agreement.

Respectfully submitted:

\_\_\_\_\_

Signature

\_\_\_\_\_

Address

\_\_\_\_\_

Title

\_\_\_\_\_

Date

Seal (If bid is by a corporation)

## EXHIBIT A

### COST ALLOCATIONS

Description	Fee	General Conditions	Cost of The Work	Owner Supplied
Profit	X			
Officer's Salaries & Benefits	X			
Home Office Rent/Utilities	X			
Home Office Automobiles/Travel	X			
Home Office Overhead	X			
Interest on Borrowed Capital	X			
Initial Site Survey		X		
Prep/Updating of Project Schedule	X			
Subcontractor Solicitations/Negotiations	X			
Computer Time	X			
Preparation of Monthly Requisitions	X			
Conducting of Job Progress Meetings	X			
Drawings and Specifications/Blueprints		X		
PM/APM Salary & Benefits	X			
Accounting	X			
Record Drawings	X			
Base Line & Control Engineering	X			
Project Executive	X			
Full Time Project Superintendent(s)		X		
Labor (daily clean-up)		X		
Dumpsters/Rubbish Removal		X		
Site Office		X		
Site Office Supplies/Equip./Expenses		X		
Sanitary Facilities		X		

Telephone		X		
Guardrails & Protection at Interior		X		
Openings		X		
Temporary Protection		X		
Protection of Finished Work		X		
<b>Description</b>	<b>Fee</b>	<b>General Conditions</b>	<b>Cost of The Work</b>	<b>Owner Supplied</b>
Electric Power				X
Temporary Water				X
Police Details				X
Permit & Fees				X
Watchman & Security				X
Owner Purchased Items				X
Subcontracts			X	
Winter Conditions/Temporary Heat			X	
Equipment Rentals		X		
Small Tools		X		
Misc. Tools & Equipment		X		
Temporary Enclosures			X	
Bonding Costs (subs)			X	
Staging			X	
Hoisting			X	
OSHA Site Safety		X		
General Liability Insurance			X	
Travel and Parking		X		
Overtime Premium/Shift Premium			X	
Builders Risk/Fire Insurance			X	
Printing/Copying		X		
Progress Photos		X		
Final Cleaning			X	
Messenger/Postage		X		
Building Charges				X





DRAFT

# AIA® Document A101™ - 2007

## Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum

AGREEMENT made as of the « » day of « » in the year « »  
(In words, indicate day, month and year.)

BETWEEN the Owner:  
(Name, legal status, address and other information)

« »  
« »  
« »  
« »

and the Contractor:  
(Name, legal status, address and other information)

« »  
« »  
« »  
« »

for the following Project:  
(Name, location and detailed description)

«blank»  
« »  
« »

The Architect:  
(Name, legal status, address and other information)

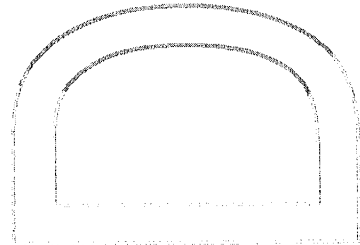
« »  
« »  
« »  
« »

The Owner and Contractor agree as follows.

**ADDITIONS AND DELETIONS:**  
The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

AIA Document A201™-2007, General Conditions of the Contract for Construction, is adopted in this document by reference. Do not use with other general conditions unless this document is modified.



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**TABLE OF ARTICLES**

- 1 THE CONTRACT DOCUMENTS
- 2 THE WORK OF THIS CONTRACT
- 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION
- 4 CONTRACT SUM
- 5 PAYMENTS
- 6 DISPUTE RESOLUTION
- 7 TERMINATION OR SUSPENSION
- 8 MISCELLANEOUS PROVISIONS
- 9 ENUMERATION OF CONTRACT DOCUMENTS
- 10 INSURANCE AND BONDS

**ARTICLE 1 THE CONTRACT DOCUMENTS**

The Contract Documents consist of this Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of this Agreement, other documents listed in this Agreement and Modifications issued after execution of this Agreement, all of which form the Contract, and are as fully a part of the Contract as if attached to this Agreement or repeated herein. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations or agreements, either written or oral. An enumeration of the Contract Documents, other than a Modification, appears in Article 9.

**ARTICLE 2 THE WORK OF THIS CONTRACT**

The Contractor shall fully execute the Work described in the Contract Documents, except as specifically indicated in the Contract Documents to be the responsibility of others.

**ARTICLE 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION**

**§ 3.1** The date of commencement of the Work shall be the date of this Agreement unless a different date is stated below or provision is made for the date to be fixed in a notice to proceed issued by the Owner.  
*(Insert the date of commencement if it differs from the date of this Agreement or, if applicable, state that the date will be fixed in a notice to proceed.)*

« »

If, prior to the commencement of the Work, the Owner requires time to file mortgages and other security interests, the Owner's time requirement shall be as follows:

« »

**§ 3.2** The Contract Time shall be measured from the date of commencement.

**§ 3.3** The Contractor shall achieve Substantial Completion of the entire Work not later than « » ( « » ) days from the date of commencement, or as follows:  
*(Insert number of calendar days. Alternatively, a calendar date may be used when coordinated with the date of commencement. If appropriate, insert requirements for earlier Substantial Completion of certain portions of the Work.)*

« »

Portion of Work

Substantial Completion Date

, subject to adjustments of this Contract Time as provided in the Contract Documents.

*(Insert provisions, if any, for liquidated damages relating to failure to achieve Substantial Completion on time or for bonus payments for early completion of the Work.)*

« »

**ARTICLE 4 CONTRACT SUM**

§ 4.1 The Owner shall pay the Contractor the Contract Sum in current funds for the Contractor's performance of the Contract. The Contract Sum shall be « » (\$ « »), subject to additions and deductions as provided in the Contract Documents.

§ 4.2 The Contract Sum is based upon the following alternates, if any, which are described in the Contract Documents and are hereby accepted by the Owner:

*(State the numbers or other identification of accepted alternates. If the bidding or proposal documents permit the Owner to accept other alternates subsequent to the execution of this Agreement, attach a schedule of such other alternates showing the amount for each and the date when that amount expires.)*

« »

§ 4.3 Unit prices, if any:

*(Identify and state the unit price; state quantity limitations, if any, to which the unit price will be applicable.)*

Item	Units and Limitations	Price Per Unit (\$0.00)
------	-----------------------	-------------------------

§ 4.4 Allowances included in the Contract Sum, if any:

*(Identify allowance and state exclusions, if any, from the allowance price.)*

Item	Price
------	-------

**ARTICLE 5 PAYMENTS**

**§ 5.1 PROGRESS PAYMENTS**

§ 5.1.1 Based upon Applications for Payment submitted to the Architect by the Contractor and Certificates for Payment issued by the Architect, the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided below and elsewhere in the Contract Documents.

§ 5.1.2 The period covered by each Application for Payment shall be one calendar month ending on the last day of the month, or as follows:

« »

§ 5.1.3 Provided that an Application for Payment is received by the Architect not later than the « » day of a month, the Owner shall make payment of the certified amount to the Contractor not later than the « » day of the « » month. If an Application for Payment is received by the Architect after the application date fixed above, payment shall be made by the Owner not later than « » (« ») days after the Architect receives the Application for Payment. *(Federal, state or local laws may require payment within a certain period of time.)*

§ 5.1.4 Each Application for Payment shall be based on the most recent schedule of values submitted by the Contractor in accordance with the Contract Documents. The schedule of values shall allocate the entire Contract Sum among the various portions of the Work. The schedule of values shall be prepared in such form and supported

by such data to substantiate its accuracy as the Architect may require. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment.

§ 5.1.5 Applications for Payment shall show the percentage of completion of each portion of the Work as of the period covered by the Application for Payment.

§ 5.1.6 Subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

- .1 Take that portion of the Contract Sum properly allocable to completed Work as determined by multiplying the percentage completion of each portion of the Work by the share of the Contract allocated to that portion of the Work in the schedule of values, less retainage of « » percent (Pending final determination of cost to the Owner of changes in the Work, amounts not in dispute shall be included as provided in Section 7.3.9 of AIA Document A201™-2007, General Conditions of the Contract for Construction;
- .2 Add that portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction (or, if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing), less retainage of « » percent (« » %);
- .3 Subtract the aggregate of previous payments made by the Owner; and
- .4 Subtract amounts, if any, for which the Architect has withheld or nullified a Certificate for Payment as provided in Section 9.5 of AIA Document A201-2007.

§ 5.1.7 The progress payment amount determined in accordance with Section 5.1.6 shall be further modified under the following circumstances:

- .1 Add, upon Substantial Completion of the Work, a sum sufficient to increase the total payments to the full amount of the Contract Sum, less such amounts as the Architect shall determine for incomplete Work, retainage applicable to such work and unsettled claims; and  
*(Section 9.8.5 of AIA Document A201-2007 requires release of applicable retainage upon Substantial Completion of Work with consent of surety, if any.)*
- .2 Add, if final completion of the Work is thereafter materially delayed through no fault of the Contractor, any additional amounts payable in accordance with Section 9.10.3 of AIA Document A201-2007.

§ 5.1.8 Reduction or limitation of retainage, if any, shall be as follows:

*(If it is intended, prior to Substantial Completion of the entire Work, to reduce or limit the retainage resulting from the percentages inserted in Sections 5.1.6.1 and 5.1.6.2 above, and this is not explained elsewhere in the Contract Documents, insert here provisions for such reduction or limitation.)*

« »

§ 5.1.9 Except with the Owner's prior approval, the Contractor shall not make advance payments to suppliers for materials or equipment which have not been delivered and stored at the site.

## § 5.2 FINAL PAYMENT

§ 5.2.1 Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner to the Contractor when

- .1 the Contractor has fully performed the Contract except for the Contractor's responsibility to correct Work as provided in Section 12.2.2 of AIA Document A201-2007, and to satisfy other requirements, if any, which extend beyond final payment; and
- .2 a final Certificate for Payment has been issued by the Architect.

§ 5.2.2 The Owner's final payment to the Contractor shall be made no later than 30 days after the issuance of the Architect's final Certificate for Payment, or as follows:

« »

**ARTICLE 6 DISPUTE RESOLUTION**

**§ 6.1 INITIAL DECISION MAKER**

The Architect will serve as Initial Decision Maker pursuant to Section 15.2 of AIA Document A201–2007, unless the parties appoint below another individual, not a party to this Agreement, to serve as Initial Decision Maker. *(If the parties mutually agree, insert the name, address and other contact information of the Initial Decision Maker, if other than the Architect.)*

« »  
« »  
« »  
« »

**§ 6.2 BINDING DISPUTE RESOLUTION**

For any Claim subject to, but not resolved by, mediation pursuant to Section 15.3 of AIA Document A201–2007, the method of binding dispute resolution shall be as follows: *(Check the appropriate box. If the Owner and Contractor do not select a method of binding dispute resolution below, or do not subsequently agree in writing to a binding dispute resolution method other than litigation, Claims will be resolved by litigation in a court of competent jurisdiction.)*

- Arbitration pursuant to Section 15.4 of AIA Document A201–2007
  - Litigation in a court of competent jurisdiction
  - Other *(Specify)*
- « »

**ARTICLE 7 TERMINATION OR SUSPENSION**

**§ 7.1** The Contract may be terminated by the Owner or the Contractor as provided in Article 14 of AIA Document A201–2007.

**§ 7.2** The Work may be suspended by the Owner as provided in Article 14 of AIA Document A201–2007.

**ARTICLE 8 MISCELLANEOUS PROVISIONS**

**§ 8.1** Where reference is made in this Agreement to a provision of AIA Document A201–2007 or another Contract Document, the reference refers to that provision as amended or supplemented by other provisions of the Contract Documents.

**§ 8.2** Payments due and unpaid under the Contract shall bear interest from the date payment is due at the rate stated below, or in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

*(Insert rate of interest agreed upon, if any.)*

« » % « »

**§ 8.3** The Owner’s representative:  
*(Name, address and other information)*

« »  
« »  
« »  
« »  
« »  
« »

**§ 8.4** The Contractor’s representative:  
*(Name, address and other information)*

<< >>  
<< >>  
<< >>  
<< >>  
<< >>  
<< >>

§ 8.5 Neither the Owner's nor the Contractor's representative shall be changed without ten days written notice to the other party.

§ 8.6 Other provisions:

<< >>

#### ARTICLE 9 ENUMERATION OF CONTRACT DOCUMENTS

§ 9.1 The Contract Documents, except for Modifications issued after execution of this Agreement, are enumerated in the sections below.

§ 9.1.1 The Agreement is this executed AIA Document A101-2007, Standard Form of Agreement Between Owner and Contractor.

§ 9.1.2 The General Conditions are AIA Document A201-2007, General Conditions of the Contract for Construction.

§ 9.1.3 The Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages

§ 9.1.4 The Specifications:  
(Either list the Specifications here or refer to an exhibit attached to this Agreement.)

<< >>

Section	Title	Date	Pages

§ 9.1.5 The Drawings:  
(Either list the Drawings here or refer to an exhibit attached to this Agreement.)

<< >>

Number	Title	Date

§ 9.1.6 The Addenda, if any:

Number	Date	Pages

Portions of Addenda relating to bidding requirements are not part of the Contract Documents unless the bidding requirements are also enumerated in this Article 9.

§ 9.1.7 Additional documents, if any, forming part of the Contract Documents:

- .1 AIA Document E201™-2007, Digital Data Protocol Exhibit, if completed by the parties, or the following:

« »

- .2 Other documents, if any, listed below:  
*(List here any additional documents that are intended to form part of the Contract Documents. AIA Document A201-2007 provides that bidding requirements such as advertisement or invitation to bid, Instructions to Bidders, sample forms and the Contractor's bid are not part of the Contract Documents unless enumerated in this Agreement. They should be listed here only if intended to be part of the Contract Documents.)*

« »

**ARTICLE 10 INSURANCE AND BONDS**

The Contractor shall purchase and maintain insurance and provide bonds as set forth in Article 11 of AIA Document A201-2007.

*(State bonding requirements, if any, and limits of liability for insurance required in Article 11 of AIA Document A201-2007.)*

Type of insurance or bond

Limit of liability or bond amount (\$0.00)

This Agreement entered into as of the day and year first written above.

\_\_\_\_\_  
OWNER (Signature)

« »« »

\_\_\_\_\_  
(Printed name and title)

\_\_\_\_\_  
CONTRACTOR (Signature)

« »« »

\_\_\_\_\_  
(Printed name and title)





# DRAFT AIA® Document G705™ - 2001

## List of Subcontractors

---

**PROJECT:** *(Name and address)*  
Cole Haan

**DATE:**

**TO ARCHITECT:** *(Name and address)*

**ARCHITECT'S PROJECT NUMBER:**

**FROM CONTRACTOR:** *(Name and address)*

**CONTRACTOR'S PROJECT NUMBER:**

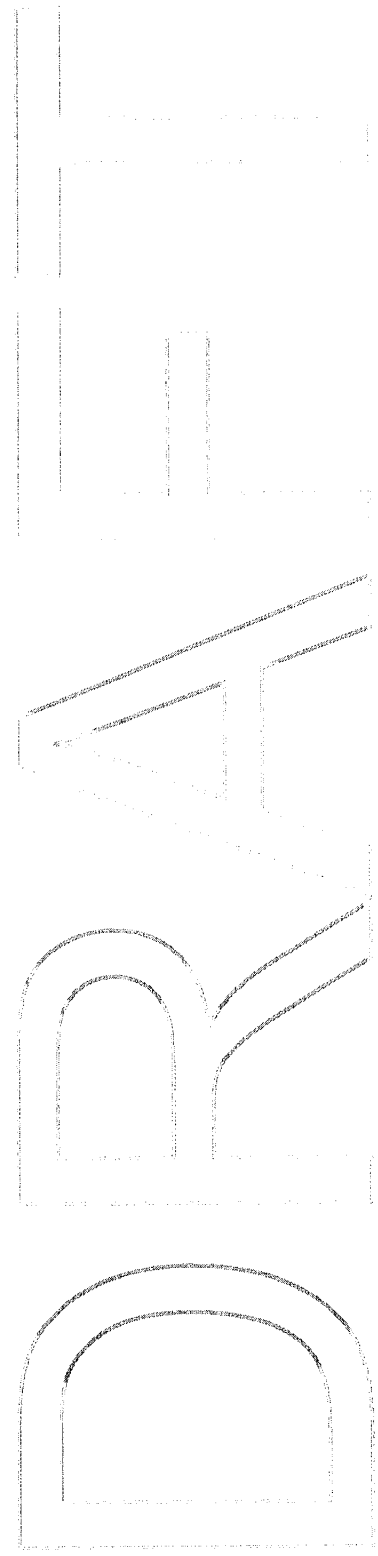
---

*(List Subcontractors and others proposed to be employed on the above Project as required by the bidding documents.)*

**Work/Firm Name**

**Address/Phone**

**Superintendent**



DRAFT

# AIA® Document A310™ - 1970

## Bid Bond

KNOW ALL MEN BY THESE PRESENTS, that we  
(Here insert full name and address or legal title of Contractor)

« »  
« »

as Principal, hereinafter called the Principal, and  
(Here insert full name and address or legal title of Surety)

« »  
« »

a corporation duly organized under the laws of the State of « » as Surety, hereinafter  
called the Surety, are held and firmly bound unto  
(Here insert full name and address or legal title of Owner)

« »  
« »

as Oblige, hereinafter called the Oblige, in the sum of « » (\$ « »), for the payment of  
which sum well and truly to be made, the said Principal and the said Surety, bind  
ourselves, our heirs, executors, administrators, successors and assigns, jointly and  
severally, firmly by these presents.

WHEREAS, the Principal has submitted a bid for  
(Here insert full name, address and description of project)

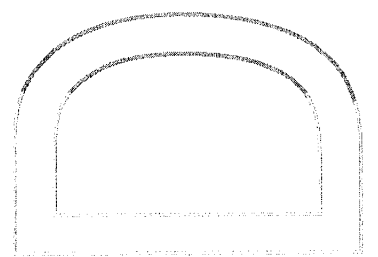
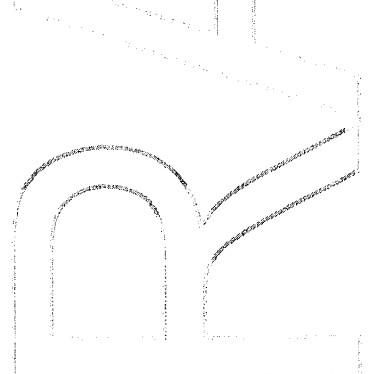
«Cole Haan»  
« »  
« »

NOW, THEREFORE, if the Oblige shall accept the bid of the Principal and the  
Principal shall enter into a Contract with the Oblige in accordance with the terms of such  
bid, and give such bond or bonds as may be specified in the bidding or Contract  
Documents with good and sufficient surety for the faithful performance of such Contract  
and for the prompt payment of labor and material furnished in the prosecution thereof, or  
in the event of the failure of the Principal to enter such Contract and give such bond or  
bonds, if the Principal shall pay to the Oblige the difference not to exceed the penalty  
hereof between the amount specified in said bid and such larger amount for which the  
Oblige may in good faith contract with another party to perform the Work covered by  
said bid, then this obligation shall be null and void, otherwise to remain in full force and  
effect.

Signed and sealed this « » day of « », « »

**ADDITIONS AND DELETIONS:**  
The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.



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(Witness)

(Witness)

« »

(Principal)

(Seal)

« »

(Title)

« »

(Surety)

« »

(Title)

(Seal)

DRAFT

# AIA® Document A312™ - 2010

## Payment Bond

**CONTRACTOR:**

(Name, legal status and address)

« »  
« »

**SURETY:**

(Name, legal status and principal place of business)

« »  
« »

**OWNER:**

(Name, legal status and address)

« »  
« »

**CONSTRUCTION CONTRACT**

Date: « »

Amount: \$ « »

Description:

(Name and location)

«Cole Haan»

« »

**BOND**

Date:

(Not earlier than Construction Contract Date)

« »

Amount: \$ « »

Modifications to this Bond:  « » None  « » See Section 18

**CONTRACTOR AS PRINCIPAL**

Company: (Corporate Seal)

**SURETY**

Company: (Corporate Seal)

Signature:

Name and « »

Title:

Signature:

Name and « »

Title:

(Any additional signatures appear on the last page of this Payment Bond.)

(FOR INFORMATION ONLY — Name, address and telephone)

**AGENT or BROKER:**

« »  
« »  
« »

**OWNER'S REPRESENTATIVE:**

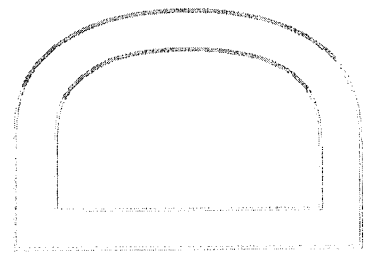
(Architect, Engineer or other party:)

« »  
« »  
« »  
« »  
« »  
« »

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This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.



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**§ 1** The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner to pay for labor, materials and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.

**§ 2** If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies and holds harmless the Owner from claims, demands, liens or suits by any person or entity seeking payment for labor, materials or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.

**§ 3** If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond shall arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Section 13) of claims, demands, liens or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials or equipment furnished for use in the performance of the Construction Contract and tendered defense of such claims, demands, liens or suits to the Contractor and the Surety.

**§ 4** When the Owner has satisfied the conditions in Section 3, the Surety shall promptly and at the Surety's expense defend, indemnify and hold harmless the Owner against a duly tendered claim, demand, lien or suit.

**§ 5** The Surety's obligations to a Claimant under this Bond shall arise after the following:

**§ 5.1** Claimants, who do not have a direct contract with the Contractor,

- .1 have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and
- .2 have sent a Claim to the Surety (at the address described in Section 13).

**§ 5.2** Claimants, who are employed by or have a direct contract with the Contractor, have sent a Claim to the Surety (at the address described in Section 13).

**§ 6** If a notice of non-payment required by Section 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Section 5.1.1.

**§ 7** When a Claimant has satisfied the conditions of Sections 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:

**§ 7.1** Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and

**§ 7.2** Pay or arrange for payment of any undisputed amounts.

**§ 7.3** The Surety's failure to discharge its obligations under Section 7.1 or Section 7.2 shall not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Section 7.1 or Section 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.

**§ 8** The Surety's total obligation shall not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Section 7.3, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.

**§ 9** Amounts owed by the Owner to the Contractor under the Construction Contract shall be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfy obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.

§ 10 The Surety shall not be liable to the Owner, Claimants or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to, or give notice on behalf of, Claimants or otherwise have any obligations to Claimants under this Bond.

§ 11 The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.

§ 12 No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Section 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

§ 13 Notice and Claims to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, shall be sufficient compliance as of the date received.

§ 14 When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

§ 15 Upon request by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.

#### § 16 Definitions

§ 16.1 Claim. A written statement by the Claimant including at a minimum:

- .1 the name of the Claimant;
- .2 the name of the person for whom the labor was done, or materials or equipment furnished;
- .3 a copy of the agreement or purchase order pursuant to which labor, materials or equipment was furnished for use in the performance of the Construction Contract;
- .4 a brief description of the labor, materials or equipment furnished;
- .5 the date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
- .6 the total amount earned by the Claimant for labor, materials or equipment furnished as of the date of the Claim;
- .7 the total amount of previous payments received by the Claimant; and
- .8 the total amount due and unpaid to the Claimant for labor, materials or equipment furnished as of the date of the Claim.

§ 16.2 Claimant. An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials or equipment were furnished.

§ 16.3 Construction Contract. The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.

§ 16.4 Owner Default. Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

§ 16.5 Contract Documents. All the documents that comprise the agreement between the Owner and Contractor.

§ 17 If this Bond is issued for an agreement between a Contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

§ 18 Modifications to this bond are as follows:

« »

*(Space is provided below for additional signatures of added parties, other than those appearing on the cover page.)*

**CONTRACTOR AS PRINCIPAL**

Company:

*(Corporate Seal)*

**SURETY**

Company:

*(Corporate Seal)*

Signature:

Name and Title:

« »« »

Address:

« »

Signature:

Name and Title:

« »« »

Address:

« »



DRAFT

# AIA<sup>®</sup> Document A201<sup>™</sup> - 2007

## General Conditions of the Contract for Construction

**for the following PROJECT:**

*(Name and location or address)*

«Cole Haan»

« »

**THE OWNER:**

*(Name, legal status and address)*

« »»» »

« »

**THE ARCHITECT:**

*(Name, legal status and address)*

« »»» »

« »

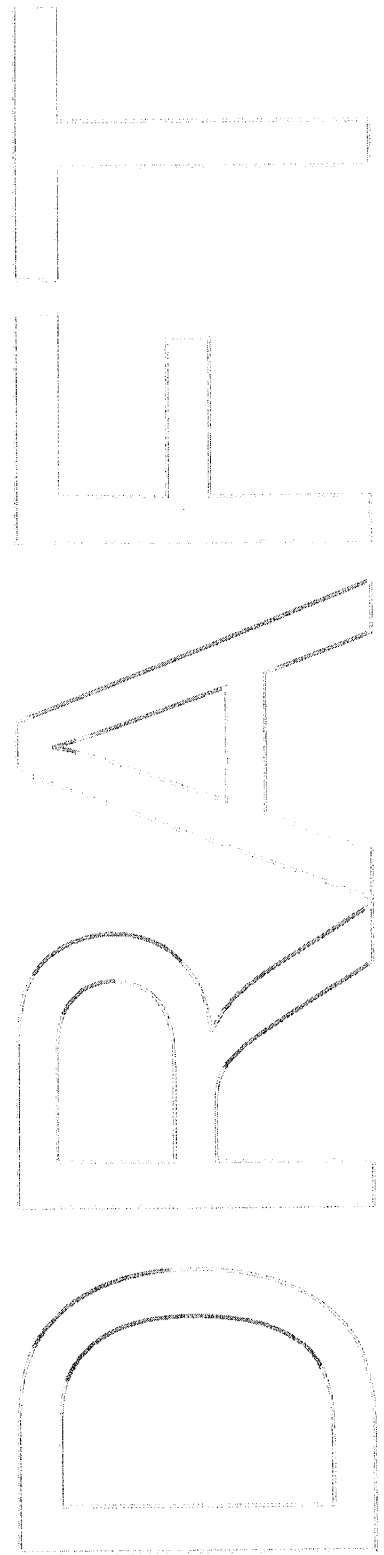
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- 13 MISCELLANEOUS PROVISIONS
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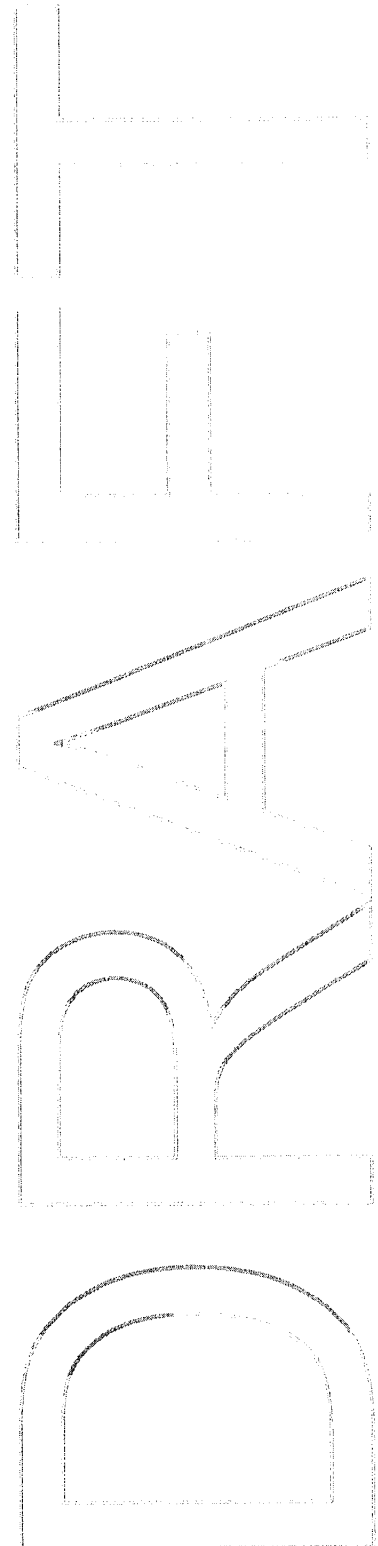
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## **ARTICLE 1 GENERAL PROVISIONS**

### **§ 1.1 BASIC DEFINITIONS**

#### **§ 1.1.1 THE CONTRACT DOCUMENTS**

The Contract Documents are enumerated in the Agreement between the Owner and Contractor (hereinafter the Agreement) and consist of the Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of the Contract, other documents listed in the Agreement and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive or (4) a written order for a minor change in the Work issued by the Architect. Unless specifically enumerated in the Agreement, the Contract Documents do not include the advertisement or invitation to bid, Instructions to Bidders, sample forms, other information furnished by the Owner in anticipation of receiving bids or proposals, the Contractor's bid or proposal, or portions of Addenda relating to bidding requirements.

#### **§ 1.1.2 THE CONTRACT**

The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Contractor and the Architect or the Architect's consultants, (2) between the Owner and a Subcontractor or a Sub-subcontractor, (3) between the Owner and the Architect or the Architect's consultants or (4) between any persons or entities other than the Owner and the Contractor. The Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of the Architect's duties.

#### **§ 1.1.3 THE WORK**

The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

#### **§ 1.1.4 THE PROJECT**

The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by the Owner and by separate contractors.

#### **§ 1.1.5 THE DRAWINGS**

The Drawings are the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules and diagrams.

#### **§ 1.1.6 THE SPECIFICATIONS**

The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, systems, standards and workmanship for the Work, and performance of related services.

#### **§ 1.1.7 INSTRUMENTS OF SERVICE**

Instruments of Service are representations, in any medium of expression now known or later developed, of the tangible and intangible creative work performed by the Architect and the Architect's consultants under their respective professional services agreements. Instruments of Service may include, without limitation, studies, surveys, models, sketches, drawings, specifications, and other similar materials.

#### **§ 1.1.8 INITIAL DECISION MAKER**

The Initial Decision Maker is the person identified in the Agreement to render initial decisions on Claims in accordance with Section 15.2 and certify termination of the Agreement under Section 14.2.2.

### **§ 1.2 CORRELATION AND INTENT OF THE CONTRACT DOCUMENTS**

**§ 1.2.1** The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

**§ 1.2.2** Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade.

**§ 1.2.3** Unless otherwise stated in the Contract Documents, words that have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

### **§ 1.3 CAPITALIZATION**

Terms capitalized in these General Conditions include those that are (1) specifically defined, (2) the titles of numbered articles or (3) the titles of other documents published by the American Institute of Architects.

### **§ 1.4 INTERPRETATION**

In the interest of brevity the Contract Documents frequently omit modifying words such as “all” and “any” and articles such as “the” and “an,” but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

### **§ 1.5 OWNERSHIP AND USE OF DRAWINGS, SPECIFICATIONS AND OTHER INSTRUMENTS OF SERVICE**

**§ 1.5.1** The Architect and the Architect’s consultants shall be deemed the authors and owners of their respective Instruments of Service, including the Drawings and Specifications, and will retain all common law, statutory and other reserved rights, including copyrights. The Contractor, Subcontractors, Sub-subcontractors, and material or equipment suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with this Project is not to be construed as publication in derogation of the Architect’s or Architect’s consultants’ reserved rights.

**§ 1.5.2** The Contractor, Subcontractors, Sub-subcontractors and material or equipment suppliers are authorized to use and reproduce the Instruments of Service provided to them solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and material or equipment suppliers may not use the Instruments of Service on other projects or for additions to this Project outside the scope of the Work without the specific written consent of the Owner, Architect and the Architect’s consultants.

### **§ 1.6 TRANSMISSION OF DATA IN DIGITAL FORM**

If the parties intend to transmit Instruments of Service or any other information or documentation in digital form, they shall endeavor to establish necessary protocols governing such transmissions, unless otherwise already provided in the Agreement or the Contract Documents.

## **ARTICLE 2 OWNER**

### **§ 2.1 GENERAL**

**§ 2.1.1** The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate in writing a representative who shall have express authority to bind the Owner with respect to all matters requiring the Owner’s approval or authorization. Except as otherwise provided in Section 4.2.1, the Architect does not have such authority. The term “Owner” means the Owner or the Owner’s authorized representative.

**§ 2.1.2** The Owner shall furnish to the Contractor within fifteen days after receipt of a written request, information necessary and relevant for the Contractor to evaluate, give notice of or enforce mechanic’s lien rights. Such information shall include a correct statement of the record legal title to the property on which the Project is located, usually referred to as the site, and the Owner’s interest therein.

### **§ 2.2 INFORMATION AND SERVICES REQUIRED OF THE OWNER**

**§ 2.2.1** Prior to commencement of the Work, the Contractor may request in writing that the Owner provide reasonable evidence that the Owner has made financial arrangements to fulfill the Owner’s obligations under the Contract. Thereafter, the Contractor may only request such evidence if (1) the Owner fails to make payments to the Contractor as the Contract Documents require; (2) a change in the Work materially changes the Contract Sum; or (3) the Contractor identifies in writing a reasonable concern regarding the Owner’s ability to make payment when due. The Owner shall furnish such evidence as a condition precedent to commencement or continuation of the Work or

the portion of the Work affected by a material change. After the Owner furnishes the evidence, the Owner shall not materially vary such financial arrangements without prior notice to the Contractor.

§ 2.2.2 Except for permits and fees that are the responsibility of the Contractor under the Contract Documents, including those required under Section 3.7.1, the Owner shall secure and pay for necessary approvals, easements, assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities.

§ 2.2.3 The Owner shall furnish surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site. The Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.

§ 2.2.4 The Owner shall furnish information or services required of the Owner by the Contract Documents with reasonable promptness. The Owner shall also furnish any other information or services under the Owner's control and relevant to the Contractor's performance of the Work with reasonable promptness after receiving the Contractor's written request for such information or services.

§ 2.2.5 Unless otherwise provided in the Contract Documents, the Owner shall furnish to the Contractor one copy of the Contract Documents for purposes of making reproductions pursuant to Section 1.5.2.

### § 2.3 OWNER'S RIGHT TO STOP THE WORK

If the Contractor fails to correct Work that is not in accordance with the requirements of the Contract Documents as required by Section 12.2 or repeatedly fails to carry out Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Section 6.1.3.

### § 2.4 OWNER'S RIGHT TO CARRY OUT THE WORK

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a ten-day period after receipt of written notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such deficiencies. In such case an appropriate Change Order shall be issued deducting from payments then or thereafter due the Contractor the reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the Architect's additional services made necessary by such default, neglect or failure. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect. If payments then or thereafter due the Contractor are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner.

## ARTICLE 3 CONTRACTOR

### § 3.1 GENERAL

§ 3.1.1 The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Contractor shall be lawfully licensed, if required in the jurisdiction where the Project is located. The Contractor shall designate in writing a representative who shall have express authority to bind the Contractor with respect to all matters under this Contract. The term "Contractor" means the Contractor or the Contractor's authorized representative.

§ 3.1.2 The Contractor shall perform the Work in accordance with the Contract Documents.

§ 3.1.3 The Contractor shall not be relieved of obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Architect in the Architect's administration of the Contract, or by tests, inspections or approvals required or performed by persons or entities other than the Contractor.

## **§ 3.2 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR**

**§ 3.2.1** Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become generally familiar with local conditions under which the Work is to be performed and correlated personal observations with requirements of the Contract Documents.

**§ 3.2.2** Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 2.2.3, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information in such form as the Architect may require. It is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents.

**§ 3.2.3** The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report to the Architect any nonconformity discovered by or made known to the Contractor as a request for information in such form as the Architect may require.

**§ 3.2.4** If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Architect issues in response to the Contractor's notices or requests for information pursuant to Sections 3.2.2 or 3.2.3, the Contractor shall make Claims as provided in Article 15. If the Contractor fails to perform the obligations of Sections 3.2.2 or 3.2.3, the Contractor shall pay such costs and damages to the Owner as would have been avoided if the Contractor had performed such obligations. If the Contractor performs those obligations, the Contractor shall not be liable to the Owner or Architect for damages resulting from errors, inconsistencies or omissions in the Contract Documents, for differences between field measurements or conditions and the Contract Documents, or for nonconformities of the Contract Documents to applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities.

## **§ 3.3 SUPERVISION AND CONSTRUCTION PROCEDURES**

**§ 3.3.1** The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Contract, unless the Contract Documents give other specific instructions concerning these matters. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences or procedures, the Contractor shall evaluate the jobsite safety thereof and, except as stated below, shall be fully and solely responsible for the jobsite safety of such means, methods, techniques, sequences or procedures. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely written notice to the Owner and Architect and shall not proceed with that portion of the Work without further written instructions from the Architect. If the Contractor is then instructed to proceed with the required means, methods, techniques, sequences or procedures without acceptance of changes proposed by the Contractor, the Owner shall be solely responsible for any loss or damage arising solely from those Owner-required means, methods, techniques, sequences or procedures.

**§ 3.3.2** The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons or entities performing portions of the Work for, or on behalf of, the Contractor or any of its Subcontractors.

**§ 3.3.3** The Contractor shall be responsible for inspection of portions of Work already performed to determine that such portions are in proper condition to receive subsequent Work.

## **§ 3.4 LABOR AND MATERIALS**

**§ 3.4.1** Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other

facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

**§ 3.4.2** Except in the case of minor changes in the Work authorized by the Architect in accordance with Sections 3.12.8 or 7.4, the Contractor may make substitutions only with the consent of the Owner, after evaluation by the Architect and in accordance with a Change Order or Construction Change Directive.

**§ 3.4.3** The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of unfit persons or persons not properly skilled in tasks assigned to them.

### **§ 3.5 WARRANTY**

The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

### **§ 3.6 TAXES**

The Contractor shall pay sales, consumer, use and similar taxes for the Work provided by the Contractor that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect.

### **§ 3.7 PERMITS, FEES, NOTICES AND COMPLIANCE WITH LAWS**

**§ 3.7.1** Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit as well as for other permits, fees, licenses, and inspections by government agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded.

**§ 3.7.2** The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities applicable to performance of the Work.

**§ 3.7.3** If the Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction.

**§ 3.7.4 Concealed or Unknown Conditions.** If the Contractor encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature, that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall promptly provide notice to the Owner and the Architect before conditions are disturbed and in no event later than 21 days after first observance of the conditions. The Architect will promptly investigate such conditions and, if the Architect determines that they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend an equitable adjustment in the Contract Sum or Contract Time, or both. If the Architect determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Architect shall promptly notify the Owner and Contractor in writing, stating the reasons. If either party disputes the Architect's determination or recommendation, that party may proceed as provided in Article 15.

**§ 3.7.5** If, in the course of the Work, the Contractor encounters human remains or recognizes the existence of burial markers, archaeological sites or wetlands not indicated in the Contract Documents, the Contractor shall immediately suspend any operations that would affect them and shall notify the Owner and Architect. Upon receipt of such notice, the Owner shall promptly take any action necessary to obtain governmental authorization required to resume

the operations. The Contractor shall continue to suspend such operations until otherwise instructed by the Owner but shall continue with all other operations that do not affect those remains or features. Requests for adjustments in the Contract Sum and Contract Time arising from the existence of such remains or features may be made as provided in Article 15.

### § 3.8 ALLOWANCES

§ 3.8.1 The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct, but the Contractor shall not be required to employ persons or entities to whom the Contractor has reasonable objection.

§ 3.8.2 Unless otherwise provided in the Contract Documents,

- .1 Allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;
- .2 Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum but not in the allowances; and
- .3 Whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (1) the difference between actual costs and the allowances under Section 3.8.2.1 and (2) changes in Contractor's costs under Section 3.8.2.2.

§ 3.8.3 Materials and equipment under an allowance shall be selected by the Owner with reasonable promptness.

### § 3.9 SUPERINTENDENT

§ 3.9.1 The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor.

§ 3.9.2 The Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Owner through the Architect the name and qualifications of a proposed superintendent. The Architect may reply within 14 days to the Contractor in writing stating (1) whether the Owner or the Architect has reasonable objection to the proposed superintendent or (2) that the Architect requires additional time to review. Failure of the Architect to reply within the 14 day period shall constitute notice of no reasonable objection.

§ 3.9.3 The Contractor shall not employ a proposed superintendent to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not change the superintendent without the Owner's consent which shall not unreasonably be withheld or delayed.

### § 3.10 CONTRACTOR'S CONSTRUCTION SCHEDULES

§ 3.10.1 The Contractor, promptly after being awarded the Contract, shall prepare and submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. The schedule shall not exceed time limits current under the Contract Documents, shall be revised at appropriate intervals as required by the conditions of the Work and Project, shall be related to the entire Project to the extent required by the Contract Documents, and shall provide for expeditious and practicable execution of the Work.

§ 3.10.2 The Contractor shall prepare a submittal schedule, promptly after being awarded the Contract and thereafter as necessary to maintain a current submittal schedule, and shall submit the schedule(s) for the Architect's approval. The Architect's approval shall not unreasonably be delayed or withheld. The submittal schedule shall (1) be coordinated with the Contractor's construction schedule, and (2) allow the Architect reasonable time to review submittals. If the Contractor fails to submit a submittal schedule, the Contractor shall not be entitled to any increase in Contract Sum or extension of Contract Time based on the time required for review of submittals.

§ 3.10.3 The Contractor shall perform the Work in general accordance with the most recent schedules submitted to the Owner and Architect.



### § 3.11 DOCUMENTS AND SAMPLES AT THE SITE

The Contractor shall maintain at the site for the Owner one copy of the Drawings, Specifications, Addenda, Change Orders and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and one copy of approved Shop Drawings, Product Data, Samples and similar required submittals. These shall be available to the Architect and shall be delivered to the Architect for submittal to the Owner upon completion of the Work as a record of the Work as constructed.

### § 3.12 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

§ 3.12.1 Shop Drawings are drawings, diagrams, schedules and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier or distributor to illustrate some portion of the Work.

§ 3.12.2 Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.

§ 3.12.3 Samples are physical examples that illustrate materials, equipment or workmanship and establish standards by which the Work will be judged.

§ 3.12.4 Shop Drawings, Product Data, Samples and similar submittals are not Contract Documents. Their purpose is to demonstrate the way by which the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents for those portions of the Work for which the Contract Documents require submittals. Review by the Architect is subject to the limitations of Section 4.2.7. Informational submittals upon which the Architect is not expected to take responsive action may be so identified in the Contract Documents. Submittals that are not required by the Contract Documents may be returned by the Architect without action.

§ 3.12.5 The Contractor shall review for compliance with the Contract Documents, approve and submit to the Architect Shop Drawings, Product Data, Samples and similar submittals required by the Contract Documents in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of separate contractors.

§ 3.12.6 By submitting Shop Drawings, Product Data, Samples and similar submittals, the Contractor represents to the Owner and Architect that the Contractor has (1) reviewed and approved them, (2) determined and verified materials, field measurements and field construction criteria related thereto, or will do so and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

§ 3.12.7 The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples or similar submittals until the respective submittal has been approved by the Architect.

§ 3.12.8 The Work shall be in accordance with approved submittals except that the Contractor shall not be relieved of responsibility for deviations from requirements of the Contract Documents by the Architect's approval of Shop Drawings, Product Data, Samples or similar submittals unless the Contractor has specifically informed the Architect in writing of such deviation at the time of submittal and (1) the Architect has given written approval to the specific deviation as a minor change in the Work, or (2) a Change Order or Construction Change Directive has been issued authorizing the deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples or similar submittals by the Architect's approval thereof.

§ 3.12.9 The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples or similar submittals, to revisions other than those requested by the Architect on previous submittals. In the absence of such written notice, the Architect's approval of a resubmission shall not apply to such revisions.

§ 3.12.10 The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. The Contractor shall not be

required to provide professional services in violation of applicable law. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect will specify all performance and design criteria that such services must satisfy. The Contractor shall cause such services or certifications to be provided by a properly licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to the Architect. The Owner and the Architect shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications and approvals performed or provided by such design professionals, provided the Owner and Architect have specified to the Contractor all performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect will review, approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Contractor shall not be responsible for the adequacy of the performance and design criteria specified in the Contract Documents.

### **§ 3.13 USE OF SITE**

The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

### **§ 3.14 CUTTING AND PATCHING**

**§ 3.14.1** The Contractor shall be responsible for cutting, fitting or patching required to complete the Work or to make its parts fit together properly. All areas requiring cutting, fitting and patching shall be restored to the condition existing prior to the cutting, fitting and patching, unless otherwise required by the Contract Documents.

**§ 3.14.2** The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner or separate contractors by cutting, patching or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter such construction by the Owner or a separate contractor except with written consent of the Owner and of such separate contractor; such consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold from the Owner or a separate contractor the Contractor's consent to cutting or otherwise altering the Work.

### **§ 3.15 CLEANING UP**

**§ 3.15.1** The Contractor shall keep the premises and surrounding area free from accumulation of waste materials or rubbish caused by operations under the Contract. At completion of the Work, the Contractor shall remove waste materials, rubbish, the Contractor's tools, construction equipment, machinery and surplus materials from and about the Project.

**§ 3.15.2** If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and Owner shall be entitled to reimbursement from the Contractor.

### **§ 3.16 ACCESS TO WORK**

The Contractor shall provide the Owner and Architect access to the Work in preparation and progress wherever located.

### **§ 3.17 ROYALTIES, PATENTS AND COPYRIGHTS**

The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner and Architect harmless from loss on account thereof, but shall not be responsible for such defense or loss when a particular design, process or product of a particular manufacturer or manufacturers is required by the Contract Documents, or where the copyright violations are contained in Drawings, Specifications or other documents prepared by the Owner or Architect. However, if the Contractor has reason to believe that the required design, process or product is an infringement of a copyright or a patent, the Contractor shall be responsible for such loss unless such information is promptly furnished to the Architect.

### § 3.18 INDEMNIFICATION

§ 3.18.1 To the fullest extent permitted by law the Contractor shall indemnify and hold harmless the Owner, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity which would otherwise exist as to a party or person described in this Section 3.18.

§ 3.18.2 In claims against any person or entity indemnified under this Section 3.18 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, the indemnification obligation under Section 3.18.1 shall not be limited by a limitation on amount or type of damages, compensation or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts or other employee benefit acts.

## ARTICLE 4 ARCHITECT

### § 4.1 GENERAL

§ 4.1.1 The Owner shall retain an architect lawfully licensed to practice architecture or an entity lawfully practicing architecture in the jurisdiction where the Project is located. That person or entity is identified as the Architect in the Agreement and is referred to throughout the Contract Documents as if singular in number.

§ 4.1.2 Duties, responsibilities and limitations of authority of the Architect as set forth in the Contract Documents shall not be restricted, modified or extended without written consent of the Owner, Contractor and Architect. Consent shall not be unreasonably withheld.

§ 4.1.3 If the employment of the Architect is terminated, the Owner shall employ a successor architect as to whom the Contractor has no reasonable objection and whose status under the Contract Documents shall be that of the Architect.

### § 4.2 ADMINISTRATION OF THE CONTRACT

§ 4.2.1 The Architect will provide administration of the Contract as described in the Contract Documents and will be an Owner's representative during construction until the date the Architect issues the final Certificate for Payment. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

§ 4.2.2 The Architect will visit the site at intervals appropriate to the stage of construction, or as otherwise agreed with the Owner, to become generally familiar with the progress and quality of the portion of the Work completed, and to determine in general if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Architect will not have control over, charge of, or responsibility for, the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents, except as provided in Section 3.3.1.

§ 4.2.3 On the basis of the site visits, the Architect will keep the Owner reasonably informed about the progress and quality of the portion of the Work completed, and report to the Owner (1) known deviations from the Contract Documents and from the most recent construction schedule submitted by the Contractor, and (2) defects and deficiencies observed in the Work. The Architect will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Architect will not have control over or charge of and will not be responsible for acts or omissions of the Contractor, Subcontractors, or their agents or employees, or any other persons or entities performing portions of the Work.

#### **§ 4.2.4 COMMUNICATIONS FACILITATING CONTRACT ADMINISTRATION**

Except as otherwise provided in the Contract Documents or when direct communications have been specially authorized, the Owner and Contractor shall endeavor to communicate with each other through the Architect about matters arising out of or relating to the Contract. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and material suppliers shall be through the Contractor. Communications by and with separate contractors shall be through the Owner.

**§ 4.2.5** Based on the Architect's evaluations of the Contractor's Applications for Payment, the Architect will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

**§ 4.2.6** The Architect has authority to reject Work that does not conform to the Contract Documents. Whenever the Architect considers it necessary or advisable, the Architect will have authority to require inspection or testing of the Work in accordance with Sections 13.5.2 and 13.5.3, whether or not such Work is fabricated, installed or completed. However, neither this authority of the Architect nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect to the Contractor, Subcontractors, material and equipment suppliers, their agents or employees, or other persons or entities performing portions of the Work.

**§ 4.2.7** The Architect will review and approve, or take other appropriate action upon, the Contractor's submittals such as Shop Drawings, Product Data and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Architect's action will be taken in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness while allowing sufficient time in the Architect's professional judgment to permit adequate review. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Architect's review of the Contractor's submittals shall not relieve the Contractor of the obligations under Sections 3.3, 3.5 and 3.12. The Architect's review shall not constitute approval of safety precautions or, unless otherwise specifically stated by the Architect, of any construction means, methods, techniques, sequences or procedures. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

**§ 4.2.8** The Architect will prepare Change Orders and Construction Change Directives, and may authorize minor changes in the Work as provided in Section 7.4. The Architect will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4.

**§ 4.2.9** The Architect will conduct inspections to determine the date or dates of Substantial Completion and the date of final completion; issue Certificates of Substantial Completion pursuant to Section 9.8; receive and forward to the Owner, for the Owner's review and records, written warranties and related documents required by the Contract and assembled by the Contractor pursuant to Section 9.10; and issue a final Certificate for Payment pursuant to Section 9.10.

**§ 4.2.10** If the Owner and Architect agree, the Architect will provide one or more project representatives to assist in carrying out the Architect's responsibilities at the site. The duties, responsibilities and limitations of authority of such project representatives shall be as set forth in an exhibit to be incorporated in the Contract Documents.

**§ 4.2.11** The Architect will interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of either the Owner or Contractor. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness.

**§ 4.2.12** Interpretations and decisions of the Architect will be consistent with the intent of, and reasonably inferable from, the Contract Documents and will be in writing or in the form of drawings. When making such interpretations and decisions, the Architect will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either and will not be liable for results of interpretations or decisions rendered in good faith.

**§ 4.2.13** The Architect's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.

§ 4.2.14 The Architect will review and respond to requests for information about the Contract Documents. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If appropriate, the Architect will prepare and issue supplemental Drawings and Specifications in response to the requests for information.

## ARTICLE 5 SUBCONTRACTORS

### § 5.1 DEFINITIONS

§ 5.1.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term "Subcontractor" does not include a separate contractor or subcontractors of a separate contractor.

§ 5.1.2 A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the site. The term "Sub-subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.

### § 5.2 AWARD OF SUBCONTRACTS AND OTHER CONTRACTS FOR PORTIONS OF THE WORK

§ 5.2.1 Unless otherwise stated in the Contract Documents or the bidding requirements, the Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Owner through the Architect the names of persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for each principal portion of the Work. The Architect may reply within 14 days to the Contractor in writing stating (1) whether the Owner or the Architect has reasonable objection to any such proposed person or entity or (2) that the Architect requires additional time for review. Failure of the Owner or Architect to reply within the 14 day period shall constitute notice of no reasonable objection.

§ 5.2.2 The Contractor shall not contract with a proposed person or entity to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection.

§ 5.2.3 If the Owner or Architect has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner or Architect has no reasonable objection. If the proposed but rejected Subcontractor was reasonably capable of performing the Work, the Contract Sum and Contract Time shall be increased or decreased by the difference, if any, occasioned by such change, and an appropriate Change Order shall be issued before commencement of the substitute Subcontractor's Work. However, no increase in the Contract Sum or Contract Time shall be allowed for such change unless the Contractor has acted promptly and responsively in submitting names as required.

§ 5.2.4 The Contractor shall not substitute a Subcontractor, person or entity previously selected if the Owner or Architect makes reasonable objection to such substitution.

### § 5.3 SUBCONTRACTUAL RELATIONS

By appropriate agreement, written where legally required for validity, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor's Work, which the Contractor, by these Documents, assumes toward the Owner and Architect. Each subcontract agreement shall preserve and protect the rights of the Owner and Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement that may

be at variance with the Contract Documents. Subcontractors will similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

#### **§ 5.4 CONTINGENT ASSIGNMENT OF SUBCONTRACTS**

**§ 5.4.1** Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner, provided that

- .1 assignment is effective only after termination of the Contract by the Owner for cause pursuant to Section 14.2 and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and Contractor in writing; and
- .2 assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

When the Owner accepts the assignment of a subcontract agreement, the Owner assumes the Contractor's rights and obligations under the subcontract.

**§ 5.4.2** Upon such assignment, if the Work has been suspended for more than 30 days, the Subcontractor's compensation shall be equitably adjusted for increases in cost resulting from the suspension.

**§ 5.4.3** Upon such assignment to the Owner under this Section 5.4, the Owner may further assign the subcontract to a successor contractor or other entity. If the Owner assigns the subcontract to a successor contractor or other entity, the Owner shall nevertheless remain legally responsible for all of the successor contractor's obligations under the subcontract.

#### **ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS**

##### **§ 6.1 OWNER'S RIGHT TO PERFORM CONSTRUCTION AND TO AWARD SEPARATE CONTRACTS**

**§ 6.1.1** The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and to award separate contracts in connection with other portions of the Project or other construction or operations on the site under Conditions of the Contract identical or substantially similar to these including those portions related to insurance and waiver of subrogation. If the Contractor claims that delay or additional cost is involved because of such action by the Owner, the Contractor shall make such Claim as provided in Article 15.

**§ 6.1.2** When separate contracts are awarded for different portions of the Project or other construction or operations on the site, the term "Contractor" in the Contract Documents in each case shall mean the Contractor who executes each separate Owner-Contractor Agreement.

**§ 6.1.3** The Owner shall provide for coordination of the activities of the Owner's own forces and of each separate contractor with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with other separate contractors and the Owner in reviewing their construction schedules. The Contractor shall make any revisions to the construction schedule deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Contractor, separate contractors and the Owner until subsequently revised.

**§ 6.1.4** Unless otherwise provided in the Contract Documents, when the Owner performs construction or operations related to the Project with the Owner's own forces, the Owner shall be deemed to be subject to the same obligations and to have the same rights that apply to the Contractor under the Conditions of the Contract, including, without excluding others, those stated in Article 3, this Article 6 and Articles 10, 11 and 12.

##### **§ 6.2 MUTUAL RESPONSIBILITY**

**§ 6.2.1** The Contractor shall afford the Owner and separate contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Contractor's construction and operations with theirs as required by the Contract Documents.

**§ 6.2.2** If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner or a separate contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly report to the Architect apparent discrepancies or defects in such other construction that would render it unsuitable for such proper execution and results. Failure of the Contractor so to report shall constitute an acknowledgment that

the Owner's or separate contractor's completed or partially completed construction is fit and proper to receive the Contractor's Work, except as to defects not then reasonably discoverable.

**§ 6.2.3** The Contractor shall reimburse the Owner for costs the Owner incurs that are payable to a separate contractor because of the Contractor's delays, improperly timed activities or defective construction. The Owner shall be responsible to the Contractor for costs the Contractor incurs because of a separate contractor's delays, improperly timed activities, damage to the Work or defective construction.

**§ 6.2.4** The Contractor shall promptly remedy damage the Contractor wrongfully causes to completed or partially completed construction or to property of the Owner or separate contractors as provided in Section 10.2.5.

**§ 6.2.5** The Owner and each separate contractor shall have the same responsibilities for cutting and patching as are described for the Contractor in Section 3.14.

### **§ 6.3 OWNER'S RIGHT TO CLEAN UP**

If a dispute arises among the Contractor, separate contractors and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish, the Owner may clean up and the Architect will allocate the cost among those responsible.

## **ARTICLE 7 CHANGES IN THE WORK**

### **§ 7.1 GENERAL**

**§ 7.1.1** Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents.

**§ 7.1.2** A Change Order shall be based upon agreement among the Owner, Contractor and Architect; a Construction Change Directive requires agreement by the Owner and Architect and may or may not be agreed to by the Contractor; an order for a minor change in the Work may be issued by the Architect alone.

**§ 7.1.3** Changes in the Work shall be performed under applicable provisions of the Contract Documents, and the Contractor shall proceed promptly, unless otherwise provided in the Change Order, Construction Change Directive or order for a minor change in the Work.

### **§ 7.2 CHANGE ORDERS**

**§ 7.2.1** A Change Order is a written instrument prepared by the Architect and signed by the Owner, Contractor and Architect stating their agreement upon all of the following:

- .1 The change in the Work;
- .2 The amount of the adjustment, if any, in the Contract Sum; and
- .3 The extent of the adjustment, if any, in the Contract Time.

### **§ 7.3 CONSTRUCTION CHANGE DIRECTIVES**

**§ 7.3.1** A Construction Change Directive is a written order prepared by the Architect and signed by the Owner and Architect, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions or other revisions, the Contract Sum and Contract Time being adjusted accordingly.

**§ 7.3.2** A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order.

**§ 7.3.3** If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods:

- .1 Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
- .2 Unit prices stated in the Contract Documents or subsequently agreed upon;
- .3 Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or

.4 As provided in Section 7.3.7.

§ 7.3.4 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed in a proposed Change Order or Construction Change Directive so that application of such unit prices to quantities of Work proposed will cause substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

§ 7.3.5 Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Architect of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time.

§ 7.3.6 A Construction Change Directive signed by the Contractor indicates the Contractor's agreement therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

§ 7.3.7 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Architect shall determine the method and the adjustment on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an amount for overhead and profit as set forth in the Agreement, or if no such amount is set forth in the Agreement, a reasonable amount. In such case, and also under Section 7.3.3.3, the Contractor shall keep and present, in such form as the Architect may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.7 shall be limited to the following:

- .1 Costs of labor, including social security, old age and unemployment insurance, fringe benefits required by agreement or custom, and workers' compensation insurance;
- .2 Costs of materials, supplies and equipment, including cost of transportation, whether incorporated or consumed;
- .3 Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;
- .4 Costs of premiums for all bonds and insurance, permit fees, and sales, use or similar taxes related to the Work; and
- .5 Additional costs of supervision and field office personnel directly attributable to the change.

§ 7.3.8 The amount of credit to be allowed by the Contractor to the Owner for a deletion or change that results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Architect. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change.

§ 7.3.9 Pending final determination of the total cost of a Construction Change Directive to the Owner, the Contractor may request payment for Work completed under the Construction Change Directive in Applications for Payment. The Architect will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Architect determines, in the Architect's professional judgment, to be reasonably justified. The Architect's interim determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of either party to disagree and assert a Claim in accordance with Article 15.

§ 7.3.10 When the Owner and Contractor agree with a determination made by the Architect concerning the adjustments in the Contract Sum and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and the Architect will prepare a Change Order. Change Orders may be issued for all or any part of a Construction Change Directive.

#### § 7.4 MINOR CHANGES IN THE WORK

The Architect has authority to order minor changes in the Work not involving adjustment in the Contract Sum or extension of the Contract Time and not inconsistent with the intent of the Contract Documents. Such changes will be effected by written order signed by the Architect and shall be binding on the Owner and Contractor.



## ARTICLE 8 TIME

### § 8.1 DEFINITIONS

§ 8.1.1 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

§ 8.1.2 The date of commencement of the Work is the date established in the Agreement.

§ 8.1.3 The date of Substantial Completion is the date certified by the Architect in accordance with Section 9.8.

§ 8.1.4 The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

### § 8.2 PROGRESS AND COMPLETION

§ 8.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

§ 8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, prematurely commence operations on the site or elsewhere prior to the effective date of insurance required by Article 11 to be furnished by the Contractor and Owner. The date of commencement of the Work shall not be changed by the effective date of such insurance.

§ 8.2.3 The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time.

### § 8.3 DELAYS AND EXTENSIONS OF TIME

§ 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by an act or neglect of the Owner or Architect, or of an employee of either, or of a separate contractor employed by the Owner; or by changes ordered in the Work; or by labor disputes, fire, unusual delay in deliveries, unavoidable casualties or other causes beyond the Contractor's control; or by delay authorized by the Owner pending mediation and arbitration; or by other causes that the Architect determines may justify delay, then the Contract Time shall be extended by Change Order for such reasonable time as the Architect may determine.

§ 8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Article 15.

§ 8.3.3 This Section 8.3 does not preclude recovery of damages for delay by either party under other provisions of the Contract Documents.

## ARTICLE 9 PAYMENTS AND COMPLETION

### § 9.1 CONTRACT SUM

The Contract Sum is stated in the Agreement and, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

### § 9.2 SCHEDULE OF VALUES

Where the Contract is based on a stipulated sum or Guaranteed Maximum Price, the Contractor shall submit to the Architect, before the first Application for Payment, a schedule of values allocating the entire Contract Sum to the various portions of the Work and prepared in such form and supported by such data to substantiate its accuracy as the Architect may require. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment.

### § 9.3 APPLICATIONS FOR PAYMENT

§ 9.3.1 At least ten days before the date established for each progress payment, the Contractor shall submit to the Architect an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 9.2, for completed portions of the Work. Such application shall be notarized, if required, and supported by such data substantiating the Contractor's right to payment as the Owner or Architect may require, such as copies of requisitions from Subcontractors and material suppliers, and shall reflect retainage if provided for in the Contract Documents.

§ 9.3.1.1 As provided in Section 7.3.9, such applications may include requests for payment on account of changes in the Work that have been properly authorized by Construction Change Directives, or by interim determinations of the Architect, but not yet included in Change Orders.

§ 9.3.1.2 Applications for Payment shall not include requests for payment for portions of the Work for which the Contractor does not intend to pay a Subcontractor or material supplier, unless such Work has been performed by others whom the Contractor intends to pay.

§ 9.3.2 Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, and shall include the costs of applicable insurance, storage and transportation to the site for such materials and equipment stored off the site.

§ 9.3.3 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information and belief, be free and clear of liens, claims, security interests or encumbrances in favor of the Contractor, Subcontractors, material suppliers, or other persons or entities making a claim by reason of having provided labor, materials and equipment relating to the Work.

#### § 9.4 CERTIFICATES FOR PAYMENT

§ 9.4.1 The Architect will, within seven days after receipt of the Contractor's Application for Payment, either issue to the Owner a Certificate for Payment, with a copy to the Contractor, for such amount as the Architect determines is properly due, or notify the Contractor and Owner in writing of the Architect's reasons for withholding certification in whole or in part as provided in Section 9.5.1.

§ 9.4.2 The issuance of a Certificate for Payment will constitute a representation by the Architect to the Owner, based on the Architect's evaluation of the Work and the data comprising the Application for Payment, that, to the best of the Architect's knowledge, information and belief, the Work has progressed to the point indicated and that the quality of the Work is in accordance with the Contract Documents. The foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion and to specific qualifications expressed by the Architect. The issuance of a Certificate for Payment will further constitute a representation that the Contractor is entitled to payment in the amount certified. However, the issuance of a Certificate for Payment will not be a representation that the Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work, (2) reviewed construction means, methods, techniques, sequences or procedures, (3) reviewed copies of requisitions received from Subcontractors and material suppliers and other data requested by the Owner to substantiate the Contractor's right to payment, or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

#### § 9.5 DECISIONS TO WITHHOLD CERTIFICATION

§ 9.5.1 The Architect may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Architect's opinion the representations to the Owner required by Section 9.4.2 cannot be made. If the Architect is unable to certify payment in the amount of the Application, the Architect will notify the Contractor and Owner as provided in Section 9.4.1. If the Contractor and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Architect may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary in the Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from acts and omissions described in Section 3.3.2, because of

- .1 defective Work not remedied;
- .2 third party claims filed or reasonable evidence indicating probable filing of such claims unless security acceptable to the Owner is provided by the Contractor;

- .3 failure of the Contractor to make payments properly to Subcontractors or for labor, materials or equipment;
- .4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
- .5 damage to the Owner or a separate contractor;
- .6 reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or
- .7 repeated failure to carry out the Work in accordance with the Contract Documents.

§ 9.5.2 When the above reasons for withholding certification are removed, certification will be made for amounts previously withheld.

§ 9.5.3 If the Architect withholds certification for payment under Section 9.5.1.3, the Owner may, at its sole option, issue joint checks to the Contractor and to any Subcontractor or material or equipment suppliers to whom the Contractor failed to make payment for Work properly performed or material or equipment suitably delivered. If the Owner makes payments by joint check, the Owner shall notify the Architect and the Architect will reflect such payment on the next Certificate for Payment.

### § 9.6 PROGRESS PAYMENTS

§ 9.6.1 After the Architect has issued a Certificate for Payment, the Owner shall make payment in the manner and within the time provided in the Contract Documents, and shall so notify the Architect.

§ 9.6.2 The Contractor shall pay each Subcontractor no later than seven days after receipt of payment from the Owner the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner.

§ 9.6.3 The Architect will, on request, furnish to a Subcontractor, if practicable, information regarding percentages of completion or amounts applied for by the Contractor and action taken thereon by the Architect and Owner on account of portions of the Work done by such Subcontractor.

§ 9.6.4 The Owner has the right to request written evidence from the Contractor that the Contractor has properly paid Subcontractors and material and equipment suppliers amounts paid by the Owner to the Contractor for subcontracted Work. If the Contractor fails to furnish such evidence within seven days, the Owner shall have the right to contact Subcontractors to ascertain whether they have been properly paid. Neither the Owner nor Architect shall have an obligation to pay or to see to the payment of money to a Subcontractor, except as may otherwise be required by law.

§ 9.6.5 Contractor payments to material and equipment suppliers shall be treated in a manner similar to that provided in Sections 9.6.2, 9.6.3 and 9.6.4.

§ 9.6.6 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

§ 9.6.7 Unless the Contractor provides the Owner with a payment bond in the full penal sum of the Contract Sum, payments received by the Contractor for Work properly performed by Subcontractors and suppliers shall be held by the Contractor for those Subcontractors or suppliers who performed Work or furnished materials, or both, under contract with the Contractor for which payment was made by the Owner. Nothing contained herein shall require money to be placed in a separate account and not commingled with money of the Contractor, shall create any fiduciary liability or tort liability on the part of the Contractor for breach of trust or shall entitle any person or entity to an award of punitive damages against the Contractor for breach of the requirements of this provision.

### § 9.7 FAILURE OF PAYMENT

If the Architect does not issue a Certificate for Payment, through no fault of the Contractor, within seven days after receipt of the Contractor's Application for Payment, or if the Owner does not pay the Contractor within seven days after the date established in the Contract Documents the amount certified by the Architect or awarded by binding dispute resolution, then the Contractor may, upon seven additional days' written notice to the Owner and Architect,

stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shut-down, delay and start-up, plus interest as provided for in the Contract Documents.

## **§ 9.8 SUBSTANTIAL COMPLETION**

**§ 9.8.1** Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use.

**§ 9.8.2** When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Architect a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

**§ 9.8.3** Upon receipt of the Contractor's list, the Architect will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Architect's inspection discloses any item, whether or not included on the Contractor's list, which is not sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Architect. In such case, the Contractor shall then submit a request for another inspection by the Architect to determine Substantial Completion.

**§ 9.8.4** When the Work or designated portion thereof is substantially complete, the Architect will prepare a Certificate of Substantial Completion that shall establish the date of Substantial Completion, shall establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance, and shall fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

**§ 9.8.5** The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in such Certificate. Upon such acceptance and consent of surety, if any, the Owner shall make payment of retainage applying to such Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents.

## **§ 9.9 PARTIAL OCCUPANCY OR USE**

**§ 9.9.1** The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer as required under Section 11.3.1.5 and authorized by public authorities having jurisdiction over the Project. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage, if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers a portion substantially complete, the Contractor shall prepare and submit a list to the Architect as provided under Section 9.8.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner and Contractor or, if no agreement is reached, by decision of the Architect.

**§ 9.9.2** Immediately prior to such partial occupancy or use, the Owner, Contractor and Architect shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

**§ 9.9.3** Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

## **§ 9.10 FINAL COMPLETION AND FINAL PAYMENT**

**§ 9.10.1** Upon receipt of the Contractor's written notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection and, when the

Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment stating that to the best of the Architect's knowledge, information and belief, and on the basis of the Architect's on-site visits and inspections, the Work has been completed in accordance with terms and conditions of the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Architect's final Certificate for Payment will constitute a further representation that conditions listed in Section 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

**§ 9.10.2** Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect and will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner, (3) a written statement that the Contractor knows of no substantial reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment and (5), if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts, releases and waivers of liens, claims, security interests or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien. If such lien remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging such lien, including all costs and reasonable attorneys' fees.

**§ 9.10.3** If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor or by issuance of Change Orders affecting final completion, and the Architect so confirms, the Owner shall, upon application by the Contractor and certification by the Architect, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Architect prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not constitute a waiver of claims.

**§ 9.10.4** The making of final payment shall constitute a waiver of Claims by the Owner except those arising from

- .1 liens, Claims, security interests or encumbrances arising out of the Contract and unsettled;
- .2 failure of the Work to comply with the requirements of the Contract Documents; or
- .3 terms of special warranties required by the Contract Documents.

**§ 9.10.5** Acceptance of final payment by the Contractor, a Subcontractor or material supplier shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

## **ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY**

### **§ 10.1 SAFETY PRECAUTIONS AND PROGRAMS**

The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the performance of the Contract.

### **§ 10.2 SAFETY OF PERSONS AND PROPERTY**

**§ 10.2.1** The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury or loss to

- .1 employees on the Work and other persons who may be affected thereby;
- .2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody or control of the Contractor or the Contractor's Subcontractors or Sub-subcontractors; and
- .3 other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

§ 10.2.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities bearing on safety of persons or property or their protection from damage, injury or loss.

§ 10.2.3 The Contractor shall erect and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards, promulgating safety regulations and notifying owners and users of adjacent sites and utilities.

§ 10.2.4 When use or storage of explosives or other hazardous materials or equipment or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel.

§ 10.2.5 The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in Sections 10.2.1.2 and 10.2.1.3 caused in whole or in part by the Contractor, a Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Sections 10.2.1.2 and 10.2.1.3, except damage or loss attributable to acts or omissions of the Owner or Architect or anyone directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 3.18.

§ 10.2.6 The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner and Architect.

§ 10.2.7 The Contractor shall not permit any part of the construction or site to be loaded so as to cause damage or create an unsafe condition.

#### § 10.2.8 INJURY OR DAMAGE TO PERSON OR PROPERTY

If either party suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, written notice of such injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 21 days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

#### § 10.3 HAZARDOUS MATERIALS

§ 10.3.1 The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and report the condition to the Owner and Architect in writing.

§ 10.3.2 Upon receipt of the Contractor's written notice, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor and Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of such material or substance or who are to perform the task of removal or safe containment of such material or substance. The Contractor and the Architect will promptly reply to the Owner in writing stating whether or not either has reasonable objection to the persons or entities proposed by the Owner. If either the Contractor or Architect has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor and the Architect have no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased in the amount of the Contractor's reasonable additional costs of shut-down, delay and start-up.

**§ 10.3.3** To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Architect, Architect's consultants and agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work in the affected area if in fact the material or substance presents the risk of bodily injury or death as described in Section 10.3.1 and has not been rendered harmless, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), except to the extent that such damage, loss or expense is due to the fault or negligence of the party seeking indemnity.

**§ 10.3.4** The Owner shall not be responsible under this Section 10.3 for materials or substances the Contractor brings to the site unless such materials or substances are required by the Contract Documents. The Owner shall be responsible for materials or substances required by the Contract Documents, except to the extent of the Contractor's fault or negligence in the use and handling of such materials or substances.

**§ 10.3.5** The Contractor shall indemnify the Owner for the cost and expense the Owner incurs (1) for remediation of a material or substance the Contractor brings to the site and negligently handles, or (2) where the Contractor fails to perform its obligations under Section 10.3.1, except to the extent that the cost and expense are due to the Owner's fault or negligence.

**§ 10.3.6** If, without negligence on the part of the Contractor, the Contractor is held liable by a government agency for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall indemnify the Contractor for all cost and expense thereby incurred.

#### **§ 10.4 EMERGENCIES**

In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Article 15 and Article 7.

### **ARTICLE 11 INSURANCE AND BONDS**

#### **§ 11.1 CONTRACTOR'S LIABILITY INSURANCE**

**§ 11.1.1** The Contractor shall purchase from and maintain in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located such insurance as will protect the Contractor from claims set forth below which may arise out of or result from the Contractor's operations and completed operations under the Contract and for which the Contractor may be legally liable, whether such operations be by the Contractor or by a Subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable:

- .1 Claims under workers' compensation, disability benefit and other similar employee benefit acts that are applicable to the Work to be performed;
- .2 Claims for damages because of bodily injury, occupational sickness or disease, or death of the Contractor's employees;
- .3 Claims for damages because of bodily injury, sickness or disease, or death of any person other than the Contractor's employees;
- .4 Claims for damages insured by usual personal injury liability coverage;
- .5 Claims for damages, other than to the Work itself, because of injury to or destruction of tangible property, including loss of use resulting therefrom;
- .6 Claims for damages because of bodily injury, death of a person or property damage arising out of ownership, maintenance or use of a motor vehicle;
- .7 Claims for bodily injury or property damage arising out of completed operations; and
- .8 Claims involving contractual liability insurance applicable to the Contractor's obligations under Section 3.18.

**§ 11.1.2** The insurance required by Section 11.1.1 shall be written for not less than limits of liability specified in the Contract Documents or required by law, whichever coverage is greater. Coverages, whether written on an occurrence or claims-made basis, shall be maintained without interruption from the date of commencement of the Work until the date of final payment and termination of any coverage required to be maintained after final payment, and, with respect to the Contractor's completed operations coverage, until the expiration of the period for correction.

of Work or for such other period for maintenance of completed operations coverage as specified in the Contract Documents.

**§ 11.1.3** Certificates of insurance acceptable to the Owner shall be filed with the Owner prior to commencement of the Work and thereafter upon renewal or replacement of each required policy of insurance. These certificates and the insurance policies required by this Section 11.1 shall contain a provision that coverages afforded under the policies will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner. An additional certificate evidencing continuation of liability coverage, including coverage for completed operations, shall be submitted with the final Application for Payment as required by Section 9.10.2 and thereafter upon renewal or replacement of such coverage until the expiration of the time required by Section 11.1.2. Information concerning reduction of coverage on account of revised limits or claims paid under the General Aggregate, or both, shall be furnished by the Contractor with reasonable promptness.

**§ 11.1.4** The Contractor shall cause the commercial liability coverage required by the Contract Documents to include (1) the Owner, the Architect and the Architect's consultants as additional insureds for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's operations; and (2) the Owner as an additional insured for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's completed operations.

### **§ 11.2 OWNER'S LIABILITY INSURANCE**

The Owner shall be responsible for purchasing and maintaining the Owner's usual liability insurance.

### **§ 11.3 PROPERTY INSURANCE**

**§ 11.3.1** Unless otherwise provided, the Owner shall purchase and maintain, in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located, property insurance written on a builder's risk "all-risk" or equivalent policy form in the amount of the initial Contract Sum, plus value of subsequent Contract Modifications and cost of materials supplied or installed by others, comprising total value for the entire Project at the site on a replacement cost basis without optional deductibles. Such property insurance shall be maintained, unless otherwise provided in the Contract Documents or otherwise agreed in writing by all persons and entities who are beneficiaries of such insurance, until final payment has been made as provided in Section 9.10 or until no person or entity other than the Owner has an insurable interest in the property required by this Section 11.3 to be covered, whichever is later. This insurance shall include interests of the Owner, the Contractor, Subcontractors and Sub-subcontractors in the Project.

**§ 11.3.1.1** Property insurance shall be on an "all-risk" or equivalent policy form and shall include, without limitation, insurance against the perils of fire (with extended coverage) and physical loss or damage including, without duplication of coverage, theft, vandalism, malicious mischief, collapse, earthquake, flood, windstorm, falsework, testing and startup, temporary buildings and debris removal including demolition occasioned by enforcement of any applicable legal requirements, and shall cover reasonable compensation for Architect's and Contractor's services and expenses required as a result of such insured loss.

**§ 11.3.1.2** If the Owner does not intend to purchase such property insurance required by the Contract and with all of the coverages in the amount described above, the Owner shall so inform the Contractor in writing prior to commencement of the Work. The Contractor may then effect insurance that will protect the interests of the Contractor, Subcontractors and Sub-subcontractors in the Work, and by appropriate Change Order the cost thereof shall be charged to the Owner. If the Contractor is damaged by the failure or neglect of the Owner to purchase or maintain insurance as described above, without so notifying the Contractor in writing, then the Owner shall bear all reasonable costs properly attributable thereto.

**§ 11.3.1.3** If the property insurance requires deductibles, the Owner shall pay costs not covered because of such deductibles.

**§ 11.3.1.4** This property insurance shall cover portions of the Work stored off the site, and also portions of the Work in transit.

**§ 11.3.1.5** Partial occupancy or use in accordance with Section 9.9 shall not commence until the insurance company or companies providing property insurance have consented to such partial occupancy or use by endorsement or



otherwise. The Owner and the Contractor shall take reasonable steps to obtain consent of the insurance company or companies and shall, without mutual written consent, take no action with respect to partial occupancy or use that would cause cancellation, lapse or reduction of insurance.

#### **§ 11.3.2 BOILER AND MACHINERY INSURANCE**

The Owner shall purchase and maintain boiler and machinery insurance required by the Contract Documents or by law, which shall specifically cover such insured objects during installation and until final acceptance by the Owner; this insurance shall include interests of the Owner, Contractor, Subcontractors and Sub-subcontractors in the Work, and the Owner and Contractor shall be named insureds.

#### **§ 11.3.3 LOSS OF USE INSURANCE**

The Owner, at the Owner's option, may purchase and maintain such insurance as will insure the Owner against loss of use of the Owner's property due to fire or other hazards, however caused. The Owner waives all rights of action against the Contractor for loss of use of the Owner's property, including consequential losses due to fire or other hazards however caused.

**§ 11.3.4** If the Contractor requests in writing that insurance for risks other than those described herein or other special causes of loss be included in the property insurance policy, the Owner shall, if possible, include such insurance, and the cost thereof shall be charged to the Contractor by appropriate Change Order.

**§ 11.3.5** If during the Project construction period the Owner insures properties, real or personal or both, at or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property insurance is to be provided on the completed Project through a policy or policies other than those insuring the Project during the construction period, the Owner shall waive all rights in accordance with the terms of Section 11.3.7 for damages caused by fire or other causes of loss covered by this separate property insurance. All separate policies shall provide this waiver of subrogation by endorsement or otherwise.

**§ 11.3.6** Before an exposure to loss may occur, the Owner shall file with the Contractor a copy of each policy that includes insurance coverages required by this Section 11.3. Each policy shall contain all generally applicable conditions, definitions, exclusions and endorsements related to this Project. Each policy shall contain a provision that the policy will not be canceled or allowed to expire, and that its limits will not be reduced, until at least 30 days' prior written notice has been given to the Contractor.

#### **§ 11.3.7 WAIVERS OF SUBROGATION**

The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents and employees, each of the other, and (2) the Architect, Architect's consultants, separate contractors described in Article 6, if any, and any of their subcontractors, sub-subcontractors, agents and employees, for damages caused by fire or other causes of loss to the extent covered by property insurance obtained pursuant to this Section 11.3 or other property insurance applicable to the Work, except such rights as they have to proceeds of such insurance held by the Owner as fiduciary. The Owner or Contractor, as appropriate, shall require of the Architect, Architect's consultants, separate contractors described in Article 6, if any, and the subcontractors, sub-subcontractors, agents and employees of any of them, by appropriate agreements, written where legally required for validity, similar waivers each in favor of other parties enumerated herein. The policies shall provide such waivers of subrogation by endorsement or otherwise. A waiver of subrogation shall be effective as to a person or entity even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, did not pay the insurance premium directly or indirectly, and whether or not the person or entity had an insurable interest in the property damaged.

**§ 11.3.8** A loss insured under the Owner's property insurance shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Section 11.3.10. The Contractor shall pay Subcontractors their just shares of insurance proceeds received by the Contractor, and by appropriate agreements, written where legally required for validity, shall require Subcontractors to make payments to their Sub-subcontractors in similar manner.

**§ 11.3.9** If required in writing by a party in interest, the Owner as fiduciary shall, upon occurrence of an insured loss, give bond for proper performance of the Owner's duties. The cost of required bonds shall be charged against proceeds received as fiduciary. The Owner shall deposit in a separate account proceeds so received, which the

Owner shall distribute in accordance with such agreement as the parties in interest may reach, or as determined in accordance with the method of binding dispute resolution selected in the Agreement between the Owner and Contractor. If after such loss no other special agreement is made and unless the Owner terminates the Contract for convenience, replacement of damaged property shall be performed by the Contractor after notification of a Change in the Work in accordance with Article 7.

§ 11.3.10 The Owner as fiduciary shall have power to adjust and settle a loss with insurers unless one of the parties in interest shall object in writing within five days after occurrence of loss to the Owner's exercise of this power; if such objection is made, the dispute shall be resolved in the manner selected by the Owner and Contractor as the method of binding dispute resolution in the Agreement. If the Owner and Contractor have selected arbitration as the method of binding dispute resolution, the Owner as fiduciary shall make settlement with insurers or, in the case of a dispute over distribution of insurance proceeds, in accordance with the directions of the arbitrators.

#### § 11.4 PERFORMANCE BOND AND PAYMENT BOND

§ 11.4.1 The Owner shall have the right to require the Contractor to furnish bonds covering faithful performance of the Contract and payment of obligations arising thereunder as stipulated in bidding requirements or specifically required in the Contract Documents on the date of execution of the Contract.

§ 11.4.2 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.

### ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

#### § 12.1 UNCOVERING OF WORK

§ 12.1.1 If a portion of the Work is covered contrary to the Architect's request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by the Architect, be uncovered for the Architect's examination and be replaced at the Contractor's expense without change in the Contract Time.

§ 12.1.2 If a portion of the Work has been covered that the Architect has not specifically requested to examine prior to its being covered, the Architect may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, costs of uncovering and replacement shall, by appropriate Change Order, be at the Owner's expense. If such Work is not in accordance with the Contract Documents, such costs and the cost of correction shall be at the Contractor's expense unless the condition was caused by the Owner or a separate contractor in which event the Owner shall be responsible for payment of such costs.

#### § 12.2 CORRECTION OF WORK

##### § 12.2.1 BEFORE OR AFTER SUBSTANTIAL COMPLETION

The Contractor shall promptly correct Work rejected by the Architect or failing to conform to the requirements of the Contract Documents, whether discovered before or after Substantial Completion and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Architect's services and expenses made necessary thereby, shall be at the Contractor's expense.

##### § 12.2.2 AFTER SUBSTANTIAL COMPLETION

§ 12.2.2.1 In addition to the Contractor's obligations under Section 3.5, if, within one year after the date of Substantial Completion of the Work or designated portion thereof or after the date for commencement of warranties established under Section 9.9.1, or by terms of an applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of written notice from the Owner to do so unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty. If the Contractor fails to correct nonconforming Work within a reasonable time during that period after receipt of notice from the Owner or Architect, the Owner may correct it in accordance with Section 2.4.

§ 12.2.2 The one-year period for correction of Work shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual completion of that portion of the Work.

§ 12.2.3 The one-year period for correction of Work shall not be extended by corrective Work performed by the Contractor pursuant to this Section 12.2.

§ 12.2.3 The Contractor shall remove from the site portions of the Work that are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.

§ 12.2.4 The Contractor shall bear the cost of correcting destroyed or damaged construction, whether completed or partially completed, of the Owner or separate contractors caused by the Contractor's correction or removal of Work that is not in accordance with the requirements of the Contract Documents.

§ 12.2.5 Nothing contained in this Section 12.2 shall be construed to establish a period of limitation with respect to other obligations the Contractor has under the Contract Documents. Establishment of the one-year period for correction of Work as described in Section 12.2.2 relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

### § 12.3 ACCEPTANCE OF NONCONFORMING WORK

If the Owner prefers to accept Work that is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

## ARTICLE 13 MISCELLANEOUS PROVISIONS

### § 13.1 GOVERNING LAW

The Contract shall be governed by the law of the place where the Project is located except that, if the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 15.4.

### § 13.2 SUCCESSORS AND ASSIGNS

§ 13.2.1 The Owner and Contractor respectively bind themselves, their partners, successors, assigns and legal representatives to covenants, agreements and obligations contained in the Contract Documents. Except as provided in Section 13.2.2, neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make such an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

§ 13.2.2 The Owner may, without consent of the Contractor, assign the Contract to a lender providing construction financing for the Project, if the lender assumes the Owner's rights and obligations under the Contract Documents. The Contractor shall execute all consents reasonably required to facilitate such assignment.

### § 13.3 WRITTEN NOTICE

Written notice shall be deemed to have been duly served if delivered in person to the individual, to a member of the firm or entity, or to an officer of the corporation for which it was intended; or if delivered at, or sent by registered or certified mail or by courier service providing proof of delivery to, the last business address known to the party giving notice.

### § 13.4 RIGHTS AND REMEDIES

§ 13.4.1 Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights and remedies otherwise imposed or available by law.

§ 13.4.2 No action or failure to act by the Owner, Architect or Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach there under, except as may be specifically agreed in writing.

## § 13.5 TESTS AND INSPECTIONS

§ 13.5.1 Tests, inspections and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules and regulations or lawful orders of public authorities. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections and approvals. The Contractor shall give the Architect timely notice of when and where tests and inspections are to be made so that the Architect may be present for such procedures. The Owner shall bear costs of (1) tests, inspections or approvals that do not become requirements until after bids are received or negotiations concluded, and (2) tests, inspections or approvals where building codes or applicable laws or regulations prohibit the Owner from delegating their cost to the Contractor.

§ 13.5.2 If the Architect, Owner or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection or approval not included under Section 13.5.1, the Architect will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection or approval by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Architect of when and where tests and inspections are to be made so that the Architect may be present for such procedures. Such costs, except as provided in Section 13.5.3, shall be at the Owner's expense.

§ 13.5.3 If such procedures for testing, inspection or approval under Sections 13.5.1 and 13.5.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure including those of repeated procedures and compensation for the Architect's services and expenses shall be at the Contractor's expense.

§ 13.5.4 Required certificates of testing, inspection or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Architect.

§ 13.5.5 If the Architect is to observe tests, inspections or approvals required by the Contract Documents, the Architect will do so promptly and, where practicable, at the normal place of testing.

§ 13.5.6 Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.

## § 13.6 INTEREST

Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at such rate as the parties may agree upon in writing or, in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

## § 13.7 TIME LIMITS ON CLAIMS

The Owner and Contractor shall commence all claims and causes of action, whether in contract, tort, breach of warranty or otherwise, against the other arising out of or related to the Contract in accordance with the requirements of the final dispute resolution method selected in the Agreement within the time period specified by applicable law, but in any case not more than 10 years after the date of Substantial Completion of the Work. The Owner and Contractor waive all claims and causes of action not commenced in accordance with this Section 13.7.

## ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

### § 14.1 TERMINATION BY THE CONTRACTOR

§ 14.1.1 The Contractor may terminate the Contract if the Work is stopped for a period of 30 consecutive days through no act or fault of the Contractor or a Subcontractor, Sub-subcontractor or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with the Contractor, for any of the following reasons:

- .1 Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped;
- .2 An act of government, such as a declaration of national emergency that requires all Work to be stopped;

- .3 Because the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4.1, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents; or
- .4 The Owner has failed to furnish to the Contractor promptly, upon the Contractor's request, reasonable evidence as required by Section 2.2.1.

§ 14.1.2 The Contractor may terminate the Contract if, through no act or fault of the Contractor or a Subcontractor, Sub-subcontractor or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with the Contractor, repeated suspensions, delays or interruptions of the entire Work by the Owner as described in Section 14.3 constitute in the aggregate more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365-day period, whichever is less.

§ 14.1.3 If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days' written notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed, including reasonable overhead and profit, costs incurred by reason of such termination, and damages.

§ 14.1.4 If the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor or a Subcontractor or their agents or employees or any other persons performing portions of the Work under contract with the Contractor because the Owner has repeatedly failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work, the Contractor may, upon seven additional days' written notice to the Owner and the Architect, terminate the Contract and recover from the Owner as provided in Section 14.1.3.

#### § 14.2 TERMINATION BY THE OWNER FOR CAUSE

§ 14.2.1 The Owner may terminate the Contract if the Contractor

- .1 repeatedly refuses or fails to supply enough properly skilled workers or proper materials;
- .2 fails to make payment to Subcontractors for materials or labor in accordance with the respective agreements between the Contractor and the Subcontractors;
- .3 repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or
- .4 otherwise is guilty of substantial breach of a provision of the Contract Documents.

§ 14.2.2 When any of the above reasons exist, the Owner, upon certification by the Initial Decision Maker that sufficient cause exists to justify such action, may without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' written notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

- .1 Exclude the Contractor from the site and take possession of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;
- .2 Accept assignment of subcontracts pursuant to Section 5.4; and
- .3 Finish the Work by whatever reasonable method the Owner may deem expedient. Upon written request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

§ 14.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

§ 14.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Architect's services and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall be certified by the Initial Decision Maker, upon application, and this obligation for payment shall survive termination of the Contract.

#### § 14.3 SUSPENSION BY THE OWNER FOR CONVENIENCE

§ 14.3.1 The Owner may, without cause, order the Contractor in writing to suspend, delay or interrupt the Work in whole or in part for such period of time as the Owner may determine.

§ 14.3.2 The Contract Sum and Contract Time shall be adjusted for increases in the cost and time caused by suspension, delay or interruption as described in Section 14.3.1. Adjustment of the Contract Sum shall include profit. No adjustment shall be made to the extent

- .1 that performance is, was or would have been so suspended, delayed or interrupted by another cause for which the Contractor is responsible; or
- .2 that an equitable adjustment is made or denied under another provision of the Contract.

#### § 14.4 TERMINATION BY THE OWNER FOR CONVENIENCE

§ 14.4.1 The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause.

§ 14.4.2 Upon receipt of written notice from the Owner of such termination for the Owner's convenience, the Contractor shall

- .1 cease operations as directed by the Owner in the notice;
- .2 take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and
- .3 except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

§ 14.4.3 In case of such termination for the Owner's convenience, the Contractor shall be entitled to receive payment for Work executed, and costs incurred by reason of such termination, along with reasonable overhead and profit on the Work not executed.

### ARTICLE 15 CLAIMS AND DISPUTES

#### § 15.1 CLAIMS

##### § 15.1.1 DEFINITION

A Claim is a demand or assertion by one of the parties seeking, as a matter of right, payment of money, or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. The responsibility to substantiate Claims shall rest with the party making the Claim.

##### § 15.1.2 NOTICE OF CLAIMS

Claims by either the Owner or Contractor must be initiated by written notice to the other party and to the Initial Decision Maker with a copy sent to the Architect, if the Architect is not serving as the Initial Decision Maker. Claims by either party must be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later.

##### § 15.1.3 CONTINUING CONTRACT PERFORMANCE

Pending final resolution of a Claim, except as otherwise agreed in writing or as provided in Section 9.7 and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents. The Architect will prepare Change Orders and issue Certificates for Payment in accordance with the decisions of the Initial Decision Maker.

##### § 15.1.4 CLAIMS FOR ADDITIONAL COST

If the Contractor wishes to make a Claim for an increase in the Contract Sum, written notice as provided herein shall be given before proceeding to execute the Work. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.4.

##### § 15.1.5 CLAIMS FOR ADDITIONAL TIME

§ 15.1.5.1 If the Contractor wishes to make a Claim for an increase in the Contract Time, written notice as provided herein shall be given. The Contractor's Claim shall include an estimate of cost and of probable effect of delay on progress of the Work. In the case of a continuing delay, only one Claim is necessary.

§ 15.1.5.2 If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated and had an adverse effect on the scheduled construction.

### § 15.1.6 CLAIMS FOR CONSEQUENTIAL DAMAGES

The Contractor and Owner waive Claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes

- .1 damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and
- .2 damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit except anticipated profit arising directly from the Work.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Article 14. Nothing contained in this Section 15.1.6 shall be deemed to preclude an award of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

### § 15.2 INITIAL DECISION

§ 15.2.1 Claims, excluding those arising under Sections 10.3, 10.4, 11.3.9, and 11.3.10, shall be referred to the Initial Decision Maker for initial decision. The Architect will serve as the Initial Decision Maker, unless otherwise indicated in the Agreement. Except for those Claims excluded by this Section 15.2.1, an initial decision shall be required as a condition precedent to mediation of any Claim arising prior to the date final payment is due, unless 30 days have passed after the Claim has been referred to the Initial Decision Maker with no decision having been rendered. Unless the Initial Decision Maker and all affected parties agree, the Initial Decision Maker will not decide disputes between the Contractor and persons or entities other than the Owner.

§ 15.2.2 The Initial Decision Maker will review Claims and within ten days of the receipt of a Claim take one or more of the following actions: (1) request additional supporting data from the claimant or a response with supporting data from the other party, (2) reject the Claim in whole or in part, (3) approve the Claim, (4) suggest a compromise, or (5) advise the parties that the Initial Decision Maker is unable to resolve the Claim if the Initial Decision Maker lacks sufficient information to evaluate the merits of the Claim or if the Initial Decision Maker concludes that, in the Initial Decision Maker's sole discretion, it would be inappropriate for the Initial Decision Maker to resolve the Claim.

§ 15.2.3 In evaluating Claims, the Initial Decision Maker may, but shall not be obligated to, consult with or seek information from either party or from persons with special knowledge or expertise who may assist the Initial Decision Maker in rendering a decision. The Initial Decision Maker may request the Owner to authorize retention of such persons at the Owner's expense.

§ 15.2.4 If the Initial Decision Maker requests a party to provide a response to a Claim or to furnish additional supporting data, such party shall respond, within ten days after receipt of such request, and shall either (1) provide a response on the requested supporting data, (2) advise the Initial Decision Maker when the response or supporting data will be furnished or (3) advise the Initial Decision Maker that no supporting data will be furnished. Upon receipt of the response or supporting data, if any, the Initial Decision Maker will either reject or approve the Claim in whole or in part.

§ 15.2.5 The Initial Decision Maker will render an initial decision approving or rejecting the Claim, or indicating that the Initial Decision Maker is unable to resolve the Claim. This initial decision shall (1) be in writing; (2) state the reasons therefor; and (3) notify the parties and the Architect, if the Architect is not serving as the Initial Decision Maker, of any change in the Contract Sum or Contract Time or both. The initial decision shall be final and binding on the parties but subject to mediation and, if the parties fail to resolve their dispute through mediation, to binding dispute resolution.

§ 15.2.6 Either party may file for mediation of an initial decision at any time, subject to the terms of Section 15.2.6.1.

§ 15.2.6.1 Either party may, within 30 days from the date of an initial decision, demand in writing that the other party file for mediation within 60 days of the initial decision. If such a demand is made and the party receiving the demand fails to file for mediation within the time required, then both parties waive their rights to mediate or pursue binding dispute resolution proceedings with respect to the initial decision.

§ 15.2.7 In the event of a Claim against the Contractor, the Owner may, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim. If the Claim relates to a possibility of a Contractor's default, the Owner may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

§ 15.2.8 If a Claim relates to or is the subject of a mechanic's lien, the party asserting such Claim may proceed in accordance with applicable law to comply with the lien notice or filing deadlines.

### § 15.3 MEDIATION

§ 15.3.1 Claims, disputes, or other matters in controversy arising out of or related to the Contract except those waived as provided for in Sections 9.10.4, 9.10.5, and 15.1.6 shall be subject to mediation as a condition precedent to binding dispute resolution.

§ 15.3.2 The parties shall endeavor to resolve their Claims by mediation which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Mediation Procedures in effect on the date of the Agreement. A request for mediation shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the mediation. The request may be made concurrently with the filing of binding dispute resolution proceedings but, in such event, mediation shall proceed in advance of binding dispute resolution proceedings, which shall be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order. If an arbitration is stayed pursuant to this Section 15.3.2, the parties may nonetheless proceed to the selection of the arbitrator(s) and agree upon a schedule for later proceedings.

§ 15.3.3 The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in the place where the Project is located, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

### § 15.4 ARBITRATION

§ 15.4.1 If the parties have selected arbitration as the method for binding dispute resolution in the Agreement, any Claim subject to, but not resolved by, mediation shall be subject to arbitration which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Arbitration Rules in effect on the date of the Agreement. A demand for arbitration shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the arbitration. The party filing a notice of demand for arbitration must assert in the demand all Claims then known to that party on which arbitration is permitted to be demanded.

§ 15.4.1.1 A demand for arbitration shall be made no earlier than concurrently with the filing of a request for mediation, but in no event shall it be made after the date when the institution of legal or equitable proceedings based on the Claim would be barred by the applicable statute of limitations. For statute of limitations purposes, receipt of a written demand for arbitration by the person or entity administering the arbitration shall constitute the institution of legal or equitable proceedings based on the Claim.

§ 15.4.2 The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

§ 15.4.3 The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly consented to by parties to the Agreement shall be specifically enforceable under applicable law in any court having jurisdiction thereof.

### § 15.4.4 CONSOLIDATION OR JOINDER

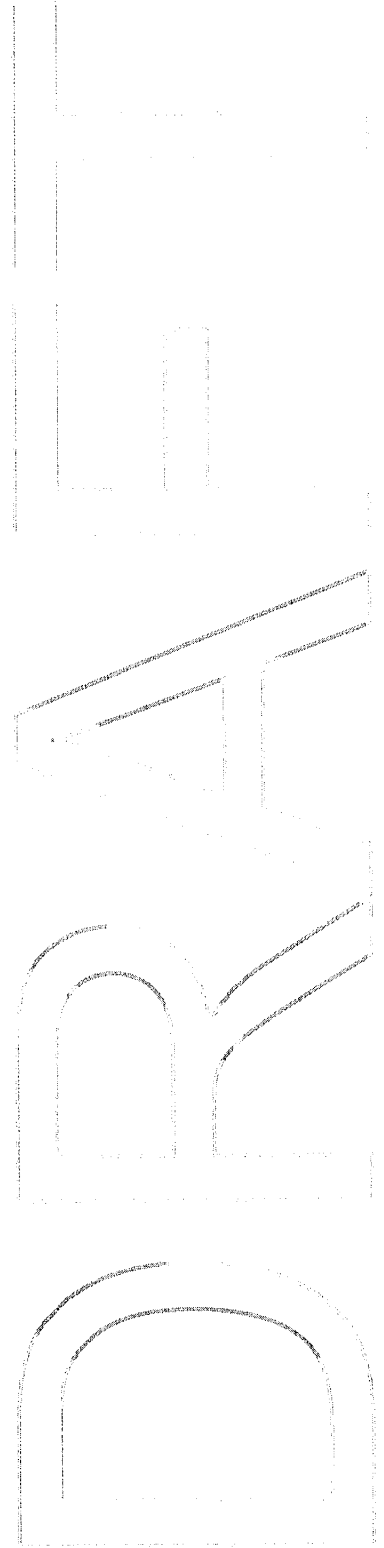
§ 15.4.4.1 Either party, at its sole discretion, may consolidate an arbitration conducted under this Agreement with any other arbitration to which it is a party provided that (1) the arbitration agreement governing the other arbitration permits consolidation, (2) the arbitrations to be consolidated substantially involve common questions of law or fact, and (3) the arbitrations employ materially similar procedural rules and methods for selecting arbitrator(s).

§ 15.4.4.2 Either party, at its sole discretion, may include by joinder persons or entities substantially involved in a common question of law or fact whose presence is required if complete relief is to be accorded in arbitration, provided that the party sought to be joined consents in writing to such joinder. Consent to arbitration involving an



additional person or entity shall not constitute consent to arbitration of any claim, dispute or other matter in question not described in the written consent.

§ 15.4.4.3 The Owner and Contractor grant to any person or entity made a party to an arbitration conducted under this Section 15.4, whether by joinder or consolidation, the same rights of joinder and consolidation as the Owner and Contractor under this Agreement.





Below is our insurance requirement for vendors who work within our building. The Owner is Cow Plaza 2 LLC and the Owner's Agent is East Brown Cow Management, Inc. Both need to be listed as additional insured

**Insurance:** The Contractor shall purchase from and maintain in a company or companies lawfully authorized to do business in the State of **Maine** insurance for protection from claims under workers' compensation acts and other employee benefit acts which are applicable, claims for damage because of bodily injury, including death, and from claims for damages other than to the Work itself, to property which may arise out of or result from the Contractor's operations under the Contract, whether such operations be by the Contractor or by a Subcontractor or anyone directly or indirectly employed by any of them. This insurance shall be written for not less than limits of liability specified in the Contract or required by law, whichever coverage is greater, and shall include contractual liability insurance applicable to Contractor's obligations under Paragraph 5. Contractor shall furnish commercial general liability coverage in the amount of \$1,000,000 Combined Single Limit. Certificates of such insurance shall be filed with the Owner prior to the commencement of the Work and name Owner and Owner's Agent as additional insured.



SECTION 01100

SUMMARY

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Special Provisions and other Division-1 Specification Sections, apply to this Section.
- B. The project consists of interior renovation and site work as shown on contract documents prepared by Gawron Turgeon Architects, 29 Black Point Road, Scarborough, Maine, dated April 5, 2011.
- C. The Work consists of selective demolition of interior and exterior and the construction of new space, a retail branch bank and site improvements for Savings Bank of Maine.
- D. The Work includes partial demolition and removal of interior building elements, metal stud framing, architectural woodwork, acoustical insulation, hollow metal frames, wood doors, hardware, glazing, aluminum entrance, structural elements, interior finishes, cabinets, appliances, specialties, plumbing, fire protection, heating – ventilation – air conditioning, electrical power and lighting. The work includes partial demolition of the exterior window system, exterior wall, exterior planter and sidewalk.

1.02 SUMMARY

- A. This Section includes the following:
  - 1. Work covered by the Contract Documents.
  - 2. Type of the Contract
  - 3. Owner-furnished products.
  - 4. Use of premises.
  - 5. Owner's occupancy requirements.
  - 6. Work restrictions.
  - 7. Specification formats and conventions.

1.03 WORK COVERED BY CONTRACT DOCUMENTS

- A. Project Identification: Savings Bank of Maine
  - 1. Project Location: Two Canal Plaza – First Floor & Lower Level
  - 2. Owner: Refers to Savings Bank of Maine As Tenant
  - 3. Architect: Gawron Turgeon Architects, 29 Black Point Road, Scarborough, Maine 04074-9358
  - 4. Building Owner: East Brown Cow Management Company

1.04 TYPE OF CONTRACT

- A. Project will be constructed under a single prime contract.

1.05 OWNER/TENANT-FURNISHED PRODUCTS

- A. Owner/Tenant will furnish products indicated and/ or as specified. The Work includes providing support systems to receive Owner's equipment.

1. Owner/Tenant will arrange and pay for delivery of owner-furnished items according to contractor's construction schedule.
2. After delivery, owner/tenant will inspect delivered items for damage. Contractor shall be present for and assist in owner/tenant's inspection.
3. If owner/tenant-furnished items are damaged, defective or missing, owner/tenant will arrange for replacement.
4. Owner/Tenant will arrange for manufacturer's field services and for delivery of manufacturer's warranties to contractor.
5. Owner/Tenant will furnish contractor the earliest possible delivery date for owner/tenant-furnished products. Using owner/tenant-furnished earliest possible delivery dates, contractor shall designate delivery dates of owner/tenant-furnished items in contractor's construction schedule.
6. Contractor shall review shop drawings, product data, and samples and return them to architect noting discrepancies or anticipated problems in use of product.
7. Contractor is responsible for receiving, unloading, and handling owner-furnished items at project site.
8. Contractor is responsible for protecting owner-furnished items from damage during storage and handling, including damage from exposure to the elements.
9. If owner/tenant-furnished items are damaged as a result of contractor's operations, contractor shall repair or replace them.
10. Contractor shall install and otherwise incorporate owner/tenant-furnished items into the Work.

#### 1.06 USE OF PREMISES

- A. General: Contractor shall have limited use of premises to construction activities in areas to receive renovations. Contractor's use of premises is limited by owner/tenant's right to perform work or to retain other contractors on portions of project.
- 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. All deliveries are to be coordinated with building owner.
  1. Building Owner Occupancy: Allow for Building Owner and Owner/Tenant occupancy of project site.
  2. Driveways and Entrances: Keep driveways, parking and entrances serving premises clear and available to owner, owner's employees, other tenant's 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.
  3. Access for all construction activities including removal, delivery and worker access shall be limited to the one elevator and owner/architect approved chutes. Provide "duck cloth" blanket protection at walls and temporary floor protective covering at elevator during entire duration of the Work.
  4. Use of other elevator by the contractor will not be permitted.
  5. Confine operations to areas within construction limits indicated. Portions of the floor beyond areas in which construction operations are indicated are not to be disturbed.
  6. Keep stairways and hallways serving the floor clear and available to the owner and owner's employees at all times. Do not use these areas for storage of materials. Schedule deliveries to minimize space and time requirements for storage and materials and equipment on site.
  7. Use of the Existing Building: Maintain the existing building in a weather-tight condition

throughout the construction period. Repair damage caused by construction operations. Take all precautions necessary to protect the building and its occupants during the construction period.

8. Perform the Work so as not to interfere with the Building owner's operations. The contractor is expected to work overtime, multiple shifts, or other means in order to meet the owner's schedule. Cost is to be carried in the contractor's base bid.

#### 1.07 OWNER/TENANT'S OCCUPANCY REQUIREMENTS

- A. Owner/Tenant Occupancy of Completed Areas of Construction: Owner/Tenant reserves the right to occupy and to place and install equipment in completed areas of building, before Substantial Completion, provided such occupancy does not interfere with completion of the Work. Such placement of equipment and partial occupancy shall not constitute acceptance of the total Work.
  1. Architect will prepare a Certificate of Substantial Completion for each specific portion of the Work to be occupied before owner/tenant occupancy.
  2. Contractor shall obtain a Certificate of Occupancy from authorities having jurisdiction before owner occupancy.
  3. Before partial owner/tenant occupancy, mechanical and electrical systems shall be fully operational, and required tests and inspections shall be successfully completed. On occupancy, owner will operate and maintain mechanical and electrical systems serving occupied portions of building.
  4. On occupancy, owner will assume responsibility for maintenance and custodial service for unoccupied portions of building.

#### 1.08 SPECIFICATION FORMATS AND CONVENTIONS

- A. Specification Format: The Specifications are organized into Divisions and Sections using the 16-division format and CSI/CSC's "MasterFormat" numbering system.
  1. Section Identification: The Specifications use Section numbers and titles to help cross-referencing in the contract documents. Sections in the project manual are in numeric sequence; however, the sequence is incomplete because all available section numbers are not used. Consult the table of contents at the beginning of the project manual to determine numbers and names of sections in the contract documents.
  2. Division 1: Sections in division 1 govern the execution of the Work of all sections in the specifications.
- B. Specification Content: The Specification 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:

The Architect and Owner/Tenant will retain one, and will return the other marked with action taken and corrections or modifications required.

  1. Abbreviated Language: Language used in the Specifications and other contract documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred as the sense requires. Singular words shall be interpreted as plural and plural words shall be interpreted as singular where applicable as the context of the contract documents indicates.
  2. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by contractor. Occasionally, the indicative or subjective mood may be used in the section text for clarity to describe responsibilities that must be fulfilled indirectly by contractor or by others when so noted.
    - a. 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.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

**END OF SECTION 01100**



## SECTION 01210 - ALLOWANCES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. This Section includes administrative and procedural requirements governing allowances.
  - 1. Certain items are specified in the Contract Documents by allowances. Allowances have been established in lieu of additional requirements and to defer selection of actual materials and equipment to a later date when additional information is available for evaluation. If necessary, additional requirements will be issued by Change Order.
- B. Types of allowances include the following:
  - 1. Lump-sum allowances.
  - 2. Testing and inspecting allowances.
- C. Related Sections include the following:
  - 1. Division 1 Section "Contract Modification Procedures" for procedures for submitting and handling Change Orders for allowances.
  - 2. Division 1 Section "Quality Requirements" for procedures governing the use of allowances for testing and inspecting.
  - 3. Divisions 2 through 16 Sections for items of Work covered by allowances.

#### 1.3 SELECTION AND PURCHASE

- A. At the earliest practical date after award of the Contract, advise Architect of the date when final selection and purchase of each product or system described by an allowance must be completed to avoid delaying the Work.
- B. At Architect's request, obtain proposals for each allowance for use in making final selections. Include recommendations that are relevant to performing the Work.
- C. Purchase products and systems selected by Architect from the designated supplier.

#### 1.4 SUBMITTALS

- A. Submit proposals for purchase of products or systems included in allowances, in the form specified for Change Orders.
- B. Submit invoices or delivery slips to show actual quantities of materials delivered to the site for use in fulfillment of each allowance.
- C. Coordinate and process submittals for allowance items in same manner as for other portions of the Work.

1.5 COORDINATION

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

1.6 LUMP-SUM ALLOWANCES

- A. Allowance shall include cost to Contractor of specific products and materials ordered by Owner under allowance less any applicable trade discounts, and shall include taxes, freight, and delivery to Project site, costs for receiving and handling at Project site, labor and installation.
- B. Contractor's overhead and profit shall be included as part of the Contract Sum and not part of the allowance.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine products covered by an allowance promptly on delivery for damage or defects. Return damaged or defective products to manufacturer for replacement.

3.2 PREPARATION

- A. Coordinate materials and their installation for each allowance with related materials and installations to ensure that each allowance item is completely integrated and interfaced with related work.

3.3 LUMP SUM ALLOWANCES

- A. Allowance No. 1: \$1,500.00 allowance: Seal wall penetrations at fire rated walls.

END OF SECTION 01210

SECTION 01230 - ALTERNATES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. This Section includes administrative and procedural requirements for alternates.

1.03 DEFINITIONS

- A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the Bidding Requirements that may be added to or deducted from the Base Bid amount if Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.
  - 1. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternate into the Work. No other adjustments are made to the Contract Sum.

1.04 PROCEDURES

- A. Coordination: Modify or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.
  - 1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.
- B. Notification: Immediately following award of the Contract, notify each party involved, in writing, of the status of each alternate. Indicate if alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated modifications to alternates.
- C. Execute accepted alternates under the same conditions as other work of the Contract.
- D. Schedule: A Schedule of Alternates is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.
- E. Hold pricing for 90 days from date of bid to allow Owner time for project accounting. Alternates not accepted before Contract signing may be added by Change Order later.

PART 2 - PRODUCTS (Not Used)



SECTION 01230 - ALTERNATES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. This Section includes administrative and procedural requirements for alternates.

1.03 DEFINITIONS

- A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the Bidding Requirements that may be added to or deducted from the Base Bid amount if Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.
  - 1. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternate into the Work. No other adjustments are made to the Contract Sum.

1.04 PROCEDURES

- A. Coordination: Modify or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.
  - 1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.
- B. Notification: Immediately following award of the Contract, notify each party involved, in writing, of the status of each alternate. Indicate if alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated modifications to alternates.
- C. Execute accepted alternates under the same conditions as other work of the Contract.
- D. Schedule: A Schedule of Alternates is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.
- E. Hold pricing for 90 days from date of bid to allow Owner time for project accounting. Alternates not accepted before Contract signing may be added by Change Order later.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.01 SCHEDULE OF ALTERNATES

A. Alternate No. 1: Remove existing doors 132A & 132B and replace with new aluminum store front refer to detail on Sheet A800.

B. Alternate No. 2: Remove existing vertical blinds at the following locations:

Vestibule 100  
Waiting 101  
Open Area 105  
Open Area 106  
Open Office 109  
Conference 111  
Office 1 118

Replace with manually operated window shades, flex shade.

C. Alternate #3: General Contractor to price running all of the data cables – cat5e to the designated locations on the drawings – refer to electrical plans

D. Alternate #4: Heated Sidewalk and Stairs

END OF SECTION 01230

## SECTION 01250 – CONTRACT MODIFICATION PROCEDURES

### PART 1 - GENERAL

#### 1.01 RELATED DOCUMENTS

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

#### 1.02 SUMMARY

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

#### 1.03 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."

#### 1.04 PROPOSAL REQUESTS

- A. Savings Bank of Maine 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. Proposal Requests issued by Architect are for information only. Do not consider them instructions either to stop work in progress or to execute the proposed change.
  - 2. Within time specified in Proposal Request 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.
    - c. 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 time 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 time before requesting an extension of the Contract Time.
6. Comply with requirements in Division 1 Section "Product Requirements" if the proposed change requires substitution of one product or system for product or system specified.

C. Proposal Request Form: Use AIA Document G709 for Proposal Requests.

#### 1.05 ALLOWANCES

- A. Allowance Adjustment: To adjust allowance amounts, base each Change Order proposal on the difference between purchase amount and the allowance, multiplied by final measurement of work-in-place. If applicable, include reasonable allowances for cutting losses, tolerances, mixing wastes, normal product imperfections, and similar margins.
1. Include installation costs in purchase amount only where indicated as part of the allowance.
  2. If requested, prepare explanation and documentation to substantiate distribution of overhead costs and other margins claimed.
  3. Submit substantiation of a change in scope of work, if any, claimed in Change Orders related to unit-cost allowances.
  4. Prudential reserves the right to establish the quantity of work-in-place by independent quantity survey, measure, or count.
- B. Submit claims for increased costs because of a change in scope or nature of the allowance described in the Contract Documents, whether for the Purchase Order amount or Contractor's handling, labor, installation, overhead, and profit. Submit claims within 14 calendar days of receipt of the Change Order or Construction Change Directive authorizing work to proceed. Prudential will reject claims submitted later than 14 calendar days after such authorization.
1. Do not include Contractor's or subcontractor's indirect expense in the Change Order cost amount unless it is clearly shown that the nature or extent of work has changed from what could have been foreseen from information in the Contract Documents.
  2. No change to Contractor's indirect expense is permitted for selection of higher- or lower-priced materials or systems of the same scope and nature as originally indicated.

#### 1.06 CHANGE ORDER PROCEDURES

- A. On Savings Bank of Maine's approval of a Proposal Request, Contractor will issue a Change Order for signatures of Owner and Contractor on AIA Document G701.

#### 1.07 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 01250



## SECTION 01270 – UNIT PRICES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for unit prices.
- B. Related sections include the following:
  - 1. Division 1 Section "Contract Modification Procedures" for procedures for submitting and handling Change Orders.
  - 2. Division 1 Section "Quality Requirements" for general testing and inspecting requirements.

#### 1.3 DEFINITIONS

- A. Unit price is an amount proposed by bidders, stated on the Bid Form, as a price per unit of measurement for materials or services added to or deducted from the Contract Sum by appropriate modification, if estimated quantities of work required by the Contract Documents are increased or decreased.

#### 1.4 PROCEDURES

- A. Unit prices include all necessary material, plus cost for delivery, installation, insurance, applicable taxes, overhead, and profit.
- B. Measurement and Payment: Refer to individual specification sections for work that requires establishment of unit prices. Methods of measurement and payment for unit prices are specified in those sections.
- C. Owner/Tenant reserves the right to reject the Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, at owner's expense, by an independent surveyor acceptable to Contractor.

### PART 2 - PRODUCTS

#### 2.1 UNIT PRICES

- A. Duplex Outlet
- B. Dedicated Duplex outlet

C. 2" diameter Core Drill

PART 3 - EXECUTION (Not Used)

END OF SECTION 01270

## SECTION 01290 – PAYMENT PROCEDURES

### PART 1 - GENERAL

#### 1.01 RELATED DOCUMENTS

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

#### 1.02 SUMMARY

- A. This Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.
- B. Related Sections include the following:
  - 1. Division 1 Section "Unit Prices" for administrative requirements governing use of unit prices.
  - 2. Division 1 Section "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.

#### 1.03 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.

#### 1.04 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. Project Schedule.
  - 2. Submit the Schedule of Values to Architect at earliest possible date but no later than pre-construction conference.
  - 3. Sub schedules: Where the Work is separated into phases requiring separately phased payments, provide sub schedules showing values correlated with each phase of payment.
- 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.
    - d. Contractor's name and address.
    - e. Date of submittal.

- f. Certification that Record Drawings have been updated and verified.
2. 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.
    - 1) Percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.
3. 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, providing at least one item for each specification section. Provide several line items for principal subcontract amounts, where appropriate.
4. For Division 15 work, provide the following line item breakdown of the mechanical subcontractor's work for each Application for Payment:
  - a. Ductwork Systems.
  - b. HVAC Piping Systems.
  - c. HVAC Equipment.
  - d. HVAC Controls.
  - e. Plumbing, including fixtures and piping.
5. Documentation: Submit proper documentation for the amounts being requisitioned from subcontractors and material suppliers with each Application for Payment.
6. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
7. 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. Include evidence of insurance or bonded warehousing.
  - b. Only major long lead delivery items may be considered for off-site storage (Example: Long lead custom mechanical unit). Standard order and production materials and products shall be delivered to the site before including in Application of Payment on such items.
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.

- C. The Contractor shall furnish to Savings Bank of Maine at the beginning of the project an expected monthly requisition estimate for the Owner's use in planning funding.

1.05 APPLICATIONS FOR PAYMENT

- A. Each 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.
- C. Payment Application Times: The date for each progress payment is the last day of the month. The period covered by each Application for Payment starts on the day following the end of the preceding period and ends 15 days before the date for each progress payment.
- D. Payment Application Forms: Use AIA Document G702 and AIA Document G703 Continuation Sheets as form for Applications for Payment.
  - 1. Sample copies are included at the end of this section.
- E. Samples copies are included at the end of this section.
- F. 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 of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
- G. 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.
- H. Waivers of Mechanic's Lien: For each payment application, submit waivers of liens from every entity (including Contractor) who could lawfully and possibly file a lien in excess of \$500 arising out of the contract, and related to work covered by the payment. The following is a list of entities that the owner will require lien waivers from as a minimum: general contractor, subcontractor, sub-subcontractors, and major suppliers, including but not limited to: Millwork Companies, Door and Hardware Suppliers, Flooring Suppliers, HVAC Suppliers, Electrical Switchgear and Panel Suppliers for construction period covered by the previous application.
  - 1. Submit partial waivers on each item for amount requested, before deduction for retainage, on each item.
  - 2. When an application shows completion of an item, submit final or full waivers.

3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
  4. Waiver Delays: Submit each application for payment with contractor's waiver of mechanic' lien for construction period covered by the application.
    - a. 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 form at the end of this section, labeled as "Contractor, Sub-Contractor and Major Supplier Affidavit and Lien Waiver," or other form acceptable to Owner.
  6. Lien Waiver Summary Form: Submit a Lien Waiver Summary Sheet with each payment requisition, displaying the Schedule of Values (or construction activity), the contractor, sub-contractor, and suppliers, and the lien waiver amount for the current requisition. The Lien Waiver Summary should also include the cumulative lien waiver totals for each schedule of value item.
- I. Record Drawing Updates: With each Application of Payment, record documents shall be maintained and current for all trades, available for viewing at a central location.
- J. 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
  4. Products list.
  5. Schedule of unit prices.
  6. Submittals Schedule (preliminary if not final).
  7. List of Contractor's staff assignments.
  8. List of Contractor's principal consultants.
  9. Copies of building permits and other required permits.
  10. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
  11. Initial progress report.
  12. Report of preconstruction conference.
- K. Progress Applications for Payment: Administrative actions and submittals that must precede or coincide with submittal of progress Applications for Payment include the following:
1. Contractor's Construction Schedule update.
  2. Submittals for Work being requisitioned for are complete and approved.
  3. Minutes of previous month's progress meeting have been distributed.
  4. Record drawings are current.
- L. 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.
  3. Include occupancy permits and similar approvals or certifications by governing authorities and franchised services, assuring owner's full access and use of completed work.
  4. Test/adjust/balance records, maintenance instructions, meter readings, start-up performance reports, and similar change-over information germane to owner's occupancy, use, operation and maintenance of completed work.
  5. Final cleaning of the work.
  6. Application for reduction (if any) of retainage, and consent of surety
  7. Advice to owner on coordination of shifting insurance coverages, including proof of extended coverages as required.
  8. Listing of contractor's incomplete work, recognized as exceptions to architect's certificate of substantial completion.
- M. 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, record documents, operation and maintenance data, and demonstration and training.
  2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
  3. Updated final statement, accounting for final changes to the Contract Sum.
  4. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
  5. AIA Document G706A, "Contractor's Affidavit of Release of Liens."
  6. AIA Document G707, "Consent of Surety to Final Payment."
  7. Evidence that claims have been settled.
  8. Final, liquidated damages settlement statement.
- N. Mechanics Liens: If a subcontractor refuses to furnish a release of waiver required by the owner, the contractor shall furnish a bond satisfactory to the owner to indemnify the owner against such a lien. If such a lien remains unsatisfied after payments are made, the contractor shall refund to the owner all money that the owner may be compelled to pay in discharging such lien including all costs and reasonable attorney fees.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01290



## SECTION 01300 – SUBMITTALS

### PART 1 - GENERAL

#### 1.01 RELATED DOCUMENTS

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

#### 1.02 SUMMARY

- A. This Section specifies administrative and procedural requirements for submittals required for performance of the Work, including:
1. Work progress schedule, herewith referred to as the contractor's construction schedule.
  2. Submittal schedule.
  3. Shop Drawings.
  4. Product Data.
  5. Samples.
- B. Administrative Submittals: Refer to other Division-1 Sections and other Contract Documents for requirements for administrative submittals. Such submittals include, but are not limited to:
1. Permits.
  2. Applications for payment.
  3. Performance and payment bonds.
  4. Insurance certificates.
  5. List of Subcontractors.
- C. The Schedule of Values submittal is included in Section "Applications for Payment."
- D. Inspection and test reports are included in Section "Quality Control Services."

#### 1.03 SUBMITTAL PROCEDURES

- A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities. Transmit each submittal sufficiently in advance of performance of related construction activities to avoid delay.
1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals and related activities that require sequential activity.
  2. Coordinate transmittal of different types of submittals for related elements of the Work so processing will not be delayed by the need to review submittals concurrently for coordination.
    - a) The Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
    - b) The Owner reserves the right to approve all submittals.
- B. Processing: Allow sufficient review time so that installation will not be delayed as a result of the time required to process submittals, including time for resubmittals.

1. Allow two weeks for initial review. Allow additional time if processing must be delayed to permit coordination with subsequent submittals. The Architect will promptly advise the Contractor when a submittal being processed must be delayed for coordination.
  2. If an intermediate submittal is necessary, process the same as the initial submittal.
  3. Allow two weeks for reprocessing each submittal.
  4. No extension of Contract Time will be authorized because of failure to transmit submittals to the Architect sufficiently in advance of the Work to permit processing.
- C. Submittal Preparation: Place a permanent label or title block on each submittal for identification. Indicate the name of the entity that prepared each submittal on the label or title block.
1. Provide a space approximately 4" x 5" on the label or beside the title block on Shop Drawings to record the Contractor's review and approval markings and the action taken.
  2. Include the following information on the label for processing and recording action taken.
    - a) Project name.
    - b) Date.
    - c) Name of Owner.
    - d) Name and address of Architect.
    - e) Name and address of Contractor.
    - f) Name and address of subcontractor.
    - g) Name and address of supplier.
    - h) Name of manufacturer.
    - i) Number and title of appropriate Specification Section.
    - j) Drawing number and detail references, as appropriate.
- D. Submittal Transmittal: Package each submittal appropriately for transmittal and handling. Transmit each submittal from Contractor to Architect using a transmittal form. Submittals received from sources other than the Contractor will be returned without action.

#### 1.04 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Bar-Chart Schedule: Prepare a fully developed, horizontal bar-chart type Contractor's construction schedule. Submit within 30 days of the date established for "Commencement of the Work".
1. Provide a separate time bar for each significant construction activity. Provide a continuous vertical line to identify the first working day of each week. Use the same breakdown of units of the Work as indicated in the "Schedule of Values".
  2. Prepare the schedule on a sheet, or series of sheet, of stable transparency, or other reproducible media, of sufficient width to show data for the entire construction period.
  3. Secure time commitments for performing critical elements of the Work from parties involved.
  4. Coordinate each element on the schedule with other construction activities; include minor elements involved in the sequence of the Work. Show each activity in proper sequence. Indicate graphically sequences necessary for completion of related portions of the Work.
  5. Coordinate the Contractor's construction schedule with the schedule of values, list of subcontracts, submittal schedule, progress reports, payment requests and other schedules.
  6. Indicate completion in advance of the date established for Substantial Completion. Indicate Substantial Completion on the schedule to allow time for the Architect's procedures necessary for certification of Substantial Completion.
- B. Phasing: Provide notations on the schedule to show how the sequence of the Work is affected by requirements for phased completion to permit Work by separate Contractors and partial occupancy by

the Owner prior to Substantial Completion.

- C. Work Stages: Indicate important stages of construction for each major portion of the Work, including testing and installation.
  - 1. Site Demolition.
  - 2. Site Utilities.
  - 3. Framing Work.
  - 4. Sub-Trade Work.
  - 5. Equipment Installation.
- D. Cost Correlation: At the head of the schedule, provide a two item cost correlation line, indicating "precalculated" and "actual" costs. On the line show dollar-volume of Work performed as of the dates used for preparation of payment requests.
  - 1. Refer to Section "Applications for Payment" for cost reporting and payment procedures.
- E. Distribution: Following response to the initial submittal, print and distribute copies to the Architect, Owner, subcontractors and other parties required to comply with scheduled dates. Post copies in the Project meeting room and temporary field office.
  - 1. When revisions are made, distribute to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in construction activities.
- F. Schedule Updating: Revise the schedule after each meeting or activity, where revisions have been recognized or made. Issue the updated schedule concurrently with report of each meeting.

#### 1.05 SUBMITTAL SCHEDULE

- A. After development and acceptance of the Contractor's construction schedule, prepare a complete schedule of submittals. Submit the schedule within 10 days of the date required for establishment of the Contractor's construction schedule.
  - 1. Coordinate submittal schedule with the list of subcontracts, schedule of values and the list of products as well as the Contractor's construction schedule.
  - 2. Prepare the schedule in chronological order; include submittals required during the first 90 days of construction.
- B. Distribution: Following response to initial submittal, print and distribute copies to the Architect, Owner, subcontractors, and other parties required to comply with submittal dates indicated. Post copies in the Project meeting room and field office.
  - 1. When revisions are made, distribute to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portions of the Work and are no longer involved in construction activities.
- C. Schedule Updating: Revise the schedule after each meeting or activity, where revisions have been recognized or made. Issue the updated schedule concurrently with report of each meeting.

#### 1.06 DAILY CONSTRUCTION REPORTS

- A. Prepare a daily construction report, recording the following information concerning events at the site; and submit duplicate copies to the Architect at weekly intervals:
  - 1. List of subcontractors at the site.

2. Accidents and unusual events.
3. Meetings and significant decisions.
4. Orders and requests of governing authorities.
5. Change Orders received, implemented.
6. Services connected, disconnected.
7. Equipment or system tests and start-ups.
8. Partial Completions.

#### 1.07 SHOP DRAWINGS

- A. Submit newly prepared information, drawn to accurate scale. Indicate deviations from the Contract Documents. Do not reproduce Contract Documents or copy standard information as the basis of Shop Drawings. Standard information prepared without specific reference to the Project is not considered Shop Drawings.
- B. Shop Drawings include fabrication and installation drawings, setting diagrams, schedules, patterns, templates and similar drawings. Include the following information:
  1. Dimensions.
  2. Identification of products and materials included.
  3. Compliance with specified standards.
  4. Notation of coordination requirements.
  5. Notation of dimensions established by field measurement.
- C. Sheet Size: Except for templates, patterns and similar full-size Drawings, submit Shop Drawings on sheets at least 8 1/2" x 11" but no larger than 36" x 48".
- D. Submit four (4) blue- or black-line prints and two (2) additional prints where required for maintenance manuals.

One (1) print will be retained; the remainder returned.

  1. One of the prints returned shall be maintained as a "Record Document".
  2. Do not use Shop Drawings without an appropriate final stamp indicating action taken in connection with construction.
- E. Shop drawings for Division 15 and Division 16 shall be submitted in accordance with Section 15000/16000 (1.27).

#### 1.08 PRODUCT DATA

- A. Collect Product Data into a single submittal for each element of construction or system. Product Data includes printed information such as manufacturer's installation instructions, catalog cuts, standard color charts, roughing-in diagrams and templates, standard wiring diagrams and performance curves. Where Product Data must be specially prepared because standard printed data is not suitable for use, submit as "Shop Drawings."
- B. Mark each copy to show applicable choices and options. Where printed Product Data includes information on several products, some of which are not required, mark copies to indicate the applicable information. Include the following information:
  1. Manufacturer's printed recommendations.
  2. Compliance with recognized trade association standards.

3. Compliance with recognized testing agency standards.
  4. Application of testing agency labels and seals.
  5. Notation of dimensions verified by field measurement.
  6. Notation of coordination requirements.  
Do not submit Product Data until compliance with requirements of the Contract Documents has been confirmed.
- C. Submittals: Submit 4 copies of each required submittal; submit 4 copies where required for maintenance manuals.  
The Architect and Owner will retain one, and will return the other marked with action taken and corrections or modifications required.
1. Unless noncompliance with Contract Document provisions is observed, the submittal may serve as the final submittal.
- D. Distribution: Furnish copies of final submittal to installers, Owner and others required for performance of construction activities. Show distribution on transmittal forms.
1. Do not proceed with installation until an applicable copy of Product Data applicable is in the installer's possession.
  2. Do not permit use of unmarked copies of Product Data in connection with construction.

#### 1.09 SAMPLES

- A. Submit full-size, fully fabricated Samples cured and finished as specified and physically identical with the material or product proposed. Samples include partial sections of manufactured or fabricated components, cuts or containers of materials, color range sets, and swatches showing color, texture and pattern.  
Mount, display or package Samples in the manner specified to facilitate review of qualities indicated. Include the following:
1. Generic description of the Sample.
  2. Sample source.
  3. Product name or name of manufacturer.
  4. Compliance with recognized standards.
  5. Availability and delivery time.
- B. Submit Samples for review of kind, color, pattern and texture, for a final check of these characteristics with other elements, and for a comparison of these characteristics between the final submittal and the actual component as delivered and installed.
1. Where variation in color, pattern, texture or other characteristics are inherent in the material or product represented, submit multiple units (not less than 3), that show approximate limits of the variations.
- C. Submittals: Submit 4 sets; one will be returned marked with the action taken.
1. Maintain sets of Samples, as returned, at the Project site, for quality comparisons throughout the course of construction.
  2. Unless noncompliance with Contract Document provisions is observed, the submittal may serve as the final submittal.
- D. Distribution of Samples: Prepare and distribute additional sets to subcontractors, manufacturers, Owner, fabricators, suppliers, installers and others as required for performance of the Work. Show distribution on transmittal forms.

1.10 ARCHITECT'S ACTION

- A. Except for submittals for record, information or similar purposes, where action and return is required or requested, the Architect will review each submittal, mark to indicate action taken, and return promptly.
1. Compliance with specified characteristics is the Contractor's responsibility.
- B. Action Stamp: The Architect will stamp each submittal with a uniform, self-explanatory action stamp. The stamp will be appropriately marked to indicate the action taken.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01300



## SECTION 01310

### PROJECT MANAGEMENT AND COORDINATION

#### PART 1 - GENERAL

##### 1.01 RELATED DOCUMENTS

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

##### 1.02 SUMMARY

- A. This Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
  - 1. Coordination Drawings.
  - 2. Administrative and supervisory personnel.
  - 3. Project meetings.
- B. Related Sections include the following:
  - 1. Division 1 Section "Construction Progress Documentation" for preparing and submitting Contractor's Construction Schedule.
  - 2. Division 1 Section "Execution Requirements" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.
  - 3. Division 1 Section "Closeout Procedures" for coordinating Contract closeout.

##### 1.03 COORDINATION

- A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections, that depend on each other for proper installation, connection, and operation.
  - 1. Schedule construction operations in sequence required 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 with other contractors to ensure maximum accessibility for required maintenance, service, and repair.
  - 3. Make adequate provisions to accommodate items scheduled for later installation.
  - 4. Where availability of space is limited, coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair of all components, including mechanical and electrical. Coordinate location of pipes, conduits, ducts, light fixtures and similar items in confined areas to assure proper fit and access. Contractor is responsible for handling interferences created by the work of subcontractors (example, sprinkler pipe interfering with installation of duct work; duct work interfering with installation of light fixtures). Coordinate spaces and clearances before fabrication of duct work and other shop fabricated items to assure proper size, configuration and fit of fabricated items.
- B. Coordinate with contractors doing work for the Owner under separate contracts.

- C. 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.
  
- D. 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.
  - 9. Project closeout activities.
  
- E. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.

#### 1.04 SUBMITTALS

- A. Coordination Drawings: Prepare Coordination Drawings if limited space availability necessitates maximum utilization of space for efficient installation of different components or if coordination is required for installation of products and materials fabricated by separate entities.
  - 1. Content: Project-specific information, drawn accurately to scale. Do not base Coordination Drawings on reproductions of the Contract Documents or standard printed data. Include the following information, as applicable:
    - a. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.
    - b. Indicate required installation sequences.
    - c. Indicate dimensions shown on the Contract Drawings and make specific note of dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternate sketches to Architect for resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.
  
- B. Key Personnel Names: Within 15 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 and office telephone numbers. Provide names, addresses, and telephone numbers of individuals assigned as standbys 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.

#### 1.05 ADMINISTRATIVE AND SUPERVISORY PERSONNEL

- A. General: In addition to Project superintendent, provide other administrative and supervisory personnel as required for proper performance of the Work.

1. Include special personnel required for coordination of operations with other contractors.

#### 1.06 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: 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 requests for interpretations (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.
    - m. Work restrictions.
    - n. Owner's occupancy requirements.
    - o. Responsibility for temporary facilities and controls.
    - p. Construction waste management and recycling.
    - q. Parking availability.
    - r. Office, work, and storage areas.
    - s. Equipment deliveries and priorities.
    - t. First aid.
    - u. Security.
    - v. Progress cleaning.
    - w. Working hours.
  3. Minutes: Record and distribute meeting minutes.
    - a. Include action items and responsible party.
  
- 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 requests for interpretations (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.
    - z. Record drawing process.
  3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
  4. Reporting: Distribute minutes of the meeting to each party present and to 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: Conduct progress meetings at weekly 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) Work hours.
    - 10) Hazards and risks.
    - 11) Progress cleaning.
    - 12) Quality and work standards.
    - 13) Status of correction of deficient items.
    - 14) Field observations.
    - 15) Requests for interpretations (RFIs).
    - 16) Status of proposal requests.
    - 17) Pending changes.
    - 18) Status of Change Orders.
    - 19) Pending claims and disputes.
    - 20) Record drawings.
    - 21) Documentation of information for payment requests.
  3. Minutes: Record and distribute the meeting minutes.
    - a. Include action items and responsible party.
  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. Coordination/Progress Meetings: Conduct Project coordination/progress 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: In addition to representatives of Owner, 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. Conduct coordination meetings with the mechanical, plumbing, sprinkler and electrical trades. Before the trades start work in an area of the building, review structural clearances and locations of ducts, pipes, conduits, light fixtures, equipment and other items that affect location and proper fit. Prepare coordination drawings where limited space availability necessitates maximum utilization of space for efficient installation of different components. Verify depths and clearances before fabrication of ductwork.
  4. Reporting: Record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.
    - a. Include action items and responsible party.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01310

SECTION 01320 – CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. This Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
  - 1. Preliminary Construction Schedule.
  - 2. Contractor's Construction Schedule.
  - 3. Submittals Schedule.
  - 4. Field condition reports.
  - 5. Special reports.
- B. Related Sections include the following:
  - 1. Division 1 Section "Payment Procedures" for submitting the Schedule of Values.
  - 2. Division 1 Section "Project Management and Coordination" for submitting and distributing meeting and conference minutes.
  - 3. Division 1 Section "Submittal Procedures" for submitting schedules and reports.
  - 4. Division 1 Section "Quality Requirements" for submitting a schedule of tests and inspections.

1.03 SUBMITTALS

- A. Qualification Data: For scheduling consultant.
- B. Submittals Schedule: Submit three copies of schedule. Arrange the following information in a tabular format:
  - 1. Scheduled date for first submittal.
  - 2. Specification Section number and title.
  - 3. Submittal category (action or informational).
  - 4. Name of subcontractor.
  - 5. Description of the Work covered.
  - 6. Scheduled date for Architect's final release or approval.
- C. Preliminary Construction Schedule: Submit two copies.
- D. Contractor's Construction Schedule: Submit two copies of initial schedule, large enough to show entire schedule for entire construction period.
- E. Field Condition Reports: Submit two copies at time of discovery of differing conditions.
- F. Special Reports: Submit two copies at time of unusual event.

1.04 COORDINATION

- A. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate contractors.
- B. Coordinate Contractor's Construction Schedule with the Schedule of Values, list of subcontracts, Submittals Schedule, progress reports, payment requests, and other required schedules and reports.
  - 1. Secure time commitments for performing critical elements of the Work from parties involved.
  - 2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

PART 2 - PRODUCTS

2.01 SUBMITTALS SCHEDULE

- A. Preparation: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, resubmittal, ordering, manufacturing, fabrication, and delivery when establishing dates.
  - 1. Coordinate Submittals Schedule with list of subcontracts, the Schedule of Values, and Contractor's Construction Schedule.
  - 2. Initial Submittal: Submit concurrently with preliminary bar-chart schedule. Include submittals required during the first 60 days of construction. List those 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.

2.02 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

- A. Procedures: Comply with procedures contained in AGC's "Construction Planning & Scheduling."
- B. Time Frame: Extend schedule from date established for commencement of the Work to date of Final Completion.
  - 1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.

2.03 PRELIMINARY CONSTRUCTION SCHEDULE

- A. Bar-Chart Schedule: Submit preliminary horizontal bar-chart-type construction schedule within seven days of date established for commencement of the Work .
- B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line. Outline significant construction activities for first 60 days of construction. Include skeleton diagram for the remainder of the Work and a cash requirement prediction based on indicated activities.



2.04 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Schedule: Submit a comprehensive, fully developed, horizontal Gantt-chart-type or CMP network analysis type, Contractor's Construction Schedule within 30 days of date established for commencement of the Work. Base schedule on the Preliminary Construction Schedule and whatever updating and feedback was received since the start of Project.

2.05 REPORTS

- A. Field Condition Reports: Immediately on discovery of a difference between field conditions and the Contract Documents, prepare and submit a detailed report. Submit with a request for interpretation. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

2.06 SPECIAL REPORTS

- A. General: Submit special reports to Architect within one day(s) of an occurrence. Distribute copies of report to parties affected by the occurrence.
- B. Reporting Unusual Events: When an event of an unusual and significant nature occurs at Project site, whether or not related directly to the Work, prepare and submit a special report. List chain of events, persons participating, response by Contractor's personnel, evaluation of results or effects, and similar pertinent information. Advise Owner in advance when these events are known or predictable.

PART 3 - EXECUTION

3.01 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.
  - 1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
  - 2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
  - 3. As the Work progresses, indicate Actual Completion percentage for each activity.
- B. Distribution: Distribute copies of approved schedule to Architect, Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.
  - 1. Post copies in Project meeting rooms and temporary field offices.
  - 2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

END OF SECTION 01320



SECTION 01330

SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.
- B. Related Sections include the following:
  - 1. Division 1 Section "Payment Procedures" for submitting Applications for Payment and the Schedule of Values.
  - 2. Division 1 Section "Project Management and Coordination" for submitting and distributing meeting and conference minutes and for submitting Coordination Drawings.
  - 3. Division 1 Section "Construction Progress Documentation" for submitting schedules and reports, including Contractor's Construction Schedule and the Submittals Schedule.
  - 4. Division 1 Section "Quality Requirements" for submitting test and inspection reports and for mockup requirements.
  - 5. Division 1 Section "Closeout Procedures" for submitting warranties.
  - 6. Division 1 Section "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.
  - 7. Division 1 Section "Operation and Maintenance Data" for submitting operation and maintenance manuals.
  - 8. Divisions 2 through 16 Sections for specific requirements for submittals in those Sections.

1.03 DEFINITIONS

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

1.04 SUBMITTAL PROCEDURES

- A. 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. 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.
- B. Submittals Schedule: Comply with requirements in Division 1 Section "Construction Progress Documentation" for list of submittals and time requirements for scheduled performance of related construction activities.
- C. Processing Time: Allow enough 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 15 days minimum for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
  2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
  3. Resubmittal Review: Allow 15 days minimum for review of each resubmittal.
  4. Sequential Review: Where sequential review of submittals by Architect's consultants, Owner, or other parties is indicated, allow 21 days minimum for initial review of each submittal.
- D. Identification: Place a permanent label or title block on each submittal for identification.
1. Indicate name of firm or entity that prepared each submittal on label or title block.
  2. Provide a space approximately 6 by 8 inches (150 by 200 mm) on label or beside title block to record Contractor's review and approval markings and action taken by Architect.
  3. Include the following information on label for processing and recording action taken:
    - a. Project name.
    - b. Date.
    - c. Name and address of Architect.
    - d. Name and address of Contractor.
    - e. Name and address of subcontractor.
    - f. Name and address 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., 06100.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., 06100.01.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.
- E. Deviations: Encircle or otherwise specifically identify deviations from the Contract Documents on submittals.
- F. Additional Copies: Unless additional copies are required for final submittal, and unless Architect observes noncompliance with provisions in the Contract Documents, initial submittal may serve as final submittal.

1. Additional copies submitted for maintenance manuals will be marked with action taken and will be returned.
- G. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Architect will return submittals, without review, received from sources other than Contractor.
1. Transmittal Form: Provide locations on form for the following information:
    - a. Project name.
    - b. Date.
    - c. Destination (To:).
    - d. Source (From:).
    - e. Names of subcontractor, manufacturer, and supplier.
    - f. Category and type of submittal.
    - g. Submittal purpose and description.
    - h. Specification Section number and title.
    - i. Drawing number and detail references, as appropriate.
    - j. Transmittal number, numbered consecutively.
    - k. Submittal and transmittal distribution record.
    - l. Remarks.
    - m. Signature of transmitter.
  2. 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 label information as related submittal.
- H. 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 approved.
- I. 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.
- J. Use for Construction: Use only final submittals with mark indicating approval taken by Architect.

## PART 2 - PRODUCTS

### 2.01 ACTION SUBMITTALS

- A. General: Prepare and submit Action Submittals required by individual Specification Sections.
  1. Mark with dark colored pen that permits photocopying. Do not use highlighter.
- 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 printed 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 written recommendations.
    - b. Manufacturer's product specifications.
    - c. Manufacturer's installation instructions.
    - d. Standard color charts.
    - e. Manufacturer's catalog cuts.
    - f. Wiring diagrams showing factory-installed wiring.
    - g. Printed performance curves.
    - h. Operational range diagrams.
    - i. Mill reports.
    - j. Standard product operation and maintenance manuals.
    - k. Compliance with specified referenced standards.
    - l. Testing by recognized testing agency.
    - m. Application of testing agency labels and seals.
    - n. Notation of coordination requirements.
  4. Submit Product Data before or concurrent with Samples.
  5. Number of Copies: Submit four (4) copies of Product Data, unless otherwise indicated. Architect will return one (1) copy for reproduction and distribution. Mark up and retain one (1) returned copy as a Project Record Document.
- 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. Dimensions.
    - b. Identification of products.
    - c. Fabrication and installation drawings.
    - d. Roughing-in and setting diagrams.
    - e. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring.
    - f. Shop work manufacturing instructions.
    - g. Templates and patterns.
    - h. Schedules.
    - i. Design calculations.
    - j. Compliance with specified standards.
    - k. Notation of coordination requirements.
    - l. Notation of dimensions established by field measurement.
    - m. Relationship to adjoining construction clearly indicated.
    - n. Seal and signature of professional engineer if specified.
    - o. Wiring Diagrams: Differentiate between manufacturer-installed and field-installed wiring.
  2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches (215 by 280 mm) but no larger than 30 by 40 inches (750 by 1000 mm).
  3. Number of Copies: Submit (4) opaque copies of each submittal. Architect will retain (2) copies; Architect will return (1) copy for reproduction and distribution. Mark up and

retain (1) copy as a Project Record Drawing and copies where copies are required for operation and maintenance manuals..

- 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 appropriate Specification Section.
  3. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
    - a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
    - b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.
  4. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
    - a. Number of Samples: Submit two full set(s) 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.
  5. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
    - a. Number of Samples: Submit three sets of Samples. Architect will retain two Sample sets; remainder will be returned.
      - 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. Product Schedule or List: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:
1. Type of product. Include unique identifier for each product.
  2. Number and name of room or space.
  3. Location within room or space.

4. Number of Copies: Submit three copies of product schedule or list, unless otherwise indicated. Architect will return one copy for reproduction and distribution.
  - a. Mark up and retain one returned copy as a Project Record Document.
- F. Contractor's Construction Schedule: Comply with requirements specified in Division 1 Section "Construction Progress Documentation" for Construction Manager's action.
- G. Submittals Schedule: Comply with requirements specified in Division 1 Section "Construction Progress Documentation."
- H. Application for Payment: Comply with requirements specified in Division 1 Section "Payment Procedures."
- I. Schedule of Values: Comply with requirements specified in Division 1 Section "Payment Procedures."
- J. 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.
  4. Number of Copies: Submit three copies of subcontractor list, unless otherwise indicated. Architect will return one copy.
    - a. Mark up and retain one returned copy as a Project Record Document.

## 2.02 INFORMATIONAL SUBMITTALS

- A. General: Prepare and submit Informational Submittals required by other Specification Sections.
  1. Number of Copies: Submit two copies of each submittal, unless otherwise indicated. Architect will not return copies.
  2. Certificates and Certifications: Provide a notarized statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
  3. Test and Inspection Reports: Comply with requirements specified in Division 1 Section "Quality Requirements."
- B. Coordination Drawings: Comply with requirements specified in Division 1 Section "Project Management and Coordination."
- C. Contractor's Construction Schedule: Comply with requirements specified in Division 1 Section "Construction Progress Documentation."
- D. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.



- E. **Welding Certificates:** Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification (WPS) and Procedure Qualification Record (PQR) on AWS forms. Include names of firms and personnel certified.
- F. **Installer Certificates:** Prepare 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.
- G. **Manufacturer Certificates:** Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
- H. **Product Certificates:** Prepare written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
- I. **Material Certificates:** Prepare written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
- J. **Material Test Reports:** Prepare 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.
- K. **Product Test Reports:** Prepare written reports indicating current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
- L. **Research/Evaluation Reports:** Prepare 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.
- M. **Schedule of Tests and Inspections:** Comply with requirements specified in Division 1 Section "Quality Requirements."
- N. **Preconstruction Test Reports:** Prepare 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.
- O. **Compatibility Test Reports:** Prepare 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.

- P. Field Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, 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.
- Q. Maintenance Data: Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment. Comply with requirements specified in Division 1 Section "Operation and Maintenance Data."
- R. Design Data: Prepare 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.
- S. Manufacturer's Instructions: Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer. Include the following, as applicable:
1. Preparation of substrates.
  2. Required substrate tolerances.
  3. Sequence of installation or erection.
  4. Required installation tolerances.
  5. Required adjustments.
  6. Recommendations for cleaning and protection.
- T. Manufacturer's Field Reports: Prepare written information documenting factory-authorized service representative's tests and inspections. Include the following, as applicable:
1. Name, address, and telephone number of factory-authorized service representative making report.
  2. Statement on condition of substrates and their acceptability for installation of product.
  3. Statement that products at Project site comply with requirements.
  4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
  5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
  6. Statement whether conditions, products, and installation will affect warranty.
  7. Other required items indicated in individual Specification Sections.
- U. Insurance Certificates and Bonds: Prepare written information indicating current status of insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amounts of deductibles, if any, and term of the coverage.
- V. Material Safety Data Sheets (MSDSs): Submit information directly to Owner at end of the project; do not submit to Architect.
1. Architect will not review submittals that include MSDSs and will return them.

## 2.03 DELEGATED DESIGN

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

## PART 3 - EXECUTION

### 3.01 CONTRACTOR'S REVIEW

- A. 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.
  - 1. The contractor shall review submittals for completeness and compliance with the contract documents. If submittal contains substitutions, contractor shall process substitutions in accordance with division 1 section "Product Requirements" and not part of specified shop drawings or product data submittals. Contractor is responsible for keeping subcontractors on time with the submittal schedule. If the contractor submits submittals that are repeatedly rejected, requiring the architect to perform multiple reviews of the same submittal because of the failure to properly prepare and complete the submittals:
    - a. Owner will compensate architect for such additional services
    - b. Owner will deduct the amount of such compensation from the final payment to the contractor.
- B. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

### 3.02 ARCHITECT'S ACTION

- A. General: Architect will not review submittals that do not bear Contractor's approval stamp and will return them without action.
- B. Action Submittals: Architect will review each submittal, make marks to indicate corrections or modifications required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken.

1. Final unrestricted release: Where the submittals are marked as follow, the work covered by the submittal may proceed provided it complies with the requirements of the contract documents; acceptance of the work will depend upon that compliance.
    - a. Marking: "Reviewed"
  2. Final-but-restricted release: When the submittals are marked as follows, the work covered by the submittal may proceed provided it complies with both the architect's/engineer's notations or corrections on the submittal and with the requirements of the contract documents; acceptance of the work will depend on that compliance.
    - a. Marking: "Make corrections noted."
  3. Returned for re-submittal: When the submittal is marked as follows, do not proceed with the work covered by the submittal, including purchasing, fabrication, delivery, or other activity. Revise the submittal or prepare a new submittal in accordance with the architect's/engineer's notations stating the reasons for returning the submittal; resubmit the submittal without delay. Repeat if necessary to obtain a different action marking. Do not permit submittals with the following marking to be used at the project site, or elsewhere where work is in progress.
    - a. Marking: "Revise and resubmit"
    - b. Marking: "Rejected"
- C. The Architect's marking of "Approved," means submittal has been reviewed for general conformance to the contract documents only and does not mean unqualified acceptance. The Contractor is fully responsible for compliance with the contract documents.
- D. Informational Submittals: Architect will review each submittal and will not return it, or will reject and return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.
- E. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

**END OF SECTION 01330**

## SECTION 01400

### QUALITY REQUIREMENTS

#### PART 1 - GENERAL

##### 1.01 RELATED DOCUMENTS

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

##### 1.02 SUMMARY

- A. This Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
  - 1. Specific quality-assurance and -control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
  - 2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.
  - 3. Requirements for Contractor to provide quality-assurance and -control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.
- C. Related Sections include the following:
  - 1. Division 1 Section "Construction Progress Documentation" for developing a schedule of required tests and inspections.
  - 2. Division 1 Section "Cutting and Patching" for repair and restoration of construction disturbed by testing and inspecting activities.
  - 3. Divisions 2 through 16 Sections for specific test and inspection requirements.

##### 1.03 DEFINITIONS

- A. **Quality-Assurance Services:** Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.
- B. **Quality-Control Services:** Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Architect.
- C. **Mockups:** Full-size, physical assemblies that are constructed on-site. Mockups are used to verify selections made under sample submittals, to demonstrate aesthetic effects and, where

indicated, qualities of materials and execution, and to review construction, coordination, testing, or operation; they are not Samples.

- D. Laboratory Mockups: Full-size, physical assemblies that are constructed at testing facility to verify performance characteristics.
- E. Preconstruction Testing: Tests and inspections that are performed specifically for the Project before products and materials are incorporated into the Work to verify performance or compliance with specified criteria.
- F. Product Testing: Tests and inspections that are performed by an NRTL, an NVLAP, or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with industry standards.
- G. Source Quality-Control Testing: Tests and inspections that are performed at the source, i.e., plant, mill, factory, or shop.
- H. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.
- I. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.
- J. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.
  - 1. Using a term such as "carpentry" does not imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter." It also does not imply that requirements specified apply exclusively to tradespeople of the corresponding generic name.
- K. Experienced: When used with an entity, "experienced" means having successfully completed a minimum of five previous projects similar in size and scope to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

#### 1.04 CONFLICTING REQUIREMENTS

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

1.05 SUBMITTALS

- A. Qualification Data: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.
- B. Schedule of Tests and Inspections: Prepare in tabular form and include the following:
  - 1. Specification Section number and title.
  - 2. Description of test and inspection.
  - 3. Identification of applicable standards.
  - 4. Identification of test and inspection methods.
  - 5. Number of tests and inspections required.
  - 6. Time schedule or time span for tests and inspections.
  - 7. Entity responsible for performing tests and inspections.
  - 8. Requirements for obtaining samples.
  - 9. Unique characteristics of each quality-control service.
- C. Reports: Prepare and submit certified written reports that include the following:
  - 1. Date of issue.
  - 2. Project title and number.
  - 3. Name, address, and telephone number of testing agency.
  - 4. Dates and locations of samples and tests or inspections.
  - 5. Names of individuals making tests and inspections.
  - 6. Description of the Work and test and inspection method.
  - 7. Identification of product and Specification Section.
  - 8. Complete test or inspection data.
  - 9. Test and inspection results and an interpretation of test results.
  - 10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
  - 11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
  - 12. Name and signature of laboratory inspector.
  - 13. Recommendations on retesting and reinspecting.
- D. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.06 QUALITY ASSURANCE

- A. General: Qualifications paragraphs in this Article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.
- B. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.

- C. **Manufacturer Qualifications:** A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- D. **Fabricator Qualifications:** A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- E. **Professional Engineer Qualifications:** A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar to those indicated for this Project in material, design, and extent.
- F. **Specialists:** Certain sections of the Specifications require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.
  - 1. Requirement for specialists shall not supersede building codes and regulations governing the Work.
- G. **Testing Agency Qualifications:** An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E 548; and with additional qualifications specified in individual Sections; and where required by authorities having jurisdiction, that is acceptable to authorities.
  - 1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
  - 2. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.
- H. **Factory-Authorized Service Representative Qualifications:** An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- I. **Preconstruction Testing:** Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following:
  - 1. Contractor responsibilities include the following:
    - a. Provide test specimens representative of proposed products and construction.
    - b. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
    - c. Provide sizes and configurations of test assemblies, mockups, and laboratory mockups to adequately demonstrate capability of products to comply with performance requirements.
    - d. Build site-assembled test assemblies and mockups using installers who will perform same tasks for Project.
    - e. Build laboratory mockups at testing facility using personnel, products, and methods of construction indicated for the completed Work.
    - f. When testing is complete, remove test specimens, assemblies, mockups, and laboratory mockups; do not reuse products on Project.



2. Testing Agency Responsibilities: Submit a certified written report of each test, inspection, and similar quality-assurance service to Architect, with copy to Contractor. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.
  
- J. Mockups: Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:
  1. Build mockups in location and of size indicated or, if not indicated, as directed by Architect.
  2. Notify Architect seven days in advance of dates and times when mockups will be constructed.
  3. Demonstrate the proposed range of aesthetic effects and workmanship.
  4. Obtain Architect's approval of mockups before starting work, fabrication, or construction.
    - a. Allow seven days for initial review and each re-review of each mockup.
  5. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
  6. Demolish and remove mockups when directed, unless otherwise indicated.
  
- K. Laboratory Mockups: Comply with requirements of preconstruction testing and those specified in individual Sections in Divisions 2 through 16.

#### 1.07 QUALITY CONTROL

- A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.
  1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform.
  2. Payment for these services will be made from testing and inspecting allowances, as authorized by Change Orders.
  3. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor.
  
- B. Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.
  1. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.
    - a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.
  2. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
  3. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
  4. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
  5. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.

- C. **Manufacturer's Field Services:** Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Division 1 Section "Submittal Procedures."
- D. **Retesting/Reinspecting:** Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.
- E. **Testing Agency Responsibilities:** Cooperate with Architect and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
1. Notify Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
  2. Determine the location from which test samples will be taken and in which in-situ tests are conducted.
  3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
  4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
  5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
  6. Do not perform any duties of Contractor.
- F. **Associated Services:** Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
1. Access to the Work.
  2. Incidental labor and facilities necessary to facilitate tests and inspections.
  3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
  4. Facilities for storage and field curing of test samples.
  5. Delivery of samples to testing agencies.
  6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
  7. Security and protection for samples and for testing and inspecting equipment at Project site.
- G. **Coordination:** Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
1. Schedule times for tests, inspections, obtaining samples, and similar activities.
- H. **Schedule of Tests and Inspections:** Prepare a schedule of tests, inspections, and similar quality-control services required by the Contract Documents. Submit schedule within 30 days of date established for commencement of the Work.
1. **Distribution:** Distribute schedule to Owner, Architect, testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.01 TEST AND INSPECTION LOG

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

3.02 REPAIR AND PROTECTION

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

**END OF SECTION 01400**



SECTION 01420

REFERENCES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 DEFINITIONS

- A. General: Basic Contract definitions are included in the Conditions of the Contract.
- B. "Approved": The term "approved," when used in conjunction with Architect's action on Contractor's submittals, applications, and requests, is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.
- C. "Directed": Terms such as "directed," "requested," "authorized," "selected," "approved," "required," and "permitted" mean directed by Architect, requested by Architect, and similar phrases.
- D. "Indicated": The term "indicated" refers to graphic representations, notes or schedules on Drawings, or to other paragraphs or schedules in Specifications and similar requirements in the Contract Documents. Terms such as "shown," "noted," "scheduled," and "specified" are used to help the user locate the reference.
- E. "Regulations": The term "regulations" includes laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, as well as rules, conventions, and agreements within the construction industry that control performance of the Work.
- F. "Furnish": The term "furnish" means to supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.
- G. "Install": The term "install" describes operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.
- H. "Provide": The term "provide" means to furnish and install, complete and ready for the intended use.
- I. "Installer": An installer is Contractor or another entity engaged by Contractor, as an employee, subcontractor, or contractor of lower tier, to perform a particular construction operation, including installation, erection, application and similar operations.
- J. The term "experienced," when used with the term "installer," means having successfully completed a minimum of five previous projects similar in size and scope to this Project; being

familiar with the special requirements indicated; and having complied with the requirements of authorities having jurisdiction.

- K. Using a term such as “carpentry” does not imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as “carpenter.” It also does not imply that requirements specified apply exclusively to tradespeople of the corresponding generic name.
- L. "Project Site" is the space available for performing construction activities, either exclusively or in conjunction with others performing other work as part of Project. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

### 1.03 INDUSTRY STANDARDS

- A. **Applicability of Standards:** Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.
- B. **Publication Dates:** Comply with standards in effect as of date of the Contract Documents, unless otherwise indicated.
- C. **Conflicting Requirements:** Where compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to Architect for a decision before proceeding.
  - 1. **Minimum Quantity or Quality Levels:** The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of the requirements. Refer uncertainties to Architect for a decision before proceeding.
- D. **Copies of Standards:** Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.
  - 1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.
- E. **Abbreviations and Names:** Abbreviations and acronyms are frequently used in the specifications and other contract documents to represent the name of a trade association, standards-developing organization, authorities having jurisdiction, or other entity in the context of referencing a standard or publication. Where abbreviations and acronyms are used in the specifications or other contract documents, they mean the recognized name of these entities. Refer to Gale Research’s “Encyclopedia of Associations” or Columbia Books’ “National Trade & Professional Associations of the U.S.,” which are available in most libraries.
- F. **Abbreviations and Names:** Abbreviations and acronyms are frequently used in the specifications and other contract documents to represent the name of a trade association,

standards-developing organization, authorities having jurisdiction, or other entity in the context of referencing a standard or publication. The following abbreviations and acronyms, as referenced in the contract documents, mean the associated names. Names and addresses are subject to change and are believed, but are not assured, to be accurate and up-to-date as of the date of the contract documents.

ADAAG	Americans with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities Available from Access Board <a href="http://www.access-board.gov">www.access-board.gov</a>	(800) 872-2253 (202) 272-0080
CFR	Code of Federal Regulations Available from Government Printing Office <a href="http://www.access.gpo.gov/nara/cfr">www.access.gpo.gov/nara/cfr</a>	(888) 293-6498 (202) 512-1530
CRD	Handbook for Concrete and Cement Available from Army Corps of Engineers Waterways Experiment Station <a href="http://www.wes.army.mil">www.wes.army.mil</a>	(601) 634-2355
DOD	Department of Defense Military Specifications and Standards Available from Department of Defense Single Stock Point <a href="http://www.dodssp.daps.mil">www.dodssp.daps.mil</a>	(215) 697-6257
DSCC	Defense Supply Center Columbus (See FS)	
FED-STD	Federal Standard (See FS)	
FS	Federal Specification Available from Department of Defense Single Stock Point <a href="http://www.dodssp.daps.mil">www.dodssp.daps.mil</a>	(215) 697-6257
	Available from General Services Administration <a href="http://www.apps.fss.gsa.gov/pub/fedspecs/index.cfm">www.apps.fss.gsa.gov/pub/fedspecs/index.cfm</a>	(202) 619-8925
	Available from National Institute of Building Sciences <a href="http://www.nibs.org">www.nibs.org</a>	(202) 289-7800
FTMS	Federal Test Method Standard (See FS)	
MIL	See MILSPEC	
MS MIL	See MILSPEC	

MILSPEC	Military Specification and Standards Available from Department of Defense Single Stock Point <a href="http://www.dodssp.daps.mil">www.dodssp.daps.mil</a>	(215) 697-6257
UFAS	Uniform Federal Accessibility Standards Available from Access Board <a href="http://www.access-board.gov">www.access-board.gov</a>	(800) 872-2253 (202) 272-5434
AA	Aluminum Association, Inc. (The) <a href="http://www.aluminum.org">www.aluminum.org</a>	(202) 862-5100
AAADM	American Association of Automatic Door Manufacturers <a href="http://www.aaadm.com">www.aaadm.com</a>	(216) 241-7333
AABC	Associated Air Balance Council <a href="http://www.aabchq.com">www.aabchq.com</a>	(202) 737-0202
AAMA	American Architectural Manufacturers Association <a href="http://www.aamanet.org">www.aamanet.org</a>	(847) 303-5664
AAN	American Association of Nurserymen (See ANLA)	
AASHTO	American Association of State Highway and Transportation Officials <a href="http://www.aashto.org">www.aashto.org</a>	(202) 624-5800
AATCC	American Association of Textile Chemists and Colorists (The) <a href="http://www.aatcc.org">www.aatcc.org</a>	(919) 549-8141
ABMA	American Bearing Manufacturers Association <a href="http://www.abma-dc.org">www.abma-dc.org</a>	(202) 367-1155
ABMA	American Boiler Manufacturers Association 950 North Glebe Road, Suite 160 Arlington, VA 22203-1824 <a href="http://www.abma.com">www.abma.com</a>	(703) 522-7350
ACI	American Concrete Institute/ACI International <a href="http://www.aci-int.org">www.aci-int.org</a>	(248) 848-3700



ACIL	ACIL: The Association of Independent Scientific, Engineering, and Testing Firms 1629 K Street, NW, Suite 400 Washington, DC 20006 <a href="http://www.acil.org">www.acil.org</a>	(202) 887-5872
ADC	Air Diffusion Council 104 South Michigan Ave, Suite 1500 Chicago, IL 60603	(312) 201-010
AEIC	Association of Edison Illuminating Companies, Inc. (The) <a href="http://www.aeic.org">www.aeic.org</a>	(205) 257-2530
AFBMA	Anti-Friction Bearing Manufacturers Association (See ABMA)	
AFPA	American Forest & Paper Association (See AF&PA)	
AF&PA	American Forest & Paper Association <a href="http://www.afandpa.org">www.afandpa.org</a>	(800) 878-8878 (202) 463-2700
AGA	American Gas Association <a href="http://www.aga.org">www.aga.org</a>	(202) 824-7000
AHA	American Hardboard Association <a href="http://www.hardboard.org">www.hardboard.org</a>	(847) 934-8800
AHAM	Association of Home Appliance Manufacturers <a href="http://www.aham.org">www.aham.org</a>	(202) 872-5955
AI	Asphalt Institute <a href="http://www.asphaltinstitute.org">www.asphaltinstitute.org</a>	(859) 288-4960
AIA	American Institute of Architects (The) <a href="http://www.aia.org">www.aia.org</a>	(800) 242-3837 (202) 626-7300
AIA	American Insurance Association 1130 Connecticut Ave., NW, Suite 100 Washington, DC 20036	(202) 828-7100
AIHA	American Industry Hygiene Association 2700 Prosperity Ave., Suite 250 Fairfax, VA 22031 <a href="http://www.aiha.org">www.aiha.org</a>	(703) 849-8888
AISC	American Institute of Steel Construction <a href="http://www.aisc.org">www.aisc.org</a>	(800) 644-2400 (312) 670-2400

AISI	American Iron and Steel Institute <a href="http://www.steel.org">www.steel.org</a>	(202) 452-7100
AITC	American Institute of Timber Construction <a href="http://www.aitc-glulam.org">www.aitc-glulam.org</a>	(303) 792-9559
ALA	American Laminators Association (See LMA)	
ALI	Associated Laboratories, Inc. PO Box 152837 Dallas, TX 75315 <a href="http://www.assoc-labs.com">www.assoc-labs.com</a>	(214) 565-0593
ALCA	Associated Landscape Contractors of America <a href="http://www.alca.org">www.alca.org</a>	(800) 395-2522 (703) 736-9666
ALSC	American Lumber Standard Committee, Incorporated <a href="http://www.alsc.org">www.alsc.org</a>	(301) 972-1700
AMCA	Air Movement and Control Association International, Inc. <a href="http://www.amca.org">www.amca.org</a>	(847) 394-0150
ANSI	American National Standards Institute 11 West 42 <sup>nd</sup> St., 13 <sup>th</sup> floor New York, NY 10036-8002 <a href="http://www.ansi.org">www.ansi.org</a>	(888) 267-4783 (212) 642-4900
ANSI	American National Standards Institute <a href="http://www.ansi.org">www.ansi.org</a>	(202) 293-8020
AOAC	AOAC International 481 N. Frederick Ave., Suite 500 Gaithersburg, MD 20877 <a href="http://www.aoac.org">www.aoac.org</a>	(301) 924-7077
AOSA	Association of Official Seed Analysts <a href="http://www.aosaseed.com">www.aosaseed.com</a>	(505) 522-1437
APA	APA - The Engineered Wood Association <a href="http://www.apawood.org">www.apawood.org</a>	(253) 565-6600
APA	Architectural Precast Association <a href="http://www.archprecast.org">www.archprecast.org</a>	(239) 454-6989
API	American Petroleum Institute <a href="http://www.api.org">www.api.org</a>	(202) 682-8000
ARI	Air-Conditioning & Refrigeration Institute	(703) 524-8800

ARMA	<a href="http://www.ari.org">www.ari.org</a> Asphalt Roofing Manufacturers Association <a href="http://www.asphaltroofing.org">www.asphaltroofing.org</a>	(202) 207-0917
ASA	Acoustical Society of America 500 Sunnyside Blvd. Woodbury, NY 11797 <a href="http://asa.aip.org">//asa.aip.org</a>	(516) 576-2360
ASC	Adhesive and Sealant Council 1627 K St., NW, Suite 1000 Washington, DC 20006-1707 <a href="http://www.ascouncil.org">www.ascouncil.org</a>	(202) 452-1500
ASCA	Architectural Spray Coaters Association <a href="http://www.ascassoc.com">www.ascassoc.com</a>	(856) 848-6120
ASCE	American Society of Civil Engineers <a href="http://www.asce.org">www.asce.org</a>	(800) 548-2723 (703) 295-6300
ASHES	American Society for Healthcare Environmental Services Division of the American Hospital Association One North Franklin, Suite 2700 Chicago, IL 60606	(312) 422-3860
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers <a href="http://www.ashrae.org">www.ashrae.org</a>	(800) 527-4723 (404) 636-8400
ASLA	American Society of Landscape Architects 636 Eye St., NW Washington, DC 20001-3736 <a href="http://www.asla.org">www.asla.org</a>	(202) 898-2444
ASME	ASME International (The American Society of Mechanical Engineers International) <a href="http://www.asme.org">www.asme.org</a>	(800) 843-2763 (212) 591-7722
ASPA	American Sod Producers Association (See TPI)	
ASPE	American Society of Plumbing Engineers 3617 Thousand Oaks Blvd., Suite 210 Westlake Village, CA 91362-3649	(805) 495-7120
ASQ	American Society for Quality 611 East Wisconsin Ave. Milwaukee, WI 53201-3005 <a href="http://www.asq.org">www.asq.org</a>	(800) 248-1946 (414) 272-8575

ASSE	American Society of Sanitary Engineering <a href="http://www.asse-plumbing.org">www.asse-plumbing.org</a>	(440) 835-3040
ASTM	ASTM International (American Society for Testing and Materials International) <a href="http://www.astm.org">www.astm.org</a>	(610) 832-9585
ATIS	Alliance for Telecommunications Industry Solutions (Formerly: Exchange Carriers Standards Association) 1200 G St., NW Suite 500 Washington, DC 20005 <a href="http://www.atis.org">www.atis.org</a>	(202) 628-6380
AWCI	AWCI International (Association of the Wall and Ceiling Industries International) <a href="http://www.awci.org">www.awci.org</a>	(703) 534-8300
AWCMA	American Window Covering Manufacturers Association (See WCSC)	
AWI	Architectural Woodwork Institute <a href="http://www.awinet.org">www.awinet.org</a>	(800) 449-8811 (703) 733-0600
AWPA	American Wood-Preservers' Association <a href="http://www.awpa.com">www.awpa.com</a>	(817) 326-6300
AWPB	American Wood Preserver's Bureau (This organization is now defunct.)	
AWS	American Welding Society <a href="http://www.aws.org">www.aws.org</a>	(800) 443-9353 (305) 443-9353
AWWA	American Water Works Association <a href="http://www.awwa.org">www.awwa.org</a>	(800) 926-7337 (303) 794-7711
BAC	Brick Association of the Carolinas (Formerly: Brick Association of North Carolina) PO Box 13290 Greensboro, NC 27415-3290 <a href="http://www.gobrick.com">www.gobrick.com</a>	(800) 622-7425 (336) 794-7711
BHMA	Builders Hardware Manufacturers Association <a href="http://www.buildershardware.com">www.buildershardware.com</a>	(212) 297-2122
BIA	Brick Industry Association (The) <a href="http://www.bia.org">www.bia.org</a>	(703) 620-0010

BIFMA	BIFMA International (Business and Institutional Furniture Manufacturer's Association International) <a href="http://www.bifma.com">www.bifma.com</a>	(616) 285-3963
CAGI	Compressed Air and Gas Institute c/o Thomas Associates, Inc. 1300 Sumner Ave. Cleveland, OH 44115-2851 <a href="http://www.taol.com/cagi">www.taol.com/cagi</a>	(216) 241-7333
CAUS	Color Association of the United States 409 W. 44 <sup>th</sup> St. New York, NY 10036-4402	(212) 582-6884
CBMA	Certified Ballast Manufacturers Association 355 Lexington Ave., 17 <sup>th</sup> Floor New York, NY 10017 <a href="http://www.certbal.org">www.certbal.org</a>	(212) 661-4261
CCC	Carpet Cushion Council <a href="http://www.carpetcushion.org">www.carpetcushion.org</a>	(203) 637-1312
CDA	Copper Development Association Inc. <a href="http://www.copper.org">www.copper.org</a>	(800) 232-3282 (212) 251-7200
CFFA	Chemical Fabrics & Film Association, Inc. <a href="http://www.chemicalfabricsandfilm.com">www.chemicalfabricsandfilm.com</a>	(216) 241-7333
CGA	Compressed Gas Association <a href="http://www.cganet.com">www.cganet.com</a>	(703) 788-2700
CGSB	Canadian General Standards Board <a href="http://www.pwgsc.gc.ca/cgsb">www.pwgsc.gc.ca/cgsb</a>	(819) 956-0425
CISCA	Ceilings & Interior Systems Construction Association <a href="http://www.cisca.org">www.cisca.org</a>	(630) 584-1919
CISPI	Cast Iron Soil Pipe Institute <a href="http://www.cispi.org">www.cispi.org</a>	(423) 892-0137
CLFMI	Chain Link Fence Manufacturers Institute <a href="http://www.chainlinkinfo.org">www.chainlinkinfo.org</a>	(301) 596-2583
CPA	Composite Panel Association (Formerly: National Particleboard Association) 18928 Premiere Ct. Gaithersburg, MD 20879-1569 <a href="http://www.pbmdf.com">www.pbmdf.com</a>	(301) 670-0604

CPPA	Corrugated Polyethylene Pipe Association <a href="http://www.cppa-info.org">www.cppa-info.org</a>	(800) 510-2772 (202) 462-9607
CRI	Carpet & Rug Institute (The) <a href="http://www.carpet-rug.com">www.carpet-rug.com</a>	(800) 882-8846 (706) 278-3176
CRSI	Concrete Reinforcing Steel Institute <a href="http://www.crsi.org">www.crsi.org</a>	(847) 517-1200
CSSB	Cedar Shake & Shingle Bureau <a href="http://www.cedarbureau.org">www.cedarbureau.org</a>	(604) 820-7700
CTI	Ceramic Tile Institute of America 12061 West Jefferson Blvd. Culver City, CA 90230-6219	(310) 574-7800 (416) 747-4000
CTI	Cooling Technology Institute (Formerly: Cooling Tower Institute) <a href="http://www.cti.org">www.cti.org</a>	(281) 583-4087
DASMA	Door and Access Systems Manufacturers Association, International (Formerly: National Association of Garage Door Manufacturers) c/o Thomas Associates, Inc. 1300 Sumner Ave. Cleveland, OH 44115-2851 <a href="http://www.taol.com/dasma">www.taol.com/dasma</a>	(216) 241-7333
DHI	Door and Hardware Institute <a href="http://www.dhi.org">www.dhi.org</a>	(703) 222-2010
DIPRA	Ductile Iron Pipe Research Association 245 Riverchase Pkwy East, Suite O Birmingham, AL 35244 <a href="http://www.dipra.org">www.dipra.org</a>	(205) 402-8702
DLPA	Decorative Laminate Products Association (Dissolved in 1995 – Now part of KCMA)	
ECSA	Exchange Carriers Standards Association (See ATIS)	
EIA	Electronic Industries Alliance <a href="http://www.eia.org">www.eia.org</a>	(703) 907-7500
EIMA	EIFS Industry Members Association <a href="http://www.eima.com">www.eima.com</a>	(800) 294-3462 (770) 968-7945
EJMA	Expansion Joint Manufacturers Association, Inc. <a href="http://www.ejma.org">www.ejma.org</a>	(914) 332-0040

ETL	ETL Testing Laboratories, Inc. (Now part of ITS)	
FCI	Fluid Controls Institute <a href="http://www.fluidcontrolsinstitute.org">www.fluidcontrolsinstitute.org</a>	(216) 241-7333
FCICA	Floor Covering Installation Contractors Association PO Box 948 Dalton, GA 30722-0948	(706) 226-5488
FGMA	Flat Glass Marketing Association (See GANA)	
FM	Factory Mutual System (See FMG)	
GA	Gypsum Association <a href="http://www.gypsum.org">www.gypsum.org</a>	(202) 289-5440
GANA	Glass Association of North America (Formerly: FGMA - Flat Glass Marketing Association) <a href="http://www.glasswebsite.com">www.glasswebsite.com</a>	(785) 271-0208
GRI	Geosynthetic Research Institute <a href="http://www.drexel.edu/gri">www.drexel.edu/gri</a>	(215) 895-2343
HEI	Heat Exchange Institute c/o Thomas Associates, Inc. 1300 Sumner Ave. Cleveland, OH 44115-2851 <a href="http://www.taol.com/hei">www.taol.com/hei</a>	(216) 241-7333
HI	Hydraulic Institute <a href="http://www.pumps.org">www.pumps.org</a>	(888) 786-7744 (973) 267-9700
HI	Hydronics Institute <a href="http://www.gamanet.org">www.gamanet.org</a>	(908) 464-8200
HMA	Hardwood Manufacturers Association <a href="http://www.hardwood.org">www.hardwood.org</a>	
HPVA	Hardwood Plywood & Veneer Association <a href="http://www.hpva.org">www.hpva.org</a>	(703) 435-2900
IAS	International Approval Services (See CSA)	
IBID	Institute of Business Designers (Now part of IIDA)	

ICC	International Code Council 5203 Leesburg Pike #708 Falls Church, VA 22041 <a href="http://www.intlcode.org">www.intlcode.org</a>	(703) 931-4533
ICEA	Insulated Cable Engineers Association, Inc. <a href="http://www.icea.net">www.icea.net</a>	(770) 830-0369
IEC	International Electrotechnical Commission <a href="http://www.iec.ch">www.iec.ch</a>	41 22 919 02 11
IEEE	Institute of Electrical and Electronics Engineers, Inc. (The) <a href="http://www.ieee.org">www.ieee.org</a>	(212) 419-7900
IESNA	Illuminating Engineering Society of North America <a href="http://www.iesna.org">www.iesna.org</a>	(212) 248-5000
IGCC	Insulating Glass Certification Council <a href="http://www.igcc.org">www.igcc.org</a>	(315) 646-2234
IGMA	Insulating Glass Manufacturers Alliance (The) <a href="http://www.igmaonline.org">www.igmaonline.org</a>	(613) 233-1510
IIDA	International Interior Design Association 341 Merchandise Mart Chicago, IL 60654-1104 <a href="http://www.iida.com">www.iida.com</a>	(800) 888-4432
ILI	Indiana Limestone Institute of America, Inc. <a href="http://www.iliai.com">www.iliai.com</a>	(812) 275-4426
ISMA	International Municipal Signal Association PO Box 539 165 E. Union St. Newark, NY 14513 <a href="http://www.imsasafety.org">www.imsasafety.org</a>	(800) 723-4672 (315) 331-2182
INCE	Institute of Noise Control Engineering PO Box 3206, Arlington Branch Poughkeepsie, NY 12603 <a href="http://www.ince.org">www.ince.org</a>	(914) 462-4006
IRI	HSB Industrial Risk Insurers PO Box 5010 85 Woodland St. Hartford, CT 06102-5010 <a href="http://www.industrialrisk.com">www.industrialrisk.com</a>	(800) 520-7300 (860) 520-7300
ISA	ISA-International Society for Measurement and Control	(919) 549-8411



PO Box 12277  
67 Alexander Dr.  
Research Triangle Park, NC 27709  
[www.isa.org](http://www.isa.org)

ISEA	Industrial Safety Equipment Association 1901 N. Moore Street, Suite 808 Arlington, VA 22209 <a href="http://www.safetycentral.org/isea">www.safetycentral.org/isea</a>	(703) 525-1695
ISS	Iron and Steel Society 410 Commonwealth Dr. Warrendale, PA 15086-7512 <a href="http://www.issource.org">www.issource.org</a>	(412) 776-1535
ITS	Intertek Testing Services <a href="http://www.itsglobal.com">www.itsglobal.com</a>	(800) 345-3851 (607) 753-6711
KCMA	Kitchen Cabinet Manufacturers Association <a href="http://www.kcma.org">www.kcma.org</a>	(703) 264-1690
LGSI	Light Gage Structural Institute PO Box 560746 The Colony, TX 75056	(972) 625-4560
LIA	Lead Industries Association, Inc. 295 Madison Ave., Suite 808 New York, NY 10017 <a href="http://www.leadinfo.com">www.leadinfo.com</a>	(800)422-5323
LMA	Laminating Materials Association <a href="http://www.lma.org">www.lma.org</a>	(201) 664-2700
LPI	Lightning Protection Institute <a href="http://www.lightning.org">www.lightning.org</a>	(800) 488-6864 (847) 577-7200
LSGA	Laminated Safety Glass Association (See GANA)	
MBMA	Metal Building Manufacturers Association <a href="http://www.mbma.com">www.mbma.com</a>	(216) 241-7333
MCAA	Mechanical Contractors Association of America 1385 Piccard Dr. Rockville, MD 20850-4329 <a href="http://www.mcaa.org">www.mcaa.org</a>	(301) 869-5800
MFMA	Maple Flooring Manufacturers Association <a href="http://www.maplefloor.org">www.maplefloor.org</a>	(847) 480-9138

MFMA	Metal Framing Manufacturers Association <a href="http://www.metalframingmfg.org">www.metalframingmfg.org</a>	(312) 644-6610
MHIA	Material Handling Industry of America <a href="http://www.mhia.org">www.mhia.org</a>	(800) 345-1815 (704) 676-1190
MIA	Marble Institute of America <a href="http://www.marble-institute.com">www.marble-institute.com</a>	(440) 250-9222
MIA	Masonry Institute of America <a href="http://www.masonryinstitute.org">www.masonryinstitute.org</a>	(213) 388-0472
ML/SFA	Metal Lath/Steel Framing Association 8 South Michigan Ave., Suite 1000 Chicago, IL 60603	(312) 456-5590
MRCA	Midwest Roofing Contractors Association 4840 W. 15 <sup>th</sup> St., Suite 1000 Lawrence, KS 66049 <a href="http://www.mrca.org">www.mrca.org</a>	(913) 843-4888
MSS	Manufacturers Standardization Society of The Valve and Fittings Industry Inc. <a href="http://www.mss-hq.com">www.mss-hq.com</a>	(703) 281-6613
NAA	National Arborist Association PO Box 1094 Amherst, NH 03031-1094 <a href="http://www.natlarb.com">www.natlarb.com</a>	(800) 733-2622 (603) 673-3311
NAAMM	National Association of Architectural Metal Manufacturers <a href="http://www.naamm.org">www.naamm.org</a>	(312) 332-0405
NAAMM	North American Association of Mirror Manufacturers (See GANA)	
NACE	NACE International (National Association of Corrosion Engineers International) <a href="http://www.nace.org">www.nace.org</a>	(281) 228-6200
NACE	NACE International (Formerly: National Association of Corrosion Engineers) PO Box 218340 Houston, TX 77218-8340	(281) 492-0535 (281) 492-8254
NAGDM	National Association of Garage Door Manufacturers (See DASMA)	
NAIMA	North American Insulation Manufacturers Association (The) <a href="http://www.naima.org">www.naima.org</a>	(703) 684-0084

NAMI	National Accreditation and Management Institute, Inc.	(304) 258-5100
NAPA	National Asphalt Pavement Association NAPA Building 5100 Forbes Blvd. Lanham, MD 20706-4413 <a href="http://www.hotmix.org">www.hotmix.org</a>	(888) 468-6499 (301) 731-4748
NBHA	National Builders Hardware Association (See DHI)	
NBGQA	National Building Granite Quarries Association, Inc. <a href="http://www.nbgqa.com">www.nbgqa.com</a>	(800) 557-2848
NCAC	National Council of Acoustical Consultants 66 Morris Ave., Suite 1A Springfield, NJ 07081 <a href="http://www.ncac.com">www.ncac.com</a>	(973) 564-5859
NCCA	National Coil Coaters Association <a href="http://www.coilcoaters.org">www.coilcoaters.org</a>	(312) 321-6894
NCMA	National Concrete Masonry Association <a href="http://www.ncma.org">www.ncma.org</a>	(703) 713-1900
NCPI	National Clay Pipe Institute <a href="http://www.ncpi.org">www.ncpi.org</a>	(262) 248-9094
NCRPM	National Council on Radiation Protection and Measurements 7910 Woodmont Ave., Suite 800 Bethesda, MD 20814-3095 <a href="http://www.ncrp.com">www.ncrp.com</a>	(800) 229-2652 (301) 657-2652
NCSPA	National Corrugated Steel Pipe Association 1255 23 <sup>rd</sup> St. NW, Suite 850 Washington, DC 20037 <a href="http://www.ncspa.org">www.ncspa.org</a>	(202) 452-1700
NEBB	National Environmental Balancing Bureau <a href="http://www.nebb.org">www.nebb.org</a>	(301) 977-3698
NECA	National Electrical Contractors Association <a href="http://www.necanet.org">www.necanet.org</a>	(301) 657-3110
NEI	National Elevator Industry 185 Bridge Plaza North, Suite 310 Fort Lee, NJ 07024	(201) 944-3211
NELMA	Northeastern Lumber Manufacturers' Association <a href="http://www.nelma.org">www.nelma.org</a>	(207) 829-6901

NEMA	National Electrical Manufacturers Association <a href="http://www.nema.org">www.nema.org</a>	(703) 841-3200
NETA	InterNational Electrical Testing Association <a href="http://www.netaworld.org">www.netaworld.org</a>	(303) 697-8441
NFPA	NFPA International (National Fire Protection Association International) <a href="http://www.nfpa.org">www.nfpa.org</a>	(800) 344-3555 (617) 770-3000
NFRC	National Fenestration Rating Council <a href="http://www.nfrc.org">www.nfrc.org</a>	(301) 589-1776
NGA	National Glass Association <a href="http://www.glass.org">www.glass.org</a>	(703) 442-4890
NHLA	National Hardwood Lumber Association <a href="http://www.natlhardwood.org">www.natlhardwood.org</a>	(800) 933-0318 (901) 377-1818
NIA	National Insulation Association (Formerly: National Insulation and Abatement Contractors Assoc) 99 Canal Center Plaza, Suite 222 Alexandria, VA 22314 <a href="http://www.insulation.org">www.insulation.org</a>	(703) 683-6422
NKCA	National Kitchen Cabinet Association (See KCMA)	
NLGA	National Lumber Grades Authority <a href="http://www.nlga.org">www.nlga.org</a>	(604) 524-2393
NOFMA	National Oak Flooring Manufacturers Association <a href="http://www.nofma.org">www.nofma.org</a>	(901) 526-5016
NPA	National Parking Association 1112 16 <sup>th</sup> Street, NW, Suite 300 Washington, DC 20036	(202) 296-4336 (800) 647-7275
NPCA	National Paint and Coatings Association 1500 Rhode Island Ave., NW Washington, DC 20005-5597 <a href="http://www.paint.org">www.paint.org</a>	(202) 462-6272
NRCA	National Roofing Contractors Association <a href="http://www.nrca.net">www.nrca.net</a>	(800) 323-9545 (847) 299-9070
NRMCA	National Ready Mixed Concrete Association <a href="http://www.nrmca.org">www.nrmca.org</a>	(888) 846-7622 (301) 587-1400

NSA	National Stone Association 1415 Elliot Pl., NW Washington, DC 20007 <a href="http://www.aggregates.org">www.aggregates.org</a>	(800) 342-1415 (202) 342-1100
NSF	NSF International (National Sanitation Foundation International) <a href="http://www.nsf.org">www.nsf.org</a>	(800) 673-6275 (734) 769-8010
NSSEA	National School Supply and Equipment Association 8300 Colesville Road, Suite 250 Silver Spring, MD 20910 <a href="http://www.ntma.com">www.ntma.com</a>	(800) 395-5550 (301) 495-0240
NTMA	National Terrazzo and Mosaic Association, Inc. <a href="http://www.ntma.com">www.ntma.com</a>	(800) 323-9736 (703) 779-1022
NUSIG	National Uniform Seismic Installation Guidelines PO Box 0933 Alamo, CA 94507	(925)555-6331
NWMA	National Woodwork Manufacturers Association (See NWWDA)	
NWWDA	National Wood Window and Door Association (See WDMA)	
PATMI	Powder Actuated Tool Manufacturers' Institute 1603 Boonslick Road St. Charles, MO 63301-2244	(314) 947-6610
PCA	Portland Cement Association 5420 Old Orchard Road Skokie, IL 60077-1083 <a href="http://www.portcement.org">www.portcement.org</a>	(847) 966-6200
PCI	Precast/Prestressed Concrete Institute <a href="http://www.pci.org">www.pci.org</a>	(312) 786-0300
PDCA	Painting and Decorating Contractors of America <a href="http://www.pdca.com">www.pdca.com</a>	(800) 332-7322 (703) 359-0826
PDI	Plumbing & Drainage Institute <a href="http://www.pdionline.org">www.pdionline.org</a>	(800) 589-8956 (508) 230-3516
PEI	Porcelain Enamel Institute 4004 Hillsboro Pike, Suite 224-B Nashville, TN 37215 <a href="http://www.porcelainenamel.com">www.porcelainenamel.com</a>	(615) 385-5357

PGI	PVC Geomembrane Institute <a href="http://www.pgi-tp.ce.uiuc.edu">www.pgi-tp.ce.uiuc.edu</a>	(217) 333-3929
PIMA	Photographic and Imaging Manufacturers Association 550 Mamaroneck Ave., Suite 307 Harrison, NY 10528 <a href="http://www.pima.net">www.pima.net</a>	(914) 698-7603
PPFA	Plastic Pipe and Fittings Association 800 Roosevelt Road, Building C, Suite 20 Glen Ellyn, IL 60137-5833	(888) 314-6774
PPI	Plastics Pipe Institute 1801 K Street, NW, Suite 600K Washington, DC 20006 <a href="http://www.plasticpipe.org">www.plasticpipe.org</a>	(202) 974-5306
RCMA	Roof Coatings Manufacturers Association Center Park 4041 Powder Mill Road, Suite 404 Calverton, MD 20705 <a href="http://www.roofcoatings.org">www.roofcoatings.org</a>	(301) 348-2003
RCSC	Research Council on Structural Connections <a href="http://www.boltcouncil.org">www.boltcouncil.org</a>	(800) 644-2400 (312) 670-2400
RFCI	Resilient Floor Covering Institute  <a href="http://www.rfci.com">www.rfci.com</a>	Contact by mail only
RMA	Rubber Manufacturers Association 1400 K Street, NW, Suite 900 Washington, DC 20005 <a href="http://www.rma.org">www.rma.org</a>	(800) 220-7620
SAE	SAE International <a href="http://www.sae.org">www.sae.org</a>	(724) 776-4841
SDI	Steel Deck Institute <a href="http://www.sdi.org">www.sdi.org</a>	(847) 462-1930
SDI	Steel Door Institute <a href="http://www.steeldoor.org">www.steeldoor.org</a>	(440) 899-0010
SEFA	Scientific Equipment and Furniture Association <a href="http://www.sefalabfurn.com">www.sefalabfurn.com</a>	(516) 294-5424
SEGD	Society for Environmental Graphic Design 401 F Street, NW, Suite 333	(202) 638-5555

Washington, DC 20001-2728

SGCC	Safety Glazing Certification Council www.sgcc.org	(315) 646-2234
SHLMA	Southern Hardwood Lumber Manufacturers Association (See HMA)	
SIGMA	Sealed Insulating Glass Manufacturers Association (See IGMA)	
SJI	Steel Joist Institute www.steeljoist.org	(843) 626-1995
SMA	Screen Manufacturers Association	(561) 533-0991
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association www.smacna.org	(703) 803-2980
SPI/SPFD	Society of the Plastics Industry, Inc. (The) Spray Polyurethane Foam Division (See SPFA)	
SPIB	Southern Pine Inspection Bureau 4709 Scenic Highway Pensacola, FL 32504-9094 www.spib.org	(850) 434-2611
SPRI	SPRI (Single Ply Roofing Institute) www.spri.org	(781) 647-7026
SSINA	Specialty Steel Industry of North America www.ssina.com	(800) 982-0355 (202) 342-8630
SSPC	SSPC: The Society for Protective Coatings www.sspc.org	(877) 281-7772 (412) 281-2331
SSPMA	Sump and Sewage Pump Manufacturer's Association PO Box 647 Northbrook, IL 60065-0647	(847) 559-9233
STI	Steel Tank Institute www.steeltank.com	(847) 438-8265
SWI	Steel Window Institute www.steelwindows.com	(216) 241-7333
SWPA	Submersible Wastewater Pump Association 1806 Johns Drive	(847) 729-7972

Glenview, IL 60025-1657

SWRI	Sealant, Waterproofing, & Restoration Institute <a href="http://www.swrionline.org">www.swrionline.org</a>	(816) 472-7974
TCA	Tile Council of America, Inc. <a href="http://www.tileusa.com">www.tileusa.com</a>	(864) 646-8453
TIMA	Thermal Insulation Manufacturers Association (See NAIMA)	
TPI	Truss Plate Institute, Inc. <a href="http://www.tpinst.org">www.tpinst.org</a>	(608) 833-5900
TPI	Turfgrass Producers International <a href="http://www.turfgrassod.org">www.turfgrassod.org</a>	(800) 405-8873 (847) 705-9898
UFAC	Upholstered Furniture Action Council PO Box 2436 High Point, NC 27261	(910) 885-6085
UL	Underwriters Laboratories Inc. <a href="http://www.ul.com">www.ul.com</a>	(800) 704-4050 (847) 272-8800
UNI	Uni-Bell PVC Pipe Association <a href="http://www.uni-bell.org">www.uni-bell.org</a>	(972) 243-3902
USITT	United States Institute for Theatre Technology, Inc. <a href="http://www.usitt.org">www.usitt.org</a>	(800) 938-7488 (315) 463-6463
USP	U.S. Pharmacopeia (Formerly: U.S. Pharmacopoeial Convention) 12601 Twinbrook Pkwy Rockville, MD 20852-1790 <a href="http://www.usp.org">www.usp.org</a>	(800) 227-8772
WA	Wallcoverings Association 401 N. Michigan Ave. Chicago, IL 60611-4267	(312) 644-6610
WASTEC	Waste Equipment Technology Association <a href="http://www.wastec.org">www.wastec.org</a>	(800) 424-2869 (202) 244-4700
WCLIB	West Coast Lumber Inspection Bureau <a href="http://www.wclib.org">www.wclib.org</a>	(800) 283-1486 (503) 639-0651
WCMA	Window Covering Manufacturers Association (See WCSC)	
WEF	Water Environmental Federation	(800) 666-0206



	(Formerly: Water Pollution Control Federation) 601 Wythe Street Alexandria, VA 22314-1994 www.wef.org	(703) 684-2400
WIC	Woodwork Institute of California www.wicnet.org	(916) 372-9943
WMMPA	Wood Moulding & Millwork Producers Association www.wmmpa.com	(800) 550-7889 (530) 661-9591
WPCF	Water Pollution Control Federation (See Wef)	
WSC	Water Systems Council Building C, Suite 20 800 Roosevelt Road Glen Ellyn, IL 60137	(630) 545-1762
WSFI	Wood and Synthetic Flooring Institute (See MFMA)	
WWPA	Western Wood Products Association www.wwpa.org	(503) 224-3930

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

BOCA	BOCA International, Inc. www.bocai.org	(708) 799-2300
CABO	Council of American Building Officials (See ICC)	
IAPMO	International Association of Plumbing and Mechanical Officials (The) www.iapmo.org	(909) 595-8449
ICBO	International Conference of Building Officials www.icbo.org	(800) 284-4406 (562) 699-0541
ICBO ES	ICBO Evaluation Service, Inc. www.icbo.org/ICBO_ES/	(800) 423-6587
ICC	International Code Council, Inc. (Formerly: CABO - Council of American Building Officials)	(703) 931-4533

[www.intlcode.org](http://www.intlcode.org)

SBCCI Southern Building Code Congress International, Inc. (205) 591-1853  
[www.sbcci.org](http://www.sbcci.org)

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

CE	Army Corps of Engineers <a href="http://www.usace.army.mil">www.usace.army.mil</a>	
CFR	Code of Federal Regulations <a href="http://www.access.gpo.gov">www.access.gpo.gov</a>	(202) 512-1800
CPSC	Consumer Product Safety Commission <a href="http://www.cpsc.gov">www.cpsc.gov</a>	(800) 638-2772 (301) 504-0990
CS	Commercial Standard US Department of Commerce Government Printing Office Washington, DC 20402 <a href="http://www.nist.gov">www.nist.gov</a>	(202) 512-1800
DOC	Department of Commerce <a href="http://www.doc.gov">www.doc.gov</a>	(202) 482-2000
DOT	Department of Transportation 400 Seventh St., SW Washington, DC 20590 <a href="http://www.dot.gov">www.dot.gov</a>	(202) 366-4000
EPA	Environmental Protection Agency <a href="http://www.epa.gov">www.epa.gov</a>	(202) 260-2090
FAA	Federal Aviation Administration <a href="http://www.faa.gov">www.faa.gov</a>	(202) 366-4000
FCC	Federal Communications Commission (US Department of Housing and Urban Development) 451 Seventh Street, SW Washington, DC 20410 <a href="http://www.hud.gov">www.hud.gov</a>	(202) 418-0126
FDA	Food and Drug Administration <a href="http://www.fda.gov">www.fda.gov</a>	(888) 463-6332
FHA	Federal Housing Administration	(202) 401-0388

(US Department of Housing and Urban Development)  
451 Seventh Street, SW  
Washington, DC 20410  
www.hud.gov

FS	Federal Specification Unit (Available from GSA) 470 East L'Enfant Plaza, SW, Suite 8100 Washington, DC 20407 www.gsa.gov	(202) 619-8925
GSA	General Services Administration www.gsa.gov	(202) 708-5082
HUD	Department of Housing and Urban Development www.hud.gov	(202) 708-1112
MIL	Military Standardization Documents US Department of Defense Defense Automated Printing Service 700 Robbins Ave., Building 4D Philadelphia, PA 19111 www.dodssp.daps.mil	(215) 697-2179
NIST	National Institute of Standards and Technology www.nist.gov	(301) 975-6478
OSHA	Occupational Safety & Health Administration www.osha.gov	(800) 321-6742 (202) 693-1999
PS	Product Standard of NBS US Department of Commerce Government Printing Office Washington, DC 20402 www.nist.gov	(202) 512-1800
RUS	Rural Utilities Service (See USDA)	(202) 720-9540
SD	State Department www.state.gov	(202) 647-4000
TRB	Transportation Research Board www.nas.edu/trb	(202) 334-2934
USDA	Department of Agriculture www.usda.gov	(202) 720-2791
USPS	Postal Service www.usps.com	(202) 268-2000

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

CBHF	State of California, Department of Consumer Affairs Bureau of Home Furnishings and Thermal Insulation <a href="http://www.dca.ca.gov/bhfti">www.dca.ca.gov/bhfti</a>	(800) 952-5210 (916) 574-2041
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TFS	Texas Forest Service Forest Products Laboratory <a href="http://www.txforestsERVICE.tamu.edu">www.txforestsERVICE.tamu.edu</a>	(936) 639-8180
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PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01420

SECTION 01500

TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. This Section includes requirements for temporary facilities and controls, including temporary utilities, support facilities, and security and protection facilities.
- B. Temporary utilities include, but are not limited to, the following:
1. Heating and cooling facilities.
  2. Ventilation.
  3. Electric power service.
  4. Lighting.
  5. Telephone service.
  6. Internet service.
- C. Support facilities include, but are not limited to, the following:
1. Project identification and temporary signs.
  2. Field offices.
  3. Storage and fabrication sheds.
  4. Lifts and hoists.
  5. Construction aids and miscellaneous services and facilities.
- D. Security and protection facilities include, but are not limited to, the following:
1. Perimeter enclosure fence for the site.
  2. Security enclosure and lockup.
  3. Barricades, warning signs, and lights.
  4. Temporary enclosures.
  5. Fire protection.
- E. Related Sections include the following:
1. Division 1 Section "Submittal Procedures" for procedures for submitting copies of implementation and termination schedule and utility reports.
  2. Division 1 Section "Execution Requirements" for progress cleaning requirements.
  3. Divisions 2 through 16 for temporary heat, ventilation, and humidity requirements for products in those Sections.

1.03 USE CHARGES

- A. General: Cost or use charges for temporary facilities are not chargeable to Owner or Architect and shall be included in the Contract Sum. Allow other entities to use temporary services and facilities without cost, including, but not limited to, the following:
  - 1. Owner's construction forces.
  - 2. Occupants of Project.
  - 3. Architect.
  - 4. Construction observer
  - 5. Testing agencies.
  - 6. Personnel of authorities having jurisdiction.
- B. Water Service: Utilize existing water service at the janitor closet. Provide 3/4" heavy-duty rubber hoses with shut-off nozzle.
- C. Electric Power Service: Utilize existing electrical serve at utility closet on each renovated floor. Include necessary meters, transformers, overload protected disconnects, automatic ground-fault interrupter and main distribution switch gear.
- D. Fuel, power and other utility charges incurred for testing and start-up of equipment shall be paid for by the Contractor as part of the work.

#### 1.04 SUBMITTALS

- A. Cold-Weather Procedures: Detailed description of methods, materials, and equipment to be used to comply with cold-weather requirements to protect install concrete and masonry.

#### 1.05 QUALITY ASSURANCE

- A. Standards: Comply with ANSI A10.6, NECA's "Temporary Electrical Facilities," and NFPA 241.
  - 1. Trade Jurisdictions: Assigned responsibilities for installation and operation of temporary utilities are not intended to interfere with trade regulations and union jurisdictions.
  - 2. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.
- B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.
- C. The Contractor is responsible for the implementation, monitoring, and maintenance of job site safety program for the duration of the contract.

#### 1.06 PROJECT CONDITIONS

- A. Temporary Utilities: At earliest feasible time, when acceptable to Owner, change over from use of temporary service to use of permanent service.
  - 1. Temporary Use of Permanent Facilities: Installer of each permanent service shall assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.
- B. Conditions of Use: The following conditions apply to use of temporary services and facilities by all parties engaged in the Work:

1. Keep temporary services and facilities clean and neat.
  2. Relocate temporary services and facilities as required by progress of the Work.
- C. Restrict use of noise-making tools and equipment to hours that will minimize complaints from persons or tenants near the site. Construction noise from machinery, equipment, construction traffic, hammering and similar loud noises shall be restricted to the hours of 8:00 a.m. to 5:00 p.m. Obey State and local noise ordinances.

## PART 2 - PRODUCTS

### 2.01 MATERIALS

- A. General: Provide new materials. Undamaged, previously used materials in serviceable condition may be used if approved by Architect. Provide materials suitable for use intended.
- B. Lumber and Plywood: Comply with requirements in Division 6 Section "Rough Carpentry."
- C. Tarpaulins: Fire-resistive labeled with flame-spread rating of 15 or less.
- D. Water: Potable.

### 2.02 EQUIPMENT

- A. General: Provide equipment suitable for use intended.
- B. Field Offices: To be located within renovated area with lockable entrances, and serviceable finishes; heated and air conditioned.
- C. Fire Extinguishers: Hand carried, portable, UL rated. Provide class and extinguishing agent as indicated or a combination of extinguishers of NFPA-recommended classes for exposures.
  1. Comply with NFPA 10 and NFPA 241 for classification, extinguishing agent, and size required by location and class of fire exposure.
- D. Drinking-Water Fixtures: Containerized, tap-dispenser, bottled-water drinking-water units, including paper cup supply.
- E. Heating Equipment: Owner authorizes use of the permanent heating system.
  1. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.
- F. Electrical Outlets: Properly configured, NEMA-polarized outlets to prevent insertion of 110- to 120-V plugs into higher-voltage outlets; equipped with ground-fault circuit interrupters, reset button, and pilot light.
- G. Power Distribution System Circuits: Where permitted and overhead and exposed for surveillance, wiring circuits, not exceeding 125-V ac, 20-A rating, and lighting circuits may be nonmetallic sheathed cable.

- H. Lamps and Light Fixtures: Provide general service incandescent lamps of wattage required for adequate illumination. Provide guard cages or tempered-glass enclosures where exposed to breakage. Provide exterior fixtures where exposed to moisture.
  
- I. Security Fence: Perimeter security fencing shall be minimum 4 feet high, Tensar fencing with post set to adequately support fence and maintain position. Provide access and entry control gates for vehicle traffic and workers as necessary.

### PART 3 - EXECUTION

#### 3.01 INSTALLATION, GENERAL

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

#### 3.02 TEMPORARY UTILITY INSTALLATION

- A. General: Engage appropriate local utility company to install temporary service or connect to existing service. Where utility company provides only part of the service, provide the remainder with matching, compatible materials and equipment. Comply with utility company recommendations.
  - 1. Arrange with utility company, Building owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.
  - 2. Provide adequate capacity at each stage of construction. Before temporary utility is available, provide trucked-in services.
  - 3. Obtain easements to bring temporary utilities to Project site where Owner's easements cannot be used for that purpose.
  
- B. Heating and Cooling: Provide heating and cooling required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment from that specified that will not have a harmful effect on completed installations or elements being installed.
  - 1. Maintain a minimum temperature of 50 deg F (10 deg C) in permanently enclosed portions of building for normal construction activities, and 65 deg F (18.3 deg C) for finishing activities and areas where finished Work has been installed. Maintain higher minimum temperatures before, during, and after installations of materials and finishes as specified in the individual Sections of Divisions 2 through 16.
  - 2. Prior to operation of permanent equipment for temporary heating purposes, verify that installation is approved for operation, equipment is lubricated and filters are in place. Provide and pay for operation, maintenance, and replacement of filters and worn or consumed parts.
  
- C. Ventilation and Humidity Control: Provide temporary ventilation required by construction activities for curing or drying of completed installations or for protecting installed construction



from adverse effects of high humidity. Select equipment from that specified that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce ambient condition required and minimize energy consumption.

- D. Temporary Lighting:
1. Install and operate temporary lighting that will fulfill security and protection requirements without operating the entire system. Provide temporary lighting that will provide adequate illumination for construction operations and traffic conditions. A minimum of 80 foot candles shall be supplied at mid-height of surfaces for taping, painting and finish work.
- E. Telephone and Internet Service: Provide temporary telephone and internet service throughout construction period for use by contractor.
1. At each telephone, post a list of important telephone numbers.
    - a. Police and fire departments.
    - b. Ambulance service.
    - c. Contractor's home office.
    - d. Architect's office.
    - e. Engineers' offices.
    - f. Prudential's office.
    - g. Principal subcontractors' field and home offices.
  2. Provide an answering machine on superintendent's telephone.
- F. Internet Services: Provide internet service throughout construction period at the field office.

### 3.03 SUPPORT FACILITIES INSTALLATION

- A. General: Comply with the following:
1. Locate field offices, storage sheds, and other temporary facilities and support facilities for easy access.
  2. Maintain support facilities until near Substantial Completion. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.
- B. Project Identification and Temporary Signs: Prepare Project identification and other signs in sizes indicated. Install signs where indicated to inform public and persons seeking entrance to Project. Do not permit installation of unauthorized signs.
1. Engage an experienced sign painter to apply graphics for Project identification signs. Comply with details indicated. Include name of project, and names of Owner, Architect and Contractor.
  2. Prepare temporary signs to provide directional information to construction personnel and visitors.
- C. Contractor's Field Office: Provide field office for use as a common facility by all personnel engaged in construction activities; of sufficient size to accommodate required office personnel and meetings of 10 persons at Project site. Keep office clean and orderly. Pay utility costs for field office for the duration of the project.
1. Furnish and equip office as follows:
    - a. Desk and four chairs, four-drawer file cabinet, a plan table, a plan rack, and bookcase.

- b. Provide a room of not less than 240 sq. ft. (22.5 sq. m) for Project meetings. Furnish room with conference table, 8 folding chairs, and 4-foot- (1.2-m-) square tack board.

- D. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment involved, including temporary utility services. Sheds may be open shelters or fully enclosed spaces within building or elsewhere on-site.
- E. Lifts and Hoists: Provide facilities for hoisting materials and personnel. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.

### 3.04 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects. Avoid using tools and equipment that produce harmful noise. Restrict use of noisemaking tools and equipment to hours that will minimize complaints from persons or tenants near Project site.
- B. Security Enclosure and Lockup: Install substantial temporary enclosure around partially completed areas of construction. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security.
- C. Barricades, Warning Signs, and Lights: Comply with standards and code requirements for erecting structurally adequate barricades. Paint with appropriate colors, graphics, and warning signs to inform personnel and public of possible hazard. Where appropriate and needed, provide lighting, including flashing red or amber lights.
- D. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from construction operations, and similar activities.
- E. Temporary Fire Protection: Until fire-protection needs are supplied by permanent facilities, install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241.
  - 1. Provide fire extinguishers, installed on walls on mounting brackets, visible and accessible from space being served, with sign mounted above.
    - a. Field Offices: Class A stored-pressure water-type extinguishers.
    - b. Other Locations: Class ABC dry-chemical extinguishers or a combination of extinguishers of NFPA-recommended classes for exposures.
    - c. Locate fire extinguishers where convenient and effective for their intended purpose; provide not less than one extinguisher on each floor at or near each usable stairwell.
  - 2. Store combustible materials in containers in fire-safe locations.
  - 3. Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire-protection facilities, stairways, and other access routes for firefighting. Prohibit smoking in hazardous fire-exposure areas.

4. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition.
5. Permanent Fire Protection: At earliest feasible date in each area of Project, complete installation of permanent fire-protection facility, including connected services, and place into operation and use. Instruct key personnel on use of facilities.
6. Develop and supervise an overall fire-prevention and first-aid fire-protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.
7. Provide hoses for fire protection of sufficient length to reach construction areas. Hang hoses with a warning sign stating that hoses are for fire-protection purposes only and are not to be removed. Match hose size with outlet size and equip with suitable nozzles.

### 3.05 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
- B. Maintenance: Maintain facilities in good operating condition until removal. Protect from damage caused by freezing temperatures and similar elements.
  1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
  2. Prevent water-filled piping from freezing. Maintain markers for underground lines.
  3. Snow removal: Provide snow removal necessary to do the work and maintain access to materials and temporary facilities.
- C. Flooring Protection: Protect flooring against mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during construction period. Use protection methods indicated or recommended by flooring manufacturer.
  1. Cover flooring with undyed, untreated building paper at high traffic areas until inspection for Substantial Completion.
  2. Do not move heavy and sharp objects directly over flooring. Place plywood or hardboard panels over flooring and under objects while they are being moved. Slide or roll objects over panels without moving panels.
- D. Restoration of Roadways and Pavement: Roadways, pavements and curbs that are broken, damaged, settled, or otherwise defective as a result of receiving, handling, storage of materials or the performance of any work under this Contract, shall be fully restored to the satisfaction of the authorities having jurisdiction.
- E. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
  1. Materials and facilities that constitute temporary facilities are the property of Contractor. Owner reserves right to take possession of Project identification signs.

2. At Substantial Completion, clean and renovate permanent facilities used during construction period. Comply with final cleaning requirements in Division 1 Section "Closeout Procedures."

END OF SECTION 01500

SECTION 01600

PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 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 1 Section "References" for applicable industry standards for products specified.
  - 2. Division 1 Section "Closeout Procedures" for submitting warranties for Contract closeout.
  - 3. Divisions 2 through 16 Sections for specific requirements for warranties on products and installations specified to be warranted.

1.03 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.
  - 3. Comparable Product: Product that is demonstrated and approved through submittal process, or where indicated as a product substitution, to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.
- B. 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.

1.04 SUBMITTALS

- A. Substitution Requests: Submit three copies of each request for consideration during the bid period. 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 Section.
  2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
    - a. Statement indicating why specified material or product cannot be provided.
    - 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. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
    - d. Provide listing of differences between specified product and proposed substitution. Include list of items that proposed substitution does not have, and items that are different compared to the specified product. Failure to provide comparison may be reason for rejection.
    - e. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
    - f. Samples, 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/evaluation reports evidencing compliance with building code in effect for Project, from a model code organization acceptable to authorities having jurisdiction.
    - 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 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 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 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.
- B. Basis-of-Design Product Specification Submittal: Comply with requirements in Division 1 Section "Submittal Procedures." Show compliance with requirements.

1.05 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.

1.06 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.
  8. Provide a secure location and enclosure at Project site for storage of materials and equipment by Owner's construction forces. Coordinate location with Owner.

1.07 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 2 through 16 Sections for specific content requirements and particular requirements for submitting special warranties.
- C. Submittal Time: Comply with requirements in Division 1 Section "Closeout Procedures."

## PART 2 - PRODUCTS

### 2.01 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," comply with provisions in Part 2 "Comparable Products" Article to obtain approval for use of an unnamed product.
- B. Product Selection Procedures:
1. Product: Where Specifications name a single product and manufacturer, provide the named product that complies with requirements.
  2. Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements.
  3. Products: Where Specifications include a list of names of both products and manufacturers, provide one of the products listed that complies with requirements.
  4. Manufacturers: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements.
  5. Available Products: Where Specifications include a list of names of both products and manufacturers, provide one of the products listed, or an unnamed product, that complies



- with requirements. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product.
6. Available Manufacturers: Where Specifications include a list of manufacturers, provide a product by one of the manufacturers listed, or an unnamed manufacturer, that complies with requirements. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product.
  7. Product Options: Where Specifications indicate that sizes, profiles, and dimensional requirements on Drawings are based on a specific product or system, provide the specified product or system. Comply with provisions in Part 2 "Product Substitutions" Article for consideration of an unnamed product or system.
  8. Basis-of-Design Product: Where Specifications name a product and include a list of manufacturers, provide the specified 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 provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product by the other named manufacturers.
  9. Visual Matching Specification: Where Specifications require matching an established Sample, select a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.
    - a. If no product available within specified category matches and complies with other specified requirements, comply with provisions in Part 2 "Product Substitutions" Article for proposal of product.
  10. Visual Selection Specification: Where Specifications include the phrase "as selected from manufacturer's colors, patterns, textures" or a similar phrase, select a product that complies with other specified requirements.
    - a. Standard Range: Where Specifications include the phrase "standard range of colors, patterns, textures" or similar phrase, Architect will select color, pattern, density, or texture from manufacturer's product line that does not include premium items.
    - b. Full Range: Where Specifications include the phrase "full range of colors, patterns, textures" or similar phrase, Architect will select color, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

## 2.02 PRODUCT SUBSTITUTIONS

- A. Timing: Substitution procedures during the bid period shall be followed to provide equality of bids. Requests for substitutions shall be submitted not less than 10 days before bids are due. Substitutions found acceptable will be issued by written addendum from the Architect. Requests received after that time may be considered or rejected at discretion of Architect. Contractors submitting substitutions after bids are received will not be given additional compensation for rejected submittals.
- B. 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:
  1. 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.
2. Requested substitution does not require extensive revisions to the Contract Documents.
  3. Requested substitution is consistent with the Contract Documents and will produce indicated results.
  4. Substitution request is fully documented and properly submitted.
  5. Requested substitution will not adversely affect Contractor's Construction Schedule.
  6. Requested substitution has received necessary approvals of authorities having jurisdiction.
  7. Requested substitution is compatible with other portions of the Work. All sizes, dimensions, locations for connections to other items as designed, clearances from building structure and other equipment have been verified and is acknowledged in the substitution request.
  8. Requested substitution has been coordinated with other portions of the Work.
  9. Requested substitution provides specified warranty.
  10. 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.
- C. If differences discovered later that were not identified on the substitution request are found that make the substitution unacceptable, it will be reason for rejection and replacement, irregardless if the substitution has been installed, at no additional cost to the Owner.

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 coordinate installation and make changes to other Work that may be required for the Work to be complete with no additional cost to Owner. All sizes, dimensions, locations for connections to other items as designed, clearances from building structure and other equipment have been verified.
4. Will remove substitution and pay all costs if differences discovered later that were not identified on the substitution request are found that make the substitution unacceptable with no additional cost to Owner.
4. Waive claims for additional costs or time extension that may subsequently become apparent.
5. 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 01330.
- Submission approved as noted - Make submittals in accordance with Specification Section 01330.
- 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  
 Comparison list  Other

END OF SECTION 01600



SECTION 01700

EXECUTION REQUIREMENTS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. This Section includes general procedural requirements governing execution of the Work including, but not limited to, the following:
  - 1. Construction layout.
  - 2. Field engineering and surveying.
  - 3. General installation of products.
  - 4. Coordination of Owner-installed products.
  - 5. Progress cleaning.
  - 6. Starting and adjusting.
  - 7. Protection of installed construction.
  - 8. Correction of the Work.
- B. Related Sections include the following:
  - 1. Division 1 Section "Project Management and Coordination" for procedures for coordinating field engineering with other construction activities.
  - 2. Division 1 Section "Submittal Procedures" for submitting surveys.
  - 3. Division 1 Section "Cutting and Patching" for procedural requirements for cutting and patching necessary for the installation or performance of other components of the Work.
  - 4. Division 1 Section "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, and final cleaning.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Existing Conditions: The existence and location of site improvements, utilities, and other construction indicated as existing are not guaranteed. Before beginning work, investigate and verify the existence and location of mechanical and electrical systems and other construction affecting the Work.
  - 1. Before construction, verify the location and points of connection of utility services.
- B. Existing Utilities: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning Sitework, investigate

and verify the existence and location of underground utilities and other construction affecting the Work.

1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; and underground electrical services.
  2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.
- C. Acceptance of Conditions: Examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
1. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:
    - a. Description of the Work.
    - b. List of detrimental conditions, including substrates.
    - c. List of unacceptable installation tolerances.
    - d. Recommended corrections.
  2. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
  3. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
  4. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
  5. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

### 3.02 PREPARATION

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

3.03 CONSTRUCTION LAYOUT

- A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Architect promptly.

3.04 INSTALLATION

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
  - 1. Make vertical work plumb and make horizontal work level.
  - 2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
  - 3. Conceal pipes, ducts, and wiring in finished areas, unless otherwise indicated.
  - 4. Maintain minimum headroom clearance of 8 feet (2.4 m) in spaces without a suspended ceiling, unless indicated otherwise.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- E. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.
- F. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.
- G. Anchors and Fasteners: Provide anchors and fasteners as required to anchor each component securely in place, accurately located and aligned with other portions of the Work.
  - 1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
  - 2. Allow for building movement, including thermal expansion and contraction.
  - 3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
- H. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
- I. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.
  - 1. No asbestos containing materials shall be used in the work.

3.05 OWNER-INSTALLED PRODUCTS

- A. Coordination: Coordinate construction and operations of the Work with work performed by Owner's construction forces.
1. Construction Schedule: Inform Owner of Contractor's preferred construction schedule for Owner's portion of the Work. Adjust construction schedule based on a mutually agreeable timetable. Notify Owner if changes to schedule are required due to differences in actual construction progress.
  2. Preinstallation Conferences: Include Owner's construction forces at preinstallation conferences covering portions of the Work that are to receive Owner's work. Attend preinstallation conferences conducted by Owner's construction forces if portions of the Work depend on Owner's construction.

3.06 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Enforce requirements strictly. Dispose of materials lawfully.
1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
  2. Do not hold materials more than 7 days during normal weather or 3 days if the temperature is expected to rise above 80 deg F (27 deg C).
  3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work. It is the Contractor's responsibility for job site safety.
1. Remove liquid spills promptly.
  2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
    - a. Clean interior spaces prior to the start of finish painting, and continue cleaning on an as-needed basis until painting is finished.
    - b. Schedule operations so that dust and other contaminants resulting from cleaning process will not fall on wet or newly coated surfaces.
  3. Remove materials and debris that create tripping hazards.
- D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
- F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
- G. Waste Disposal: Burying or burning waste materials on-site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.



- H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- J. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

### 3.07 STARTING AND ADJUSTING

- A. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.
- B. Adjust operating components for proper operation without binding. Adjust equipment for proper operation.
- C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- D. Manufacturer's Field Service: If a factory-authorized service representative is required to inspect field-assembled components and equipment installation, comply with qualification requirements in Division 1 Section "Quality Requirements."

### 3.08 PROTECTION OF INSTALLED CONSTRUCTION

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

### 3.09 CORRECTION OF THE WORK

- A. Repair or remove and replace defective construction. Restore damaged substrates and finishes. Comply with requirements in Division 1 Section "Cutting and Patching."
  - 1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.
- B. Restore permanent facilities used during construction to their specified condition.
- C. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.
- D. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.
- E. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

SAVINGS BANK OF MAINE  
TWO CANAL PLAZA  
GTA #010111

END OF SECTION 01700

SECTION 01731

CUTTING AND PATCHING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. This Section includes procedural requirements for cutting and patching.
  - 1. For correction of installed work.
  - 2. For repairs due to testing.
- B. Related Sections include the following:
  - 1. Division 1 Section "Selective Demolition and Alterations" for demolition of selected portions of the building and additional patching requirements.
  - 2. Divisions 2 through 16 Sections for specific requirements and limitations applicable to cutting and patching individual parts of the Work.
  - 3. Division 7 Section "Through-Penetration Firestop Systems" for patching fire-rated construction.
  - 4. Division 7 Section "Fire-Resistive Joint Systems" for patching fire-rated construction.

1.03 DEFINITIONS

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

1.04 SUBMITTALS

- A. Cutting and Patching Proposal: Submit a proposal describing procedures at least 10 days before the time cutting and patching will be performed, requesting approval to proceed. Include the following information:
  - 1. Structural Elements: Where cutting and patching involve adding reinforcement to structural elements, submit details and engineering calculations showing integration of reinforcement with original structure.
  - 2. Architect's Approval: Obtain approval of cutting and patching proposal before cutting and patching. Approval does not waive right to later require removal and replacement of unsatisfactory work.

1.05 QUALITY ASSURANCE

- A. Structural Elements: Do not cut and patch structural elements in a manner that could change their load-carrying capacity or load-deflection ratio.

- B. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety. Operating elements include the following:
1. Primary operational systems and equipment.
  2. Air or smoke barriers.
  3. Fire-suppression systems.
  4. Mechanical systems piping and ducts.
  5. Control systems.
  6. Communication systems.
  7. Conveying systems.
  8. Electrical wiring systems.
- C. Miscellaneous Elements: Do not cut and patch miscellaneous elements or related components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety. Miscellaneous elements include the following:
1. Water, moisture, or vapor barriers.
  2. Membranes and flashings.
  3. Exterior curtain-wall construction
  4. Equipment supports
  5. Piping, ductwork, vessels, and equipment.
  6. Noise- and vibration-control elements and systems.
- D. Visual Requirements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.
- E. Cutting and Patching Conference: Before proceeding, meet at Project site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

#### 1.06 WARRANTY

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

### PART 2 - PRODUCTS

#### 2.01 MATERIALS

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

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

### PART 3 - EXECUTION

#### 3.01 EXAMINATION

- A. Examine surfaces to be cut and patched and conditions under which cutting and patching are to be performed.
  1. Compatibility: Before patching, verify compatibility with and suitability of substrates, including compatibility with in-place finishes or primers.
  2. Proceed with installation only after unsafe or unsatisfactory conditions have been corrected.

#### 3.02 PREPARATION

- A. Temporary Support: Provide temporary support of Work to be cut.
- B. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- C. Adjoining Areas: Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.

#### 3.03 PERFORMANCE

- A. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
  1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
- B. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
  1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
  2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
  3. Concrete: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
  4. Excavating and Backfilling: Comply with requirements in applicable Division 2 Sections where required by cutting and patching operations.
  5. Proceed with patching after construction operations requiring cutting are complete.

- C. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections.
1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.
  2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
    - a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
    - b. Restore damaged pipe covering to its original condition.
  3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
    - a. Where patching occurs in a painted surface, apply primer and intermediate paint coats over the patch and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.
  4. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
  5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition.
- D. Cleaning: Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar materials.

END OF SECTION 01731

SECTION 01770

CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
1. Inspection procedures.
  2. Warranties.
  3. Final cleaning.
- B. Related Sections include the following:
1. Division 1 Section "Payment Procedures" for requirements for Applications for Payment for Substantial and Final Completion.
  2. Division 1 Section "Execution Requirements" for progress cleaning of Project site.
  3. Division 1 Section "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.
  4. Division 1 Section "Operation and Maintenance Data" for operation and maintenance manual requirements.
  5. Divisions 2 through 16 Sections for specific closeout and special cleaning requirements for the Work in those Sections.

1.03 SUBSTANTIAL COMPLETION

- A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.
1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
  2. Advise Owner of pending insurance changeover requirements.
  3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
  4. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
  5. Prepare and submit Project Record Documents, operation and maintenance manuals,
  6. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.
  7. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
  8. Complete startup testing of systems.
  9. Submit test/adjust/balance records.

10. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
11. Advise Owner of changeover in heat and other utilities.
12. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
13. Complete final cleaning requirements, including touchup painting.
14. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

- B. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.
1. Reinspections: Request reinspections when the Work identified in previous inspections as incomplete is completed or corrected.
  2. Results of completed inspection will form the basis of requirements for Final Completion.

#### 1.04 FINAL COMPLETION

- A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:
1. Submit a final Application for Payment according to Division 1 Section "Payment Procedures."
  2. Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
  3. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
  4. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.
- B. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.
1. Reinspections: Request reinspections when the Work identified in previous inspections as incomplete is completed or corrected.

#### 1.05 INSPECTION FEES

- A. If the Architect Perform Reinspections Due to Failure of the Work to Comply with the Claims of Status of Completion Made by the Contractor, Or, Should the Contractor fail to complete the work, Or, Should the Contractor fail to promptly correct warranty items or work later found to be deficient:
1. Owner will compensate Architect for such additional services.
  2. Owner will deduct the amount of such compensation from the final payment to the Contractor.



- B. If the Work is not completed by the date set in the Agreement, and the Architect needs to perform additional Contract Administrative and on site observation duties:
1. Owner will compensate Architect for such additional services.
  2. Owner will deduct the amount of such compensation from the final payment to the Contractor.

1.06 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

- A. Preparation: Submit three copies of list. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.
1. Organize list of spaces in sequential order.
  2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
  3. Include the following information at the top of each page:
    - a. Project name.
    - b. Date.
    - c. Name of Architect.
    - d. Name of Contractor.
    - e. Page number.
  4. See Division 1 Section "Payment Procedures" MSHA form "Incomplete Work Escrow" for incomplete items withheld from final payment.

1.07 WARRANTIES

- A. Submittal Time: Submit written warranties on request of Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.
1. Unless indicated otherwise, all warranties shall commence on the date of Substantial Completion.
- B. Partial Occupancy: Submit properly executed warranties within 15 days of completion of designated portions of the Work that are completed and occupied or used by Owner during construction period by separate agreement with Contractor.
- C. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.
1. Submit final warranties as a package for the entire project, assembled and identified as described below.
  2. Bind warranties and bonds in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch (215-by-280-mm) paper. Do not over fill D-ring, allowing 1/2 space for future additions.
  3. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
  4. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.
  5. Electronic Media: Submit one copy of warranty binder on CD-R in .PDF format. Bookmark based on the table of contents, and for each warranty within each section.

- D. Provide additional copies of each warranty to include in operation and maintenance manuals.

## PART 2 - PRODUCTS

### 2.01 MATERIALS

- A. **Cleaning Agents:** Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

## PART 3 - EXECUTION

### 3.01 FINAL CLEANING

- A. **General:** Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. **Cleaning:** Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
  - 1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:
    - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
    - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
    - c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
    - d. Remove tools, construction equipment, machinery, and surplus material from Project site.
    - e. Remove snow and ice to provide safe access to building.
    - f. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
    - g. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
    - h. Sweep concrete floors broom clean in unoccupied spaces.
    - i. Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain.
    - j. Resilient flooring shall be scrubbed and cleaned with cleaner recommended by the flooring manufacturer just prior to occupation by Owner. No-wax floors shall buffed in accordance with flooring manufacturer's requirements.
    - k. Floors to receive wax shall be waxed just prior to occupation by Owner. Waxing shall consist of three coats, properly buffed to a uniform sheen. Work shall be done by a floor care subcontractor. Coordinate selection of wax with flooring manufacturer and Owner's maintenance program.

- l. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.
  - m. Remove labels that are not permanent.
  - n. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.
    - 1) Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.
  - o. Wipe surfaces of mechanical and electrical equipment, elevator equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
  - p. Replace parts subject to unusual operating conditions.
  - q. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
  - r. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
  - s. Clean ducts, blowers, and coils if units were operated without filters during construction.
  - t. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs, and those noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.
  - u. Leave Project clean and ready for occupancy.
- C. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

END OF SECTION 01770



SECTION 01781

PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for Project Record Documents, including the following:
  - 1. Record Drawings.
  - 2. Record Specifications.
  - 3. Record Product Data.
  - 4. Record Shop Drawings
- B. Related Sections include the following:
  - 1. Division 1 Section "Closeout Procedures" for general closeout procedures.
  - 2. Division 1 Section "Operation and Maintenance Data" for operation and maintenance manual requirements.
  - 3. Divisions 2 through 16 Sections for specific requirements for Project Record Documents of the Work in those Sections.

1.3 SUBMITTALS

- A. Record Drawings: Comply with the following:
  - 1. Number of Copies: Submit copies of Record Drawings as follows:
    - a. Submit one set(s) of marked-up Record Prints, one set(s) of Record CAD Drawing files, and one set(s) of Record CAD Drawing plots. Plot and print each Drawing, whether or not changes and additional information were recorded.
      - 1) Electronic Media: CD-R.
- B. Record Specifications: Submit one hard copy and one copy on electronic media of Project's Specifications, including addenda and contract modifications.
- C. Record Product Data: Submit one copy of each Product Data submittal.
  - 1. Where Record Shop Drawings and Product Data is required as part of operation and maintenance manuals, submit marked-up Shop Drawings and Product Data as an insert in manual instead of submittal as Record Shop Drawings and Product Data.
  - 2. Insert typewritten pages indicating drawing titles, descriptions of contents, and Record Shop Drawings and Product Data locations drawing locations that are part of operation and maintenance manuals.

## PART 2 - PRODUCTS

### 2.1 RECORD DRAWINGS

- A. Record Prints: Maintain one set of blue- or black-line white prints of the Contract Drawings and Shop Drawings.
1. Preparation: Mark Record Prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.
    - a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
    - b. Accurately record information in an understandable drawing technique.
    - c. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
  2. Content: Types of items requiring marking include, but are not limited to, the following:
    - a. Dimensional changes to Drawings.
    - b. Revisions to details shown on Drawings.
    - c. Depths of foundations below first floor.
    - d. Locations and depths of underground utilities.
    - e. Revisions to routing of piping and conduits.
    - f. Revisions to electrical circuitry.
    - g. Actual equipment locations.
    - h. Duct size and routing.
    - i. Locations of concealed internal utilities.
    - j. Changes made by Change Order or Construction Change Directive.
    - k. Changes made following Architect's written orders.
    - l. Details not on the original Contract Drawings.
    - m. Field records for variable and concealed conditions.
    - n. Record information on the Work that is shown only schematically.
  3. Mark the Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. If Shop Drawings are marked, show cross-reference on the Contract Drawings.
  4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
  5. Mark important additional information that was either shown schematically or omitted from original Drawings.
  6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.
- B. Format: Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
1. Record Prints: Organize Record Prints into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
  2. Record CAD Drawings: Organize CAD information into separate electronic files that correspond to each sheet of the Contract Drawings. Name each file with the sheet identification. Include identification in each CAD file.
  3. Identification: As follows:
    - a. Project name.
    - b. Date.
    - c. Designation "PROJECT RECORD DRAWINGS."

- d. Name of Architect.
- e. Name of Contractor.

## 2.2 RECORD SPECIFICATIONS

- A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.
  - 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
  - 2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
  - 3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
  - 4. For each principal product, indicate whether Record Product Data has been submitted in operation and maintenance manuals instead of submitted as Record Product Data.
  - 5. Note related Change Orders, Record Product Data, and Record Drawings where applicable.
  - 6. Electronic Media: Submit record copy of record specifications on CD-R in .PDF format. Bookmark based on table of contents.

## 2.3 RECORD PRODUCT DATA

- A. Preparation: Mark Shop Drawings and Product Data to indicate the actual product installation where installation varies substantially from that indicated in Shop Drawings and Product Data submittal.
  - 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
  - 2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
  - 3. Note related Change Orders, Record Specifications, and Record Drawings where applicable.
  - 4. Bind product data in heavy-duty, D-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents but not greater than 2 inches, and sized to receive 8-1/2 by 11 inch paper. Do not overfill D-ring, allowing 1/2 inch space for future additions.
  - 5. Provide heavy paper dividers with plastic covered tabs for each specification section with product data. Mark tab to identify the specification section. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of the Installer.
  - 6. Identify each binder on the front and spine with the typed or printed title "PRODUCT DATA," Project name and name of Contractor.
  - 7. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.
    - a. Maximum size of drawings to be included in the binders shall not exceed 11 by 17 inch. Fold drawings to same size as text pages and use as foldouts.
  - 8. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and submit envelopes with manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents and drawing locations.

2.4 MISCELLANEOUS RECORD SUBMITTALS

- A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

PART 3 - EXECUTION

3.1 RECORDING AND MAINTENANCE

- A. Recording: Maintain one copy of each submittal during the construction period for Project Record Document purposes. Post changes and modifications to Project Record Documents as they occur; do not wait until the end of Project.
- B. Maintenance of Record Documents and Samples: Store Record Documents and Samples in the field office apart from the Contract Documents used for construction. Do not use Project Record Documents for construction purposes. Maintain Record Documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to Project Record Documents for Architect's reference during normal working hours.

END OF SECTION 01781



SECTION 01782

OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. This Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:
  - 1. Operation and maintenance documentation directory.
  - 2. Operation manuals for systems, subsystems, and equipment.
  - 3. Maintenance manuals for the care and maintenance of products, materials, and finishes, systems and equipment.
- B. Related Sections include the following:
  - 1. Division 1 Section "Submittal Procedures" for submitting copies of submittals for operation and maintenance manuals.
  - 2. Division 1 Section "Closeout Procedures" for submitting operation and maintenance manuals.
  - 3. Division 1 Section "Project Record Documents" for preparing Record Drawings for operation and maintenance manuals.
  - 4. Divisions 2 through 16 Sections for specific operation and maintenance manual requirements for the Work in those Sections.

1.03 DEFINITIONS

- A. System: An organized collection of parts, equipment, or subsystems united by regular interaction.
- B. Subsystem: A portion of a system with characteristics similar to a system.

1.04 SUBMITTALS

- A. Final Submittal: Submit one copy of each manual in final form at least 15 days before final inspection. Architect will return copy with comments after final inspection.
  - 1. Correct or modify each manual to comply with Architect's comments. Submit corrected manual within 15 days of receipt of Architect's comments.

1.05 COORDINATION

- A. Where operation and maintenance documentation includes information on installations by more than one factory-authorized service representative, assemble and coordinate information furnished by representatives and prepare manuals.

PART 2 - PRODUCTS

2.01 OPERATION AND MAINTENANCE DOCUMENTATION DIRECTORY

- A. Organization: Include a section in the directory for each of the following:
  - 1. List of documents.
  - 2. List of systems.
  - 3. List of equipment.
  - 4. Table of contents.
- B. List of Systems and Subsystems: List systems alphabetically. Include references to operation and maintenance manuals that contain information about each system.
- C. List of Equipment: List equipment for each system, organized alphabetically by system. For pieces of equipment not part of system, list alphabetically in separate list.
- D. Tables of Contents: Include a table of contents for each emergency, operation, and maintenance manual.
- E. Identification: In the documentation directory and in each operation and maintenance manual, identify each system, subsystem, and piece of equipment with same designation used in the Contract Documents. If no designation exists, assign a designation according to ASHRAE Guideline 4, "Preparation of Operating and Maintenance Documentation for Building Systems."

2.02 MANUALS, GENERAL

- A. Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:
  - 1. Title page.
  - 2. Table of contents.
  - 3. Manual contents.
- B. Title Page: Enclose title page in transparent plastic sleeve. Include the following information:
  - 1. Subject matter included in manual.
  - 2. Name and address of Project.
  - 3. Name and address of Owner.
  - 4. Date of submittal.
  - 5. Name, address, and telephone number of Contractor.
  - 6. Name and address of Architect.
  - 7. Cross-reference to related systems in other operation and maintenance manuals.
- C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.
  - 1. If operation or maintenance documentation requires more than one volume to accommodate data, include comprehensive table of contents for all volumes in each volume of the set.

- D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.
1. Binders: Heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents but not greater than 2 inches, sized to hold 8-1/2-by-11-inch (215-by-280-mm) paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets. Do not overfill D-ring, allowing 1/2 inch space for future additions.
    - a. If two or more binders are necessary to accommodate data of a system, organize data in each binder into groupings by subsystem and related components. Cross-reference other binders if necessary to provide essential information for proper operation or maintenance of equipment or system.
    - b. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, and subject matter of contents. Indicate volume number for multiple-volume sets.
  2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.
  3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software diskettes for computerized electronic equipment.
  4. Supplementary Text: Prepared on 8-1/2-by-11-inch (215-by-280-mm) white bond paper.
  5. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.
    - a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
    - b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

## 2.03 OPERATION MANUALS

- A. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:
1. System, subsystem, and equipment descriptions.
  2. Performance and design criteria if Contractor is delegated design responsibility.
  3. Emergency instructions and procedures
  4. Operating standards.
  5. Operating procedures.
  6. Operating logs.
  7. Wiring diagrams.
  8. Control diagrams.
  9. Piped system diagrams.
  10. Precautions against improper use.
  11. License requirements including inspection and renewal dates.
- B. Descriptions: Include the following:
1. Product name and model number.
  2. Manufacturer's name.
  3. Equipment identification with serial number of each component.
  4. Equipment function.

5. Operating characteristics.
  6. Limiting conditions.
  7. Performance curves.
  8. Engineering data and tests.
  9. Complete nomenclature and number of replacement parts.
- C. Operating Procedures: Include the following, as applicable:
1. Startup procedures.
  2. Equipment or system break-in procedures.
  3. Routine and normal operating instructions.
  4. Regulation and control procedures.
  5. Instructions on stopping.
  6. Normal shutdown instructions.
  7. Seasonal and weekend operating instructions.
  8. Required sequences for electric or electronic systems.
  9. Special operating instructions and procedures.
- D. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.
- E. Piped Systems: Diagram piping as installed, and identify color-coding where required for identification.
- 2.04 PRODUCT MAINTENANCE MANUAL
- A. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.
- B. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.
- C. Product Information: Include the following, as applicable:
1. Product name and model number.
  2. Manufacturer's name.
  3. Color, pattern, and texture.
  4. Material and chemical composition.
  5. Reordering information for specially manufactured products.
- D. Maintenance Procedures: Include manufacturer's written recommendations and the following:
1. Inspection procedures.
  2. Types of cleaning agents to be used and methods of cleaning.
  3. List of cleaning agents and methods of cleaning detrimental to product.
  4. Schedule for routine cleaning and maintenance.
  5. Repair instructions.
- E. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.

- F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
  - 1. Include procedures to follow and required notifications for warranty claims.

## 2.05 SYSTEMS AND EQUIPMENT MAINTENANCE MANUAL

- A. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below.
- B. Source Information: List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.
- C. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including the following information for each component part or piece of equipment:
  - 1. Standard printed maintenance instructions and bulletins.
  - 2. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
  - 3. Identification and nomenclature of parts and components.
  - 4. List of items recommended to be stocked as spare parts.
- D. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:
  - 1. Test and inspection instructions.
  - 2. Troubleshooting guide.
  - 3. Precautions against improper maintenance.
  - 4. Disassembly; component removal, repair, and replacement; and reassembly instructions.
  - 5. Aligning, adjusting, and checking instructions.
  - 6. Demonstration and training videotape, if available.
- E. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.
  - 1. Scheduled Maintenance and Service: Tabulate actions for daily, weekly, monthly, quarterly, semiannual, and annual frequencies.
  - 2. Maintenance and Service Record: Include manufacturers' forms for recording maintenance.
- F. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.
- G. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.
- H. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
  - 1. Include procedures to follow and required notifications for warranty claims.

PART 3 - EXECUTION

3.01 MANUAL PREPARATION

- A. Operation and Maintenance Documentation Directory: Prepare a separate manual that provides an organized reference to emergency, operation, and maintenance manuals.
- B. Emergency Manual: Assemble a complete set of emergency information indicating procedures for use by emergency personnel and by Owner's operating personnel for types of emergencies indicated.
- C. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.
- D. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.
  - 1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
  - 2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by Owner's operating personnel.
- E. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.
  - 1. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.
- F. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in Record Drawings to ensure correct illustration of completed installation.
  - 1. Do not use original Project Record Documents as part of operation and maintenance manuals.
  - 2. Comply with requirements of newly prepared Record Drawings in Division 1 Section "Project Record Documents."
- G. Comply with Division 1 Section "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

END OF SECTION 01782

SECTION 02060

SELECTIVE DEMOLITION AND ALTERATIONS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. This Section includes the following:
  - 1. Demolition and removal of selected portions of a building related site material or structure.
  - 2. Repair procedures for selective demolition operations.
- B. Related Sections include the following:
  - 1. Division 2 Sections for removal of above grade improvements.
  - 2. Division 15 Sections for additional requirements regarding demolishing, cutting, patching, or relocating mechanical items.
  - 3. Division 16 Sections for additional requirements regarding demolishing, cutting, patching, or relocating electrical items.

1.03 DEFINITIONS

- A. Remove: Detach items from existing construction and legally dispose of them off-site, unless indicated to be removed and salvaged or removed and reinstalled.
- B. Remove and Salvage: Detach items from existing construction and deliver them to Owner ready for reuse.
- C. Remove and Reinstall: Detach items from existing construction, prepare them for reuse, and reinstall them where indicated.
- D. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

1.04 MATERIALS OWNERSHIP

- A. Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, demolished materials shall become Contractor's property and shall be removed from Project site.
- B. Historic items, relics, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, antiques, and other items of interest or value to Owner that may be encountered during selective demolition remain Owner's property. Carefully remove and salvage each item or object in a manner to prevent damage and deliver promptly to Owner.

1.05 SUBMITTALS

- A. General: Submit in accordance with Section 01330.
- B. Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.
- C. Proposed Dust-Control and Noise-Control Measures: Submit statement or drawing that indicates the measures proposed for use, proposed locations, and proposed time frame for their operation. Identify options if proposed measures are later determined to be inadequate.
- D. Schedule of Selective Demolition Activities: Indicate the following:
  - 1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure Owner's on-site operations are uninterrupted.
  - 2. Interruption of utility services.
  - 3. Coordination for shutoff, capping, and continuation of utility services.
  - 4. Use of stairs.
  - 5. Locations of proposed dust- and noise-control temporary partitions and means of egress.
  - 6. Pedestrian Safety.
- E. Inventories:
  - 1. Inventory of items to be removed by Owner.
  - 2. After selective demolition is complete, submit a list of items that have been removed and salvaged.
- F. Predemolition Photographs or Videotape: Show existing conditions of adjoining construction and site improvements, including finish surfaces that might be misconstrued as damage caused by selective demolition operations. Submit before Work begins.

1.06 QUALITY ASSURANCE

- A. Demolition Firm Qualifications: An experienced firm that has specialized in demolition work similar in material and extent to that indicated for this Project.
- B. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar to those indicated for this Project in material, design, and extent.
- C. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- D. Standards: Comply with ANSI A10.6 and NFPA 241.
- E. Predemolition Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination." Review methods and procedures related to selective demolition including, but not limited to, the following:



1. Inspect and discuss condition of construction to be selectively demolished.
2. Review structural load limitations of existing structure.
3. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.
  - a. Review requirements to keep existing construction in place to minimize disruption of Owner's operations.
4. Review methods of protecting remaining surfaces in weathertight conditions without damage during selective demolition operations and ensuing time frame until exterior envelope can be made permanently weathertight.
5. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.
6. Document proceedings, including corrective measures and actions required, and furnish copy of record to each participant.
7. Provide 72-hour minimum advance notice to participants prior to convening predemolition conference.

#### 1.07 PROJECT CONDITIONS

- A. Maintain access to existing walkways, and other adjacent occupied or used facilities.
  1. Do not close or obstruct walkways, or other occupied or used facilities without written permission from Owner and authorities having jurisdiction.
- B. Owner/Tenant assumes no responsibility for condition of areas to be selectively demolished.
- C. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work. Hazardous materials will be removed by Owner under a separate contract.
  1. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Architect and Owner.
- D. Storage or sale of removed items or materials on-site will not be permitted.
- E. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
  1. Maintain fire-protection facilities in service during selective demolition operations.

#### PART 2 - PRODUCTS

##### 2.01 REPAIR MATERIALS

- A. Use repair materials identical to existing materials.
  1. If identical materials are unavailable or cannot be used for exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.
  2. Use materials whose installed performance equal or surpasses that of existing materials.
- B. Comply with material and installation requirements specified in individual Specification Sections.

#### PART 3 - EXECUTION

##### 3.01 EXAMINATION

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

### 3.02 UTILITY SERVICES

- A. Existing Utilities: Maintain services indicated to remain and protect them against damage during selective demolition operations.
- B. Utility Requirements: Locate, identify, disconnect, and seal or cap off indicated utilities serving areas to be selectively demolished.
  - 1. Owner will arrange to shut off indicated utilities when requested by Contractor.
  - 2. Where utility services are required to be removed, relocated, or abandoned, before proceeding with selective demolition provide temporary utilities that bypass area of selective demolition and that maintain continuity of service to other parts of building.
  - 3. Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit after bypassing.
  - 4. Existing piping, conduit, and panels to remain that are supported by walls and ceilings to be demolished, shall be temporarily re-supported to the existing structure until permanent construction is in place.
- C. Utility Requirements: Refer to Division 15 and 16 Sections for shutting off, disconnecting, removing, and sealing or capping utilities. Do not start selective demolition work until utility disconnecting and sealing have been completed and verified in writing.

### 3.03 PREPARATION

- A. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
- B. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.

1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
  2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
  3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
- C. Temporary Enclosures: Provide temporary enclosures for protection of existing building and construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.
1. Where heating or cooling is needed and permanent enclosure is not complete, provide insulated temporary enclosures. Coordinate enclosure with ventilating and material drying or curing requirements to avoid dangerous conditions and effects.
- D. Temporary Partitions: Erect and maintain dustproof partitions and temporary enclosures to limit dust and dirt migration and to separate areas from fumes and noise.
- E. Temporary Shoring: Provide and maintain interior and exterior shoring, bracing, or structural support to preserve stability and prevent movement, settlement, or collapse of construction to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.
1. Strengthen or add new supports when required during progress of selective demolition.

#### 3.04 POLLUTION CONTROLS

- A. Dust Control: Use water mist, temporary enclosures, and other suitable methods to limit spread of dust and dirt. Comply with governing environmental-protection regulations.
1. Do not use water when it may damage existing construction or create hazardous or objectionable conditions, such as ice, flooding, and pollution.
- B. Disposal: Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
1. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
- C. Cleaning: Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

#### 3.05 SELECTIVE DEMOLITION

- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
1. Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.
  2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction.

Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.

3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
  4. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain fire watch and portable fire-suppression devices during flame-cutting operations.
  5. Maintain adequate ventilation when using cutting torches.
  6. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
  7. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
  8. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
  9. Dispose of demolished items and materials promptly.
  10. Remove and replace or reinstall existing construction as necessary to permit installation and alteration of mechanical and electrical work. Coordinate all removals with appropriate trades.
- B. Existing Facilities: Comply with Owner's/Property Manager' requirements for using and protecting stairs, walkways, building entries, and other building facilities during selective demolition operations.
1. Comply with requirements of authorities having jurisdiction regarding protection of means of egress.
- C. Removed and Salvaged Items: Comply with the following:
1. Clean salvaged items.
  2. Pack or crate items after cleaning. Identify contents of containers.
  3. Store items in a secure area until delivery to Owner.
  4. Transport items to Owner's storage area designated by Owner.
  5. Protect items from damage during transport and storage.
- D. Removed and Reinstalled Items: Comply with the following:
1. Clean and repair items to functional condition adequate for intended reuse. Paint equipment to match new equipment.
  2. Pack or crate items after cleaning and repairing. Identify contents of containers.
  3. Protect items from damage during transport and storage.
  4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.
- E. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.

### 3.06 BRACING

- A. Locate bracing to clear columns, and other permanent work. If necessary to move a brace, install new bracing prior to removal of original brace.
- B. Do not place bracing where it will be cast into or included in permanent work, except as otherwise acceptable to Architect.
- C. Install internal bracing, if required, to prevent spreading or distortion to braced frames.
- D. Maintain bracing until structural elements are re-braced by other bracing or until permanent construction is able to withstand pressures.

### 3.07 PATCHING AND REPAIRS

- A. General: Promptly repair damage to adjacent construction caused by selective demolition operations.
- B. Work Exposed to View: Do not cut or patch in a manner that would, in the Architect's opinion, result in a lessening of the building's aesthetic qualities. Generally, cut from exposed side into concealed spaces to avoid unnecessary damage to finish. Do not cut and patch in a manner that would result in substantial visual evidence of cut and patch work. Restore exposed finishes of patched areas in a manner, which eliminates evidence of patching and refinishing. For continuous surfaces, extend refinish to nearest intersection, with a neat transition to adjacent surfaces.
- C. Repairs: Where repairs to existing surfaces are required, patch to produce surfaces suitable for new materials.
- D. Finishes: Restore exposed finishes of patched areas and extend restoration into adjoining construction in a manner that eliminates evidence of patching and refinishing.
- E. Floors and Walls: Where walls or partitions that are demolished extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish color, texture, and appearance. Remove existing floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
  - 1. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections of these Specifications.
  - 2. Where patching occurs in a painted surface, apply primer and intermediate paint coats over patch and apply final paint coat over entire unbroken surface containing patch. Provide additional coats until patch blends with adjacent surfaces.
  - 3. Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.
- F. Ceilings: Patch, repair, or rehang existing ceilings as necessary to provide an even-plane surface of uniform appearance.

### 3.08 DISPOSAL OF DEMOLISHED MATERIALS

- A. General: Promptly dispose of demolished materials. Do not allow demolished materials to accumulate on-site.
- B. Burning: Do not burn demolished materials.

- C. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

3.09 CLEANING

- A. Sweep the building broom clean on completion of selective demolition operation.
- B. Change filters on air-handling equipment exposed to demolition operations on completion of selective demolition operation.
- C. Power wash areas indicated for new signage. Power wash additives must have approval prior to use.

END OF SECTION 02060

## SECTION 02751 - CEMENT/CONCRETE PAVING

### PART 1 - GENERAL

#### 1.01 RELATED DOCUMENTS

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

#### 1.02 SUMMARY

- A. This Section includes the following:
  - 1. Walkways, Ramp, Stairs and planters.
- B. Cast-in-place concrete walkway material, forming, and placement are covered under Division 03, and compaction is included in Division 31 and 32.
- C. Related Sections include the following:
  - 1. Division 03 Section "Cast-in-Place Concrete" for general building applications of concrete.

#### 1.03 DEFINITIONS

- A. Cementitious Materials: Portland cement alone or in combination with one or more of blended hydraulic cement, fly ash and other pozzolans, and ground granulated blast-furnace slag.
- B. Product Data: For each type of product indicated.

### PART 2 - PRODUCTS

#### 2.01 EXAMINATION

- A. Materials: Specified in Division 03.

### PART 3 - EXECUTION

#### 3.01 EXAMINATION

- A. Examine exposed subgrades and sub-base surfaces for compliance with requirements for dimensional, grading, and elevation tolerances.
- B. Proof-roll prepared sub-base surface below concrete pavements with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding.
  - 1. Completely proof-roll sub-base in one direction. Limit vehicle speed to 3 mph (5 km/h).
  - 2. Proof-roll with a loaded 10-wheel tandem-axle dump truck weighing not less than 15 tons (13.6 tonnes).
  - 3. Sub-base with soft spots and areas of pumping or rutting exceeding depth of ½-inch (13 mm) require correction according to requirements in Division 31 Section "Earth Moving".

3.02 PREPARATION

- A. Remove loose material from compacted sub-base surface immediately before placing concrete.
- B. Prepare for concrete walks conforming to design and joint layout shown on the Drawings, of uniform color and texture throughout, and conforming to Division 03 specifications. Concrete material, formwork, and placement are NOT included in Division 32.

3.03 INSTALLATION OF CONCRETE SIDEWALKS

- A. Proof roll prepared base material surface in accordance with 3.01 A & B.
- B. Form construction:
  - 1. Set forms to required grades and lines, rigidly braced and secured.
  - 2. Install sufficient quantity of forms to allow continuance of work and so that forms remain in place a minimum of 24 hours after concrete placement.
  - 3. Check completed formwork for grade and alignment to following tolerances:
    - a. Top of forms not more than 1/8-inch in 10'-0".
    - b. Vertical face on longitudinal axis to more than 1/4-inch in 10'-0".
- C. Reinforcement: Locate, place and support reinforcement per Division 3 specifications.
- D. Concrete Placement:
  - 1. Do not place concrete until base material and forms have been checked for line and grade. Moisten base material if required to provide uniform dampened condition at time concrete is place. Concrete shall not be placed around manholes or other structure until they are at the required finish elevation and alignment.
  - 2. Place concrete using methods which prevent segregation of mix. Consolidate concrete along face of forms and adjacent to transverse joints with internal vibrator. Keep vibrator away from joint assemblies, reinforcement, or side forms. Consolidate with care to prevent dislocation of reinforcing, dowels and joint devices.
  - 3. Deposit and spread concrete in continuous operation between transverse joints, as far as possible. If interrupted for more than 1/2 an hour, place construction joint.
- E. Joint Construction
  - 1. Contraction Joints: If joints are specified, the curb or gutter shall be constructed in uniform sections of the length specified on the plans. The joints between sections shall be formed either by steel templates 1/8-inch in thickness, or a length equal to the width of the gutter or curb, and with a depth that will penetrate at least 2-inches below the surface of the curb and cutter; or with 3/4-inch thick preformed expansion joint filler cut to the exact cross section of the curb or gutter, while the concrete is between 4 to 24 hours hold. If steel templates are used, they shall be left in place until the concrete has set sufficiently to hold its shape, but shall be removed while the forms are still in place. Refer to Landscape plans for troweled edges at joints.
  - 2. Longitudinal Construction Joints: Concrete curb, concrete gutter, combination concrete curb and gutter, where specified on the plans, shall be tied to concrete pavement with 1/2-inch round, reinforcement bars of the length and spacing shown on the plans.
  - 3. Transverse Expansion Joints: Transverse expansion joint in curb, curb and gutter, gutter or sidewalk shall have the filler cut to the exact cross section of the curb, curb and gutter, gutter or sidewalk. The joints shall be similar to the type of expansion joint used in the



adjacent pavement.

- F. Joint Fillers: Extend joint fillers full-width and depth of joint, and not less than ½-inch more than 1-inch below finished surface where joint sealer is indicated. If no joint sealer, place top of joint filler flush with finished concrete surface. Furnish joint fillers in one-piece lengths for full width being placed, wherever possible. Where more than one length is required, lace or clip joint filler section together.
- G. Joint Sealers: Exterior pavement joint sealants shall be installed per manufacturer's recommendations.
- H. Troweled Edges: Refer to Landscape plans for details.

### 3.04 COLD WEATHER PLACE OF CONCRETE

- A. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions or low temperatures, in compliance with ACI 306 and as specified herein. All expenses associated with the protective measures, temporary heating, etc. shall be at the expense of the Contractor.

When air temperature has fallen to or is expected to fall below 40 deg F (4 deg C) uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 deg F (10 deg C) and not more than 80 deg F (27 deg C) at point of placement.

Do not use frozen materials or materials containing ice or snow. Do not place concrete or frozen subgrade or subgrade containing frozen materials.

Do not use calcium chloride, salt, and other materials containing antifreeze agents or chemical agents, unless otherwise accepted in mix design.

### 3.05 CONCRETE FINISHING

- A. After striking off and consolidating concrete, smooth surface by screening and floating. Adjust floating to compact surface and produce uniform texture. After floating, test surface for trueness with 10'-0" straightedge. Distribute concrete as required to remove surface irregularities, and refloat repaired areas to provide continuous smooth finish.
- B. Work edges of slabs, gutters, back top edge of curb, and formed joints with an edging tool and round to ½-inch radius. Eliminate tool marks on concrete surface. After completion of floating and troweling when excess moisture or surface sheen has disappeared, complete surface finishing, as follows:
  - 1. Inclined Slab Surfaces: Provide coarse, nonslip finish by scoring surface with stiff-bristled broom perpendicular to line of traffic.
  - 2. Paving: Provide coarse, nonslip finish by scoring surface with stiff-bristled broom perpendicular to line of traffic.
- C. Do not remove forms for 24 hours after concrete has been placed. After form removal, clean ends of joints and point up any minor honeycombed areas. Remove and replace areas or sections with major defects, as directed.

- D. Protect and cure finished concrete paving using acceptable moist-curing methods, more particularly described in the "water-curing" section of ACI 308-81.

3.06 CLEANING AND ADJUSTING

- A. Sweep concrete pavement and wash free of stains, discolorations, dirt, and other foreign material just prior to final inspection.
- B. Protect concrete from damage until acceptance of work. Exclude traffic from pavement for at least 14 days after placement. When construction traffic is permitted, maintain pavement as clean as possible by removing surface stains and spillage of materials.

END OF SECTION 02751

SECTION 02780

EXTERIOR GRANITE

PART 1 - GENERAL

1.01 SUMMARY

- A. Section includes:
  - 1. Exterior Granite Pavers
  - 2. Exterior Granite Steps
- B. Related Sections:
  - 1. Division 03 Section "Cast-in-Place Concrete" for concrete foundations.
  - 2. Division 05500 Metal Fabrication

1.02 REFERENCES

- A. ASTM A 123-02: Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
- B. ASTM C 97-02: Test Methods for Absorption and Bulk Specific Gravity of Dimension Stone.
- C. ASTM C 119-04: Terminology Relating to Dimension Stone.
- D. ASTM C 170-90 (1999): test Method for compressive Strength of Dimension Stone
- E. ASTM C 615-03: Specification for Granite Dimension Stone
- F. ASTM F 593-02: Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs
- G. ASTM F 594-02: Specification for Stainless Steel Nuts
- H. National Building Granite Quarries Association (NBGQA) Specifications for Architectural Granite.

1.03 COORDINATION

- A. Definitions contained in ASTM C 119 apply to this Sections.
- B. Metric Conversions: The following metric conversions shall apply where English measurements are indicated in the text:
  - 1. 1/16 inch (1.5mm)
  - 2. 1/8 inch (3 mm)
  - 3. 3/16 inch (5 mm)
  - 4. 1/4 inch (6 mm)
  - 5. 5/16 inch (8 mm)
  - 6. 3/8 inch (10 mm)
  - 7. 1/2 Inch (12 mm)
  - 8. 5/8 inch (15 mm)
  - 9. 13/16 inch (20 mm)

10. 1 inch (25 mm)
11. 1-3/16 inches (30 mm)
12. 1-1/4 inches (32 mm)
13. 1-1/2 inches (40 mm)
14. 1 5/8 inches (40 mm)
15. 2 inches (50 mm)
16. 3 inches (75 mm)
17. 4 inches (100 mm)
18. 6 inches (150 mm)
19. 8 Inches (200 mm)
20. 12 inches (300 mm)

#### 1.04 SUBMITTALS

- A. Product Data: For each stone type and each manufactured product shown on Drawings or specified:
  1. For each stone variety used on Project, include physical property data.
- B. Samples: Submit samples for each stone type required, exhibiting the full range of color characteristics expected.
  1. Submit a minimum of (1) each, 12 inches x 12 inches in size, in each color and finished specified and one color photo.

#### 1.05 QUALITY ASSURANCE

- A. Source Limitations for Stone: Obtain each stone variety from a single quarry.

#### 1.06 DELIVERY, STORAGE, AND HANDLING

- A. Store and handle materials to prevent deterioration or damage.
  1. Stone shall be carefully packed and loaded for shipment using reasonable care and customary precautions against damage in transit. Material, which may cause staining or discoloration shall not be used for blocking or packing.
  2. The stone shall be stacked on timber or platforms at least 4 inches above the ground. Care shall be taken to prevent staining or discoloration during storage.
  3. If storage is to be for a prolonged period, polyethylene or other suitable plastic film shall be placed between wood and finished surfaces of completely dry stone.

#### 1.07 PROJECT CONDITIONS

- A. Stain Prevention: Remove soil to prevent staining face of stone.

### PART 2 – PRODUCTS

#### 2.01 STONE SOURCE

- A. Varieties and Source: Subject to compliance with requirements, provide stone from the following source:

1. Granite Source: Swenson Granite Works

- B. Each color of granite shall come from a single quarry, with sufficient reserves to satisfy the requirements of the project. The granite supplier shall have the capabilities to cut and finish the stone without delaying the project.

2.02 STONE MATERIAL

- A. Granite Stone Standard: ASTM C 615.
- B. Size and Shape: As noted on drawings

2.03 INSTALLATION MATERIALS

- A. Anchors and Pins: Stainless-Steel: ASTM A 580/A 580M, type 304.

2.04 INSTALLATION MATERIALS

- A. Pins: Stainless-steel pins as recommended by stone supplier for use with stone.
- B. Leveling Base: Comply with requirements in Section for Foundations.
- C. Drainage Fill: Comply with requirements in Section for Foundations.
- D. Top Soil Fill: Comply with requirements in Section 02930 Exterior Plant for satisfactory soils.

2.05 STONE FABRICATION

- A. Fabricate stone in accordance with requirements, including Drawings and Shop Drawings.
  - 1. Granite: NBGQA's "Specifications for Architectural Granite".
- B. Cut granite to produce pieces of stone shown on drawings and recommended by stone source, for faces, edges, beds, and backs.
- C. Thickness of Stone: Provide thickness as shown on drawings.
- D. Dress joints (bed and vertical) straight and at right angle to face.
- E. Carefully inspect stone at fabrication plant for compliance with requirements for appearance, material, and fabrication. Replace defective units before shipment.
- F. Color/Type: Woodbury gray or as shown on drawing.
- G. Granite Finish:
  - 1. Treads and Pavers: Thermal finish all exposed sides, sawn bottom..
  - 2. Cap Units: Honed finish exposed sides, sawn bottom.

## PART 3– EXECUTION

### 3.01 EXAMINATION

- A. Examine surfaces and conditions with installer present
- B. Surfaces and conditions: Prior to installing stone, examine the existing surfaces and conditions to receive the cut stone and verify surfaces and conditions are in accordance with the requirements and as shown on drawings. Do not proceed until defective surfaces are brought into compliance.

### 3.02 PREPARATION

- A. Prior to setting cut stone, clean all surfaces to remove accumulated dirt and stains. Clean thoroughly by scrubbing with non-metallic brushes followed by a drenching with clean water. Use only mild detergents that do not contain caustic fillers.

### 3.03 ADJUSTING

- A. Remove and replace stone not matching final samples.
- B. Remove and replace stone not complying with requirements.
- C. Replace non-complying stone to match final samples and mockups, comply with specified requirements. Replacement stone shall show no evidence of replacement.
- D. Patching: Minor patching in small areas may be acceptable if the repair does not distract from the overall appearance of the finished project.

### 3.04 PROTECTION

- A. At the end of each day's work, cover top of walls with a non-staining waterproof covering. Protect partially finished work when not being worked on.

### 3.05 CLEANING

- A. Clean stone as work progresses. Remove mortar, sealant, and stains before tooling joints.
- B. Final Cleaning: Clean stone as recommended by stone producer.
  - 1. Clean all finished stonework with a mild detergent using a fiber brush.
  - 2. After cleaning, rinse with clean water.
  - 3. Do not use acid or other caustic materials.
- C. When cleaning is completed, remove temporary protection.

END OF SECTION 02780

## SECTION 02930 - EXTERIOR PLANTS

### PART 1 - GENERAL

#### 1.01 RELATED DOCUMENTS

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

#### 1.02 SUMMARY

- A. This Section includes the layout, soil preparation, bed establishment, excavation for and planting of the following:
  - 1. Trees.
  - 2. Shrubs.
  - 3. Ground cover.
  - 4. Plants.
- B. Related Sections include the following:
  - 1. Division 2 Section "Site Clearing" for protection of existing trees and planting, topsoil stripping and stockpiling, and site clearing.
  - 2. Division 2 Section "Earthwork" for excavation, filling, and rough grading and for subsurface aggregate drainage and drainage backfill materials.
  - 3. Division 2 Section "Turf and Grasses."

#### 1.03 SUBMITTALS

- A. General: Submit in accordance with Section 01330.
- B. Product Data: For each type of product indicated.
- C. Material List: Thirty days before any planting materials are delivered to the job site, submit to the Architect a complete list of plants, dark mulch and other items proposed to be installed:
  - 1. Include a complete data on source, size and quality.
  - 2. Demonstrate complete conformance with requirements of this Section.
  - 3. This shall in no way be construed as permitting substitution for specific items described in Drawings or these Specifications, unless substitution has been approved in advance by the Architect.
- D. Product Certificates: For each type of manufactured product, signed by product manufacturer, and complying with the following:
  - 1. Manufacturer's certified analysis for standard products.
  - 2. Analysis of other materials by a recognized laboratory made according to methods established by the Association of Official Analytical Chemists, where applicable.
- E. Qualification Data: For landscape Installer.
- F. Material Test Reports: For existing surface soil and imported topsoil.

- G. Planting Schedule: Indicating anticipated planting dates for exterior plants.
- H. Maintenance Instructions: Recommended procedures to be established by Owner for maintenance of exterior plants during a calendar year. Submit before expiration of required maintenance periods.

1.04 QUALITY ASSURANCE

- A. Source Quality Control:
  - 1. General: Ship landscape materials with certificates of inspection as required by governmental authorities. Comply with governing regulations applicable to landscape materials.
  - 2. Analysis and Standards: Package standard products with manufacturers certified analysis. For other materials, provide analysis and approval by a Maine Certified Landscape Professional (207-225-3998).
- B. Standards:
  - 1. Plants and planting material shall meet or exceed the specifications of Federal and State laws requiring inspection for plant disease and insect control.
  - 2. Quality and size shall conform to the current edition of "Horticultural Standards" for number one grade nursery stock, as adopted by the American Association of Nurserymen.
  - 3. Plants shall be true to name and one of each bundle or lot shall be tagged with the name and size of the plants, in accordance with the standards of practice of the American Association of Nurserymen. Botanical names shall take precedence over common names.
  - 4. Substitutions:
    - a. In the event that trees, shrubs, or other plant material specified in drawings are in the opinion of Contractor, impossible or unreasonably difficult to obtain, Contractor shall immediately notify Architect to discuss appropriate substitutions in writing. No substitutions of plant material may be made without prior written approval of Architect.
    - b. Contractor shall notify Architect in writing of any plant material that is inappropriate for proposed site conditions in the opinion of Contractor. Substitutions shall be processed as per paragraph 4a. above.
- C. Soil-Testing Laboratory Qualifications: An independent laboratory, recognized by the State Department of Agriculture, with the experience and capability to conduct the testing indicated and that specializes in types of tests to be performed.
- D. Topsoil Analysis: Furnish soil analysis by a qualified soil-testing laboratory stating percentages of organic matter; gradation of sand, silt, and clay content; cation exchange capacity; deleterious material; pH; and mineral and plant-nutrient content of topsoil, both existing and imported.
  - 1. Report suitability of topsoil for plant growth. State recommended quantities of nitrogen, phosphorus, and potash nutrients and soil amendments to be added to produce satisfactory topsoil.
  - 2. Materials shall not be used in construction until Architect has reviewed test results.
- E. Tree and Shrub Measurements: Measure according to ANSI Z60.1 with branches and trunks or canes in their normal position. Do not prune to obtain required sizes. Take



caliper measurements 6 inches above ground for trees up to 4-inch caliper size, and 12 inches above ground for larger sizes. Measure main body of tree or shrub for height and spread; do not measure branches or roots tip-to-tip.

- F. Observation: Architect may observe trees and shrubs either at place of growth or at site before planting for compliance with requirements for genus, species, variety, size, and quality. Architect retains right to observe trees and shrubs further for size and condition of balls and root systems, insects, injuries, and latent defects and to reject unsatisfactory or defective material at any time during progress of work. Remove rejected trees or shrubs immediately from Project site.
1. Notify Architect of sources of planting materials seven days in advance of delivery to site.

#### 1.05 DELIVERY, STORAGE, AND HANDLING

- A. Digging Plant Material: Plants shall not be dug at nursery or approved source until Contractor is ready to transport them from their original locations to project site or acceptable storage location.
- B. Transportation of Plant Material: Plants transported to project in open vehicles shall be covered with tarpaulins or other suitable covers securely fastened to body of vehicle to prevent injury to plants. Closed vehicles shall be adequately ventilated to prevent overheating of plants.
1. Immediately after digging up bare-root stock, pack root system in wet straw, hay, or other suitable material to keep root system moist until planting.
  2. Plants shall be kept moist, fresh, and protected at all times. Such protection shall encompass entire period during which plants are in transit, being handled, or are in temporary storage.
  3. Unless otherwise authorized by Architect, notify Architect at least two working days in advance of anticipated delivery date of any plant material. Provide Architect with legible copy of bill of lading, showing quantities, kinds, and sizes of materials included for each shipment.
- C. Do not prune trees and shrubs before delivery, except as approved by Architect. Protect bark, branches, and root systems from sun scald, drying, sweating, whipping, and other handling and tying damage. Do not bend or bind-tie trees or shrubs in such a manner as to destroy their natural shape. Provide protective covering of exterior plants during delivery. Do not drop exterior plants during delivery.
- D. Handle planting stock by root ball.
- E. Deliver exterior plants after preparations for planting have been completed and install immediately. If planting is delayed more than six hours after delivery, set exterior plants trees in shade, protect from weather and mechanical damage, and keep roots moist.
1. Set balled stock on ground and cover ball with soil, peat moss, sawdust, or other acceptable material. Keep balls moist and their solidity carefully preserved.
  2. Do not remove container-grown stock from containers before time of planting.
  3. Water root systems of exterior plants stored on-site with a fine-mist spray. Water as often as necessary to maintain root systems in a moist condition.
  4. Exterior plants shall not be allowed to dry out or freeze.

5. Both duration and method of storage of plant materials shall be subject to approval of Architect.

#### 1.06 REJECTION OF MATERIALS

- A. Evidence of inadequate protection following digging, carelessness while in transit, or improper handling or storage, shall be cause for rejection.
- B. Upon arrival at temporary storage location or project site, plants shall be inspected for proper shipping procedures. Should the roots be dried out, large branches be broken, balls of earth broken or loosened, or areas of bark be torn, Architect will reject the injured plant.
- C. When a plant has been rejected, remove it from project site and replace it with one of the required size and quality.

#### 1.07 COORDINATION

- A. Planting Season: Regardless of dates specified below, planting shall only be performed when weather and soil conditions are suitable for planting the material specified in accordance with locally accepted practice. Coordinate planting periods with maintenance periods to provide required maintenance from date of Substantial Completion.
  1. Potted and Container Grown Plants:
    - a. Spring: April 1 to July 15.
    - b. Fall: August 15 to November 15.
  2. Balled and Burlapped Plants:
    - a. Spring: April 1 to June 15.
    - b. Fall: August 15 to October 15.
  3. Planting season may be extended only with written permission of Architect.
- B. Coordination with Lawns: Plant trees and shrubs after finish grades are established and before planting lawns, unless otherwise acceptable to Architect.
  1. When planting trees and shrubs after lawns, protect lawn areas and promptly repair damage caused by planting operations.

#### 1.08 INITIAL ACCEPTANCE

- A. Notification: Architect will inspect all work of this Section for Substantial Completion upon written notice of completion. Written request shall be received by Architect per requirements of Division 1 but not less than ten calendar days before anticipated date of inspection.
- B. Acceptance of plant material by Architect shall be for general conformance to specified size, character, and quality, and shall not diminish Contractor's responsibility for full conformance to Contract Documents.
- C. Upon completion and re-inspection of all repairs or renewals necessary in judgment of the Architect, the Architect will recommend to Owner that acceptance of work of this Section be given.

1.09 MAINTENANCE

- A. Maintenance by Contractor shall begin immediately after each plant is planted and shall continue until Project Substantial Completion or 120 days, whichever is longer.
  - 1. When initial maintenance period has not elapsed before the end of the planting season, the maintenance period shall continue into the next planting season.
- B. Maintenance shall consist of pruning, watering, cultivating, weeding, mulching, fertilizing, tightening and repairing stakes and guy supports, resetting plants to proper grades or upright position, restoration of the planting saucer, as required to establish healthy, viable plantings. Restore or replace damaged tree wrappings. Spray plant materials as required to keep them free of insects and disease.
- C. Planting areas and plants shall be protected against trespassing and damage for the duration of maintenance period. If plants become damaged or injured, they shall be treated or replaced as directed by Architect at no additional cost to Owner.
- D. Provide equipment and means for proper application of water to those planted areas not equipped with an irrigation system.
- E. Restoration: Pavements and planted areas, structures and substructures not specifically provided for in the contract, disturbed by the Contractor during the execution of the work shall be restored by Contractor, in a manner satisfactory to Architect, to their original condition at no cost to Owner.
- F. Following Acceptance or Maintenance Period by Contractor, whichever comes last, maintenance of plant material shall become the Owner's responsibility. Contractor shall provide Owner with instructions and service as follows:
  - 1. Provide Owner with typewritten recommended maintenance program.
  - 2. Contractor shall make periodic inspections, not less than every month, at no extra cost to Owner, during warranty period to determine what changes, if any, should be made to Owner's maintenance program.
  - 3. Submit written report of each inspection to Architect outlining corrective measures required to keep warranty valid.

1.10 WARRANTY PERIOD AND REPLACEMENTS

- A. General Warranty: Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of Contract Documents, and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of Contract Documents.
- B. Special Warranty: Warrant the following exterior plants, for the warranty period indicated, against defects including death and unsatisfactory growth, except for defects resulting from lack of adequate maintenance, neglect, or abuse by Owner, or incidents that are beyond Contractor's control.
  - 1. Warranty Period for All Plant Materials: One year from date of Substantial Completion.
  - 2. Remove dead exterior plants immediately. Replace immediately unless required to plant in the succeeding planting season.
  - 3. Replace exterior plants that are more than 25% dead or in an unhealthy condition at end of warranty period.

4. Replacement plants shall be free of dead or dying branches and branch tips and shall bear foliage of a normal density, size and color. Replacements shall closely match adjacent specimens of same species. Replacements shall be subject to requirements stated in this Specification.
  5. Warranty of replacement plants shall extend for an additional one year period from date of their acceptance after replacement. In the event that a replacement plant is not acceptable during or at end of said extended guarantee period, Owner may elect subsequent replacement or credit for each item.
- C. At the end of warranty period, and no less than five days prior to final inspection, staking and guying materials and ties shall be removed from site.

#### 1.11 MAINTENANCE

- A. Trees and Shrubs: Maintain for the following maintenance period by pruning, cultivating, watering, weeding, fertilizing, restoring planting saucers, tightening and repairing stakes and guy supports, and resetting to proper grades or vertical position, as required to establish healthy, viable plantings. Spray as required to keep trees and shrubs free of insects and disease. Restore or replace damaged tree wrappings.
1. Maintenance Period: 90-days from date of Substantial Completion.
- B. Ground Cover and Plants: Maintain for the following maintenance period by watering, weeding, fertilizing, and other operations as required to establish healthy, viable plantings:
1. Maintenance Period: 90-days from date of Substantial Completion.
- C. When full maintenance period has not elapsed before the end of planting season, maintenance shall continue in the spring at the beginning of the next planting season.

#### 1.12 FINAL INSPECTION AND ACCEPTANCE OF PLANT MATERIAL

- A. Notification: At the end of warranty period, provide Architect with written notice of end of warranty period requesting inspection of work for Final Acceptance. Request shall be received per the requirements of Division 1 but not less than ten calendar days before the anticipated date for Final Inspection.
- B. Upon completion and re-inspection of full repairs or replacements necessary in the judgment of the Architect at that time, the Architect will recommend to Owner that Final Acceptance of Work of this Section be given.

### PART 2 - PRODUCTS

#### 2.01 PLANT MATERIALS

- A. General: Materials shall be true to species and variety specified and shall be nursery grown in accordance with good horticultural practice under climatic conditions similar to those in the locality of project for at least two years. They shall have been root-pruned within last two years and shall be freshly dug. No heeled-in plants or plants from cold storage will be accepted.

- B. Unless specifically noted otherwise, plants shall be of specimen quality; exceptionally heavy; and symmetrical, heavily branched with an even branch distribution, densely foliated and/or budded, and a strong, straight, distinct leader where this is characteristic of species. Plants shall possess a normal balance between height and spread. The Architect will be the final arbiter of acceptability of plant form.
- C. Plants shall be sound; healthy; vigorous; and free of disease, insects, pests and their eggs or larvae.
- D. Plants shall have a well-developed fibrous root system.
- E. Plants shall be free of physical damage such as scrapes, broken or split branches, scars, bark abrasions, sunscalds, fresh limb cuts, disfiguring knots, or other defects. These defects shall not interrupt more than 25% of the circumference of the plant cambium.
- F. Plants shall conform to measurements indicated on Plant List. Plants larger than specified may be used only if accepted by Architect. Use of such plants shall not increase Contract price. If larger plants are approved, the root ball shall be increased in proportion to the size of the plant.
- G. Plants shall be measured when branches are in their normal position. If a range of size is given, no plant shall be less than minimum size, and not less than 50 percent of the plants shall be as large as maximum size specified. Measurements specified are minimum size, acceptable after pruning where pruning is required. Plants that meet measurements but do not possess a normal balance between height and spread shall be rejected.
- H. Plants shall not be pruned before delivery. Trees with multiple leaders, unless specified, will be rejected.
  - I. Plants indicated as "B&B" shall be balled and Burlapped. They shall be dug with firm, natural balls of earth of sufficient diameter and depth to encompass the fibrous and feeding root system necessary for full recovery of the plant. Balls shall be firmly wrapped with burlap or similar material and bound with twine, cord, or wire mesh. Where necessary to prevent breaking or cracking of the ball during the process of planting, the ball may be secured to a platform. In no case shall ball size be less than 11 inches in diameter for each inch of caliper.
- I. Plants shall be grown for at least two years under climatic conditions similar to those in the locality of the Project.
- J. Container grown plants shall be well rooted and established in container in which they are growing. They shall have grown in the container for a sufficient length of time for root system to hold planting medium when taken from container, but not long enough to become root bound. Container grown plants exceeding the sizes indicated in ANSI Z60.1 shall have containers that are not less than 75% of ball sizes for comparable B&B plant material. Each container plant shall be inspected and root pruned as needed.
  - 1. Canes or Trunk(s) and Branches:
    - a. Very well formed and sturdy.
    - b. Branching plentiful and uniformly distributed to form a well-balanced plant.
    - c. Scars shall be free of rot and not exceed 1/4 the diameter of the wood beneath in greatest dimension unless completely healed (except pruning scars).
    - d. Pruning scars clean cut leaving little or no protrusion from the trunk or branch.

- e. Graft union completely healed.
- f. No mechanical or pest damage.
- g. No extreme succulence.
- 2. Foliage:
  - a. Densely supplied with healthy, vigorous leaves of normal size, shape, color, and texture (except shrubs moved bare-root or deciduous shrubs when dormant).
  - b. No holes, cavities, or depressed areas caused by broken or dead branches or insufficient foliage.
  - c. No chlorosis.
  - d. Pest or mechanical damage barely perceptible with no more than 5% of total foliage affected.
  - e. No frost or cold damage discernible.
- 3. Root System:
  - a. Sturdily established in container.
  - b. Shall not be excessively root bound except plants deliberately grown root bound to produce a dwarf plant.
  - c. No large roots growing out of container.
  - d. No noxious weeds in container.

K. Tagging: Plants shall be tagged with waterproof label bearing legible designation of correct plant name and size. Labels shall be attached securely to all plants, bundles and containers of plant materials delivered with care that those attached directly to plants will not restrict growth.

L. Certificate of Inspection: Shall accompany invoices for plants as may be required by law for transportation. File certificates with Architect prior to acceptance of material. Inspection by Federal or State Governments at place of growth does not preclude rejection of plants at project site.

2.02 PLANTS

A. Perennials: Provide healthy, field-grown plants from a commercial nursery, of species and variety shown or listed.

2.03 TOPSOIL

A. Topsoil shall be obtained from a previously established stockpile on project site, to extent that suitable material is available. Additional topsoil required shall be obtained from off-site sources.

B. Topsoil, whether stripped from site or supplied from off-site, shall be a loam as defined by the USDA Soil Conservation Service, Soil Classification System, and shall have the following mechanical analysis:

<u>Textural Class</u>	<u>% of Total Weight</u>	<u>Average %</u>
Sand (0.05 - 2.0 mm dia. range)	50 to 70	60
Silt (0.002 - 0.05 mm dia. range)	18 to 35	25
Clay (less than 0.002 mm dia. range)	5 to 20	15

C. Topsoil shall comply with following characteristics:

1. Shall be free of earth clods, plant parts, stones 1 inch or larger in any dimension, and other extraneous materials harmful to plant growth.

2. 95% shall pass a 2.0-mm sieve.
3. Organic matter content shall be 6 to 12% of total dry weight.
4. pH Range: 5.5 to 6.5 phosphorus/potassium; low to medium range.
5. Soluble Salt: Not greater than 500 ppm.

2.04 INORGANIC SOIL AMENDMENTS

- A. Lime: ASTM C 602, agricultural limestone containing minimum 90 percent total calcium carbonate by weight. Provide ground dolomitic limestone graded within the following limits:

<u>Sieve Size</u>	<u>% Passing by Weight</u>
No. 10	100
No. 20	90
No. 100	50

- B. Aluminum Sulfate: Commercial grade, unadulterated. Deliver in containers with name of material and manufacturer, and net weight of contents.

2.05 ORGANIC SOIL AMENDMENTS

- A. Compost: Well-composted, stable, and weed-free organic matter, pH range of 5.5 to 8; moisture content 35 to 55 percent by weight; 100 percent passing through 1-inch sieve; soluble salt content of 5 to 10 decisiemens/m; not exceeding 0.5 percent inert contaminants and free of substances toxic to plantings; and as follows:

1. Organic Matter Content: 50 to 60 percent of dry weight.
2. Dark brown to black in color.
3. Shall be low in content of mineral and woody material.
4. Shall be granulated or shredded.
5. Product: Benson Earth Products, Gorham, Maine.

- B. Peat: Finely divided or granular texture, with a pH range of 6 to 7.5, containing partially decomposed moss peat, native peat, or reed-sedge peat and having a water-absorbing capacity of 1100 to 2000 percent.

- C. Manure: Well-rotted, unleached, stable or cattle manure containing not more than 25 percent by volume of straw, sawdust, or other bedding materials; free of toxic substances, stones, sticks, soil, weed seed, and material harmful to plant growth.

2.06 PLANTING SOIL

- A. Planting soil shall be a mixture of 4 parts topsoil and 1 part compost by volume.

- B. Planting soil shall have pH value range of 5.5 to 7.0.

1. If planting soil mixture does not fall within required pH range, limestone or aluminum sulfate shall be added to bring pH within specified limit.
2. To remedy deficiencies, implement amendments as recommended by soil analysis for planting beds.

2.07 WATER

- A. Water shall be suitable for irrigation and shall be free from ingredients harmful to plant life.

2.08 FERTILIZER

- A. Commercial Fertilizer: Commercial-grade complete fertilizer of neutral character, consisting of fast- and slow-release nitrogen, phosphorous, and potassium. Fifty percent of fast- and slow-release nitrogen shall be derived from natural organic source of urea formaldehyde. Available phosphorus shall be derived from super phosphate, bone meal, or tankage. Potassium shall be derived from muriate of potash containing 60% potash. Amounts of nitrogen, phosphorous, and potassium shall be in amounts recommended in soil reports from a qualified soil testing agency.
- B. Fertilizer shall be delivered to site in original, unopened containers, each bearing name of manufacturer and product name, and showing weight and manufacturer's guaranteed analysis. Fertilizer that becomes caked or otherwise damaged, making it unsuitable for use, will not be accepted.
- C. Slow-Release Fertilizer: Granular or pelleted fertilizer consisting of 50% water-insoluble nitrogen, phosphorus, and potassium in the following composition:
  - 1. Composition: Nitrogen, phosphorous, and potassium in amounts recommended in soil reports from a qualified soil-testing agency.
  - 2. Product: Osmocote Slow Release 14-14-14 analysis.
- D. Controlled-Release Fertilizer: Provide on of the following products:
  - 1. Agriform 20-10-5; Sierra Chemical Co.
  - 2. Planting Tablets: Milpitas, CA 95035.
  - 3. EZY-Grow Fertilizer Packet; EZY-Grow Landscape Specialties.

2.09 MULCHES

- A. Organic Mulch: Free from deleterious materials and suitable as a top dressing of trees and shrubs, consisting of 100% fine-shredded dark composted pine bark, of uniform size and free from rot, leaves, twigs, debris, stones, or any material harmful to plant growth. Bark shall have been shredded and stockpiled no less than two months and no more than two years before use.

2.10 STAKES AND GUYS

- A. Upright and Guy Stakes: Rough-sawn, sound, new hardwood, redwood, or pressure-preservative-treated softwood, free of knots, holes, cross grain, and other defects, 2- by 2-inches by length indicated, pointed at one end.
- B. Guy and Tie Wire: ASTM A 641/A 641M, Class 1, galvanized-steel wire, 2-strand, twisted, 0.106-inch in diameter.
- C. Guy Cable: 5-strand, 3/16-inch diameter, galvanized-steel cable, with zinc-coated turnbuckles, a minimum of 3-inches long, with two 3/8-inch galvanized eyebolts.
- D. Hose Chafing Guard: Reinforced rubber or plastic hose at least 3/4-inch in diameter, black, and cut to lengths required to protect tree trunks from damage.
- E. Turnbuckles: Galvanized steel having 3-inch minimum lengthwise opening fitted with screw eyes.



- F. Eyebolts shall be galvanized, having a 1-inch opening fitted with screw length of 1-inch.
- G. Deadman: Sound, rough sawn lumber 2 x 4-inches, or other material approved by the Architect. Duckbills may be used, with approval from the Architect.
- H. Tree Paint: Tree paint shall be an approved waterproof adhesive and elastic paint, manufactured and customarily used for painting cuts on trees. It shall contain an antiseptic ingredient and be free from kerosene, creosote, coal tar or any other injurious material.
- I. Flags: Standard surveyor's plastic flagging tape, white, 6-inches long.

## 2.11 MISCELLANEOUS PRODUCTS

- A. Antidesiccant: Water-insoluble emulsion, permeable moisture retarder, film forming, for trees and shrubs. Deliver in original, sealed, and fully labeled containers and mix according to manufacturer's written instructions.
  - 1. Product: Wilt-Pruf; Wilt-Pruf Products, Inc., Essex, CT 06426.
- B. Fungicide: Shall be zinc ethylene bisdithiocarbonate (Zineb), or equal.
- C. PHC Tree Saver: Mycorrhizal Fungi with Rhizosphere Bacteria for trees and shrubs.

## PART 3 - EXECUTION

### 3.01 EXAMINATION

- A. Examine areas to receive exterior plants for compliance with requirements and conditions affecting installation and performance.
  - 1. Verify subgrade is at proper elevation and has uniform grade.
  - 2. Notify Architect in writing of unacceptable rough grading or subgrade.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.02 PREPARATION OF PLANTING SOIL

- A. Before mixing, clean topsoil of roots, plants, sods, stones, clay lumps, and other extraneous materials harmful or toxic to plant growth. Mix specified soil amendments with topsoil at the rates specified. Delay mixing if planting will not follow placing of planting soil within a few days.
  - 1. Mix PHC Tree Saver evenly into the upper 8-inches of the backfill soil next to the root ball of trees and shrubs. Pack around the root ball then mulch and water until soil is saturated.
- B. Unless otherwise specified or indicated on the Drawings, the mixture (thoroughly mixed by volume) shall be used for backfill around trees and shrubs:
  - 1. Compost to Topsoil: 1 to 4 parts.
- C. Pit and Trench Type Backfill: Mix planting soil prior to backfilling and stockpile at the site. For planting beds, mix planting soil either prior to planting or apply on surface of topsoil and mix thoroughly before planting.

### 3.03 PREPARATION OF PLANTING AREAS

- A. Protect structures, utilities, sidewalks, pavements, and other facilities, and lawns and existing exterior plants from damage caused by planting operations.
- B. Provide erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.
- C. Locations of plant material as shown on drawings are approximate. Final positioning of plant material shall be made under supervision of Landscape Architect.
- D. Separate subgrade soils from the upper topsoil portions and remove immediately wherever encountered during planting operations.
- E. Notify Architect in writing of soil or drainage conditions that Contractor considers detrimental to growth of plant material. State condition and submit proposal in writing to Architect for correcting condition.
- F. Test drainage of five plant beds and pits, chosen by the Architect, shall be done by filling with water twice in succession. Time at which water is put into pit or bed for a second filling shall be noted. Architect shall then be notified of the time it takes for pit or bed to drain completely. Planting operations shall not proceed until Architect has reviewed test drainage results.
- G. Apply anti-desiccant to Rhododendrons using power spray to provide an adequate film over trunks, branches, stems, twigs, and foliage to protect during digging, handling, and transportation.
  - 1. If deciduous trees or shrubs are moved in full leaf, spray with anti-desiccant at nursery before moving and again two weeks after planting.

### 3.04 FILTER FABRIC

- A. Filter fabric shall be installed where indicated on the Drawings. Unless otherwise indicated, filter fabric shall be overlapped 6-inches along all edges.

### 3.05 JUTE EROSION CONTROL FABRIC

- A. Biodegradable, 1-inch, open weave jute erosion control fabric shall be installed on slopes equal to or exceeding 1:3 indicated on Drawings to be planted with ground cover. Fabric shall be overlapped 6 inches along all edges and pinned with galvanized steel wire pins, minimum 6 inches long. Top edge shall be turned under minimum 6-inches and backfilled.

### 3.06 PLANTING BED ESTABLISHMENT

- A. Loosen subgrade of planting beds to a minimum depth of 12-inches. Cultivate all plant beds to depth of not less than 18-inches where there are construction activities, i.e. adjacent structures and compacted soils. Remove stones larger than 1½-inches in any dimension and sticks, roots, rubbish, and other extraneous matter and legally dispose of them off Owner's property.
  - 1. Apply fertilizer directly to subgrade before loosening.
  - 2. Apply soil amendments and fertilizer on surface, and thoroughly blend planting soil mix.

- a. Delay mixing fertilizer with planting soil if planting will not proceed within a few days.
  - b. Mix lime with dry soil before mixing fertilizer.
3. Spread planting soil mix to a depth of not less than 12-inches but not less than required to meet finish grades after natural settlement. Do not spread if planting soil or subgrade is frozen, muddy, or excessively wet.
- B. Finish Grading: Grade planting beds to a smooth, uniform surface plane with loose, uniformly fine texture. Roll and rake, remove ridges, and fill depressions to meet finish grades.
- C. Restore planting beds if eroded or otherwise disturbed after finish grading and before planting.

### 3.07 TREE AND SHRUB EXCAVATION

- A. Pits and Trenches: Excavate circular pits in accordance with Typical Planting Details. Trim base leaving center area raised slightly to support root ball and assist in drainage. Do not further disturb base. Scarify sides of plant pit smeared or smoothed during excavation.
1. Excavate approximately three times as wide as ball diameter for balled and Burlapped stock.
- B. Subsoil removed from excavations may not be used as backfill.
- C. Obstructions: Notify Architect if unexpected rock or obstructions detrimental to trees or shrubs are encountered in excavations.

### 3.08 TREE AND SHRUB PLANTING

- A. Protect plants from sun and drying winds. Plants that cannot be planted immediately on delivery shall be kept in the shade, well protected with soil, wet moss, or other acceptable material and shall be kept well watered. Plants shall not be bound with wire or rope at any time so as to damage the bark or break branches. Plants shall be lifted and handled from the bottom of the ball only.
- B. Set balled and Burlapped stock plumb and in center of pit or trench with top of root ball in same relationship to finish grade as they bore to ground from which they were dug.
1. Remove burlap and wire baskets from tops of root balls and 1/3 of the way down the sides, but do not remove from under root balls. If non-biodegradable wrap is used, remove totally. Remove pallets, if any, before setting. Do not use planting stock if root ball is cracked or broken before or during planting operation.
  2. Place planting soil mix around root ball in layers, tamping lightly every 6 inches to settle mix and eliminate voids and air pockets. When pit is approximately one-half backfilled, water thoroughly before placing remainder of backfill. Repeat watering until no more water is absorbed. Water again after placing and tamping final layer of planting soil mix.
  3. Remove nursery plant identification tags.
  4. Form shallow saucer around tree as indicated on Drawings.
- C. Containerized plants shall be removed from container taking care not to damage roots. Side of root ball shall be scarified to prevent root bound condition. Set stock plumb and in center of pit or trench with top of root ball 1-inch above adjacent finish grades.
1. Place planting soil mix around root ball in layers, tamping to settle mix and eliminate voids and air pockets. When pit is approximately one-half backfilled, water thoroughly

before placing remainder of backfill. Repeat watering until no more water is absorbed.  
Water again after placing and tamping final layer of planting soil mix.

- D. Bring finish grade in planting areas to grades indicated on Drawings.
- E. Organic Mulching: Apply 3-inch average thickness of organic mulch extending 12-inches beyond edge of planting pit or trench. Do not place mulch within 3-inches of trunks or stems.
- F. Immediately after planting, water plants thoroughly.

### 3.09 APPLICATION OF FERTILIZER

- A. Fertilizer shall be applied when planting pits are backfilled two-thirds full. Fertilizer application shall be of the type, rate, and timing recommended by the testing agency for each plant type.
- B. Slow-Release Fertilizer:
  - 1. Fertilization schedule for trees and shrubs using slow release 4 oz. packet system shall be per manufacturer's recommendations.
  - 2. Fertilizer packets shall be placed 6 to 8 in. deep below top of planting soil around root balls of plants. Packets shall be spaced evenly depending on the number of packets required.

### 3.10 STAKING, GUYING AND WRAPPING

- A. Each tree shall be staked or guyed only if indicated on planting plan immediately after planting. Drive ground anchors into ground by manual or machine method at approximately 45 degree angle to ground plane and distributed at 120 degree intervals around trunk of tree. Preload anchors after driving until anchor turns in the ground at 90 degree angle to line of driving force. Anchor assembly will rise 2 to 6-inches during pre-loading. Attach guying cables, turnbuckles and hose, and secure until tree is rigidly guyed. On all guys, 1/3 distance up from ground to trunk, secure white plastic flagging 1-inch x 18-inches, tied securely.
  - 1. Trees 3" in caliper or greater shall be guyed using 120 degree, three-guy method, or as shown on the Drawings.
  - 2. Trees less than 3" in caliper shall be staked using 180 degree, two-stake method.
  - 3. Plants shall stand plumb after staking or guying.
  - 4. Maintain supports in place during entire guarantee period.

### 3.11 TREE AND SHRUB PRUNING

- A. Prune, thin, and shape trees and shrubs only at time of planting and as directed by Architect.
- B. Prune, thin, and shape trees and shrubs according to standard horticultural practice. Prune trees to retain required height and spread. Unless otherwise indicated by Architect, do not cut tree leaders; remove only injured or dead branches from flowering trees. Prune shrubs to retain natural character. Shrub sizes indicated are sizes after pruning.
  - 1. Use only clean, sharp tools.
  - 2. Cuts shall be made flush, leaving no stubs. No tree paint shall be used.

### 3.12 GROUND COVER AND PERENNIAL PLANTING

- A. Set out and space ground cover and plants as indicated.
- B. Dig holes large enough to allow spreading of roots, and backfill with planting soil.
- C. Work soil around roots to eliminate air pockets and leave a slight saucer indentation around plants to hold water.
- D. Water thoroughly after planting, taking care not to cover plant crowns with wet soil.
- E. Protect plants from hot sun and wind; remove protection if plants show evidence of recovery from transplanting shock.

3.13 PLANTING BED MULCHING

- A. Mulch backfilled surfaces of planting beds, tree pits, and other areas indicated within two days of planting.
  - 1. Organic Mulch: Apply 2-inch average thickness of organic mulch, and finish level with adjacent finish grades. Do not place mulch against plant stems.
    - a. Mulch shall be applied to entire mulch area. Mulch area is the bed area.

3.14 CLEANUP AND PROTECTION

- A. During exterior planting, keep adjacent pavings and construction clean and work area in an orderly condition.
- B. Protect exterior plants from damage due to landscape operations, operations by other contractors and trades, and others. Maintain protection during installation and maintenance periods. Treat, repair, or replace damaged exterior planting.

3.15 DISPOSAL

- A. Disposal: Remove surplus soil and waste material, including excess subsoil, unsuitable soil, trash, and debris, and legally dispose of them off Owner's property.

END OF SECTION 02930



## SECTION 03300 - CAST IN PLACE CONCRETE

### PART 1 GENERAL

#### 1.1 SUMMARY

- A. Section Includes:
  - 1. Formwork.
  - 2. Reinforcement.
  - 3. Accessories.
  - 4. Cast-in place concrete.
  - 5. Finishing and curing.

#### 1.2 SYSTEM DESCRIPTION

- A. Design, engineer and construct formwork, shoring and bracing in accordance with ACI 318-Latest Edition to conform to design and applicable code requirements to achieve concrete shape, line and dimension as indicated on Drawings

#### 1.3 SUBMITTALS

- A. Shop Drawings:
  - 1. Indicate reinforcement sizes, spacings, locations, and quantities, bending and cutting schedules, supporting and spacing devices.
- B. Product Data: Submit for record data sheets for concrete admixtures.
- C. Submit for Review manufactures information and installation instructions on post installed anchors.
- D. Design Data: Submit mix designs.

#### 1.4 QUALITY ASSURANCE

- A. Construct and erect concrete formwork in accordance with ACI 318 and ACI 347.
- B. Perform concrete reinforcing work in accordance with ACI 315, ACI 318 and CRSI Manual of Practice.
- C. Perform cast-in-place concrete work in accordance with ACI 318, ACI 305, and ACI 306.

### PART 2 PRODUCTS

#### 2.1 FORM MATERIALS AND ACCESSORIES

- A. Form Materials: At discretion of Contractor.

- B. Form Release Agent: Colorless mineral oil not capable of staining concrete or impairing natural bonding characteristics of coating intended for use on concrete.
- C. Slab Edge Joint Filler: Premolded asphaltic board, 1/2 inch thick.
- D. Vapor Retarder: Coordinate with Architect.

## 2.2 REINFORCEMENT MATERIALS

- A. Deformed Reinforcement: ASTM A615, 60 ksi yield strength, steel bars.
- B. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for support of reinforcing; plastic tipped or non-corroding for supports in slabs forming finished ceilings or where supports are exposed to weather.
- C. Fabricate concrete reinforcement in accordance with CRSI Manual of Practice.
- D. Fiber Reinforcement shall be Type III synthetic virgin homopolymer polypropylene conforming to ASTM C1116

## 2.3 CONCRETE MATERIALS

- A. Cement: ASTM C150, Normal-Type I, Portland type.
- B. Fine and Coarse Aggregates: ASTM C33.
- C. Water: Clean and not detrimental to concrete.
- D. Air Entrainment Admixture: ASTM C260.
- E. Non-shrink Grout: Premixed compound consisting of non-metallic aggregate, cement, water reducing and plasticizing agents.

## 2.4 CONCRETE MIX

- A. Mix and deliver concrete in accordance with ASTM C94.
- B. Furnish concrete of the following strength, unless noted otherwise on drawings:
  - 1. Compressive Strength 3000 psi at 28 days
  - 2. Slump 2-4 inches prior to addition of water reducing admixtures.
  - 3. Maximum water-cement ratio: 0.55.
  - 4. 4000 psi for concrete paving.
- C. Select admixture proportions for normal weight concrete in accordance with ACI 318.
- D. Add air entraining agent to concrete mix for concrete work exposed to exterior.



## PART 3 EXECUTION

### 3.1 FORMWORK ERECTION

- A. Erect formwork, shoring and bracing to achieve design requirements.
- B. Camber slabs and framing to achieve ACI 301 tolerances.
- C. Provide bracing to ensure stability of formwork.
- D. Apply form release agent to formwork prior to placing form accessories and reinforcement.
- E. Do not apply form release agent where concrete surfaces will receive applied coverings affected by agent.
- F. Clean forms as erection proceeds, to remove foreign matter.

### 3.2 INSERTS, EMBEDDED COMPONENTS, AND OPENINGS

- A. Provide formed openings where required for work to be embedded in and passing through concrete members.
- B. Install concrete accessories straight, level, and plumb.
- C. Place joint filler at perimeter of floor slab and isolation joints.

### 3.3 REINFORCEMENT PLACEMENT

- A. Place reinforcement, supported and secured against displacement.
- B. Ensure reinforcing is clean, free of loose scale, dirt, or other foreign coatings.
- C. Maintain concrete cover around reinforcement in accordance with ACI 318

### 3.4 PLACING CONCRETE

- A. Prepare previously placed concrete by cleaning with steel brush and applying bonding agent.
- B. Install vapor retarder under interior slabs on grade in accordance with ASTM E1643. Lap joints minimum 6 inches and seal watertight.
- C. Repair damaged vapor retarder with vapor retarder material, lap over damaged areas minimum 6 inches and seal watertight.
- D. Separate slabs-on-grade from vertical surfaces with 1/2 inch thick joint filler, extended from bottom of slab to within 1/4 inch of finished slab surface.

- E. Place concrete continuously between predetermined expansion, control and construction joints. [Do not break or interrupt successive pours creating cold joints.]

### 3.5 FORM REMOVAL

- A. Do not remove forms or bracing until concrete has gained sufficient strength to carry its own weight and imposed loads.
- B. Remove formwork progressively and in accordance with code requirements.

### 3.6 FLOOR FINISHING INTERIOR

- A. Finish concrete floor surfaces in accordance with ACI 301.
- B. Uniformly spread, screed, and float concrete.
- C. Steel trowel surfaces receiving carpeting, resilient flooring, or remaining exposed to view in finished construction.
- D. Maintain surface flatness, with maximum variation of 1/8" in 10 ft.
- E. In areas with floor drains, maintain floor level at walls and slope surfaces uniformly to drains.

### 3.7 CURING

- A. Immediately after placement, protect concrete from premature drying.

### 3.8 ERECTION TOLERANCES

- A. Install reinforcement within tolerances required by ACI 318.

### 3.9 FIELD QUALITY CONTROL

- A. Perform field testing in accordance with ACI 318.
- B. Strength Test Samples:
  - 1. Sample concrete and make one set of three cylinders for every 50 cu yds or portion thereof of each class of concrete placed each day.
- C. Field Testing:
  - 1. Measure slump and temperature for each compressive strength concrete sample.
  - 2. Measure air content in air entrained concrete for each compressive strength concrete sample.
- D. Cylinder Compressive Strength Testing:
  - 1. Test Method: ASTM C39.
  - 2. Test one cylinder at 7 days.

3. Test two cylinders at 28 days.
4. Dispose remaining cylinders when testing is not required.

3.10 DEFECTIVE CONCRETE

- A. Modify or replace concrete not conforming to required lines, details and elevations, as directed by Architect/Engineer.

END OF SECTION 03300



## SECTION 05500 - METAL FABRICATIONS

### PART 1 - GENERAL

#### 1.01 RELATED DOCUMENTS

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

#### 1.02 SUMMARY

- A. This Section includes the following:
  - 1. Steel pipe railings, handrails.
  - 2. Miscellaneous fabrications:
    - a. Countertop supports.
  - 3. Rough hardware.
  - 4. Exterior Steel Flanges.
- B. Related Sections include the following:
  - 1. Division 2 Section Granite.
  - 2. Division 3 Section "Cast-in-Place Concrete" for concrete fill for bollards.

#### 1.03 PERFORMANCE REQUIREMENTS

- A. Structural Performance of Railings: Provide railings capable of withstanding the effects of gravity loads, current IBC 2006 requirements, and the following loads and stresses within limits and under conditions indicated:
  - 1. Handrails:
    - a. Uniform load of 50 lbf/ft. applied in any direction.
    - b. Concentrated load of 200 lbf applied in any direction
    - c. Uniform and concentrated loads need not be assumed to act concurrently.
  - 2. Top Rails of Guards:
    - a. Uniform load of 50 lbf/ft.
    - b. Concentrated load of 200 lbf applied in any direction.
    - c. Uniform and concentrated loads need not be assumed to act concurrently.
  - 3. Infill of Guards:
    - a. Concentrated load of 50 lbf applied horizontally on an area of 1 sq. ft.
    - b. Uniform load of 25 lbf/ft. applied horizontally.
    - c. Infill load and other loads need not be assumed to act concurrently

#### 1.04 SUBMITTALS

- A. General: Submit in accordance with Section 01330.
- B. Shop Drawings: Show fabrication and installation details for metal fabrications.
  - 1. Include plans, elevations, sections, and details of metal fabrications and their connections. Show anchorage and accessory items.

## PART 2 - PRODUCTS

### 2.01 FERROUS METALS

- A. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M, standard weight (Schedule 40), unless another weight is indicated or required by structural loads.
  - 1. Black finish, unless otherwise indicated.
  - 2. Galvanized finish for exterior installations and where indicated.
- B. Stainless-Steel Sheet, Strip, Plate, and Flat Bars: ASTM A 666, Type 316.
- C. Stainless-Steel Tubing: ASTM A 554, Grade MT 316, Schedule 80.
- D. Stainless-Steel Pipe: ASTM A 312M, Grade TP316, Schedule 80.
- E. Stainless-Steel Bars and Shapes: ASTM A 276, Type 316.

### 2.02 FASTENERS

- A. General: Unless otherwise indicated, provide Type 304 stainless-steel fasteners for exterior use and zinc-plated fasteners with coating complying with ASTM B 633, Class Fe/Zn 5, at exterior walls.
- B. Steel Bolts and Nuts: Regular hexagon-head bolts, ASTM A 307, Grade A; with hex nuts, ASTM A 563; and, where indicated, flat washers.
- C. Stainless-Steel Bolts and Nuts: Regular hexagon-head annealed stainless-steel bolts, nuts and, where indicated, flat washers; ASTM F 593 for bolts and ASTM F 594 for nuts, Alloy Group 1.
- D. Lag Bolts: ASME B18.2.1.
- E. Wood Screws: Flat head, ASME B18.6.1.
- F. Plain Washers: Round, ASME B18.22.1.
- G. Lock Washers: Helical, spring type, ASME B18.21.1.
- H. Expansion Anchors: Anchor bolt and sleeve assembly with capability to sustain, without failure, a load equal to six times the load imposed when installed in unit masonry and four times the load imposed when installed in concrete, as determined by testing according to ASTM E 488, conducted by a qualified independent testing agency.
  - 1. Material for Anchors in Interior Locations: Carbon-steel components zinc-plated to comply with ASTM B 633, Class Fe/Zn 5.
  - 2. Material for Anchors in Exterior Locations: Alloy Group 1 stainless-steel bolts complying with ASTM F 593 and nuts complying with ASTM F 594.

### 2.03 MISCELLANEOUS MATERIALS

- A. Universal Shop Primer: Fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with MPI#79.
  - 1. Use primer with a VOC content of 420 g/L (3.5 lb/gal.) or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

- B. Galvanizing Repair Paint: High-zinc-dust-content paint for regalvanizing welds in steel, complying with SSPC-Paint 20.
- C. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187.
- D. Concrete Materials and Properties: Comply with requirements in Division 3 Section "Cast-in-Place Concrete" for normal-weight, air-entrained, ready-mix concrete with a minimum 28-day compressive strength of 3000 psi, unless otherwise indicated.

#### 2.04 FABRICATION, GENERAL

- A. Shop Assembly: Preassemble items in shop to greatest extent possible. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.
- B. Form metal fabrications from materials of size, thickness, and shapes indicated. Work to dimensions indicated or accepted on shop drawings, using proven details of fabrication and support. Use type of materials indicated or specified for various components of each metal fabrication.
- C. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch, unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.
- D. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.
- E. Form exposed work true to line and level with accurate angles and surfaces and straight edges.
- F. Weld corners and seams continuously to comply with the following:
  - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
  - 2. Obtain fusion without undercut or overlap.
  - 3. Remove welding flux immediately.
  - 4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.
- G. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners where possible. Where exposed fasteners are required, use Phillips flat-head (countersunk) screws or bolts, unless otherwise indicated. Locate joints where least conspicuous.
- H. Fabricate seams and other connections that will be exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.
- I. Cut, reinforce, drill, and tap metal fabrications as indicated to receive finish hardware, screws, and similar items.
- J. Provide for anchorage of type indicated; coordinate with supporting structure. Space anchoring devices to secure metal fabrications rigidly in place and to support indicated loads. Cut, reinforce, drill, and tap metal fabrications as indicated to receive finish hardware, screws, and similar items.
- K. Provide counter top supports as indicated on the drawings.

2.05 STAINLESS PIPE RAILINGS AND HANDRAILS

- A. General: Fabricate steel pipe railings and handrails to comply with requirements indicated for design, dimensions, details, finish, and member sizes, including wall thickness of tube, post spacings, and anchorage, but not less than that needed to withstand indicated loads.
  - 1. Configuration of handrail 1 5/8" OD stainless steel rail and posts as shown on the drawings.

2.06 MISCELLANEOUS FABRICATIONS

- A. Countertop Supports: Fabricate from steel angle with steel gussets to configuration indicated. Round edges and ends to remove sharp edges.

2.07 ROUGH HARDWARE

- A. Furnish bent or otherwise custom-fabricated, bolts, plates, anchors, hangers, dowels, and other miscellaneous steel and iron shapes as required for framing and supporting woodwork, and for anchoring or securing woodwork to concrete or other structures. Straight bolts and other stock rough hardware items are specified in Division 6 Sections.
- B. Fabricate items to sizes, shapes, and dimensions required. Furnish malleable-iron washers for heads and nuts that bear on wood structural connections, and furnish steel washers elsewhere.

2.08 FINISHES, GENERAL

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Finish metal fabrications after assembly.

2.09 STEEL AND IRON FINISHES

- A. Galvanizing: Provide coating for iron and steel fabrications applied by the hot-dip process, 0.05 - 0.09% nickel content, Deltagalv by Duncan Galvanizing or approved equal. Provide thickness of galvanizing specified in referenced standards. Hot-dip galvanize items as indicated to comply with applicable standard listed below:
  - 1. ASTM A 123/A 123M, for galvanizing both fabricated and unfabricated steel and iron products made of uncoated rolled, pressed, and forged shapes, plates, bars, and strip 0.0299 inch thick or thicker.
  - 2. ASTM A 153/A 153M, for galvanizing steel and iron hardware.
- B. Preparation for Shop Priming: Prepare uncoated ferrous-metal surfaces to comply with minimum requirements indicated below for SSPC surface preparation specifications and environmental exposure conditions of installed metal fabrications:
  - 1. Exteriors (SSPC Zone 1B): SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
  - 2. Interiors (SSPC Zone 1A): SSPC-SP 3, "Power Tool Cleaning."
- C. Shop Priming: Apply shop primer to uncoated surfaces of metal fabrications, except those with galvanized finishes and those to be embedded in concrete, sprayed-on fireproofing, or masonry,



unless otherwise indicated. Comply with SSPC-PA 1, "Paint Application Specification No. 1: Shop, Field, and Maintenance Painting of Steel," for shop painting.

1. Stripe paint corners, crevices, bolts, welds, and sharp edges.

## 2.10 STAINLESS-STEEL FINISHES

- A. Remove tool and die marks and stretch lines or blend into finish.
- B. Grind and polish surfaces to produce uniform, directionally textured, polished finish indicated, free of cross scratches. Run grain with long dimension of each piece.
- C. Bright, Directional Satin Finish: No. 4.
- D. When polishing is completed, passivate and rinse surfaces. Remove embedded foreign matter and leave surfaces chemically clean.

## PART 3 - EXECUTION

### 3.01 INSTALLATION, GENERAL

- A. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing metal fabrications. Set metal fabrications accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.
- B. Fit exposed connections accurately together to form hairline joints. Do not weld, cut, or abrade surfaces of exterior units that have been hot-dip galvanized after fabrication and are intended for bolted or screwed field connections.
- C. Fastening to In-Place Construction: Provide anchorage devices and fasteners where metal fabrications are required to be fastened to in-place construction. Provide threaded fasteners for use with concrete and masonry inserts, toggle bolts, through bolts, lag bolts, wood screws, and other connectors.

### 3.02 INSTALLING STAIR HANDRAIL

- A. Adjust railing systems before anchoring to ensure matching alignment at abutting joints. Set posts at spacing indicated or, if not indicated, as required by design loads. Plumb posts in correct direction. Secure posts and rail ends to building construction as follows:
  1. As required.

### 3.03 ADJUSTING AND CLEANING

- A. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas. Paint uncoated and abraded areas with the same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.
  1. Apply by brush or spray to provide a minimum 2.0-mil dry film thickness.

- B. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A 780.

END OF SECTION 05500

SECTION 06100

ROUGH CARPENTRY

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. This Section includes the following:
  - 1. Wood blocking and nailers
  - 2. Sheathing
  - 3. Plywood backing panels
- B. Related Sections include the following:
  - 1. Division 9 Section "Non-load bearing steel framing" for gypsum sheathing applied to framing.
  - 2. Division 6 Section "Architectural Woodwork" for nonstructural carpentry items exposed to view and not specified in another section.

1.03 DEFINITIONS

- A. Rough Carpentry: Carpentry work not specified in other sections and not exposed, unless otherwise indicated.
- B. Lumber grading agencies, and the abbreviations used to reference them, include the following:
  - 1. NELMA – Northeastern Lumber Manufacturers Association
  - 2. NLGA – National Lumber Grades Authority
  - 3. WCLIB – West Coast Lumber Inspection Bureau
  - 4. WWPA – Western Wood Products Association

1.04 SUBMITTALS

- A. General: Submit in accordance with Section 01330.
- B. Product data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.
  - 1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used, net amount of preservative retained, and chemical treatment manufacturer's written instructions for handling, storing, installing and finishing treated material.
  - 2. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Include physical properties of treated materials, both before and after exposure to elevated temperatures when tested according to ASTM D 5516 and ASTM D 5664.
  - 3. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to project site.
  - 4. Include copies of warranties from chemical treatment manufacturers for each type of

treatment.

- C. Research/ Evaluation Reports: For the following, showing compliance with building code in effect for project:
  - 1. Preservative-treated wood
  - 2. Fire-retardant-treated wood
  - 3. Power-driven fasteners
  - 4. Power-actuated fasteners
  - 5. Expansion anchors

#### 1.05 QUALITY ASSURANCE

- A. Source Limitations for Fire-Retardant-Treated Wood: Obtain each type of fire-retardant-treated wood product through one source from a single producer for both treatment and fire-retardant formulation.

#### 1.06 DELIVERY, STORAGE, AND HANDLING

- A. Keep materials under cover and dry. Protect against exposure to weather and contact with damp or wet surfaces. Stack lumber, plywood and other panels; place spacers between each bundle to provide air circulation. Provide air circulation around stacks and under coverings.

### PART 2 - PRODUCTS

#### 2.01 MANUFACTURERS

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
  - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.
  - 2. Products: Subject to compliance with requirements, provide one of the products specified.

#### 2.02 WOOD PRODUCTS, GENERAL

- A. Lumber: DOC PS 20 and applicable rules of lumber grading agencies certified by the American Lumber Standards Committee's Board of Review.
  - 1. Factory mark each piece of lumber with grade stamp of grading agency.
  - 2. 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.
  - 3. Provide dressed lumber, S4S, unless otherwise indicated.
  - 4. Provide dry lumber with 19 percent maximum moisture content at time of dressing for 2 inch nominal thickness or less, unless otherwise indicated.
- B. Wood Structural Panels:
  - 1. Plywood: DOC PS 1
  - 2. Thickness: As needed to comply with requirements specified but not less than thickness indicated.
  - 3. Factory mark panels according to indicated standard.

## 2.03 WOOD-PRESERVATIVE-TREATED MATERIALS

- A. Preservative Treatment by Pressure Process: AWWA C2 (lumber) and AWWA C9 (plywood), except that lumber that is not in contact with the ground is continuously protected from liquid water may be treated according to AWWA C31 with inorganic boron (SBX).
  - 1. Preservative Chemicals: CA-B, Wolmanized Natural Select.
- B. Kiln-dry material after treatment to a maximum moisture content of 19 percent for lumber and 15 percent for plywood. Do not use material that is warped or does not comply with requirements for untreated material.
- C. Mark each treated item with the treatment quality mark of an inspection agency approved by the American Lumber Standards Committee Board of Review.
- D. Application: Treat items indicated on drawings and the following:
  - 1. Wood nailers, blocking, stripping, and similar members in connection with roofing, flashing air/vapor barriers, and waterproofing.
  - 2. Wood blocking and similar concealed members in contact with masonry or concrete.
  - 3. Wood framing members less than 18 inches above grade.
  - 4. Wood floor plates that are installed over concrete slabs directly in contact with earth.
  - 5. Pressure-treat wood members in contact with the ground of fresh water with water-borne preservatives to a minimum retention of 0.40 pcf.

## 2.04 FIRE-RETARDANT-TREATED MATERIALS

- A. General: Where fire-retardant-treated materials are indicated, provide materials that comply with performance requirements in AWWA C27 (plywood). Identify fire-retardant-treated wood with appropriate classification marking of UL, U.S. Testing, Timber Products Inspection, or another testing and inspecting agency acceptable to authorities having jurisdiction.
  - 1. Use treatment for which chemical manufacturer publishes physical properties of treated wood after exposure to elevated temperatures, when tested by a qualified independent testing agency according to ASTM D 5516, for plywood.
  - 2. Use treatment that does not promote corrosion of metal fasteners.
  - 3. Use Interior Type A High Temperature (HT), unless otherwise indicated.

## 2.05 MISCELLANEOUS LUMBER

- A. General: Provide lumber for support or attachment of other construction, including the following:
  - 1. Blocking
  - 2. Nailers
- B. For items of dimension lumber size, provide Construction, Stud or No. 2 grade lumber with 19 percent maximum moisture content and the following species:
  - 1. Spruce-pine-fir; NELMA, NLGA, WCLIB, OR WWPA.
- C. For concealed boards, provide lumber with 19 percent maximum moisture content and the following species and grades:
  - 1. Spruce-pine-fir, Construction or 2 Common grade; NELMA, NLGA, WCLIB, OR WWPA.

## 2.06 SHEATHING

- A. Plywood Wall Sheathing: Exposure 1, Structural I sheathing
  - 1. Span Rating: Not less than 32/16.
  - 2. Thickness: Not less than ½-inch.
  - 3. Species: Fir.

## 2.07 PLYWOOD BACKING PANELS

- A. Telephone, Electrical, and Data Equipment Backing Panels: DOC PS 1, Exposure 1, C-D Plugged, fire-retardant treated, in thickness indicated or, if not indicated, not less than ½-inch thick.

## 2.08 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, in roof area, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.
- B. Nails, Brads, and Staples: ASTM F 1667.
- C. Power-Driven Fasteners: CABO NER-272.
- D. Wood Screws: ASME B18.6.1.
- E. Screws for Fastening to Cold-Formed Metal Framing: Hilti Kwik-Flex or Elco Dril-Flex; no substitution, 10-24 x 1-1/4" wafer head #3.
- F. Lag Bolts: ASME B18.2.1.
- G. Bolts: Steel bolts complying with ASTM A 307, Grade A; with ASTM A 563 hex nuts and, where indicated, flat washers.
- H. 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 E488 conducted by a qualified independent testing and inspecting agency.
  - 1. Material: Carbon-steel components, zinc plated to comply with ASTM B633, Class Fe/Zn 5.

## 2.09 MISCELLANEOUS MATERIALS

- A. Building Paper: Asphalt-saturated organic felt complying with ASTM D 226, Type I (No. 15 asphalt felt), unperforated.

## PART 3 – EXECUTION

### 3.01 INSTALLATION, GENERAL

- A. Set rough carpentry to required levels and lines, with members plumb and true to line, cut and fitted. Fit rough carpentry to other construction; scribe and cope as needed for accurate fit. Locate nailers, blocking, and similar supports to comply with requirements for attaching other construction.
- B. Do not use materials with defects that impair quality of rough carpentry or pieces that are too small to use with minimum joints or optimum joint arrangement.
- C. Apply field treatment complying with AWWPA M4 to cut surfaces of preservative-treated lumber and plywood.
- D. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:
  - 1. CABO NER-272 for power-driven fasteners
  - 2. Published requirements of metal framing anchor manufacturer.
  - 3. Table 2305.2, "Fastening Schedule," in the BOCA National Building Code, 1999 Edition.
- E. 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 of wood; predrill as required.
  - 1. Use hot-dip galvanized or stainless steel nails where rough carpentry is exposed to weather, in ground contact, or in area of high relative humidity.
  - 2. Use stainless steel fasteners when fastening preservative treated members.

### 3.02 WOOD BLOCKING, AND NAILER INSTALLATION

- A. Install where indicated and where required for attaching other work. Install wood blocking and nailers to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, casework, furnishings, or similar construction. Provide 3/4 inch thick plywood covering a minimum of 32 inches square for toilet accessories. Provide 1-1/2 inch thick blocking minimum for grab bars and handrail supports. Form to shapes as shown and cut as required for true line and level of work to be attached. Coordinate location with other work involved.
- B. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces, unless otherwise indicated. Build anchor bolts into masonry during installation of masonry work. Where possible, secure anchor bolts to formwork before concrete placement.
- C. Wood blocking shall be fire retardant, treated per section 06100, paragraph 2.04.A and comply with performance requirements.

### 3.03 WOOD STRUCTURAL PANELS INSTALLATION

- A. General: Comply with applicable recommendations contained in APA Form No. E30K, "APA Design/Construction Guide - Residential & Commercial," for types of structural-use panels and applications indicated.
- B. Fastening Methods: Fasten panels as indicated below:
  - 1. Wall Sheathing:
    - a. Screw to cold-formed metal framing

- b. Space panels 1/8 inch apart at edges and ends.
2. Plywood Backing Panels: Screw to supports.

END OF SECTION 06100



SECTION 06400 - INTERIOR ARCHITECTURAL WOODWORK

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. This Section includes the following:
  - 1. Custom interior standing and running trim.
  - 2. Custom wood/plastic laminate casework.
  - 3. Custom plastic-laminate cabinets.
  - 4. Plastic-laminate countertops.
  - 5. Plastic laminate Ceiling Cloud/Canopies
  - 6. Interior frames and jambs.
  - 7. Shop finishing interior woodwork.
  - 8. Solid surface countertops.
- B. Related Sections include the following:
  - 1. Division 6 Section "Rough Carpentry" for wood furring, blocking, shims, and hanging strips required for installing woodwork and concealed within other construction before woodwork installation.
  - 2. Division 6 Section "Finish Carpentry" for manufactured cabinets and interior carpentry exposed to view that is not specified in this Section.
  - 3. Division 9 Section "Painting" for field finishing of interior architectural standing and running trim receiving an opaque finish. Section 09770 Prefinished Interior Panels.
  - 4. Division 16 Sections for conduit and connections installed in casework.
- C. Products installed, but not furnished, under this Section include the following:
  - 1. Countertop supports furnished in Division 5 Section "Metal Fabrications."

1.03 DEFINITIONS

- A. Interior architectural woodwork includes wood furring, blocking, shims, and hanging strips for installing woodwork items, unless concealed within other construction before woodwork installation.
- B. Exposed Surfaces of Casework: Surfaces visible when doors and drawers are closed, including visible surfaces in open cabinets or behind glass doors.
- C. Semi exposed 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 "semi exposed."

- D. 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 tall cabinets are defined as "concealed."

#### 1.04 SUBMITTALS

- A. General: Submit in accordance with 01330.
- B. Product Data: For each type of product indicated, including cabinet hardware and accessories, and finishing materials and processes.
- C. Shop Drawings: Show location of each item, dimensioned plans and elevations, large-scale details, attachment devices, and other components.
  - 1. Show details full size.
  - 2. Show locations and sizes of furring, blocking, and hanging strips, including concealed blocking and reinforcement specified in other Sections.
  - 3. Show locations and sizes of cutouts and holes for plumbing fixtures, faucets, and other items installed in architectural woodwork and countertops.
- D. Samples for Verification: For the following:
  - 1. Lumber with transparent finish, 5-inches wide by 24-inches long, for each species and cut, finished on 1 side and 1 edge.
  - 2. Wood-veneer-faced panel products with or for transparent finish, 8-by 10-inches, for each species and cut. Include at least one face-veneer seam and finish as specified.
  - 3. Plastic-laminate-clad panel products, 8-by 10-inches, for each type, color, pattern, and surface finish.
  - 4. Stone with one edge finished to profile indicated, 6-inches square.
  - 5. Exposed cabinet hardware and accessories, one unit for each type and finish.
- E. Product Certificates: Signed by manufacturers of woodwork certifying that products furnished and construction provided comply with requirements.
- F. Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

#### 1.05 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced Installer who has completed architectural woodwork similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.
- B. Fabricator Qualifications: A firm experienced in producing architectural woodwork similar to that indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

- C. Quality Standard: Unless otherwise indicated, comply with AWI's "Architectural Woodwork Quality Standards" for grades of interior architectural woodwork, construction, finishes, and other requirements.
  - 1. Contract Documents contain selections chosen from options in the Quality Standards as well as additional requirements beyond those of the Quality Standards. Comply with such selections and requirements in addition to the Quality Standards.

#### 1.06 DELIVERY, STORAGE, AND HANDLING

- A. Protect woodwork during transit, delivery, storage, and handling to prevent damage, soilage, and deterioration.
- B. Do not deliver woodwork until painting and similar operations that could damage woodwork have been completed in installation areas. If woodwork must be stored in other than installation areas, store only in areas where environmental conditions comply with requirements specified in "Project Conditions" Article.

#### 1.07 PROJECT CONDITIONS

- A. Environmental Limitations: Do not deliver or install woodwork until building is enclosed, wet work is complete, and provisions have been made for maintaining temperature and relative humidity at occupancy levels during the remainder of the construction period.
- B. Field Measurements: Where woodwork is indicated to fit to other construction, verify dimensions of other construction by accurate field measurements before fabrication and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
  - 1. Locate concealed framing, blocking, and reinforcements that support woodwork by field measurements before being enclosed and indicate measurements on Shop Drawings.

#### 1.08 COORDINATION

- A. Coordinate sizes and locations of framing, blocking, furring, reinforcements, and other related units of Work specified in other Sections to ensure that interior architectural woodwork can be supported and installed as indicated.

### PART 2 - PRODUCTS

#### 2.01 MATERIALS

- A. General: Provide materials that comply with requirements of the AWI quality standard for each type of woodwork and quality grade specified, unless otherwise indicated.
- B. Wood Species and Cut for Transparent Finish: Maple, plain sawn and sliced.

- C. Wood Species for Opaque Finish: Any closed-grain hardwood.
- D. Wood Products: Comply with the following:
  - 1. Particleboard: ANSI A208.1, Grade M-2.
    - a. Provide water-resistant particleboard at within 2'-0" of sinks.
  - 2. Hardwood Plywood and Face Veneers: HPVA HP-1, 7-ply core, no voids, Grade A veneers.
- E. Thermoset Decorative Overlay (Melamine): Particleboard complying with ANSI A208.1, Grade M-2, or medium-density fiberboard complying with ANSI A208.2, Grade MD, with surface of thermally fused, melamine-impregnated decorative paper complying with LMA SAT-1, fused to core using average pressure of 320 psi and average temperature of 320 deg F.
- F. Resin Sheet: 3 FORM USA, VARIA ECORESIN & Custom Color Resins. Green Guard certified HF2Ss97712-1. Refer to drawings for thickness, front/back finish and color section.
- G. Edgebanding for Melamine: Rigid PVC extrusions, through color with satin finish, 1mm and 3mm thick, with radiused edges. Hot melt adhesive application.
  - 1. Bendable substrate: Kerfcore - Green NAF.
  - 2. Product approved by USGBC LEED MR4.1, MR4.2 and EQ4.4.
  - 3. Nominal thickness of ½-inch sheet.
  - 4. Goods 4 x 8 and 4 x 10 to accept P.Lam.
  - 5. Adhered surface finish.

## 2.02 CABINET HARDWARE

- A. Hardware Standard: Comply with BHMA A156.9 for items indicated by referencing BHMA numbers or items referenced to this standard.
- B. Door and Drawer Pulls: Knob Gallery: Amerock essential'Z Collection AMBP19204G10.
- C. Shelf Rests: BHMA A156.9, B04013.
  - 1. Double pin shelf rest with clip retainer for 5 mm diameter drilled holes, PX Allen Fields.
- D. Drawer Slides: Side-mounted, full-extension, white epoxy-coated steel drawer slides with steel ball bearings, BHMA A156.9, B05091, and rated for the following loads:
  - 1. Box Drawer Slides: 100 lbf.
    - a. Product: Drawer slide No. 6200, Grasse, Inc. or No. 3211, Mepla-Alfit, Inc.
  - 2. File Drawer Slides: 200 lbf.
    - a. Product: Pendaflex No. 6110; Grasse, Inc. or Prosystem; Mepla-Alfit, Inc.
- E. Drawer Locks: Cylindrical type, 5-pin tumbler and cam, complying with BHMA A156.11, Grade 1; satin chrome finish.
  - 1. Provide minimum of 2 keys per lock.
  - 2. Lock all drawers; keyed according to Owner's instructions.

- F. Grommets for Cable Passage through Countertops: Molded-plastic grommets and matching plastic caps with slot for wire passage; size determined during Shop Drawing review; color selected by Architect.
  - 1. Manufacturers: Doug Mockett and Co., Inc. or Outwater Plastics, (800) 631-8375.

#### 2.03 INSTALLATION MATERIALS

- A. Furring, Blocking, Shims, and Hanging Strips: Softwood or hardwood lumber, kiln-dried to less than 15 percent moisture content.
- B. Screws: Select material, type, size, and finish required for each use. Comply with ASME B 18.6.1 for applicable requirements.
- C. Nails: Select material, type, size, and finish required for each use. Comply with FS FF-N-105 for applicable requirements.
- D. Anchors: Select material, type, size, and finish required for each substrate for secure anchorage. Provide nonferrous-metal or hot-dip galvanized anchors and inserts on inside face of exterior walls and elsewhere as required for corrosion resistance. Provide toothed-steel or lead expansion sleeves for drilled-in-place anchors.
- E. Glue: Aliphatic- or Phenolic resin wood glue recommended by manufacturer for general carpentry use. Comply with LEED low emitting materials - adhesives and sealants.

#### 2.04 FABRICATION, GENERAL

- A. Interior Woodwork Grade: Provide materials that comply with requirements of the AWI quality standard for each type of woodwork and quality grade indicated. When quality grade is not indicated, provide Custom quality grade.
- B. Wood Moisture Content: Comply with requirements of referenced quality standard for wood moisture content in relation to ambient relative humidity during fabrication and in installation areas.
- C. Fabricate woodwork to dimensions, profiles, and details indicated. Ease edges to radius indicated for the following:
  - 1. Corners of Cabinets and Edges of Solid-Wood (Lumber) Members  $\frac{3}{4}$ -inch Thick or Less:  $\frac{1}{16}$ -inch.
  - 2. Edges of Rails and Similar Members More Than  $\frac{3}{4}$ -Inch Thick:  $\frac{1}{8}$ -inch.
  - 3. Corners of Cabinets and Edges of Solid-Wood (Lumber) Members and Rails:  $\frac{1}{16}$ -inch.
- D. Complete fabrication, including assembly, finishing, and hardware application, to maximum extent possible, before shipment to Project site. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.
  - 1. Trial fit assemblies at fabrication shop that cannot be shipped completely assembled. Install dowels, screws, bolted connectors, and other fastening devices that can be removed after trial fitting. Verify that various parts fit as intended and check measurements of assemblies against field measurements indicated on Shop Drawings

before disassembling for shipment.

- E. Shop cut openings, to maximum extent possible, to receive hardware, appliances, plumbing fixtures, electrical work, and similar items. Locate openings accurately and use templates or roughing-in diagrams to produce accurately sized and shaped openings. Sand edges of cutouts to remove splinters and burrs.
  - 1. Seal edges of openings in countertops with a coat of water-resistant varnish.

2.05 CUSTOM INTERIOR STANDING AND RUNNING TRIM FOR TRANSPARENT FINISH

- A. Quality Standard: Comply with AWI Section 300.
- B. Grade: Custom.
- C. Backout or groove backs of flat trim members and kerf backs of other wide, flat members, except for members with ends exposed in finished work.
- D. Assemble casings in plant except where limitations of access to place of installation require field assembly.
- E. Wood Species and Cut: Maple, plain sawn.

2.06 CUSTOM INTERIOR STANDING AND RUNNING TRIM FOR OPAQUE FINISH

- A. Quality Standard: Comply with AWI Section 300.
- B. Grade: Custom.
- C. Backout or groove backs of flat trim members and kerf backs of other wide, flat members, except for members with ends exposed in finished work.
- D. Assemble casings in plant except where limitations of access to place of installation require field assembly.
- E. Wood Species: Any closed-grain hardwood.

2.07 WOOD/PLASTIC LAMINATE CASEWORK FOR TRANSPARENT FINISH

- A. Quality Standard: Comply with AWI Section 400 requirements for wood and laminate cabinets.
- B. Grade: Custom.
- C. AWI Type of Cabinet Construction: Flush overlay.
- D. Wood Species and Cut for Exposed Surfaces: Maple, plain sawn or sliced.
  - 1. Grain Matching: Run and match grain vertically for drawer fronts and fixed panels.

2. Matching of Veneer Leaves: Book match.
  3. Vertical Matching of Veneer Leaves: End match.
  4. Veneer Matching within Panel Face: Balance match.
  5. Drawer Faces: Solid wood.
- E. Laminate Cladding for Exposed Surfaces: High-pressure decorative laminate complying with the following requirements:
1. Horizontal Surfaces Other Than Tops: HGL.
  2. Vertical Surfaces: VGS.
  3. Edges: VGS.
  4. Colors, Patterns, and Finishes: As indicated by laminate manufacturer's designations in Interior Finish Legend for these characteristics.
- F. Semi exposed Surfaces: Provide surface materials indicated below:
1. Drawer Sides and Backs: Thermoset decorative overlay.
  2. Drawer Bottoms: Thermoset decorative overlay.

#### 2.08 PLASTIC-LAMINATE CASEWORK

- A. Quality Standard: Comply with AWI Section 400 requirements for laminate cabinets.
- B. Grade: Custom.
- C. AWI Type of Cabinet Construction: Flush overlay.
- D. Laminate Cladding for Exposed Surfaces: High-pressure decorative laminate complying with the following requirements:
  1. Horizontal Surfaces Other Than Tops: HGL.
  2. Vertical Surfaces: VGS.
  3. Edges: VGS.
- E. Colors, Patterns, and Finishes: As indicated by laminate manufacturer's designations in Interior Finish Legend for these characteristics.

#### 2.09 PLASTIC-LAMINATE COUNTERTOPS

- A. Quality Standard: Comply with AWI Section 400C requirements for high-pressure decorative laminate countertops.
- B. Grade: Custom.
- C. High-Pressure Decorative Laminate Grade: HGS.
- D. Colors, Patterns, and Finishes: As indicated by laminate manufacturer's designations in Interior Finish Legend for these characteristics.
- E. Grain Direction: Parallel to cabinet fronts.
- F. Edge Treatment: As indicated.

- G. Core Material: Particleboard.
- I. Balance Sheet: Phenolic laminate applied to the reverse side of plastic laminate finish.

#### 2.10 SOLID SURFACE COUNTERTOPS

- A. General: Provide units with smooth surfaces in uniform plane free of defects. As manufactured by Silestone.
- B. Solid Surface Fabrication: Provide units polished on all exposed surfaces, sawn on concealed surfaces, and having the following configurations:
  - 1. Nominal Thickness: Provide thickness indicated, but not less than indicated on the drawings. Gage backs to provide units of identical thickness.
  - 2. Edge Detail: As indicated.
  - 3. Seams: Fabricate tops without seams to the maximum extent possible. Where required, seams shall be hairline and sealant filled.
  - 4. Color: Refer to Finish Legend.

#### 2.11 PLASTIC-LAMINATE CEILING CANOPY

- A. Quality Standards: Comply with AWI Section 400C requirements for high-pressure decorative laminate countertops.
- B. Grade: Custom
- C. High-Pressure Decorative Laminate Grade: HGS
- D. Colors, Patterns, and Finishes: As indicated by laminate manufacturer's designations in Interior Finish legend for these characteristics.
- E. Grain direction: Refer to architect for direction
- F. Core material: plywood
- G. Balance Sheet: Phenolic laminate applied to the reverse side of plastic laminate finish.

#### 2.12 SHOP FINISHING

- A. Quality Standard: Comply with AWI Section 1500, unless otherwise indicated.
  - 1. Grade: Provide finishes of same grades as items to be finished.
- B. General: Priming and finishing of interior architectural woodwork required to be performed at fabrication shop are specified in this Section. Refer to Division 9 Section "Painting" for final finishing of installed architectural woodwork and for material and application requirements for woodwork not specified to receive final finish in this Section.
  - 1. Custom standing and running trim receiving an opaque finish shall be back primed for field finishing.
- C. Preparations for Finishing: Comply with referenced quality standard for sanding, filling



countersunk fasteners, sealing concealed surfaces, and similar preparations for finishing Architectural woodwork, as applicable to each unit of work.

- D. Transparent Finish: Comply with requirements indicated below for grade, finish system, staining, and sheen, with sheen measured on 60-degree gloss meter per ASTM D 523:
1. Grade: Premium system for all casework grades .
  2. AWI Finish System TR-6: Catalyzed polyurethane.
  3. Staining: Match approved sample for color.
  4. Sheen: Satin, 30-50 gloss units.
  5. Provide 7 coat system on custom millwork indicated.
  6. Pre-stained wood to be installed at interior vaulted ceiling including joints between each board.

### PART 3 - EXECUTION

#### 3.01 PREPARATION

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

#### 3.02 INSTALLATION

- A. Quality Standard: Install woodwork to comply with AWI Section 1700 for the same grade specified in Part 2 of this Section for type of woodwork involved.
- B. Install woodwork level, plumb, true, and straight. Shim as required with concealed shims. Install level and plumb (including tops) to a tolerance of 1/8-inch in 96-inches.
- C. Scribe and cut woodwork to fit adjoining work, and refinish cut surfaces and repair damaged finish at cuts.
- D. Anchor woodwork to anchors or blocking built in or directly attached to substrates. Secure with countersunk, concealed fasteners and blind nailing as required for complete installation. Use fine finishing nails for exposed fastening, countersunk and filled flush with woodwork and matching final finish if transparent finish is indicated.
- E. Standing and Running Trim: Install with minimum number of joints possible, using full-length pieces (from maximum length of lumber available) to greatest extent possible. Do not use pieces less than 36-inches long, except where shorter single-length pieces are necessary. Scarf running joints and stagger in adjacent and related members.
1. Fill gaps, if any, between top of base and wall with plastic wood filler, sand smooth, and finish same as wood base, if finished.
  2. Install standing and running trim with no more variation from a straight line than 1/8-inch in 96-inches.

- F. Cabinets: Install without distortion so drawers fit openings properly and are accurately aligned. Adjust hardware to center drawers in openings and to provide unencumbered operation. Complete installation of hardware and accessory items as indicated.
  - 1. Install cabinets with no more than 1/8-inch in 96-inch sag, bow, or other variation from a straight line.
  - 2. Maintain veneer sequence matching of cabinets with transparent finish.
  
- G. Countertops: Anchor securely by screwing through corner blocks of base cabinets or other supports into underside of countertop.
  - 1. Install countertops with no more than 1/8-inch in 96-inch sag, bow, or other variation from a straight line.
  - 2. Secure backsplashes to walls with adhesive.
  - 3. Install countertop brackets specified in Division 5 Section "Metal Fabrications." Painting of bracket specified in Division 9 Section "Painting."
  - 4. Provide cutouts for fixtures and fittings. Verify locations of cutouts from on-site dimensions. Seal surfaces of cutout edges.
  - 5. Calk space between backsplash and wall with sealant specified in Division 7 Section "Joint Sealants."
  
- H. Stone Tops: Install tops by adhering to supports with water-cleanable epoxy adhesive.
  - 1. Bond seams with stone seam adhesive and draw tight as countertops are set. Mask areas of countertops adjacent to seams to prevent adhesive smears. Clamp units to temporary bracing to ensure that countertops are properly aligned and seams are minimum width.
  - 2. Apply sealant to seams and to gap between tops and wall; comply with Division 7 Section "Joint Sealants." Install per manufacturer's requirements.
  
- I. Refer to Division 9 Sections for final finishing of installed architectural woodwork.

### 3.03 ADJUSTING AND CLEANING

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

### 3.04 PROTECTION

- A. Provide final protection and maintain conditions in a manner acceptable to fabricator and Installer that ensures that woodwork is without damage or deterioration at the time of Substantial Completion.

END OF SECTION 06400

SECTION 07210

BUILDING INSULATION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. This Section includes the following:
  - 1. Concealed building insulation.
- B. Related Sections:
  - 1. Division 9 Section "Gypsum Board Assemblies" for provision of acoustical insulation in metal-framed assemblies.
  - 2. Division 15 Sections for insulation on ducts, piping and equipment.

1.03 DEFINITIONS

- A. Thermal Resistivity: Where the thermal resistivities of insulation products are designated by "r-values," they represent the reciprocal of thermal conductivity (k-values). Thermal conductivity is the rate of heat flow through a homogenous material exactly 1 inch thick. Thermal resistivity is expressed by the temperature difference in degrees F between the two exposed faces required to cause one BTU to flow through one square foot per hour at mean temperatures indicated.

1.04 SUBMITTALS

- A. General: Submit in accordance with Section 01330.
- B. Product data: For each type of product indicated.
- C. Product test reports: Based on comprehensive tests performed by a qualified testing agency, for insulation products.

1.05 QUALITY ASSURANCE

- A. Source Limitations: Obtain each type of building insulation through one source with resources to provide products of consistent quality in appearance and physical properties without delaying progress of the Work.
- B. Fire-Test-Response Characteristics: Provide insulation and related materials with the fire-test-response characteristics indicated, as determined by testing identical products per test method indicated below by UL or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify materials with appropriate markings of applicable testing and inspecting agency.

1. Surface Burning Characteristic: ASTM E 84.
2. Fire Resistance Ratings: ASTM E 119.
3. Combustion Characteristics: ASTM E 136.

#### 1.06 DELIVERY, STORAGE AND HANDLING

- A. Protect insulation materials from physical damage and from deterioration by moisture, soiling, and other sources. Store inside and in a dry location. Comply with manufacturer's recommendations for handling, storage, and protection during installation.
- B. Protect plastic insulation as follows:
  1. Do not expose to sunlight, except to extent necessary for period of installation and concealment.
  2. Protect against ignition at all times. Do not deliver plastic insulating materials to project site ahead of installation time.
  3. Complete installation and concealment of plastic materials as rapidly as possible in each area of construction.

### PART 2 - PRODUCTS

#### 2.01 MANUFACTURERS

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product section:
  1. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.
  2. Products: Subject to compliance with requirements, provide one of the products specified.

#### 2.02 INSULATING MATERIALS

- A. General: Provide insulating materials that comply with requirements and with referenced standards.
  1. Preformed Units: Sizes to fit applications indicated, selected from manufacturer's standard thicknesses, widths, and lengths.
- B. Unfaced Building Insulation in Batt Form: ASATM C 665, Type I (blankets without membrane facing); consisting of fibers manufactured from glass: with maximum flame-spread and smoke-developed indices of 25 and 50, respectively; passing ASTM E 136 for combustion characteristics. Provide in thickness for full depth of cavity; where cavity requires insulation that is thicker than standard size, install next larger size and compress into cavity.
  1. Provide insulation in standard density except as noted otherwise.
    - a. Provide high density batt insulation in locations noted.
  2. Provide insulation shall have the following minimum R-values except where high density insulation is indicated to be provided:
    - a. Walls: sound attenuation 3-5/8””””
    - b. Ceilings – sound attenuation 12””
  3. Manufacturers:
    - a. CertainTeed Corporation

- b. Owens Corning
- c. Johns Manville Corporation

## 2.03 INSULATION FASTENERS

- A. Insulation Support Anchor: Insul-Fast, 25 gage, galvanized continuous metal support strip with pre-punched tabs at 8 inches on center.

## PART 3 - EXECUTION

### 3.01 EXAMINATION

- A. Examine substrates and conditions, with Installer present, for compliance with requirements for sections in which substrates and related work are specified and other conditions affecting performance.
- B. Proceed with installation of insulation only after unsatisfactory conditions have been corrected.

### 3.02 PREPARATION

- A. Clean substrates of substances harmful to insulations or vapor retarders, including removing projections capable of puncturing vapor retarders or of interfering with insulation attachment.

### 3.03 INSTALLATION - GENERAL

- A. Comply with insulation manufacturer's written instructions applicable to products and application indicated.
  - 1. If printed instructions are not available or do not apply to project conditions, consult manufacturer's technical representative for specific recommendations before proceeding with installation of insulation.
- B. Install insulation that is undamaged, dry, and unsoiled and that has not been left exposed at any time to ice and snow.
- C. Extend insulation in thickness indicated to envelop entire area to be insulated. Cut and fit tightly around obstructions, and fill voids with insulation. Remove projections that interfere with placement.
- D. Apply single layer of insulation to produce thickness indicated, unless multiple layers are otherwise shown or required to make up total thickness.

### 3.04 INSTALLATION OF GENERAL BUILDING INSULATION

- A. Apply insulation units to substrates by method indicated, complying with manufacturer's written instructions. If no specific method is indicated, bond units to substrate with adhesive or use mechanical anchorage to provide permanent placement and support of units. Fill voids in thermal envelope not covered by the works of other sections.
- B. Install glass-fiber batts in cavities formed by framing members according to the following requirements:
  - 1. Use batt widths and lengths that fill the cavities formed by framing members. If more than one

- length is required to fill cavity, provide lengths that will produce a snug fit between ends.
2. Place batts in cavities formed by framing members to produce a friction fit between edges of insulation and adjoining framing members.
  3. Install insulation support anchors at top of cavity and spaced every 5 feet on center full length of each cavity.

### 3.07 PROTECTION

- A. Protect installed insulation from damage due to harmful weather exposures, physical abuse, and other causes. Provide temporary coverings or enclosures where insulation will be subject to abuse and cannot be concealed and protected by permanent construction immediately after installation.

END OF SECTION 07210

SECTION 07841

THROUGH-PENETRATION FIRESTOP SYSTEMS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. This Section includes through-penetration firestop systems for penetrations through the following fire-resistance-rated assemblies, including both empty openings and openings containing penetrating items:
  - 1. Floors.
  - 2. Walls and partitions.
  - 3. Ceilings.
- B. Related Sections include the following:
  - 1. Division 9 Section "Gypsum Board Assemblies" for firestopping where fire rated gypsum board assemblies butting adjacent construction including masonry, steel deck, joists, beams, floors, roofs and structural members.
  - 2. Division 15 Sections specifying duct and piping penetrations. Mechanical firestopping is included as part of Division 15.
  - 3. Division 16 Sections specifying cable and conduit penetrations. Electrical firestopping is included as part of Division 16.

1.03 PERFORMANCE REQUIREMENTS

- A. General: For the following constructions, provide through-penetration firestop systems that are produced and installed to resist spread of fire according to requirements indicated, resist passage of smoke and other gases, and maintain original fire-resistance rating of assembly penetrated.
  - 1. Fire-resistance-rated non-load-bearing walls, including partitions, with fire-protection-rated openings.
  - 2. Fire-resistance-rated floor assemblies.
- B. F-Rated Systems: Provide through-penetration firestop systems with F-ratings indicated, as determined per ASTM E 814, but not less than that equaling or exceeding fire-resistance rating of constructions penetrated.
- C. T-Rated Systems: For the following conditions, provide through-penetration firestop systems with T-ratings indicated, as well as F-ratings, as determined per ASTM E 814, where systems protect penetrating items exposed to potential contact with adjacent materials in occupiable floor areas:
  - 1. Penetrations located in construction containing fire-protection-rated openings.
  - 2. Penetrating items larger than 4-inch- diameter nominal pipe or 16 sq. in. in overall cross-sectional area.

- D. For through-penetration firestop systems exposed to view, traffic, moisture, and physical damage, provide products that after curing do not deteriorate when exposed to these conditions both during and after construction.
  - 1. For piping penetrations for plumbing and wet-pipe sprinkler systems, provide moisture-resistant through-penetration firestop systems.
  - 2. For floor penetrations with annular spaces exceeding 4 inches in width and exposed to possible loading and traffic, provide firestop systems capable of supporting floor loads involved either by installing floor plates or by other means.
  - 3. For penetrations involving insulated piping, provide through-penetration firestop systems not requiring removal of insulation.
  - 4. Products in public areas can be painted.
- E. For through-penetration firestop systems exposed to view, provide products with flame-spread ratings of less than 25 and smoke-developed ratings of less than 450, as determined per ASTM E 84.

#### 1.04 SUBMITTALS

- A. General: Submit in accordance with Section 01330.
- B. Product Data: For each type of through-penetration firestop system product indicated. List product characteristics, typical uses, performance and limitation criteria, test data and installation instructions.
- C. Shop Drawings: For each through-penetration firestop system, show each kind of construction condition penetrated, relationships to adjoining construction, and kind of penetrating item. Indicate which firestop materials will be used where and thickness for different hourly ratings. Include firestop design designation of testing and inspecting agency acceptable to authorities having jurisdiction that evidences compliance with requirements for each condition indicated.
  - 1. Submit documentation, including illustrations, from a qualified testing and inspecting agency that is applicable to each through-penetration firestop system configuration for construction and penetrating items.
  - 2. Where Project conditions require modification of qualified testing and inspecting agency's illustration to suit a particular through-penetration firestop condition, submit illustration, with modifications marked, approved by through-penetration firestop system manufacturer's fire-protection engineer.
  - 3. For those firestop applications that exist for which no UL tested system is available through manufacturer, manufacturer's engineering judgement derived from a similar UL system design or other tests shall be submitted to local authorities having jurisdiction for their review and approval prior to installation. Manufacturer's engineering judgement shall follow requirements set forth by the International Firestop Council.
- D. Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.
- E. Product Certificates: Signed by manufacturers of through-penetration firestop system products certifying that products furnished comply with requirements.



- F. Product Test Reports: From an independent qualified testing agency indicating through-penetration firestop system complies with requirements, based on comprehensive testing of current products.

#### 1.05 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who has completed through-penetration firestop systems 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. Source Limitations: Obtain through-penetration firestop systems, for each kind of penetration and construction condition indicated, from a single manufacturer.
- C. Fire-Test-Response Characteristics: Provide through-penetration firestop systems that comply with the following requirements and those specified in "Performance Requirements" Article:
  - 1. Firestopping tests are performed by a qualified testing and inspecting agency. A qualified testing and inspecting agency is UL, Warnock Hersey, or another agency performing testing and follow-up inspection services for firestop systems acceptable to authorities having jurisdiction.
  - 2. Through-penetration firestop systems are identical to those tested per ASTM E 814. Provide rated systems complying with the following requirements:
    - a. Through-penetration firestop system products bear classification marking of qualified testing and inspecting agency.
    - b. Through-penetration firestop systems correspond to those indicated by reference to through-penetration firestop system designations listed by the following:
      - i. UL in "Fire Resistance Directory"
      - ii. ITS in "Directory of Listed Products"
- D. Provide through-penetration firestop system products containing no detectable asbestos as determined by the method specified in 40 CFR Part 763, subpart F, Appendix A, Section 1, "Polarized Light Microscopy."

#### 1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver through-penetration firestop system products to Project site in original, unopened containers or packages with intact and legible manufacturers' labels identifying product and manufacturer; date of manufacture; lot number; shelf life, if applicable; qualified testing and inspecting agency's classification marking applicable to Project; curing time; and mixing instructions for multi-component materials.
- B. Store and handle materials for through-penetration firestop systems to prevent their deterioration or damage due to moisture, temperature changes, contaminants, or other causes.

#### 1.07 PROJECT CONDITIONS

- A. Environmental Limitations: Do not install through-penetration firestop systems when ambient or substrate temperatures are outside limits permitted by through-penetration firestop system manufacturers or when substrates are wet due to rain, frost, condensation, or other causes.
- B. Ventilate through-penetration firestop systems per manufacturer's written instructions by natural means or, where this is inadequate, forced-air circulation.

#### 1.08 COORDINATION

- A. Coordinate Work of this Section with the work of other trades to assure the proper sequencing of each installation and to provide a smoke- and fire-resistant installation.
- B. Coordinate construction of openings and penetrating items to ensure that through-penetration firestop systems are installed according to specified requirements.
- C. Coordinate sizing of sleeves, openings, core-drilled holes, or cut openings to accommodate through-penetration firestop systems.
- D. Notify Owner's inspecting agency at least seven days in advance of through-penetration firestop system installations; confirm dates and times on days preceding each series of installations.
- E. Do not cover up through-penetration firestop system installations that will become concealed behind other construction until Owner's inspecting agency and building inspector, if required by authorities having jurisdiction, have examined each installation.

## PART 2 - PRODUCTS

### 2.01 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. Bio Fireshield, Carlisle, MA.
  - 2. W. R. Grace & Co., Construction Products Division.
  - 3. Hilti Construction Chemicals, Inc.
  - 4. Isolatek International.
  - 5. Nelson Firestop Products.
  - 6. Specified Technologies Inc.
  - 7. 3M Fire Protection Products.

### 2.02 FIRESTOPPING, GENERAL

- A. Firestop Systems: All through-penetration firestop products and systems shall be designed and installed so the basic sealing system will allow the full restoration of thermal and fire-resistance properties of the barrier being penetrated with minimal repair if penetrants are subsequently removed.
  - 1. Provide paintable through-penetration firestop products at locations exposed to the public. Mechanical, electrical and elevator machine rooms are not considered public spaces.
- B. Compatibility: Provide through-penetration firestop systems that are compatible with one another, with the substrates forming openings, and with the items, if any, penetrating through-penetration firestop systems, under conditions of service and application, as demonstrated by through-penetration firestop system manufacturer based on testing and field experience.

- C. Accessories: Provide components for each through-penetration firestop system that are needed to install fill materials and to comply with "Performance Requirements" Article. Use only components specified by through-penetration firestop system manufacturer and approved by the qualified testing and inspecting agency for firestop systems indicated. Accessories include, but are not limited to, the following items:
1. Permanent forming/damming/backing materials, including the following:
    - a. Slag-/rock-wool-fiber insulation.
    - b. Sealants used in combination with other forming/damming/backing materials to prevent leakage of fill materials in liquid state.
    - c. Fire-rated form board.
    - d. Fillers for sealants.
  2. Temporary forming materials.
  3. Substrate primers.
  4. Collars.
  5. Steel sleeves.

## 2.03 FILL MATERIALS

- A. General: Provide through-penetration firestop systems containing the types of fill materials indicated in the Through-Penetration Firestop System Schedule at the end of Part 3 by reference to the types of materials described in this Article. Fill materials are those referred to in directories of the referenced testing and inspecting agencies as fill, void, or cavity materials.
- B. Cast-in-Place Firestop Devices: Factory-assembled devices for use in cast-in-place concrete floors and consisting of an outer metallic sleeve lined with an intumescent strip, a radial extended flange attached to one end of the sleeve for fastening to concrete formwork, and a neoprene gasket.
1. Product: CP 680 Cast-In-Place Firestop Device; Hilti Construction Chemicals, Inc.
- C. Latex Sealants: Single-component latex formulations that after cure do not re-emulsify during exposure to moisture.
1. Products:
    - a. Biostop 500+ Intumescent Firestop; Bio Fireshield.
    - b. FlameSafe FS900 Sealant; W. R. Grace & Co.
    - c. Fire Barrier CP 25WB+; 3M Fire Protection Products.
    - d. SpecSeal LC 150 Sealant; Specified Technologies Inc.
- D. Firestop Devices: Factory-assembled collars formed from galvanized steel and lined with intumescent material sized to fit specific diameter of penetrant.
1. Products:
    - a. Biostop Pipe Collar; Bio Fireshield.
    - b. FlameSafe FSWS Series FlameSafe Devices; W. R. Grace & Co.
    - c. CP 642 and CP 643 Firestop Jacket; Hilti Construction Chemicals, Inc.
    - d. SpecSeal Series LCC and Series SSC Firestop Collars; Specified Technologies Inc.
- E. Intumescent Composite Sheets: Rigid panels consisting of aluminum-foil-faced elastomeric sheet bonded to galvanized steel sheet.
1. Products:
    - a. Biostop Composite Sheet; Bio Fireshield.
    - b. CS-195\_ Composite Sheet; 3M Fire Protection Products.

- F. Intumescent Putties: Non hardening dielectric, water-resistant putties containing no solvents, inorganic fibers, or silicone compounds.
1. Products:
    - a. FlameSafe FSP 1000 Putty and FSP 1077 Putty Pads; W. R. Grace & Co.
    - b. CP 617 and CP 618 Putty Pads and Putty Sticks; Hilti Construction Chemicals, Inc.
    - c. MPS-2 Moldable Putty Stix and Putty Pads; 3M Fire Protection Products.
    - d. Spec-Seal Firestop Putty Bars and Putty Pads; Specified Technologies Inc.
- G. Intumescent Wrap Strips with Foil: Single-component intumescent elastomeric sheets with aluminum foil on one side.
1. Products:
    - a. CP 645 Wrap Strips; Hilti Construction Chemicals, Inc.
    - b. Fire Barrier FS-195+ Wrap Strip; 3M Fire Protection Products.
- H. Intumescent Wrap Strips: Single-component intumescent elastomeric sheets.
1. Products:
    - a. Biostop Wrap Strip; Bio Fireshield.
    - b. SpecSeal Series SSWBLU and Series SSWRED Intumescent Wrap; Specified Technologies Inc.
- I. Mortars: Prepackaged, dry mixes consisting of a blend of inorganic binders, hydraulic cement, fillers, and lightweight aggregate formulated for mixing with water at Project site to form a non-shrinking, homogeneous mortar.
1. Products:
    - a. FlameSafe Mortar Safe; W. R. Grace & Co.
    - b. CP 636 Firestop Mortar; Hilti Construction Chemicals, Inc.
    - c. SpecSeal Firestop Mortar; Specified Technologies Inc.
- J. Pillows/Bags: Reusable, heat-expanding pillows/bags consisting of glass-fiber cloth cases filled with a combination of mineral-fiber, water-insoluble expansion agents and fire-retardant additives.
1. Products:
    - a. Bio Firestop Pillows; Bio Fireshield.
    - b. FlameSafe Bags and FlameSafe Pillows; W. R. Grace & Co.
    - c. CP 651 Firestop Cushion; Hilti Construction Chemicals, Inc.
    - d. SpecSeal Firestop Pillows; Specified Technologies Inc.
- K. Silicone Foams: Multicomponent, silicone-based liquid elastomers that, when mixed, expand and cure in place to produce a flexible, non-shrinking foam.
1. Products:
    - a. CP 620 Firestop Foam; Hilti Construction Chemicals, Inc.
    - b. Fire Barrier 2001 Silicone RTV Foam; 3M Fire Protection Products.
    - c. SpecSeal Pen 200 Silicone Foam; Specified Technologies Inc.
- L. Silicone Sealants: Moisture-curing, single-component, silicone-based, neutral-curing elastomeric sealants of grade indicated below:
1. Grade: Pourable (self-leveling) formulation for openings in floors and other horizontal surfaces and non-sag formulation for openings in vertical and other surfaces requiring a non-slumping, gunnable sealant, unless indicated firestop system limits use to non-sag grade for both opening conditions.

- a. Products:
    - i. Biotherm 200SL Firestop Sealant; Bio Fireshield.
    - ii. CP 604 Self-Leveling Firestop Sealant; Hilti Construction Chemicals, Inc.
    - iii. Fire Barrier 1003SL; 3M Fire Protection Products.
    - iv. SpecSeal Pen 300 Silicone Sealant; Specified Technologies Inc.
  2. Grade for Horizontal Surfaces: Pourable (self-leveling) formulation for openings in floors and other horizontal surfaces.
    - a. Products:
      - i. Biotherm 200SL Firestop Sealant; Bio Fireshield.
      - ii. CP 604 Self-Leveling Firestop Sealant; Hilti Construction Chemicals, Inc.
      - iii. Fire Barrier 1003SL; 3M Fire Protection Products.
  3. Grade for Vertical Surfaces: Non-sag formulation for openings in vertical and other surfaces.
    - a. Products:
      - i. Biotherm 100 Firestop Sealant; Bio Fireshield.
      - ii. CP 601S Elastomeric Firestop Sealant; Hilti Construction Chemicals, Inc.
- M. Accessories: Forming/damming materials composed of mineral fiberboard or other type as recommended by through-penetration firestop systems manufacturer.

## 2.04 MIXING

- A. For those products requiring mixing before application, comply with through-penetration firestop system manufacturer's written instructions for accurate proportioning of materials, water (if required), type of mixing equipment, selection of mixer speeds, mixing containers, mixing time, and other items or procedures needed to produce products of uniform quality with optimum performance characteristics for application indicated.

## PART 3 - EXECUTION

### 3.01 EXAMINATION

- A. Examine substrates and conditions, with Installer present, for compliance with requirements for opening configurations, penetrating items, substrates, and other conditions affecting performance.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.02 PREPARATION

- A. Surface Cleaning: Clean out openings immediately before installing through-penetration firestop systems to comply with written recommendations of firestop system manufacturer and the following requirements:
  1. Remove from surfaces of opening substrates and from penetrating items foreign materials that could interfere with adhesion of through-penetration firestop systems.
  2. Clean opening substrates and penetrating items to produce clean, sound surfaces capable of developing optimum bond with through-penetration firestop systems. Remove loose particles remaining from cleaning operation.
  3. Remove laitance and form-release agents from concrete.
- B. Priming: Prime substrates where recommended in writing by through-penetration firestop system manufacturer using that manufacturer's recommended products and methods. Confine primers to areas of bond; do not allow spillage and migration onto exposed surfaces.

- C. Masking Tape: Use masking tape to prevent through-penetration firestop systems from contacting adjoining surfaces that will remain exposed on completion of Work and that would otherwise be permanently stained or damaged by such contact or by cleaning methods used to remove smears from firestop system materials. Remove tape as soon as possible without disturbing firestop system's seal with substrates.

### 3.03 THROUGH-PENETRATION FIRESTOP SYSTEM INSTALLATION

- A. General: Install through-penetration firestop systems to comply with "Performance Requirements" Article and firestop system manufacturer's written installation instructions and published drawings for products and applications indicated.
- B. Install forming/damming/backing materials and other accessories of types required to support fill materials during their application and in the position needed to produce cross-sectional shapes and depths required to achieve fire ratings indicated.
  - 1. After installing fill materials, remove combustible forming materials and other accessories not indicated as permanent components of firestop systems.
- C. Install fill materials for firestop systems by proven techniques to produce the following results:
  - 1. Fill voids and cavities formed by openings, forming materials, accessories, and penetrating items as required to achieve fire-resistance ratings indicated.
  - 2. Apply materials so they contact and adhere to substrates formed by openings and penetrating items.
  - 3. For fill materials that will remain exposed after completing Work, finish to produce smooth, uniform surfaces that are flush with adjoining finishes.

### 3.04 FIELD QUALITY CONTROL

- A. Inspecting Agency: Owner may engage a qualified independent inspecting agency to inspect through-penetration firestop systems and to prepare test reports.
  - 1. Inspecting agency will state in each report whether inspected through-penetration firestop systems comply with or deviate from requirements.
- B. Allow for 3 random samples of each type of firestopping system to be inspected. Reinstall disturbed samples to comply with requirements.
- C. Proceed with enclosing through-penetration firestop systems with other construction only after inspection reports are issued.
- D. Where deficiencies are found, repair or replace through-penetration firestop systems so they comply with requirements.
- E. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

### 3.05 CLEANING AND PROTECTION

- A. Clean off excess fill materials adjacent to openings as Work progresses by methods and with cleaning materials that are approved in writing by through-penetration firestop system manufacturers and that do not damage materials in which openings occur.

- B. Provide final protection and maintain conditions during and after installation that ensure through-penetration firestop systems are without damage or deterioration at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated through-penetration firestop systems immediately and install new materials to produce through-penetration firestop systems complying with specified requirements.

END OF SECTION 07841





## SECTION 07920 - JOINT SEALANTS

### PART 1 - GENERAL

#### 1.01 RELATED DOCUMENTS

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

#### 1.02 SUMMARY

- A. This Section includes joint sealants for interior applications.
- B. Related Sections include the following:
  1. Division 7 Section "Through-Penetration Firestop Systems" for sealing joints in fire-resistance-rated construction.
  2. Division 9 Section "Gypsum Board Assemblies" for sealing perimeter joints of gypsum board partitions to reduce sound transmission and for smoke at smoke partitions.
  3. Division 9 Section "Ceramic Tile" for sealing tile joints.

#### 1.03 PERFORMANCE REQUIREMENTS

- A. Provide joint sealants that have been produced and installed to establish and to maintain watertight and airtight continuous seals without causing staining or deterioration of joint substrates.
- B. Provide joint sealants for interior applications that establish and maintain airtight and water-resistant continuous joint seals without staining or deteriorating joint substrates.

#### 1.04 SUBMITTALS

- A. General: Submit in accordance with Section 01330.
- B. Product Data: For each joint-sealant product indicated.
- C. Samples for Selection: Manufacturer's color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.

#### 1.05 QUALITY ASSURANCE

- A. Installer Qualifications: Engage an experienced Installer who has completed joint sealant applications similar in materials, design, and extent to that indicated for Project that have resulted in construction with a record of successful in-service performance.
- B. Source Limitations: Obtain each type of joint sealant through one source from a single manufacturer.

Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination."

#### 1.06 DELIVERY, STORAGE, AND HANDLING



## SECTION 07920 - JOINT SEALANTS

### PART 1 - GENERAL

#### 1.01 RELATED DOCUMENTS

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

#### 1.02 SUMMARY

- A. This Section includes joint sealants for interior applications.
- B. Related Sections include the following:
  - 1. Division 7 Section "Through-Penetration Firestop Systems" for sealing joints in fire-resistance-rated construction.
  - 2. Division 9 Section "Gypsum Board Assemblies" for sealing perimeter joints of gypsum board partitions to reduce sound transmission and for smoke at smoke partitions.
  - 3. Division 9 Section "Ceramic Tile" for sealing tile joints.

#### 1.03 PERFORMANCE REQUIREMENTS

- A. Provide joint sealants that have been produced and installed to establish and to maintain watertight and airtight continuous seals without causing staining or deterioration of joint substrates.
- B. Provide joint sealants for interior applications that establish and maintain airtight and water-resistant continuous joint seals without staining or deteriorating joint substrates.

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- A. General: Submit in accordance with Section 01330.
- B. Product Data: For each joint-sealant product indicated.
- C. Samples for Selection: Manufacturer's color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.

#### 1.05 QUALITY ASSURANCE

- A. Installer Qualifications: Engage an experienced Installer who has completed joint sealant applications similar in materials, design, and extent to that indicated for Project that have resulted in construction with a record of successful in-service performance.
- B. Source Limitations: Obtain each type of joint sealant through one source from a single manufacturer.

Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination."

#### 1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to Project site in original unopened containers or bundles with labels indicating manufacturer, product name and designation, color, expiration period for use, shelf/pot life, curing time, and mixing instructions for multi-component materials.
- B. Store and handle materials in compliance with manufacturer's recommendations to prevent their deterioration or damage due to moisture, high or low temperatures, contaminants, or other causes.
- C. Remove and replace materials, at no cost to Owner that cannot be applied within their stated shelf life.

#### 1.07 PROJECT CONDITIONS

- A. Environmental Conditions: Do not proceed with installation of joint sealants under the following conditions:
  - 1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 deg F (4.4 deg C).
  - 2. When joint substrates are wet.
  - 3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
  - 4. Contaminants capable of interfering with adhesion have not yet been removed from joint substrates.
- B. Joint Width Conditions: Do not proceed with installation of joint sealants where joint widths are less than allowed by joint sealant manufacturer for application indicated.
- C. Joint Substrate Conditions: Do not proceed with installation of joint sealants until contaminants capable of interfering with their adhesion are removed from joint substrates.

#### 1.08 SEQUENCING AND SCHEDULING

- A. Coordinate Work of this Section with interfacing and adjoining Work for proper sequencing of each installation to ensure a weathertight installation.

### PART 2 - PRODUCTS

2.01 MATERIALS, GENERALA. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer, based on testing and field experience.

- B. Exposed Joint Sealants: Products exposed to view in public areas shall be paintable. Mechanical, electrical and elevator machine rooms are not considered public spaces.
- C. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.

#### 2.02 JOINT SEALANTS

- A. Type 1 - General Purpose Interior Sealant: Acrylic emulsion latex; ASTM C834, single component, paintable.
  - 1. Tremco Acrylic Latex; Tremco.
  - 2. AC-20; Pecora Corporation.

3. Chem-Calk 600; Bostik Findley.
- B. Type 2 - Plumbing Fixture/Tile Sealant: Silicone; ASTM C920, Uses M and A; single component, mildew resistant, color selected by Architect.
  1. Sanitary 1700; GE Silicones.
  2. 898 Silicone; Pecora Corporation.
  3. 786 MR Silicone; Dow Corning Corporation.
- C. Type 3 - Acoustical Sealant: Butyl or acrylic sealant; ASTM C920, Grade NS, Class 12-1/2, Uses M and A; single component, solvent release curing, non-skinning.
  1. Tremco Acoustical Sealant; Tremco.
  2. Pecora Corp.; AC-20 FTR Acoustical and Insulation Sealant.

#### 2.03 JOINT-SEALANT BACKING

- A. General: Provide sealant backings of material and type that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
- B. Plastic Foam Joint Fillers (Backer Rods): Preformed, compressible, resilient, nonstaining, nonwaxing, nonextruding strips of flexible plastic foam of material indicated below and of size, shape, and density to control sealant depth and otherwise contribute to producing optimum sealant performance:
  1. Closed-cell polyethylene foam, nonabsorbent to liquid water and gas, nonoutgassing in unruptured state.
- C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

#### 2.04 MISCELLANEOUS MATERIALS

- A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.
- B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.
- C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

### PART 3 - EXECUTION

#### 3.01 EXAMINATION

- A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

#### 3.02 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:
  - 1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
  - 2. Clean unglazed surfaces of ceramic tile, and similar porous joint substrate surfaces by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air.
  - 3. Remove laitance and form-release agents from concrete.
  - 4. Clean metal, glass, porcelain enamel, glazed surfaces of ceramic tile, and other nonporous surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants.
- B. Joint Priming: Prime joint substrates, where indicated or recommended in writing by joint-sealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.
- C. Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

#### 3.03 INSTALLATION OF JOINT SEALANTS

- A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.
- B. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
- C. Acoustical Sealant Application Standard: Comply with recommendations in ASTM C 919 for use of joint sealants in acoustical applications as applicable to materials, applications, and conditions indicated.

- D. Installation of Sealant Backings: Install sealant backings to comply with the following requirements:
1. Install sealant backings of type indicated to provide support of sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
    - a. Do not leave gaps between ends of joint fillers.
    - b. Do not stretch, twist, puncture, or tear joint fillers.
  2. Install bond-breaker tape behind sealants where backer rods are not used between sealants and joint fillers or backs of joints.
- E. Installation of Sealants: Install sealants using proven techniques that result in sealants directly contacting and fully wetting joint substrates, completely filling recesses provided for each joint configuration, and providing uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability. Install sealants at the same time sealant backings are installed.
- F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
1. Remove excess sealant from surfaces adjacent to joints.
  2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
  3. Provide concave joint configuration per Figure 5A in ASTM C 1193, unless otherwise indicated.

#### 3.04 CLEANING

- A. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

#### 3.05 PROTECTION

- A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

#### 3.06 JOINT-SEALANT SCHEDULE

- A. Under Exterior Door Thresholds: Type 1.
- B. Concealed Interior Perimeter Joints of Exterior Openings: Type 1.
- C. Exposed Interior Perimeter Joints of Exterior Openings: Type 1; colors as selected.
- D. Interior Ceramic Tile Expansion, Control, Contraction, and Isolation Joints in Horizontal Traffic Surfaces: Type 2; color as selected.

- E. Joints between Plumbing Fixtures and Walls and Floors and Between Countertops and Walls:  
Type 3; colors as selected.
- F. Interior Joints for Which No Other Sealant is Indicated: Type 1; colors as selected.

END OF SECTION 07920



## SECTION 08110

### STEEL FRAMES

#### PART 1 – GENERAL

##### 1.1 RELATED DOCUMENTS

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

##### 1.2 SUMMARY

- A. This Section includes the following:
  - 1. Steel door frames.
- B. Related Sections include the following:
  - 1. Division 8 Section "Glazing" for glass in glazed openings in doors.
  - 2. Division 8 Section "Door Hardware" for door hardware and weather stripping specified separately in Tenant Improvement documents.
  - 3. Division 9 Section "Painting" for field painting factory-primed doors and frames specified separately in Tenant Improvement Documents.
  - 4. Division 16 Section "Electrical Service and Connections" of electrified door hardware and controls.

##### 1.3 DEFINITIONS

- A. Minimum Steel Sheet Thickness: Minimum thickness of base metal without coatings.

##### 1.4 SUBMITTALS

- A. General: Submit in accordance with Section 01330.
- B. Product Data: Include door designation, type, level and model, construction details, material description, core description, label compliance, fire-resistance ratings, and finishes for each type of steel door and frame indicated.
- C. Shop Drawings: In addition to requirements below, provide a schedule of frames using same reference numbers for details and openings as those on drawings:
  - 1. Frame details for each frame type including dimensioned profiles.
  - 2. Details and locations of reinforcement and preparations for hardware.
  - 3. Details of each different wall opening condition.
  - 4. Details of anchorages, accessories, joints, and connections.
  - 5. Coordination of glazing frames and stops with glass and glazing requirements.
  - 6. Details of conduit and preparations for electrified door hardware and controls.
- D. Frame Schedule: Use same reference indicated on Drawings in preparing frames.
- E. Product Test Reports: Based on evaluation of comprehensive fire tests performed by a qualified

testing agency, for each type of steel door and frame.

## 1.5 QUALITY ASSURANCE

- A. Source Limitations: Obtain frames through one source from a single manufacturer.

## 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver frames palletized, wrapped or crated to provide protection during transit and project-site storage. Do not use non-vented plastic.
- B. Deliver knock down frames with two removable spreader bars across bottom of frames, tack welded to jambs and mullions.
- C. Inspect frames on delivery for damage, and notify shipper and supplier if damage is found. Minor damages may be repaired provided refinished items match new work and are acceptable to Architect. Remove and replace damaged items that cannot be repaired as directed.
- D. Store frames at building site under cover. Place units in a vertical position with heads up, spaced by blocking, on minimum 4-inch- (100-mm-) high wood blocking. Avoid using non-vented plastic or canvas shelters that could create a humidity chamber.

## PART 2 – PRODUCTS

### 2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. Ceco Door Products; a ASSA ABLOY Group Company.
  - 2. CURRIES Company; an ASSA ABLOY Group Company
  - 3. Steelcraft; a Ingersoll-Rand Company

### 2.2 MATERIALS

- A. Cold-Rolled Steel Sheets: ASTM A 1008/A 1008M, Commercial Steel (CS), or Type B; suitable for exposed applications.
- B. Hot-Rolled Steel Sheets: ASTM A 1011/A 1011M, Commercial Steel (CS), Type B; free of scale, pitting, or surface defects; pickled and oiled.
- C. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Commercial Steel (CS), Type B; with minimum A40 (AF180) zinc-iron-alloy (galvannealed) coating designation.
- D. Supports and Anchors: After fabricating, galvanize units to be built into exterior walls according to ASTM A 153/A 153M, Class B.
- E. Inserts, Bolts and Fasteners: Provide items to be built into exterior walls, hot-dip galvanized according to ASTM A 153/A 153M.

- F. Powder-Actuated Fasteners in Concrete: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attaching steel door frames of type indicated.
- G. Glazing: Comply with requirements in Division 8 Section "Glazing."
- H. Bituminous Coating: Cold-applied asphalt mastic, SSPC-Paint 12, compounded for 15-mil dry film thickness per coat. Provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.

## 2.4 STEEL FRAMES

- A. General: Comply with ANSI A250.8 and with details indicated for type and profile. Conceal fastenings, unless otherwise indicated.
- B. Interior Frames: Fabricated from cold-rolled steel sheet, unless otherwise indicated to comply with exterior frame requirements.
  - 1. Fabricate frames with mitered or coped and knock down corners and seamless face joints, unless otherwise indicated.
  - 2. Frames for Wood Doors: 0.053 inch thick (16 gage), steel sheet, unless otherwise indicated.
- C. Hardware Reinforcement: Fabricate reinforcement plates of sufficient strength from same materials as frames to support hardware without through bolting and to comply with the following minimum sizes:
  - 1. Hinges: Minimum 0.123 inch thick, 10 gage, by 1-1/2 inches wide by 6 inches longer than hinge, secured by not less than 6 spot welds.
  - 2. Lock Face, Flush Bolts, Closers, and Concealed Holders: Minimum 0.067 inch thick, 14 gage.
  - 3. All Other Surface Mounted Hardware: Minimum 0.067 inch thick, 14 gage.
  - 4. Locate hardware as indicated on shop drawings or, if not indicated, according to ANSI A250.8.
    - a. Hardware for doors mounted in existing frames shall be coordinated with locations of existing frame hardware preparations.
- D. Supports and Anchors: Fabricated from not less than 0.042-inch- (1.0-mm-) thick, electrolytic zinc-coated or metallic-coated steel sheet.
- E. Jamb Anchors:
  - 1. Masonry Type: T-shaped anchors to suit frame size, not less than 0.042 inch thick, 18 gage.
  - 2. Stud-Wall Type: Designed to engage stud, welded to back of frames; not less than 0.042 inch thick, 18 gage.
  - 3. Compression Type for Slip-on Frames (For use at existing stud walls only): Adjustable compression anchors.
  - 4. Post installed Expansion Type (For existing in-place concrete or masonry only): Minimum 3/8 inch diameter bolts with expansion shields or inserts. Provide pipe spacer from frame to wall, with throat reinforcement plate, welded to frame at each anchor

location.

- F. Floor Anchors: Formed from same material as frames, not less than 0.042 inch thick, 18 gage, and as follows:
  - 1. Monolithic Concrete Slabs: Clip-type anchors, with two holes to receive fasteners.
- G. Fabricate concealed stiffeners and hardware reinforcement from either cold- or hot-rolled steel sheet.

## 2.5 FABRICATION

- A. General: Fabricate frames to be rigid and free from defects, warp or buckle. Accurately form metal to required sizes and profiles, with minimum radius for thickness of metal. Where practical, fit and assemble units in manufacturer's plant. Clearly identify work that cannot be permanently factory assembled before shipment, to assure proper assembly at Project site.
- B. Steel Frames: Where frames are fabricated in sections due to shipping or handling limitations, provide alignment plates or angles at each joint, fabricated of same thickness metal as frames.
  - 1. Knock Down Frames: Flush face joints continuously; grind, fill, dress and make smooth, flush and invisible.
  - 2. Sidelight Frames: Provide closed tabular members with no visible face seams or joints; fabricated from same material as door frame. Fasten members at crossings and to jambs by butt welding; grind smooth and invisible.
  - 3. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners, unless otherwise indicated.
  - 4. Floor Anchors: Weld anchors to bottom of jambs and mullions with at least four spot welds per anchor. Provide floor anchors for all frames.
  - 5. Jamb Anchors: Locate anchors not more than 18 inches from top and bottom of frame. Space anchors not more than 32 inches o.c. and as follows:
    - a. Stud-wall type:
      - i. Three anchors per jamb up to 60 inches in height.
      - ii. Four anchors per jamb from 60 to 90 inches in height.
      - iii. Five anchors per jamb from 90 to 96 inches in height.
      - iv. Five anchors per jamb plus 1 additional anchor per jamb for each 24 inches or fraction thereof more than 96 inches in height.
      - v. Two anchors per head for frames more than 42 inches wide and mounted in metal-stud partitions.
    - a. Compression type (For frames in existing construction only): Not less than two anchors in each jamb.
    - b. Post-installed expansion type (For frames in existing concrete construction only): Locate anchors not more than 6 inches from top and bottom of frame. Space anchors not more than 26 inches o.c.
  - 6. Door Silencers: Except on weather-stripped doors, drill stops to receive door silencers as follows. Provide plastic plugs to keep holes clear during construction.
    - a. Single-Door Frames: Drill stop in strike jamb to receive three door silencers.
    - b. Double-Door Frames: Drill stop in head jamb to receive two door silencers.
  - 7. Provide knock down frames with temporary spreader bars for shipping.

- C. Hardware Preparation: Factory prepare steel frames to receive templated mortised hardware; include cutouts, reinforcement, mortising, drilling and tapping, according to the Door Hardware Schedule and templates furnished as specified in Division 8 Section "Door Hardware."
  - 1. Reinforce doors and frames to receive non-templated mortised and surface-mounted door hardware. Through bolting will not be acceptable.
  - 2. Comply with applicable requirements in ANSI A250.6 and ANSI/DHI A115 Series specification for door and frame preparation for hardware. Locate hardware as indicated on shop drawings or, if not indicated, according to ASNI A250.8.

## 2.6 STEEL FINISHES

- A. General: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
  - 1. Apply primers to steel door and frames after assembly.
- B. Comply with SSPC-PA1, "Paint Application Specification No. 1," for steel sheet finishes.
- C. Metallic-Coated Steel Surface Preparation: Clean surfaces with non-petroleum solvent so surfaces are free of oil and other contaminants. After cleaning, apply a conversion coating suited to the organic coating to be applied over it. Clean welds, mechanical connections, and abraded areas, and apply galvanizing repair paint specified below to comply with ASTM A 780.
  - 1. Galvanizing Repair Paint: High-zinc-dust-content paint for re-galvanizing welds in steel, complying with SSPC-Paint 20.
- D. Steel Surface Preparation: Clean surfaces to comply with SSPC-Paint 1, "Solvent Cleaning"; remove dirt, oil, grease or other contaminants that could impair paint bond. Remove mill scale and rust, if present, from uncoated steel; comply SSPC-SP 3, "Power Tool Cleaning," or SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
- E. Factory Priming for Field-Painted Finish: Apply shop primer specified below immediately after surface preparation and pretreatment. Apply a smooth coat of even consistency to provide a uniform dry film thickness of not less than 0.7 mils.
  - 1. Shop Primer: Manufacturer's standard, fast-curing, lead- and chromate-free primer complying with ANSI A250.10 acceptance criteria; recommended by primer manufacturer for substrate; compatible with substrate and field-applied finish paint system indicated; and providing a sound foundation for field-applied topcoats despite prolonged exposure.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of steel frames frames.
  - 1. Examine roughing-in for embedded and built-in anchors to verify actual locations of steel frame connections before frame installation.

2. If unacceptable conditions are encountered, prepare written report, endorsed by installer, listing conditions detrimental to performance of work.
  3. Examine frames to be revised for compliance with specification.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Remove welded-in shipping spreaders installed factory.
- B. Prior to installation, adjust and securely brace steel door frames for squareness, alignment, twist and plumb to the following tolerances:
1. Squareness: Plus or minus 1/16 inch, measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
  2. Alignment: Plus or minus 1/16 inch, measured at jambs on horizontal line parallel to plane of wall.
  3. Twist: Plus or minus 1/16 inch, measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
  4. Plumbness: Plus or minus 1/16 inch, measured at jambs on a perpendicular line from head to floor.
- C. Drill and tap frames to receive non templated mortised and surface-mounted door hardware.

### 3.3 INSTALLATION

- A. General: Provide doors and frames of sizes, thicknesses, and designs indicated. Install steel frames plumb, rigid, properly aligned, and securely fastened in place; comply with drawings and manufacturer's written instructions.
- B. Steel Frames: Install steel frames for doors, borrowed lights and other openings, of size and profile indicated. Comply with SDI 105.
1. Set frames accurately in position; plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces, leaving surfaces smooth and undamaged.
    - a. At fire-protection-rated openings, install frames according to NFPA 80.
    - b. Where frames are fabricated in sections due to shipping or handling limitations, field splice at approved locations by welding face joint continuously; grind, fill, dress and make splice smooth, flush and invisible on exposed faces.
    - c. Install frames with removable glazing stops located on secure side of opening.
    - d. Remove shipping straps at bottom of frames. Properly space frame using wood template that is full depth of frame and of proper spacing width during setting and anchoring of frames to maintain proper width, with frame plumb and square without twists. Remove temporary braces necessary for installation only after frames have been properly set and secured.
    - e. Check plumb, squareness, and twist of frames as walls are constructed. Shim as necessary to comply with installation tolerances.
  2. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor and secure with post installed expansion anchors. Floor anchors are in addition to wall anchors.

- a. Floor anchors may be set with powder-actuated fasteners instead of post installed expansion anchors if so indicated and approved on shop drawings.
  3. Metal-Stud Partitions: Attach wall anchors to studs with screws. Provide floor anchor at each jamb, in addition to wall anchors.
  4. Existing In-Place Concrete Construction: Secure frames in place with post installed expansion anchors. Countersink anchors, and fill and make smooth, flush and invisible on exposed faces.
  5. Existing In-Place Gypsum Board Partitions: Secure frames in place with post installed expansion anchors through floor anchors at each jamb. Countersink anchors, and fill and make smooth, flush and invisible on exposed faces.
  6. Installation Tolerances: Adjust steel door frames for squareness, alignment, twist and plumb to the following tolerances:
    - a. Squareness: Plus or minus 1/16 inch, measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
    - b. Alignment: Plus or minus 1/16 inch, measured at jambs on horizontal line parallel to plane of wall.
    - c. Twist: Plus or minus 1/16 inch, measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
    - d. Plumbness: Plus or minus 1/16 inch, measured at jambs on a perpendicular line from head to floor.
- C. Glazing: Comply with installation requirements in Division 8 Section "Glazing" and with steel frame manufacturer's written instructions.
1. Secure stops with countersunk flat- or oval-head machine screws spaced uniformly not more than 9 inches o.c., and not more than 2 inches o.c. from each corner.

#### 3.4 ADJUSTING AND CLEANING

- A. Final Adjustments: Remove and replace defective work, including frames that are warped, bowed or otherwise unacceptable.
- B. Clean grout and other bonding material off steel frames immediately after installation.
- C. 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.

END OF SECTION 08110





SECTION 08211

WOOD DOORS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. This Section includes the following:
  - 1. Shop priming wood doors with opaque finish.
  - 2. Factory fitting wood doors to frames and factory machining for hardware.
- B. Related Sections include the following:
  - 1. Division 8 Section "Steel Frames" for receiving wood doors.
  - 2. Division 8 Section "Door Hardware" for hardware and weather-stripping.
  - 3. Division 8 Section "Glazing" for glass view panels in on-rated wood doors.
  - 4. Division 8 Section "Painting" for field finishing of factory primed wood doors.

1.03 SUBMITTAL

- A. General: Submit in accordance with Section 01330.
  - 1. Submittals for Sections 08110, 08211, 08212 and 08710 shall be made concurrently.
- B. Product Data. For each type of door, include details of core and edge construction, louvers, and trim for openings. Include factory-finishing specifications. Submit door manufacturer's storage, handling, finish, installation, maintenance instructions, and sample warranty.
- C. Shop Drawings: Indicate location, size, thickness, and hand of each door; elevation of each kind of door; face veneer, 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 requirements for veneer matching.
  - 4. Indicate doors to be factory finished and finish requirements.
  - 5. Indicate fire ratings for fire doors.
  - 6. Indicate construction details of stiles, rails, panels and molding (sticking) for stile and rail-configured doors.
  - 7. Indicate doors to be factory glazed.
- D. Existing to Remain: Submit schedule of doors using same reference numbers for details and openings as those on Contract Drawings.
  - 1. Indicate coordination of frames and stops with glass and glazing requirements.

- E. Samples: Submit the following:
  - 1. Factory finishes applied to actual door face materials, approximately 8-inches by 10-inches for each material and finish.
  - 2. Hinges: One for prehung swing door.

#### 1.04 QUALITY ASSURANCE

- A. Source Limitations: Obtain each type of wood door through one source from a single manufacturer.
- B. Quality Standard: Comply with WDMA I.S.I-A, "Architectural Wood Flush Door" or AWIs "Architectural Woodwork Quality Standards Illustrated".

#### 1.05 DELIVERY, STORAGE, AND HANDLING

- A. Protect wood doors during transit, storage, and handling to prevent damage, soiling and deterioration. Comply with requirements of referenced standard, manufacturer's instructions, and recommendations of WDMA I.S.1, Appendix, "How to Store, Handle, Finish, Install and Maintain Wood Doors".
  - 1. Package doors at factory prior to shipping.
  - 2. Protect doors from extremes of heat and cold. Relative humidity shall not be less than 20 percent or more than 60 percent.
  - 3. Compare pre-finished doors to approved finish sample upon delivery. Notify Architect if sample does not match.
- B. Mark each door on top and bottom rail with opening number used on Shop Drawings.
  - 1. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.
  - 2. Document proceedings, including corrective measures and actions required, and furnish copy of record to each participant.
  - 3. Provide 72-hour minimum advance notice to participants prior to convening predemolition conference.

#### 1.06 PROJECT CONDITIONS

- A. Environmental Limitations: Do not delivery or install doors 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.

#### 1.07 WARRANTY

- A. General: Special warranty specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of Contract Documents and will be in addition to and run concurrent with other warranties made by contractor under requirements of 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), show telegraphing of core construction in face veneers, and which do not conform to tolerance limitations of specified quality standards.

1. Warranty shall also include installation 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

### 2.01 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  1. Solid-Core Wood Doors:
    - a. Algoma Hardwoods, Inc.
    - b. Eggers Industries - Architectural Door Division.
    - c. Marshfield Door Systems (Weyerhaeuser).
    - d. VT Industries, Inc.

### 2.02 DOOR CONSTRUCTION GENERAL

- A. Solid-Core Doors for Painted Finish:
  1. Grade: Paint Grade.
  2. Species and Cut: Birch Veneer.
  3. Finish: Finish to be selected by Architect.
  4. Provide sample of finish prior to installation.

### 2.03 SOLID-CORE WOOD DOORS

- A. Particleboard Cores: Comply with the following requirements:
  1. Particleboard: ANSI A208.1, Grade LD-2.
  2. Blocking: Provide wood blocking in particleboard core doors as needed to eliminate through-bolting hardware.

### 2.04 FABRICATION

- A. 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.
  2. Coordinate sizing of pairs of doors to provide maximum 3/16-inch gap between leafs to permit proper functioning of dead latching feature.
- B. 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.
- C. 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. Louvers: Factory install louvers in prepared openings.

## 2.05 SHOP PRIMING

- A. Doors for Opaque Finish: Shop prime faces and edges of doors, including cutouts, with one coat of wood primer specified in Division 9 Section "Painting".

## PART 3 – EXECUTION

### 3.01 EXAMINATION

- A. Examine doors and installed door frames, with Installer present, 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. Locks, exit devices, door closers and other hardware shall be installed in accordance with the manufacturer's 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.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.02 INSTALLATION

- A. Hardware: For installation, see Division 8 Section "Door Hardware."
  1. Hinges shall be shimmed with metal shims at each door to provide equal clearance at each jamb.
  2. Locks, exit devices, door closers, and other hardware shall be installed in accordance with the manufacturer's 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.
- B. 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.
- C. Prehung Door Frame Attachment: Shimmed and fastened through jamb boards at each hinge and corresponding locations in strike jambs. Attachment by trim only is not acceptable.
- D. Factory-Fitted Doors: Align in frames for uniform clearance at each edge. Coordinate pairs of doors to provide maximum 3/16-inch gap between leafs and accurate alignment of strike to permit proper functioning of dead latching feature.
- E. Factory-Finished Doors: Restore finish before installation if fitting or matching is required at Project site.
- F. Field-Finished Doors: Division 9 Section "Painting" for doors receiving opaque finish.

### 3.03 ADJUSTING

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

- B. Factory 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.

END OF SECTION 08211



## SECTION 08411 - ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS

### PART 1 - GENERAL

#### 1.01 RELATED DOCUMENTS

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

#### 1.02 SUMMARY

- A. This Section includes the following:
  - 1. Exterior/Interior aluminum-framed storefronts.
    - a. Glazing is retained mechanically with gaskets on four sides.
  - 2. Exterior/Interior manual-swing aluminum doors.
  - 3. Exterior/Interior aluminum door frames.
  - 4. Break metal in conjunction with frames.
  - 5. Door hardware.
  - 6. Sealant at exterior and interior perimeter of storefront.
- B. Related Sections include the following:
  - 1. Division 7 Section "Joint Sealants" for installation of joint sealants installed with aluminum-framed systems and for sealants to the extent not specified in this Section.
  - 2. Division 8 Section "Door Hardware" for hardware to the extent not specified in this Section.
  - 3. Division 8 Section "Glazing" for glazing requirements to the extent not specified in this Section.
- C. Products installed, but not furnished, under this Section include the following:
  - 1. Balance of door hardware furnished in Division 8 Section "Door Hardware".

#### 1.03 PERFORMANCE REQUIREMENTS

- A. Carefully examine all of the Contract Documents for requirements which affect the work of this section. Other specifications sections which directly relate to the work of this section include, but are not limited to, the following:
  - 1. Structural loads.
  - 2. Thermal movements.
  - 3. Movements of supporting structure indicated on Drawings including, but not limited to, story drift and deflection from uniformly distributed and concentrated live loads.
  - 4. Dimensional tolerances of building frame and other adjacent construction.
  - 5. Failure includes the following:
    - a. Deflection exceeding specified limits.
    - b. Thermal stresses transferred to building structure.

- c. Framing members transferring stresses, including those caused by thermal and structural movements, to glazing.
  - d. Noise or vibration created by wind and thermal and structural movements.
  - e. Loosening or weakening of fasteners, attachments, and other components.
  - f. Sealant failure.
  - g. Failure of operating units to function properly.
- B. Structural Loads:
- 1. Wind Loads: As indicated on Drawings.
  - 2. Seismic Loads: As indicated on Drawings.
  - 3. Code: IBC 2006.
- C. Deflection of Framing Members:
- 1. Deflection Normal to Wall Plane: Limited to 1/175 of clear span for spans up to 13-feet 6-inches and to 1/240 of clear span plus ¼-inch for spans greater than 13-feet 6-inches or an amount that restricts edge deflection of individual glazing lites to ¾-inch, whichever is less.
  - 2. Deflection Parallel to Glazing Plane: Limited to 1/360 of clear span or 1/8- inch, whichever is smaller.
- D. Structural Test Performance: Provide aluminum-framed systems tested according to ASTM E 330 as follows:
- 1. When tested at positive and negative wind-load design pressures, systems do not evidence deflection exceeding specified limits.
  - 2. When tested at 150 percent of positive and negative wind-load design pressures, systems, including anchorage, do not evidence material failures, structural distress, and permanent deformation of main framing members exceeding 0.2 percent of span.
  - 3. Test Duration: As required by design wind velocity but not less than 10 seconds.
- E. Seismic Loads: Provide entrance and storefront systems, including anchorage, capable of withstanding the effects of earthquake motions calculated according to requirements of authorities having jurisdiction or ASCE 7-98, "Minimum Design Loads for Buildings and other Structures," Section 9, "Earthquake Loads," whichever are more stringent.
- F. Thermal Movements: Provide aluminum-framed systems that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures. Base engineering calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
- 1. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces.
- G. Air Infiltration: Provide aluminum-framed systems with maximum air leakage through fixed glazing and framing areas of 0.06 cfm/sq. ft. of fixed wall area when tested according to ASTM E 283 at a minimum static-air-pressure difference of 6.24 lbf/sq.ft.



- H. Water Penetration Under Static Pressure: Provide aluminum-framed systems that do not evidence water penetration through fixed glazing and framing areas when tested according to ASTM E 283 at a minimum static-air-pressure difference of 6.24 lbf/sq. ft.
- I. Condensation Resistance: Provide aluminum-framed systems with fixed glazing and framing areas having average U-factor of not more than 0.44 btu/sq. ft. x h x deg F when tested according to AAMA 1503.

1.04 SUBMITTALS

- A. General: Submit in accordance with Section 01330.
- B. Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type of product installed.
  - 1. Submit replacement parts lists, adjustments instructions, and maintenance requirements for all components and hardware.
- C. Shop Drawings: For aluminum-framed systems, include plans, elevations, sections, details, and attachments to other work.
  - 1. Include structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
  - 2. Include details of provisions for system expansion and contraction and for draining moisture occurring within the system to the exterior.
  - 3. For entrances, include hardware schedule and indicate operating hardware types, functions, quantities, and locations.
  - 4. Indicate fastener layout and size for transferring loads back to supporting structure.
- D. Samples:
  - 1. Factory-Applied Color Finishes: Submit manufacturers color charts in the form of prefinished aluminum samples, roughly 3- by 5-inches, showing full range of colors available for each type of exposed finish indicated.
  - 2. Sealants: Manufacturers color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.
  - 3. Solid Interior Storefront System.
- E. Welding Certificates.
- F. Qualification Data: For Installer signed by manufacturer certifying that Installers comply with requirements in "Quality Assurance" Article.
- G. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for aluminum-framed systems.
- H. Inspection Reports: Manufacturers field service representative tests performed by a qualified testing agency, for aluminum-framed systems.

- I. Maintenance Data: For aluminum-framed systems to include in maintenance manuals.
  - 1. Include maintenance manuals for hardware provided in this Section.
- J. Warranties: Special warranties specified in this Section.

1.06 QUALITY ASSURANCE

- A. Installer Qualification: Capable of assuming Engineering responsibility and performing work of this Section and who is acceptable to manufacturer.
  - 1. Engineering Responsibility: Preparation of data for aluminum-framed systems including Shop Drawings based on testing and engineering analysis of manufacturer's standard units in assemblies similar to those indicated for this Project and submission of reports of tests performed on manufacturer's standard assemblies.
- B. Product Options: Information on Drawings and in Specifications establishes requirements for systems' aesthetic effects and performance characteristics. Aesthetic effects are indicated by dimensions, arrangements, alignment, and profiles of components and assemblies as they relate to sightlines, to one another, and to adjoining construction. Performance characteristics are indicated by criteria subject to verification by one or more methods including pre-construction testing, field testing, and in-service performance.
  - 1. Do not modify intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If modifications are proposed, submit comprehensive explanatory data to Architect for review.
- C. Source Limitations: Obtain each type of aluminum-framed entrance and storefront from one source and by a single manufacturer.
- D. Accessible Entrances: Comply with the US Architectural & Transportation Barriers Compliance Boards "Americans with Disabilities Act (ADA), Accessibility Guidelines for Buildings and Facilities (ADAAG)".
- E. Welding: Qualify procedures and personnel according to AWS D1.2, "Structural welding Code-Aluminum".
- F. Pre-installation Conference: Conduct conference at Project site. Comply with requirements in Division 1 Section "Project Meetings." Review methods and procedures related to glazed aluminum storefront and entrance systems including, but not limited to, the following:
  - 1. Inspect and discuss condition of substrate and other preparatory work performed by other trades.
  - 2. Review structural loading limitations.
  - 3. Review and finalize construction schedule and verify availability of materials  
Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
  - 4. Review required inspecting, testing, and certifying procedures.
  - 5. Review weather and forecasted weather conditions and procedures for coping with unfavorable conditions.
  - 6. Review temporary protection requirements for existing construction during

and after installation.

7. Document proceedings, including corrective measures and actions required, and furnished copy of record to each participant.
8. Provide 72-hour minimum advance notice to participants prior to convening pre-installation conference.

- G. Field Quality Control: Provide manufacturer's field services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instruction. Upon completion of installation, manufacturer's field representative shall prepare written report on installation of systems.

#### 1.07 PROJECT CONDITIONS

- A. Field Measurements: Verify actual locations of structural supports for aluminum-framed systems by field measurements before fabrication and indicate measurements on Shop Drawings.
1. Coordinate rough opening and wood blocking requirements.

#### 1.08 WARRANTY

- A. General: Special warranties specified in this Section shall not deprive Owner of other rights Owner may have under provisions of Contract Documents and will be in addition to and run concurrent with other warranties made by Contractor under requirements of Contract Documents.
- B. Special Assembly Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of aluminum-framed systems that do not comply with requirements or that deteriorate as defined in this Section within specified warranty period.
1. Failures include, but are not limited to, the following:
    - a. Structural failures including, but not limited to, excessive deflection.
    - b. Failure of system to meet performance requirements.
    - c. Noise or vibration caused by thermal movements.
    - d. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
    - e. Adhesive or cohesive sealant failures.
    - f. Water leakage through fixed glazing and framing areas.
    - g. Failure of operating components to function properly.
    - h. Glazing breakage.
  2. Warranty Period: Two (2) years from date of Substantial Completion.
- C. Special Finish Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components on which finishes fail within specified warranty period. Warranty does not include normal weathering.
1. Warranty Period: Ten (10) years from date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.01 MANUFACTURERS

- A. Products: Subject to compliance with requirements, provide one of the following:
1. Kawneer Company, Inc.; 451T frames with 350 Standard Entrances and Frames.
  2. Tubelite; 1400 Series poured and debridged Thermal Storefront Systems with Medium Stile Standard Entrances and Frames.
  3. YKK AP America, Inc.; YES 45 TU with 35D Wide Stile Swing Entrances and Frames.

### 2.02 MATERIALS

- A. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated.
1. Sheet and Plate: ASTM B 209.
  2. Extruded Bars, Rods, Profiles, and Tubes: ASTM B 221.
  3. Extruded Structural Pipe and Tubes: ASTM B 429.
  4. Structural Profiles: ASTM B 308/B 308/M.
  5. Welding Rods and Bare Elements: AWS A5.10/A5.10M.
  6. Finish: Clear anodized interior, exterior finish to match existing building.
- B. Steel Reinforcement: With manufacturer's standard corrosion-resistant primer complying with SSPC-PS Guide No. 12.00 applied immediately after surface preparation and pretreatment. Select surface preparation methods according to recommendations in SSPC- COM and prepare surfaces according to applicable SSPC standard.
1. Structural Shapes, Plates and Bars: ASTM A 36/A 36M.
  2. Cold-Rolled Sheet and Strip: ASTM A 1008/A 1008/M.
  3. Hot-Rolled Sheet and Strip: ASTM A 1011/A 1011/M.

### 2.03 FRAMING SYSTEMS

- A. Framing Members: Manufacturer's standard extruded-aluminum framing members of thickness required and reinforced as required to support imposed loads.
1. Construction: Framing members are composite assemblies of two separate extruded-aluminum components permanently bonded by an Elastomeric material of low thermal conductance.
  2. Provide thermally broken extruded aluminum still flashing with end dams for windows.
  3. Provide non-thermally broken frames for interior units as noted on the drawings.
  4. Provide operable units (doors and windows) manufactured by storefront system manufacturer.
  5. Provide components having face width indicated on Drawings.
- B. Brackets and Reinforcements: Manufacturer's standard high-strength aluminum with non-

staining, non ferrous shims for aligning system components.

1. Provide extra-heavy reinforcement for hinges and closers at doors over 7-ft in height.
- C. Fasteners and Accessories: Manufacturer's standard corrosion-resistant, non-staining, non-bleeding fasteners and accessories compatible with adjacent materials.
1. Where fasteners are subject to loosening or turning out from thermal and structural movements, wind loads, or vibration, use self-locking devices.
  2. Reinforce members as required to receive fastener threads.
  3. Do not use exposed fasteners, except for hardware application. For hardware applications, use exposed fasteners with countersunk Phillips screw heads, finished to match framing system or hardware being fastened, unless otherwise noted. Exposed fasteners shall be stainless steel.
- D. Concrete and Masonry Inserts: Hot-dip galvanized cast-iron, malleable-iron, or steel inserts complying with ASTM A 123/A 123/M or ASTM A 153/A 153/M requirements.
- E. Concealed Flashing: Manufacturer's standard corrosion-resistant, non-staining, non-bleeding flashing compatible with adjacent materials.
1. Provide vertical expansion joint flashing as detailed. Form flashing from sheet aluminum finished to match framing and of sufficient thickness to maintain a flat appearance without visible deflection.
- F. Aluminum Break Metal: Form exposed flashing from sheet aluminum finished to match framing and of sufficient thickness, not less than 0.060-inch thick, to maintain a flat appearance without visible deflection.
- G. Framing System Gaskets and Sealants: Manufacturer's standard recommended by manufacturer for joint type.
1. Provide sealants and sealant primers for use inside of the weatherproofing system that comply with the following limits for VOC content when calculated according to South Coast Air Quality Management District Rule No. 1168.
    - a. Sealant:

1) Architectural	250 g/L.
2) Other	420 g/L.
    - b. Sealant Primer:

1) Architectural, Non porous	250 g/L.
2) Architectural, Porous	775 g/L.
3) Other	750 g/L.

## 2.04 GLAZING SYSTEMS

- A. Glazing: As specified in Division 8 Section "Glazing."

- B. Glazing Gaskets: Manufacturer's standard pressure-glazing system of black, extruded EPDM rubber gaskets, fabricated to comply with system performance requirements. Provide gasket assemblies that have corners sealed with sealant recommended by gasket manufacturer.
- C. Spacers and Setting Blocks: Manufacturer's standard permanent, non-migrating types in hardness recommended by manufacturer, compatible with sealants, and suitable for system performance requirements.
- D. Framing system gaskets, sealants, and joint fillers as recommended by manufacturer for joint type.
- E. Sealants and Joint Fillers: Provide for joints at perimeter of entrance and storefront systems as specified in Division 7 Section "Joint Sealants."

## 2.05 DOORS

- A. Doors: Manufacturer's standard glazed doors, for manual and power-assisted swing operation.
  - 1. Door Construction: 1¾-inch overall thickness, with minimum 0.125-inch thick, extruded-aluminum tubular rail and stile members. Mechanically fasten corners with reinforcing brackets that are deep penetration and fillet welded or that incorporate concealed tie rods.
  - 2. Door Design: Medium stile; 3½-inch nominal width, 10-inch high bottom rail, and 6-inch cross-rail.
  - 3. Door Frame: Minimum 0.188-inch thick extruded aluminum; 2-inch by 4½-inch profile, stop with weather-stripping; run heavy weight jambs full height of opening.
  - 4. Glazing Stops and Gaskets: Manufacturer's heavy weight removable mullion with weather-stripping, finish to match frame.
    - a. Provide non-removable glazing stops on outside of exterior doors.

## 2.06 DOOR HARDWARE

- A. General: Provide heavy-duty units in sizes, numbers, and types recommended by entrance system and hardware manufacturer for entrances and uses indicated. Finish exposed parts to match door finish, unless otherwise indicated. Provide specified manufacturers without substitution.
  - 1. Opening-Force Requirements:
    - a. Egress Doors: Not more than 30 lbf required to set door in motion and not more than 15 lbf required to open door to minimum required width.
    - b. Accessible Interior Doors: Not more than 5 lbf.
- B. Ball-Bearing Hinges:
  - 1. Material: Stainless Steel.
  - 2. Provide non-removable pins (NRP) at hinges exposed to outside of exterior doors and to non-secured side of interior doors.

3. Quantities:
  - a. For doors with heights up to 87-inches, provide 3 hinges per leaf.
  - b. For doors with heights greater than 87-inches and up to 120-inches, provide 4 hinges per leaf.
  
- C. Removable Hardware Mullion Meeting Stile: BHMA A156.3; steel painted to match storefront. Provide at exterior doors with weather-stripping.
  1. When used with panic exit devices, provide removable mullions listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for panic protection, based on testing according to UL 305. Use only mullions that have been tested with exit devices to be used.
  
- D. Weather-stripping: Manufacturer's standard exterior door bottom sweep with concealed fasteners on mounting strip.
  
- E. Weather Sweeps: Manufacturer's standard exterior door bottom sweep with concealed fasteners on mounting strip.
  
- F. Thresholds: Raised thresholds beveled with a slope of not more than 1:2, with maximum height of ½-inch. Coordinate cutouts for operating hardware with anchors and jamb clips. Provide with a maximum slope of not more than 1:2.
  1. Material: Aluminum, mill finish.
  
- G. Balance of Hardware: See Division 8 "Door Hardware".

#### 2.07 OPERABLE DISPLAY UNITS

- A. Display Windows: Provide manufacturer's thermally broken, visually frameless, side- hinged, outward swinging window as part of storefront system. Finish matching storefront.
  1. Products: Match storefront manufacturer's storefront system.
  
- B. Window Hardware: Provide the following:
  1. Hinges: Comply with AAMA 904; Concealed Four Bar Function 3/unit.
  2. Locks: Provide exterior accessible cylinder locks keyed alike.
  3. Units: To be weather-tight.

#### 2.08 ACCESSORY MATERIALS

- A. Joint Sealants: For installation at perimeter of aluminum-framed systems, as specified in Division 7 Section "Joint Sealants."
  
- B. Bituminous Paint: Cold-applied asphalt-mastic paint complying with SSPC=Paint 12 requirements except containing no asbestos, formulated for 30-mil thickness per coat.

#### 2.09 FABRICATION

- A. Form aluminum shapes before finishing.
- B. Weld in concealed locations to greatest extent possible to minimize distortion or discoloration of finish. Remove welding spatter and welding oxides from exposed surfaces by de-scaling or grinding.
- C. Framing Members, General: Fabricate components that, when assembled, have the following characteristics:
  - 1. Profiles that are sharp, straight, and free of defects or deformations.
  - 2. Accurately fitted joints with ends coped or mitered.
  - 3. Means to drain water passing joints, condensation occurring within framing members and moisture migrating within the system to exterior.
  - 4. Physical and thermal isolation of glazing from framing members.
  - 5. Accommodations for thermal and mechanical movements of glazing and framing to maintain required glazing edge of clearances.
  - 6. Provisions for field replacement of glazing from exterior.
  - 7. Fasteners, anchors, and connection devices that are concealed from view to greatest extent possible.
- D. Mechanically Glazed Framing Members: Fabricate for flush glazing (without project stops).
- E. Entrance Door Frames: Reinforce as required to support loads imposed by door operation and for installing hardware.
  - 1. At exterior doors, provide compression weather-stripping at fixed stops.
  - 2. At interior doors, provide silencers at stops to prevent metal-to-metal contact. Install 3 silencers on strike jamb of single-door frames and 2 silencers on head of frames for pairs of doors.
- F. Entrance Doors: Reinforce doors as required for installing hardware.
  - 1. At exterior doors, provide weather sweeps applied to door bottoms and compression weather-stripping at fixed stops.
- G. Windows: Fabricate aluminum windows with an integral, concealed, low-conductance thermal barrier; located between exterior materials and window members exposed on interior side; in a manner that eliminates direct metal-to-metal contact. Fabricate units that are re-glazable without dismantling sash or ventilator framing.
  - 1. Provide hardware with low conductivity or non-metallic material for hardware bridging thermal breaks at frame.
- H. Entrance Door Hardware Installation: Factory-install entrance door hardware to the greatest extent possible. Cut, drill, and tap for factory-installed and field-installed entrance door hardware before applying finishes.
- I. After fabrication, clearly mark components to identify their locations in Project according



to Shop Drawings.

## 2.10 ALUMINUM FINISHES

- A. General: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Finish designations prefixed by AA; comply with the system established by the Aluminum Association for designing aluminum finishes.
- C. High-Performance Organic Finish (2 Coat Fluoropolymer): AA-C12C40R1x (Chemical Finish: cleaned with inhibited chemicals; Chemical Finish; conversion coating; Organic Coating: manufacturer's standard 2-coat, thermocured system consisting of specially formulated inhibitive primer and Fluoropolymer color topcoat containing not less than 70 percent polyvinylidene fluoride resin by weight). Prepare, pretreat, and apply coating to exposed metal surfaces to comply with AAMA 2605 and with coating and resin manufacturer's written instructions.
  - 1. Color and Gloss: As selected by Architect from manufacturer's full range.
  - 2. Finishes: Interior finish & exterior finish.

## PART 3 - EXECUTION

### 3.01 EXAMINATION

- A. Examine areas, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of work.
  - 1. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.02 INSTALLATION

- A. General:
  - 1. Comply with manufacturer's written instructions.
  - 2. Do not install damaged components.
  - 3. Fit joints to produce hairline joints free of burrs and distortion.
  - 4. Rigidly secure non-movement joints.
  - 5. Install anchors with separators and isolators to prevent metal corrosion and electrolytic deterioration.
  - 6. Seal joints watertight, unless otherwise indicated.
- B. Metal Protection:
  - 1. Where aluminum will contact dissimilar metals, protect against galvanic action by painting contact surfaces with primer or by applying sealant or tape or installing non-conductive spacers as recommended by manufacturer for this purpose.

2. Where aluminum will contact concrete or masonry, protect against corrosion by painting contact surfaces with bituminous paint.
- C. Install components to drain water passing joints, condensation occurring within framing members and moisture migrating within the system to exterior.
  - D. Set continuous sill members and flashing in full sealant bed as specified in Division 7 Section "Joint Sealants" and to produce weathertight installation. Install sills in one piece, full width of opening except where opening exceeds available manufactured lengths. Provide sealed metal end dams at ends of sills. Sills shall turn up on backside to form pan, directing water to the exterior.
  - E. Install components plumb and true in alignment with established lines and grades, without warp or rack.
  - F. Install glazing as specified in Division 8 Section "Glazing".
  - G. Entrance Doors and Windows: Install to produce smooth operation and tight fit at contact points.
    1. Exterior Entrances and Windows: Install to produce tight fit at weather-stripping and weathertight closure.
    2. Field-installed Hardware: Install surface-mounted hardware according to hardware manufacturers written instructions using concealed fasteners to greatest extent possible.
    3. Install hardware furnished in Division 8 Section "Door Hardware".
  - H. Install perimeter joint sealants as specified in Division 7 Section "Joint Sealants" and to product weathertight installation. Color of sealant to match aluminum finish.
  - I. Erection Tolerances: Install aluminum-framed systems to comply with following maximum tolerances:
    1. Location and Plane: Limit variation from true location and plane to 1/8-inch in 12-feet; 1/4-inch over total length.
    2. Alignments:
      - a. Where surfaces abut in line, limit offset from true alignment to 1/16-inch.
      - b. Where surfaces meet at corners, limit offset from true alignments to 1/32-inch.
    3. Diagonal Measurements: Limit difference between diagonal measurement to 1/8-inch.
- 3.03 ADJUSTING AND CLEANING
- A. Provide final protection and maintain conditions in a manner acceptable to manufacturer and installer that ensures entrances and storefront systems are without damage or deterioration at time of Substantial Completion.

END OF SECTION

SECTION 08710 – FINISH HARDWARE

PART 1 –GENERAL

1.01 RELATED DOCUMENTS

- A. All of the Contract Documents, including General and Supplementary Conditions and Division 1 General Requirements, apply to the work of this section.

1.02 DESCRIPTION OF WORK

- A. The work of this section includes, but is not limited to, the following:
  - 1. Providing hardware for all doors, except doors provided with their own hardware.
  - 2. Providing lock cylinders for all work requiring cylinders.
  - 3. Providing the services of a qualified hardware consultant to prepare detailed schedules of hardware required for the project.

1.03 RELATED WORK

- A. Carefully examine all of the Contract Documents for requirements which affect the work of this section. Other specifications sections which directly relate to the work of this section include, but are not limited to, the following:
  - 1. Section 08100 – Hollow Metal Doors and Frames; work requiring template coordination, metal astragals for fire-rated doors.
  - 2. Section 08210 – Wood Doors; work requiring template coordination, metal astragals for fire-rated doors.
  - 3. Division 26 – Electrical conduit and raceways.

1.04 INTENT

- A. A major intent of the work of this section is to provide hardware for every door in the project, except as indicated, so that each door functions correctly for its intended use. Provide only hardware that complies with applicable codes and requirements of authorities having jurisdiction including requirements for barrier-free accessibility.

1.05 QUALITY ASSURANCE

- A. Hardware supplier shall have in his employ one or more members of the Door and Hardware Institute to include at least one Certified Architectural Hardware Consultant in good standing, who shall be responsible for preparation of the Finish Hardware Schedule. This Consultant shall be acceptable to the Architect and is to ensure that the intent requirement of this specification is fulfilled, and certify that the work of this section meets or exceeds the requirements specified in this section and the requirements of authorities having jurisdiction.

- B. Hardware supplier shall warrant and guarantee, in writing, that hardware supplied is free of defective material and workmanship. Supplier shall further warrant and guarantee for a period of one year from Owner's Use and Occupancy that the hardware shall function in a satisfactory manner without binding, collapse, or dislodging of its parts, provide the installation is made to the manufacturer's recommendations.
- C. The hardware supplier shall repair or remedy, without charge, any defect of workmanship or material for which he is responsible hereunder.

#### 1.06 SUBMITTALS

- A. Submit the following in accordance with SECTION 01300-SUBMITTALS:
  - 1. Schedule: Submit to the Architect six (6) copies of the complete hardware schedule within the fourteen (14) days after receipt of contract award. Submit therewith complete catalog cuts and descriptive data of all products specifically scheduled therein. No materials shall be ordered or templates issued until the hardware schedule has been approved by the Architect. Form and detail of hardware schedule shall be in vertical format in conformance to the door and hardware industry standards. All hardware sets shall be clearly cross-referenced to the hardware set numbers listed in the specifications.
  - 2. Samples: If requested, submit to the Architect for approval, a complete line of samples as directed. Samples shall be plainly marked giving hardware number used in this specification, the manufacturer's numbers, types and sizes. The Architect will deliver approved samples to the project site to be stored. Samples will remain with the Architect until delivery of all hardware to the project is complete, after which time they will be turned over to the General Contractor for incorporation into the work.
  - 3. Keying System Submission: Before cylinders are ordered, submit a complete proposed keying system for approval. This should be done after a keying meeting has been held with the owner's representative.

#### 1.07 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Delivery of hardware shall be made to the project by the Hardware Supplier in accordance with the instructions of the General Contractor.
- B. The finish hardware shall be delivered to the jobsite and received there by the General Contractor. The General Contractor shall prepare a locked storage room with adequate shelving, for all hardware. The storage room shall be in a dry, secure area, and shall not include storage of other products by other trades.

- C. The General Contractor shall furnish the Hardware Supplier with receipts for all hardware and accessory items received, and shall send copies of these receipts to the Architect, if requested.

1.08 REGULATORY REQUIREMENTS

- A. Conform to all applicable codes. Provide all throws, projections, coatings, knurling, opening and closing forces, and other special functions required by State and Local Building Codes, and all applicable Handicap Code requirements.
- B. For fire rated openings, provide hardware complying with NFPA 80 and NFPA 101 without exception. Provide only hardware tested by UL for the type and size of door installed and fire resistance rating required.

1.09 SPECIAL REQUIREMENTS

- A. Hardware Supplier shall determine conditions and materials of all doors and frames for proper application of hardware.
- B. The Hardware Schedule shall list the actual product series numbers. Bidders are required to follow the manufacturers' catalog requirement for the actual size of door closers, brackets and holders. All door opening sizes are as noted on the Door Schedule and all hardware shall be in strict accordance with requirements of height, width, and thickness.

PART 2 – PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

Hinges	McKinney Stanley	Scranton, PA New Britain, CT
Locksets	Schlage Sargent	Colorado Springs, CO New Haven, CT
Exit Devices	Sargent Von Duprin	New Haven, CT Indianapolis, IN
Door Closers	Sargent LCN	New Haven, CT Princeton, IL
Door Stop	Glynn Johnson Ives Rockwood	Indianapolis, IN New Haven, CT Rockwood, PA
Push/Pulls	Rockwood Burns Ives	Rockwood, PA Erie, PA New Haven, CT
Protective Plates	Rockwood Burns Ives	Rockwood, PA Erie, PA New Haven, CT
Thresholds/ Weatherstripping/ Rain Drips	NGP Pemko Reese	Memphis, TN Memphis, TN Rosemount, MN
Silencers	Ives Glynn Johnson Rockwood	New Haven, CT Indianapolis, IN Rockwood, PA

2.02 MATERIALS AND QUALITY

- A. All hardware shall be of the best grade of solid metal entirely free from imperfections manufacturer and finish.
- B. Qualities, weights, and sizes given herein are the minimum that will be accepted. It is the responsibility of the Hardware Supplier to supply the specified size and weight of hardware and the proper function of hardware in each case and to provide UL approved hardware at all fire rated doors.

- C. Provide, as far as possible, locks of one lock manufacturer and hinges of one hinge manufacturer. Modifications to hardware that are necessary to conform to construction shown or specified shall be provided as required for the specified operation and functional features.

#### 2.03 HARDWARE DESIGNATIONS

- A. All items of hardware are referenced by manufacturer's names and numbers. The manufacturer's names and numbers are used to define the function, design, and the quality of the material to be supplied.

Substitution of products other than those listed shall be submitted to the Architect at least ten (10) days PRIOR to the bid date. The Architect shall be the sole judge of any proposed substitution.

#### 2.04 TEMPLATES

- A. Hardware supplier shall immediately, but not later than three (3) days after approval of his Schedule by the Architect, furnish the General Contractor with complete template information necessary for the fabrication of doors, frames, etc. No templates shall be furnished prior to the approval of the hardware schedule.

#### 2.05 HARDWARE FOR LABELED FIRE DOORS, EXIT DEVICES AND SMOKE DOORS

- A. Hardware shall conform to requirements of NFPA 80 for labeled fire doors and to NFPA 101 for exit doors, as well as to other requirements specified. Labeling and listing by UL Building Materials Directory, for class of door being used will be accepted as evidence of conformance to these requirements. Install minimum latch throw as specified on label of individual doors. Provide hardware listed by UL except where heavier materials, larger sizes, or better grades are specified herein under paragraph entitled "Hardware Sets". In lieu of UL labeling and listing, test reports from a nationally recognized testing agency may be submitted showing that hardware has been tested in accordance with UL test methods and that it conforms to NFPA requirements. Specific hardware requirements of door or frame manufacturers which exceed sized or weights of hardware herein listed shall be provided with no additional charge.

#### 2.06 KEYS AND KEYING

- A. The hardware supplier shall review the specific hardware functions with the Architect and owner at the time of the keying review, to assure the appropriateness of each of the hardware functions. Failure to make this review does not relieve the hardware supplier from providing the proper functions.

- B. Key System: All cylinders shall be Masterkeyed and/or Grandmaster Keys: Furnish six (6) keys for each set, if required.
1. Master keys, Grandmaster Keys: Furnish six (6) keys for each set, if required.
  2. Furnish three (3) change keys for each cylinder keyed differently; six (6) change keys for each set keyed alike, and in sets where only (2) cylinders are keyed alike, four (4) change keys will be required.
  3. All keying is to be done at the factory to avoid duplication of the new cylinders.
  4. Master Keys shall be sent to the Owner by registered mail, return receipt required.
  5. Supply a bitting list for all change keys and master keys to the Owner.
  6. All lock cylinders shall be set to Construction key for use by the Contractor during the construction period. Furnish ten (10) Construction keys and two (2) voiding the Construction key feature.

#### 2.07 FASTENERS

- A. Manufacture hardware to conform to published templates, generally prepared for machine screw installation.
- B. Furnish screws for installation, with each hardware item. Provide Phillips flat-head screws except as otherwise indicated. Furnish exposed screws to match the hardware finish, or, if exposed in surfaces of other work, to match the finish of such other work as closely as possible, except as otherwise indicated.
- C. Provide concealed fasteners for hardware units which are exposed when the door is closed, except to the extent no standard manufactured units of the type specified are available with concealed fasteners. Do not use thru-bolts unless specifically approved by the Architect.
- D. All hardware shall be installed only with fasteners supplied by manufacturers of specific products.

#### 2.08 PACKING AND MARKING

- A. All hardware shall have the required screws, bolts and fastenings necessary for proper installation and shall be wrapped in the same package as the hardware item for which it is intended and shall match finish of hardware with which to be used.



- B. Each package shall be clearly labeled indicating the portion of the work for which it is intended.

2.09 ENVIROMENTAL CONCERN FOR PACKGING

- A. The hardware shipped to the jobsite is to be packaged in biodegradable packs such as paper or cardboard boxes and wrapping. If non-biodegradable packing such as plastic, plastic bags or large amounts of Styrofoam is utilized, then the Contractor will be responsible for the disposal of the non-biodegradable packing to a licensed or authorized collector for recycling of the non-degradable packing.

2.10 FINISH HARDWARE DESCRIPTION

- A. Hardware items shall conform to respective specifications and standards and to requirements specified herein.

B. MATERIALS AND FINISH MATERIALS AND FINISHES SHALL BE:

1. Interior Butts: US26D (BHMA 652)
2. Exterior Geared Hinges US28 (BHMA 628)
3. Door Closers: Sprayed to match hardware finish.
4. Exit Devices: US26D (BHMA 626)
5. Kick, Push Plates: US32D (BHMA 630)
6. All other hardware shall be: US26D (BHMA 626), or as scheduled.

C. HINGES

1. Number of hinges per door, two hinges for doors up to and including five feet in height and an additional hinge for each two and one half feet or fraction thereof.
2. Hinges shall be as follows:

Exterior	McKinney	TA2314	4 ½ x 4 ½ NRP
	Stanley	FBB191	4 ½ x 4 ½ NRP
Interior	McKinney	TA2714	4 ½ x 4 ½
	Stanley	FBB179	4 ½ x 4 ½
Elec	McKinney	TA2714-CC8	
	Stanley	CEFBB179	

D. DOOR CLOSERS:

1. Door closers shall have fully hydraulic, full rack and pinion action. Cylinder body shall be 1-1/2" in diameter, and double heat treated pinion shall be 11/16" in diameter.

2. Hydraulic fluid shall be of a type requiring no seasonal closer adjustment for temperatures ranging from 120 degrees F to -30 degrees F.
3. Spring power shall be continuously adjustable over the full range of closer sizes, and allow for reduced opening force for physically handicapped. Hydraulic regulation shall be by tamper-proof, non-critical valves. Closers shall have separate adjustment for latch speed, general speed, and hydraulic back-check.
4. All closers shall have solid forged steel main arms (and forged forearms for parallel arm closers).
5. Closer arms (and metal covers when specified) shall have a powder coating finish.
6. Provide drop, mounting plates, where required.
7. Do not locate closers on the side of doors facing corridors, passageways or similar type areas. Where it is necessary, due to certain conditions and approval of the Architect, to have closers in corridors, provide such closers with parallel or track type arms.
8. All door closers shall be adjusted by the installer in accordance with the manufacturer's templates and written instructions. Closers with parallel arms shall have back-check features adjusted prior to installation.
9. Closers shall conform to all applicable code requirements relative to setting closing speeds for closers and maximum pressure for operating interior and exterior doors.
10. Door closers meeting this specification are as follows:

	LCN	Sargent
Exterior	4111S-CUSH	281 – CPS
	4111S-H-CUSH	281 – CPSH
Interior	4011	281- 0
	4111	281 – P10
	4040SE	2407 Series
	4000T	281 – OT x spec. TEMP.
	4310ME-SF	2980
	4040SE-DE	2477

E. EXIT DEVICES:

1. Shall be Von Duprin or Sargent as follows:

Function	Von Duprin	Sargent
A	CD99NL-OP	16-8804
B	99EO	8810
C	99L-2	8813ET
D	99L-BE	8815ET
E	99NL-F	12-8804
F	99L-F	12-8813ET
G	99L-F-BE	12-8815ET
H	9927EO	8710
I	9927L	8713ET
J	9927L-BE	8715ET
K	CD9927EO x LBR	16-PP/PR8710
L	9927L x LBR	PP/PR8713ET
M	9927L-BE x LBR	PP/PR8715ET
N	CD99271F	CD8710 x 306
O	9927L-F	12-8713ET
P	9927L-F-BE	12-8715ET
Q	9927EO-F x LBR	12-PP/PR8710
R	9927L-F x LBR	12-PP/PR8713ET
S	9927L-F-BE x LBR	12PP/PR8715ET
T	EL9927TP	56-8710 x 306
U	EL99L-F	55 56-12 8813 ETL
V	EL99NL-OP	55 56-8804
W	EL9927EO	56-8710

NOTE: Lever design shall match lock trim

F. HEAVY DUTY LEVER HANDLE CYLINDRICAL LOCKS:

1. Locksets for this project shall be heavy duty cylindrical key-in-lever handle type locksets.
2. Locksets shall be 2 3/4" backset with 1/2" throw latchbolt, with deadlocking latch, and a cylindrical housing of steel with a zinc dichromate finish.
3. Locksets shall be fastened by thru-bolts, thru the 3 1/2" diameter inside rose back plate into the threaded studs in the outside rose back plate. Thru-bolts shall be placed in separate bolt holes, thru the door and outside the cylindrical case at 180 deg. from each other.

4. The inside and outside rose scalps shall be 3 1/2" diameter wrought brass or bronze. When assembled, all thru-bolts in the face of the door shall be concealed from view. The lever handles shall be solid cast in the same finish as the rose.
5. Cylinders to match existing key system.
6. The 1/2' throw latchbolt shall be listed and approved for use by Underwriters Laboratories.
7. Strikes shall be curved lip ANSI A115.2 4 7/8" x 1 1/4" wrought brass or bronze.
8. The following locksets shall be considered acceptable for this project:

Schlage	"ND" Series	RHO Design
Sargent	10 Line	LL Design

9. Lock functions as indicated in the hardware schedule shall be as follows:

Function	Schlage	Sargent
A(Storeroom)	80	04
B(Storeroom)	80 (Knurled)	04
C(Office)	50	05
D(Passage)	10	15
E(Vestibule)	60	16
F(Classroom)	70	37
G(Spec Classroom)	71	38
H(Privacy)	40	65
I(Dummy)	170	93
J(Electric Lock)	EU-REX	71 RX
K(Key Pad)		KP10G77

G. PUSH PLATES, DOOR PULLS, PUSH/PULL BARS:

1. Shall be as manufactured by Rockwood, Burns or Ives.
  - a. Push plates shall be 4" x 16" x .050 thickness unless otherwise listed in hardware sets.

Rockwood	70 Series
Burns	50 Series
Quality	40 Series

- b. Door pulls shall be 1" x 10"

Type A

Rockwood	BF111 (A1 BF157)
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Burns           BF26C  
Quality       BF163-10"

c.       Push/pull bars

Type A (Wide Stile Doors)

Rockwood       BF11147 x T1006 Mounting  
Burns           BF26C x 442 x Sim. Mounting as Above  
Quality       BF 482 x Sim. Mounting as Above

H.       KICK PLATES, ARMOR PLATES, MOP PLATES:

1.       Kick plates shall be 8 in. high. Armor plates shall be 34 in. high. Mop plates shall be 4 in. high. All plates shall be 2 in. less the width of door. Plates shall be .050 thickness, bevel 4 edges, screws shall be oval head counter-sunk.

I.       STOPS

1.       Shall be furnished at all doors. Wherever and opened door or any item of hardware thereon strikes a wall, at 90 degrees. Provide wall bumpers, unless otherwise indicated in hardware sets.
2.       Where wall bumpers cannot be effectively used, a floor stop shall be furnished and installed.
3.       Provide roller bumpers for each door where two doors interfere with each other in swinging.

Manufacturer	Wall Bumpers	Floor Stops	Roller Bumpers
Rockwood	409	440, 442	456
Ives	407 ½	436B, 438B	470 Series
Glynn Johnson	WB 50XT	FB13, FB14	RB-3

4.       Where overhead stops are listed they shall be the surface mounted type as follows:

Manufacturer	Series
Glynn Johnson	GJ450
Sargent	1540
ABH	4400

J. THRESHOLDS, WEATHERSTRIP, SEAL:

1. Thresholds shall be as detailed and furnished on all doors where shown on drawings. Thresholds shall be aluminum unless otherwise indicated. Set thresholds for exterior and acoustical doors in full bed of sealant complying with requirements specified in Division 7 Section "Joint Sealants".
2. Weatherstripping shall be furnished on all exterior doors unless otherwise indicated.

Product	Pemko	Reese	NGP
Threshold	as detailed		
Brush Seal	45062AP	970	A626A
Auto. Door Bottom	430CR	330	420
Door Sweep	345AV	353	101AV
Set Astragals	300		143PA
Astragal	357SP	183S	139SP
Rain Drip	346C	R210A	16A

K. POWER SUPPLY:

1. Provide Securitron BPS0 power supply or Von Duprin PS873.

L. LOW-ENERGY OPERATOR:

1. Provide Horton 4100LE low energy operator. Push button switches to be wireless type radio control unit. Provide MC-25 interface switch for all operators with card access control.

M. ELECTRIC STRIKES:

1. Electric strikes equal to HES Model #1006J.

### PART 3—EXECUTION

#### 3.01. INSPECTION

1. It shall be the general contractors responsibility to inspect all doors openings and doors to determine that each door and door frame has been properly prepared for the required hardware. If errors in dimensions or preparation are encountered, they are to be corrected by the responsible parties prior to the installation of hardware.

#### 3.02 PREPARATION

1. All doors and frames, requiring field preparation for finish hardware, shall be carefully mortised, drilled for pilot holes, or tapped for machine screws for all items of finish hardware in accordance with the manufacturers templates and instructions.

#### 3.03 INSTALLATION/ADJUSTMENT/LOCATION

1. All materials shall be installed in a workmanlike manner following the manufacture's recommended instructions.
2. Exit Devices shall be carefully installed so as to permit friction free operation of crossbar, touch bar, lever. Latching mechanism shall also operate freely without friction or binding.
3. Door Closers shall be installed in accordance with the manufacturer's instructions. Each door closer shall be carefully installed, on each door, at the degree of opening indicated on the hardware schedule. Arm position shall be shown on the instruction sheets and required by the finish hardware schedule.
4. The adjustments for all door closers shall be the installer's responsibility and these adjustments shall be made at the time of installation of the door closer. The closing speed and the latching speed valves, shall be adjusted individually to provide a smooth, continuous closing action without slamming. The delayed action feature or back check valve shall also be adjusted so as to permit the correct delayed action cycle or hydraulic back check valve shall also be adjusted so as the opening cycle. All valves must be properly adjusted at the time of installation. Each door closer has adjustable spring power capable of being adjusted, in the field from size 2 thru 6. It shall be the installers' responsibility to

adjust the spring power for each door closer in exact accordance with the spring power adjustment chart illustrated in the door closer installation sheet packed with each door closed.

5. Installation of all other hardware, including locksets, push-pull latches, overhead holders, door stops, plates and other items, shall be carefully coordinated with the hardware schedule and the manufacturer's instruction sheets.
6. Locations for finish hardware shall be in accordance with dimensions listed in the pamphlet "Recommended locations for Builders' Hardware" published by the Door and Hardware Institute.

#### 3.04 FIELD QUALITY CONTROL

1. Upon completion of the installation of the finish hardware, it shall be the responsibility of the finish hardware supplier to visit the project and to examine the hardware for each door on which he has provided hardware and to verify that all hardware is in proper working order. Should he find items of hardware not operating problem he should make a report, in writing, to the general contractor, advising him of the problem and the measures required to correct the problem.

#### 3.05 PROTECTION

1. All exposed portions of finish hardware shall be carefully protected, by use of cloth, adhesive backed paper or other materials, immediately after installation of the hardware item on the door. The finish shall remain protected until completion of the project. Prior to acceptance of the project by the Architect and owner, the general contractor shall remove the protective material exposing the finish hardware.

#### 3.06 CLEANING

1. It shall be the responsibility of the general contractor to clean all items of finish hardware and to remove any remaining pieces of protective materials and labels.

#### 3.07 INSTRUCTIONS AND TOOLS

1. It shall be the responsibility of the finish hardware supplier to provide installation and repair manuals and adjusting tools, wrenches, etc... for the following operating products.
  - a. Locksets (all types)
  - b. Exit Devices (all types)
  - c. Door Closers



3.08 HARDWARE SETS

1. Each Hardware Set listed below represents the complete hardware requirements for one opening. (Single Door or Pair of Doors). Furnish the quantities required for each set for the work.

HW 1

Doors #100A

Each Leaf Shall Have: Hinges, (2) Electric Hinges, Exit Device (Function T, W), Pulls, Door Closers (Cush N Stop Arm), Power Supply, Kick Plates  
(Balance of Hardware by Aluminum Door Supplier)

HW 2

Doors #100B

Each Leaf Shall Have: Hinges, (1) Electric Hinge, Exit Device (Function V), Pull, Door Closer, Kick Plate, Door Stop

HW 3

Doors #104, 112

Each Leaf Shall Have: Hinges, (1) Electric Hinge, Lockset (Function J), Door Closer, Kick Plate, Door Stop

HW 4

Door #108

Each Leaf Shall Have: Hinges, Lockset (Function K), Door Closer, Door Stop

HW 5

Doors #111

Each Leaf Shall Have: Hinges, Lockset (Function D), Door Stop

HW 6

Door #113

Each Leaf Shall Have: Hinges, Lockset (Function F), Door Closer, Kick Plate, Door Stop

HW 7

Doors #132A, 132B

Each Leaf Shall Have: Hinges, Lockset (Function K), Door Closer, Kick Plate, Door Stop  
(Door #132B and Outside Trim of 132A to be US3 Bright Brass Finish)

HW 8

Door #118

Each Leaf Shall Have: Hinges, Lockset (Function C), Door Stop

HW 9

Doors #115, 001, 005, 002A

Each Leaf Shall Have: Lockset (Function F), Electric Strike, Door Closer  
(Hardware to be US3 Bright Brass Finish)

HW 10

Doors #003A

Each Leaf Shall Have: Lockset (Function K), Electric Strike, Door Closer  
(Hardware to be US3 Bright Brass Finish)

HW 11

Door #007

Each Leaf Shall Have: Lockset (Function F)  
(Hardware to be US3 Bright Brass Finish)

HW 12

Doors #119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130

Each Leaf Shall Have: Lockset (Function C)  
(Hardware to be US3 Bright Brass Finish)

HW 13

Doors #141

Each Leaf Shall Have: Door Closer  
(Finish to Match US3 Bright Brass)

SAVINGS BANK OF MAINE  
TWO CANAL PLAZA  
GTA #010111

END OF SECTION



SECTION 08800

GLAZING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- 1. This Section includes glazing for the following products and applications, including those specified in other Sections where glazing requirements are specified by reference to this Section.

1.03 DEFINITIONS

- A. Manufacturers of Glass Products: Firms that produce primary glass, fabricated glass, or both, as defined in referenced glazing publications.
- B. Glass Thicknesses: Indicated by thickness designations in millimeters according to ASTM C 1036.
- C. Interspaces: Space between lites of an insulating-glass unit that contains dehydrated air or a specified gas.

1.04 PERFORMANCE REQUIREMENTS

- A. General: Provide glazing systems capable of withstanding normal thermal movement and wind and impact loads (where applicable) without failure, including loss or glass breakage attributable to the following: defective manufacture, fabrication, and installation; failure of sealants or gaskets to remain watertight and airtight; deterioration of glazing materials; or other defects in construction.
- B. Glass Design: Glass thickness designations indicated are minimums and are for detailing only. Confirm glass thicknesses by analyzing Project loads and in-service conditions. Provide glass lites in the thickness designations indicated for various size openings, but not less than thicknesses and in strengths (annealed or heat treated) required to meet or exceed the following criteria:
  - 1. Minimum glass thickness, nominally, of lites in exterior walls is 6.0 mm (0.23 inch).

1.05 SUBMITTALS

- A. General: Submit in accordance with Section 01330.
- B. Product Data: For each glass product and glazing material indicated.
- C. Warranties: Special warranties specified in this Section.

1.06 QUALITY ASSURANCE

- A. Source Limitations for Glazing Accessories: Obtain glazing accessories through one source from a single manufacturer for each product and installation method indicated.
- B. Glazing Publications: Comply with published recommendations of glass product manufacturers and organizations below, unless more stringent requirements are indicated. Refer to these publications for glazing terms not otherwise defined in this Section or in referenced standards.
  - 1. GANA Publications: GANA's "Glazing Manual."
  - 2. IGMA Publication for Insulating Glass: SIGMA TM-3000, "Glazing Guidelines for Sealed Insulating Glass Units."

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Protect glazing materials according to manufacturer's written instructions and as needed to prevent damage to glass and glazing materials from condensation, temperature changes, direct exposure to sun, or other causes.

1.08 PROJECT CONDITIONS

- A. Environmental Limitations: Do not proceed with glazing when ambient and substrate temperature conditions are outside limits permitted by glazing material manufacturers and when glazing channel substrates are wet from rain, frost, condensation, or other causes.
  - 1. Do not install liquid glazing sealants when ambient and substrate temperature conditions are outside limits permitted by glazing sealant manufacturer or below 40 deg F.

1.09 WARRANTY

- A. General: Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of Contract Documents and will be in addition to, and run concurrent with, other warranties made by Contractor under requirements of Contract Documents.

PART 2 - PRODUCTS

2.01 MONOLITHIC GLASS PRODUCTS

- A. Uncoated Annealed Float Glass: ASTM C 1036, Type I (transparent flat glass), Class 1 (clear), Quality q3 (glazing select); 1/4-inch (6-mm) thick minimum.
- B. Uncoated Annealed Float Glass ASTM C 1036, Type I (frosted glass), Class 1, 1/4-inch (6-mm) minimum.
- C. Clear Tempered Float Glass for Borrowed Lites ASTM C 1048, Kind FT, Condition A, Type 1, Class 1, Quality q3; manufactured by horizontal (roller hearth) process, with exposed edges seamed before tempering, 6mm thick, unless otherwise indicated.
- D. Wire Glass: ASTM C 1036, Type II (patterned and wired flat glass), Class 1 (clear), Quality q8 (glazing); 6-mm (0.23 inch) thick minimum.

1. Form 1 (wired glass, polished both sides).
2. Mesh Pattern: 2 (M2) (Square).

- E. Silvered Mirrored Glass: Annealed, Class 1 (clear) float glass with successive layers of chemically deposited silver, electrically or chemically deposited copper, and manufacturer's standard organic protective coating applied to second glass surface to produce a coating system complying with FS DD-M-411.
1. Thickness: 6-mm (0.23 in) thick, unless otherwise noted.
  2. Edge Treatment: Polished of width shown, in locations indicated on Drawings.

## 2.02 INSULATING-GLASS UNITS

- A. Insulating-Glass Units, General: Preassembled units consisting of organically sealed lites of glass separated by a dehydrated interspace, and complying with ASTM E 774 for Class CBA units and with other requirements specified elsewhere.
1. For properties of individual glass lites making up units, refer to requirements specified in "Monolithic Glass Products" Article of this Section for types, classes, kinds, and conditions of glass products comprising lites of insulating glass units.
  2. Provide Kind FT (fully tempered) glass lites where safety glass is indicated, recommended by manufacturer to comply with system performance requirements specified, or required by code.
  3. Performance characteristics designated for coated insulating glass are nominal values based on manufacturer's published test data for units with lites 6.0 mm (0.23 Inch) thick and nominal ½-inch dehydrated space between lites, unless otherwise indicated.
  4. Edge Seal Material: Manufacturer's standard material in black
  5. Spacer Specifications: Manufacturer's standard spacer material and construction.
- B. Low-E, Insulated Glass Units: Units complying with ASTM E 773 and E 774; double pane with glass elastomer edge seal; inner and outer panes of 6-mm (0.23 inch) clear glass; total unit thickness of 1-inch (25 mm) minimum.
1. Interspace Content: Argon
  2. Outdoor Lite: Class 1 (bronze to match existing) float glass, except as noted.
    - a. Kind FT (Fully tempered where required by code and where indicated).
  3. Indoor Lite: Class (bronze to match existing) float glass, except as noted.
    - a. Kind PT (Fully tempered where required by code)
  4. Low-E Coating: On third of surface.

## 2.03 GLAZING SEALANTS

- A. General: Provide products of type indicated, complying with the following requirements:
1. Compatibility: Select glazing sealants that are compatible with one another and with other materials they will contact, including glass products, seals of insulating-glass units, and glazing channel substrates, under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.
  2. Suitability: Comply with sealant and glass manufacturers' written instructions for selecting glazing sealants suitable for applications indicated and for conditions existing at time of installation.
  3. Colors of Exposed Glazing Sealants: As selected by Architect from manufacturer's full range.

- B. Elastomeric Glazing Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied chemically curing sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.
1. Neutral-Curing Silicone Glazing Sealants:
    - a. Products:
      - 1) Dow Corning Corporation; 791.
      - 2) Dow Corning Corporation; 795.
      - 3) GE Silicones; SilPruf NB SCS9000.
      - 4) GE Silicones; UltraPruf II SCS2900.
      - 5) Pecora Corporation; 865.
      - 6) Pecora Corporation; 895.
      - 7) Pecora Corporation; 898.
    - b. Type and Grade: S (single component) and NS (non sag).
    - c. Class: 50.
    - d. Use Related to Exposure: NT (non traffic).

#### 2.04 GLAZING TAPES

- A. Back-Bedding Mastic Glazing Tapes: Preformed, butyl-based Elastomeric tape with a solids content of 100 percent; nonstaining and nonmigrating in contact with nonporous surfaces; with or without spacer rod as recommended in writing by tape and glass manufacturers for application indicated; packaged on rolls with a release paper backing; and complying with ASTM C 1281 and AAMA 800 for products indicated below:
1. AAMA 806.3 tape, for glazing applications in which tape is subject to continuous pressure.
  2. AAMA 807.3 tape, for glazing applications in which tape is not subject to continuous pressure.
- B. Expanded Cellular Glazing Tapes: Closed-cell, PVC foam tapes; factory coated with adhesive on both surfaces; packaged on rolls with release liner protecting adhesive; and complying with AAMA 800 for the Type 2, for glazing applications in which tape is used in combination with a full bead of liquid sealant.

#### 2.05 MISCELLANEOUS GLAZING MATERIALS

- A. General: Provide products of material, size, and shape complying with referenced glazing standard, requirements of manufacturers of glass and other glazing materials for application indicated, and with a proven record of compatibility with surfaces contacted in installation.
- B. Cleaners, Primers, and Sealers: Types recommended by sealant or gasket manufacturer.
- C. Setting Blocks: Elastomeric material with a Shore, Type A durometer hardness of 85, plus or minus 5.
- D. Spacers: Elastomeric blocks or continuous extrusions with a Shore, Type A durometer hardness required by glass manufacturer to maintain glass lites in place for installation indicated.



- E. Edge Blocks: Elastomeric material of hardness needed to limit glass lateral movement (side walking).

## 2.06 FABRICATION OF GLAZING UNITS

- A. Fabricate glazing units in sizes required to glaze openings indicated for Project, with edge and face clearances, edge and surface conditions, and bite complying with written instructions of product manufacturer and referenced glazing publications, to comply with system performance requirements.
- B. Grind smooth and polish exposed glass edges and corners.

## PART 3 - EXECUTION

### 3.01 EXAMINATION

- A. Examine framing glazing, with Installer present, for compliance with the following:
  - 1. Manufacturing and installation tolerances, including those for size, squareness, and offsets at corners.
  - 2. Presence and functioning of weep system.
  - 3. Minimum required face or edge clearances.
  - 4. Effective sealing between joints of glass-framing members.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.02 PREPARATION

- A. Clean glazing channels and other framing members receiving glass immediately before glazing. Remove coatings not firmly bonded to substrates.

### 3.03 GLAZING - GENERAL

- A. Comply with combined written instructions of manufacturers of glass, sealants, gaskets, and other glazing materials, unless more stringent requirements are indicated, including those in referenced glazing publications.
- B. Glazing channel dimensions, as indicated on Drawings, provide necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances. Adjust as required by Project conditions during installation.
- C. Protect glass edges from damage during handling and installation. Remove damaged glass from Project site and legally dispose of off Project site. Damaged glass is glass with edge damage or other imperfections that, when installed, could weaken glass and impair performance and appearance. Protect glass edges as follows:
  - 1. Use a rolling block in rotating glass units to prevent damage to glass corners.
  - 2. Do not impact glass with metal framing.
  - 3. Use suction cups to shift glass units within openings. Do not raise or drift glass with a pry bar.

4. Rotate glass lites with flares or bevels on bottom horizontal edges so edges are located at top of opening, unless otherwise indicated by manufacturer's label.
- D. Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction sealant-substrate testing.
- E. Install setting blocks in sill rabbets, sized and located to comply with referenced glazing publications and standards, unless otherwise required by glass manufacturer. Set blocks in thin course of compatible sealant suitable for heel bead.
- F. Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.
- G. Provide spacers for glass lites where length plus width is larger than 50 inches as follows:
  1. Locate spacers directly opposite each other on both inside and outside faces of glass. Install correct size and spacing to preserve required face clearances, unless gaskets and glazing tapes are used that have demonstrated ability to maintain required face clearances and to comply with system performance requirements.
  2. Provide 1/8-inch minimum bite of spacers on glass and use thickness equal to sealant width. With glazing tape, use thickness slightly less than final compressed thickness of tape.
- H. Provide edge blocking where indicated or needed to prevent glass lites from moving sideways in glazing channel, as recommended in writing by glass manufacturer and according to requirements in referenced glazing publications and standards.
- I. Set glass lites in each series with uniform pattern, draw, bow, and similar characteristics.

#### 3.04 TAPE GLAZING/WINDOW FILM

- A. Position tapes on fixed stops so that, when compressed by glass, their exposed edges are flush with or protrude slightly above sightline of stops.
- B. Install tapes continuously, but not necessarily in one continuous length. Do not stretch tapes to make them fit opening.
- C. Cover vertical framing joints by applying tapes to heads and sills first and then to jambs. Cover horizontal framing joints by applying tapes to jambs and then to heads and sills.
- D. Place joints in tapes at corners of opening with adjoining lengths butted together, not lapped. Seal joints in tapes with compatible sealant approved by tape manufacturer.
- E. Do not remove release paper from tape until just before each glazing unit is installed.
- F. Apply heel bead of elastomeric sealant.
- G. Install film as noted on the drawings to manufacturer's requirements from approved mock-up.
- H. Center glass lites in openings on setting blocks and press firmly against tape by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings.

#### 3.05 CLEANING AND PROTECTION

- A. Protect exterior glass from damage immediately after installation by attaching crossed streamers to framing held away from glass. Do not apply markers to glass surface. Remove nonpermanent labels, and clean surfaces.
- B. Protect glass from contact with contaminating substances resulting from construction operations, including weld splatter. If, despite such protection, contaminating substances do come into contact with glass, remove substances immediately as recommended by glass manufacturer.
- C. Remove and replace glass that is broken, chipped, cracked, or abraded or that is damaged from natural causes, accidents, and vandalism, during construction period.
- D. Wash glass on both exposed surfaces in each area of Project not more than four days before date scheduled for inspections that establish date of Substantial Completion. Wash glass as recommended in writing by glass manufacturer.

END OF SECTION 08800



SECTION 09260

GYPSUM BOARD ASSEMBLIES

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following:
  - 1. Interior gypsum wallboard.
  - 2. Acoustical insulation
  - 3. Non-load-bearing steel framing.
  - 4. Firestopping
- B. Related Sections include the following:
  - 1. Division 6 Section “Rough Carpentry” for concealed wood blocking.
  - 2. Division 9 painting sections for coordination/inspection requirements for painting contractor and primers applied to gypsum board surfaces.

1.3 DEFINITIONS

- A. Gypsum Board Terminology: Refer to ASTM C 11 and GA-505 for definitions of terms for gypsum board assemblies not defined in this Section or in other referenced standards.

1.4 SUBMITTALS

- A. General: Submit in accordance with Section 01330.
- B. Product Data: For each type of product indicated.
- C. Shop Drawings: Show locations, fabrication, and installation of control and expansion joints including plans, elevations, sections, details of components, and attachments to other units of work.
- D. Firestopping: For each joint condition where fire-rated walls and partitions interface other walls, floors, structural members or other building structure, provide UL firestop system description and drawing. Show each kind of construction condition and relationships to adjoining construction. Indicate which firestop materials will be used where and thickness for different hourly ratings. Include UL firestop design designation that evidences compliance with requirements for each condition.

## 1.5 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" or GA-600, "Fire Resistance Design Manual" or in listing of another testing and inspecting agency acceptable to authorities having jurisdiction.
  - 2. Deflection Firestop Track: Top runner provided in fire-resistance-rated assemblies indicated shall be labeled and listed by UL, Warnock Hersey, or another testing and inspecting agency acceptable to authorities having jurisdiction.
- B. Source Limitations for Steel Framing: Obtain steel framing members for gypsum board assemblies from a single source from a single manufacturer.
- C. Source Limitations for Panel Products: Obtain each type of gypsum board and other panel products from a single source from a single manufacturer.
- D. Source Limitations for Finishing Materials: Obtain finishing materials from either the same manufacturer that supplies gypsum board and other panel products or from a manufacturer acceptable to gypsum board manufacturer.
- E. Gypsum Board Finish Mockups: Before finishing gypsum board assemblies, install mockup using room designated by architect to demonstrate aesthetic effects and qualities of materials and execution.
  - 1. Install mockups for the following applications:
    - a. Surfaces indicated to receive non-textured paint finishes.
  - 2. Simulate finished lighting conditions for review of mockups.
  - 3. Mockup will be painted to provide finished condition for viewing.
  - 4. Approved mockups may become part of the completed work if undisturbed at time of substantial completion.

## 1.6 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.

## 1.7 PROJECT CONDITIONS

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

- B. Room Temperatures: For non adhesive attachment of gypsum board to framing, maintain not less than 40 degrees F. For adhesive attachment and finishing to gypsum board, maintain not less than 50 degrees F for 48 hours before application and continuously after until dry. Do not exceed 95 degrees F when using temporary heat sources.
- C. Ventilation: Ventilate building spaces as required to dry joint treatment materials. Avoid drafts during hot, dry weather to prevent finishing materials from drying too rapidly.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products of the following:
  - 1. Steel Framing and Furring:
    - a. Dale Industries, Inc.
    - b. Dietrich Industries, Inc.
    - c. MarinoWare; Division of Ware hid
    - d. National Gypsum Company.
    - e. Unimast, Inc
  - 2. Grid Suspension Assemblies:
    - a. Armstrong World Industries, Inc.
    - b. Chicago Metallic Corporation
    - c. USG Interiors, Inc.
  - 3. Gypsum Board and Related Products:
    - a. Domtar Gypsum
    - b. G-P Gypsum Corp.
    - c. National Gypsum Company.
    - d. United States Gypsum Co.

### 2.2 STEEL SUSPENDED CEILING AND SOFFIT FRAMING

- A. Components, General: Comply with ASTM C 754 for conditions indicated
  - 1. Fire-Rated Ceilings: Provide components required to construct UL design indicated.
- B. Tie Wires: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, not less than 0.0620-inch diameter (8 gage) wire, or double strand of not less than 0.099-inch diameter (12 gage) wire.
- C. Hanger Attachments to Concrete: As follows:
  - 1. Powder-Actuated Fasteners: Suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other devices for attaching hangers of type indicated, and capable of sustaining, without failure, a load equal to 10 times that imposed by construction as determined by testing according to ASTM E 1190 by a qualified independent testing agency.
- D. Hangers: As follows:
  - 1. Wire Hangers: ASTM A641/ A 641M, Class 1 zinc coating, soft temper, not less than 0.160 inch (8 gage) diameter.

- E. Carrying Channels:
  - 1. Cold-rolled, commercial-steel sheet with a base metal thickness of 0.0538-inch, a minimum 1/2 inch wide flange, with ASTM A 653/A 653M, G40, hot-dip galvanized zinc coating.
  - 2. Depth: 1 1/2-inches.
  
- F. Furring Channels (Furring Members): Commercial-steel sheet with ASTM A 653/A 653M, G40, hot-dip galvanized zinc coating.
  - 2. Hat-shaped, rigid furring channels: ASTM C645, 7/8 inch deep; where indicated.
    - a. Minimum base metal thickness: 0.0179-inch.
  
- G. Grid Suspension System for Interior Ceilings: ASTM C 645, direct-hung system composed of main beams and cross-furring members that interlock, heavy-duty.
  - 1. Products: Subject to compliance with requirements, provide one of the following:
    - a. Armstrong World Industries, Inc.; furring systems/drywall.
    - b. Chicago Metallic Corporation; Drywall furring 640 system.
    - c. USG Interiors, Inc.; Drywall suspension system.

## 2.3 STEEL PARTITION AND SOFFIT FRAMING

- A. Components, General: As follows:
  - 1. Comply with ASTM C 754 for conditions indicated.
  - 2. Steel Sheet Components: Complying with ASTM C 645 requirements for metal and with ASTM A 653/A 653M, G40, hot-dip galvanized zinc coating.
  
- B. Steel Studs and Runners: ASTM C 645.
  - 1. Minimum Base Metal Thickness: 0.0179 inch (25 gage) minimum, unless otherwise indicated.
    - a. Provide studs with 0.0329 inch (20 gage) minimum thickness at the following locations:
      - 1) For double studs at door jamb openings.
      - 2) For 6 inch framing.
      - 3) Where indicated.
  - 2. Depth: As indicated.
  - 3. Maximum Allowable Deflection: Increase metal thickness where required to meet the following:
    - a. Maximum Allowable Deflection for Drywall Assemblies: L/240 calculated using a 5 pound per square uniform load perpendicular to studs and based on stud properties alone.
  
- C. Deep-Leg Deflection Track: ASTM C 645 top runner with flanges to allow for 3/4-inch deflection.
  
- D. Firestop Track: Top runner manufactured to allow partition heads to expand and contract with movement of the structure while maintaining continuity of fire-resistance-rated assembly indicated; in thickness not less than indicated for studs and in width to accommodate depth of studs. Provide deflection track with flanges to allow for 3/4-inch deflection at floors and 1 1/2 inch at roofs.
  - 1. Product: Fire Trak Corp.; Fire Trak attached to studs with Fire Trak Slip Clip



- E. Flat Strap and Backing Plate: Steel sheet for blocking and bracing in length and width indicated.
  - 1. Minimum Base Metal Thickness: 0.0598-inch (16 gage), unless indicated otherwise.
- F. Cold-Rolled Channel Bridging: 0.0538-inch (16 gage) minimum bare steel thickness, with minimum ½ inch wide flange.
  - 1. Depth: 1 ½ - inches.
  - 2. Clip Angle: 1 ½ inch by 1 ½ inch, 0.068-inch thick, galvanized steel.
- G. Hat-Shaped, Rigid Furring Channels: ASTM C 645.
  - 1. Minimum Base Metal Thickness: 0.0312-inch (20 gage).
  - 2. Depth: 7/8 inch, unless otherwise shown.
- H. Deflection Brackets:
  - 1. Construction: Slotted galvanized steel angle with step bushing to prevent over tightening of fasteners.
  - 2. Vertical Deflection: Total travel as required for condition.
  - 3. Product: VertiClip; Signature Industries, (919) 844-0789.
    - a. Series: SL, SDL, SLB, and SLS as required by attachment condition.
- I. Fasteners for Metal Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel framing and furring members to substrates involved; complying with the recommendations of gypsum board manufacturers for applications indicated.

## 2.4 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. TypeX:
    - a. Thickness: 5/8-inch (15.9 mm).
    - b. Long Edges: Tapered

## 2.6 TRIM ACCESSORIES

- A. Interior Trim: ASTM C 1047, galvanized steel.
  - 1. Shapes:
    - a. Cornerbead: 1 ¼ inch by 1 ¼ inch external corner with 1/8-inch nose bead; use at outside corners, unless otherwise indicated.
    - b. LC-Bead (Casing): J-shaped casing with 1/16 inch nose bead ground, not less than 30 gage; exposed long flange receives joint compound; use where indicated.
    - c. L-Bead: L-shaped; exposed long leg receives joint compound; use where indicated
    - d. Expansion (Control) Joint: One-piece control joint formed with V-shaped slot and removable strip covering slot opening.

## 2.7 JOINT TREATMENT MATERIALS

- A. General: Comply with ASTM C 475 and the recommendations of both the manufacturers of sheet products and of joint treatment materials for each application indicated.
- B. Joint Tape:
  - 1. Interior Gypsum Wallboard: Paper reinforcing tape. Fiberglass tape not permitted.
- C. Setting-Type Joint Compound: Factory-packaged, job-mixed, chemical-hardening powder products formulated for uses indicated.
  - 1. Where setting-type joint compounds are indicated as a taping compound only or for taping and filling only, use formulation that is compatible with other joint compounds applied over it.
- D. Drying-Type Joint Compound: Factory-packaged vinyl-based products complying with the following requirements for formulation and intended use.
  - 1. Ready-Mixed Formulation: Factory-mixed product
- E. Type of 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, beveled panel edges 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.
  - 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 setting-type, sandable topping compound or drying-type, all-purpose compound.

## 2.8 ACOUSTICAL SEALANT

- A. Products: Subject to compliance with requirements, provide one of 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
  - 2. Acoustical Sealant for Concealed Joints:
    - a. Ohio Sealants, Inc; Pro-Series SC-170 Rubber Base Sound Sealant
    - b. Pecora Corp.; BA-98
    - c. Tremco, Inc.; Tremco Acoustical Sealant
- B. Acoustical Sealant for Exposed and Concealed Joints: Nonsag, 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.
- C. Acoustical Sealant for Concealed Joints: non drying non hardening, non skinning, non staining, gunnable, synthetic-rubber sealant recommended for sealing interior concealed joints to reduce airborne sound transmission.

## 2.9 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. Fastening gypsum board to steel members: Type S bugle head.
- C. Sound Attenuation Insulation (Acoustical Insulation): ASTM C 665, Type I (fiberglass blankets without membrane facing) used as acoustical insulation.
  - 1. Fire-Resistance-Rated Assemblies: Comply with mineral-fiber requirements of assembly.
  
  - 2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. Certaineed
    - b. Owens Corning
    - c. Johns Manville
- D. Thermal Insulation: As specified in Division 7 Section "Building Insulation."
- E. Insulation Support Anchors: Insul-Fast 25 gauge galvanized continuous metal support strip with pre-punched tabs at 8 inches on center.
- F. Firestopping: Provide firestopping where fire rated gypsum board assemblies butt dissimilar materials, including masonry, steel deck, joists, beams and structural members as part of the gypsum board assembly work. Penetrations through fire-resistance-rated walls and partitions by Division 15 and 16 work, including both empty openings and openings containing cables, pipes, ducts and conduits are specified as part of the Division 15 and 16 work.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine areas and substrates, with Installer present, and including welded steel door frames and borrowed lites, cast-in anchors, and structural framing, for compliance with requirements and other conditions affecting-performance.
- B. Examine panels before installation. Reject panels that are wet, moisture damaged, or mold damaged.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.
- D. Post-Installation Inspection: Inspect the walls for dents and imperfections, with the Installer and painter present, prior to painting. Inspect wall again after primer and first coat of paint has been applied, with Installer and painter present.

1. Touch up visible gypsum board imperfections before priming of walls.
2. Touch up imperfections found in field of boards and joints made visible from painting after first finish coat applied.
3. Joint compound touch up shall be primed and painted before final coat is applied, and viewed for acceptability.

### 3.2 PREPARATION

- A. Suspended Ceilings: Coordinate installation of ceiling suspension systems with installation of overhead structure to ensure that inserts and other provisions for anchorages to building structure have been installed to receive ceiling hangers at spacing required to support ceilings and that hangers will develop their full strength.

### 3.3 INSTALLING STEEL FRAMING, GENERAL

- A. Installation Standards: ASTM C 754, and ASTM C 840 requirements that apply to framing installation.
- B. Install supplementary framing, blocking, and bracing at terminations in gypsum board assemblies to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction. Comply with details indicated and with gypsum board manufacturer's -written recommendations or, if none available, with United States Gypsum's "Gypsum Construction Handbook."
- C. Isolate steel framing from building structure at locations indicated to prevent transfer of loading imposed by structural movement.
  1. Isolate ceiling assemblies where they abut or are penetrated by building structure.
  2. Isolate partition framing and wall furring where it abuts structure, except at floor. Install slip-type joints at head of assemblies that avoid axial loading of assembly and laterally support assembly.
    - a. Allow for 3/4 inch deflection at floors and roofs.
    - b. Install deflection track top runner or deflection brackets to attain lateral support and avoid axial loading.
    - c. Install deflection firestop track top runner at fire-resistance-rated assemblies.
      - i. Attach jamb studs at openings to tracks using manufacturer's standard stud clip.
- D. Do not bridge building control and expansion joints with steel framing or furring members. Frame both sides of joints independently.

### 3.4 INSTALLING STEEL SUSPENDED CEILING AND SOFFIT FRAMING

- A. Install suspension system components in sizes and spacings indicated on drawings, but not less than those required by referenced installation standards for assembly types and other assembly components indicated.
- B. Suspended ceiling hangers from building structure as follows:
  1. Install hangers plumb and free from contact with insulation or other objects within

- ceiling plenum that are not part of supporting structural or ceiling suspension system. Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, counter splaying or other equally effective means.
2. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with the location of hangers required to support standard suspension system members, install supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards.
  3. Wire Hangers: Secure wire hangers by looping and wire-tying, either directly to structures or to inserts, eye screws, or other devices and fasteners that are secure and appropriate for substrate, and in a manner that will not cause them to deteriorate or otherwise fail.
  4. Do not attach hangers to steel deck tabs. Attach hangers to structural members.
  5. Do not attach hangers to steel roof deck. Attach hangers to structural members.
  6. Do not connect or suspend steel framing from ducts, pipes, or conduit.
- C. Installation Tolerances: Install steel framing components for suspended ceiling so members for panel attachment are level to within 1/8 inch in 12 feet measured lengthwise on each member and transversely between parallel members.
- D. Wire-tie furring channels to supports, as required to comply with requirements for assemblies indicated.
- E. Install suspended steel framing components in sizes and spacings indicated, but not less than that required by the referenced steel framing and installation standards.
1. Hangers: 48 inches o.c.
  2. Carrying channels (main runners): 48 inches o.c.
  3. Furring channels (furring members): 16 inches o.c.
- F. Grid Suspension System: Attach perimeter wall track or angle where grid suspension system meets vertical surfaces. Mechanically join main beam and cross-furring members to each other and butt-cut to fit into wall track.

### 3.5 INSTALLING STEEL PARTITION AND SOFFIT FRAMING

- A. Install tracks (runners) at floors, ceilings, and structural walls and columns where gypsum board assemblies abut other construction.
- B. Installation Tolerance: Install each steel framing and furring member so fastening surfaces vary not more than 1/8 inch (3 mm) from the plane formed by the faces of adjacent framing.
- C. Extend partition framing full height to structural supports or substrates above suspended ceilings, except where partitions are indicated to terminate at suspended ceilings. Continue framing over frames for doors and openings and frame around ducts penetrating partitions above ceiling to provide support for gypsum board.
1. Cut studs 3/4 inch short of full height to provide perimeter relief. Do not fasten studs to top track to allow independent movement of studs and track.
  2. For fire-resistance-rated and STC-rated partitions that extend to the underside of floor/roof slabs and decks or other continuous solid-structure surfaces to obtain ratings,

install framing around structural and other members extending below floor/roof slabs and decks, as needed to support gypsum board closures and to make partitions continuous from floor to underside of solid structure.

- D. Install steel studs and furring at the following spacings:
  - 1. Single-Layer Construction: 16 inches (406 mm) o.c., unless otherwise indicated.
- E. Install steel studs so flanges point in the same direction and leading edge or end of each panel can be attached to open (unsupported) edges of stud flanges first.
  - 1. Attach both flanges to floor runner track with screws.
- F. Frame door openings to comply with GA-600 and with gypsum board manufacturer's applicable written recommendations, unless otherwise indicated. Screw vertical studs at jambs to jamb anchor clips on door frames; install runner track section (for cripple studs) at head and secure to jamb studs.
  - 1. Install two studs at each jamb, unless otherwise indicated.
  - 2. Install cripple studs at head adjacent to each jamb stud, with a minimum ½ inch (13-mm) clearance from jamb stud to allow for installation of control joint.
  - 3. Extend jamb studs through suspended ceilings and attach to underside of floor or roof structure above, even when partitions are not full height. Provide diagonal bracing at tall partitions to stop deflection and vibration of studs when doors are slammed shut.
  - 4. Extend jamb studs one-piece full height.
- G. Frame openings other than door openings the same as required for door openings, unless otherwise indicated. Install framing below sills of openings to match framing required above door heads.

### 3.6 INSTALLATION OF ACOUSTICAL INSULATION

- A. Install acoustical insulation at locations indicated before installing gypsum panels, unless blankets are readily installed after panels have been installed on one side. Cut and fit tightly around obstructions, and fill voids with insulation. Remove projections that interfere with placement.
- B. Install a single layer of insulation of required thickness to fill the full depth of cavity, unless otherwise shown. Where cavity requires insulation that is thicker than standard size, install next to larger size and compress into cavity.
- C. Hold batt insulation in place with insulation support anchors located at 5 feet on center full height of wall, starting at the top of each stud space.
- D. Stuff glass fiber loose fill insulation into miscellaneous voids and cavity spaces. Fill box headers, and voids while framing is being erected that will be inaccessible for installation later. Compact to approximately 40 percent of normal maximum volume (to a density of approximately 2.5 pcf).

### 3.8 APPLYING AND FINISHING PANELS, GENERAL

- A Gypsum Board Application and Finishing Standards: ASTM C 840 and GA-216, except as

specified otherwise.

- B. Install acoustical insulation, where indicated, 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. Form control and expansion joints with space between edges of adjoining gypsum panels.
  - 1. Where control joints are not shown, provide control joints at a maximum spacing of 30 feet; review proposed locations with architect prior to commencement of work.
- I. 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-inch to 3/8-inch-(6.4- to 9.5-mm-) wide joints to install sealant.
- J. Isolate perimeter of non-load-bearing gypsum board partitions at structural abutments, except floors. Provide 1/4-inch to 1/2-inch (6.4 mm to 12.7 mm) wide spaces at these locations, and rim edges with U-bead edge trim where edges of gypsum panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.
- K. 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.
- L. Space fasteners in panels that are tile substrates a maximum of 8 inches (203.2 mm) o.c.

M. Remove screws that do not hit studs, supports or blocking.

### 3.9 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 vertically (parallel 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. High walls, install panels horizontally, unless otherwise indicated or required by fire-resistance-rated assembly.

B. Single Layer Fastenings Methods: Apply gypsum panels to supports with steel drill screws.

### 3.10 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. Install corner bead at external corners.
- C. Install edge trim where edge of gypsum panels would otherwise be exposed. Provide edge trim type with face flange formed to receive joint compound, except where other types are indicated.
  1. Install LC-bead where gypsum panels are tightly abutted to other construction and back flange can be attached to framing or supporting substrate.
  2. Install L-bead where edge trim can only be installed after gypsum panels are installed.
- D. Control Joints: Install control joints according to ASTM C 840 and in specific locations approved by Architect for visual effect.

### 3.11 FINISHING GYPSUM BOARD ASSEMBLIES

- A. General: Treat gypsum board joints, interior angles, flanges of corner bead, 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, beveled edges and damaged surface areas using setting-type joint compound.
- C. Apply joint tape over gypsum board joints, except those with trim having flanges not intended for tape.



- D. Apply joint tape over gypsum board joints and to flanges of trim accessories as recommended by trim accessory manufacturer.
- E. Gypsum Board Finish Levels: Finish panels to levels indicated below, according to ASTM C 840, for locations indicated:
1. Level 1: At 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: At panel surfaces that will be exposed to view, unless otherwise indicated.
- F. Where Level 1 gypsum board finish is indicated, embed tape in joint compound. Surface shall be free of excess joint compound.
- G. For Level 4 gypsum board finish, embed tape in joint compound and apply first, fill (second), and finish (third) coats of joint compound over joints, angles, fastener heads and accessories. Touch up and sand between coats and after last coat as needed to produce a surface free of visual defects and ready for decoration.
1. At tapered edge joints, draw the compound down to a level plane, leaving a monolithic surface that is flush with the paper face. Finish coat shall be feathered a minimum of 8-inches beyond both sides of the center of joint tape.
  2. At end to end butt joints, draw the compound down to minimize the hump created by the joint tape application. Finish coat shall be feathered to a minimum of 16-inches beyond both sides of the center of the joint tape.
  3. The end product shall be a surface that appears level without telegraphing joint locations as high spots when viewed down the wall after painting.
  4. Finish board to within 1/4 inch of the floor, providing full support for resilient wall base without telegraphing joint.

### 3.12 FIELD QUALITY CONTROL

- A. Above-Ceiling Observation: Before Contractor installs gypsum board ceilings, Architect will conduct an above-ceiling observation and report deficiencies in the Work observed. Do not proceed with installation of gypsum board to ceiling support framing until deficiencies have been corrected.
1. Notify Architect seven days in advance of date and time when Project, or part of Project will be ready for above-ceiling observation.
  2. Before notifying architect, complete the following areas to receive gypsum board ceilings:
    - a. Installation of 80 percent of lighting fixtures, powered for operation.
    - b. Installation, insulation, and leak and pressure testing of water piping systems.
    - c. Installation of air-duct systems
    - d. Installation of air devices
    - e. Installation of mechanical system control-air tubing
    - f. Installation of above ceiling automatic fire suppression piping, including leak and pressure testing
    - g. Installation of ceiling support framing.

3.13 CLEANING AND PROTECTION

- A. Promptly remove any residual joint compound from adjacent surfaces.
- B. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.
- C. Remove and replace panels that are wet, moisture damaged, or mold damaged.
  - 1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging or irregular shape.
  - 2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.
- D. Provide final protection and maintain conditions, in a manner acceptable to installer, that ensure gypsum board assemblies are without damage or deterioration at the time of substantial completion.

END OF SECTION09260

SECTION 09511

ACOUSTICAL PANEL CEILINGS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. This Section includes the following:
  - 1. Acoustical panel
  - 2. Exposed suspension system
- B. Related Sections include the following:
  - 1. Division 9 Section "Gypsum Board Assemblies" for suspension systems provided for gypsum board ceilings.
  - 2. Division 15 and 16 Section for coordination of air handling devices, fire protection devices and electrical devices installed in ceiling systems.

1.03 DEFINITIONS

- A. CAC: Ceiling Attenuation Class
- B. NRC: Noise Reduction Coefficient.

1.04 SUBMITTALS

- A. General: Submit in accordance with Section 01330.
- B. Product data for each type of product specified.
- C. Samples: For each component indicated and for each exposed finish required, prepared on samples of size indicated below:
  - 1. Acoustical Panel: Set of 6 inch square samples of each type, color, pattern and texture.
  - 2. Exposed Suspension System Members, Moldings and Trim: Set of 12 inch long samples of each type, finish and color.
- D. Product Testing Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for each acoustical panel ceiling.

1.05 QUALITY ASSURANCE

- A. Source Limitations:
  - 1. Acoustical Ceiling Panel: Obtain each type through one source from a single manufacturer.
  - 2. Suspension System: Obtain each type through one source from a single manufacturer.



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- D. Product Testing Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for each acoustical panel ceiling.

1.05 QUALITY ASSURANCE

- A. Source Limitations:
  - 1. Acoustical Ceiling Panel: Obtain each type through one source from a single manufacturer.
  - 2. Suspension System: Obtain each type through one source from a single manufacturer.

- B. Fire-Performance Characteristics: Provide acoustical panel ceilings that comply with the following requirements:
  - 1. Fire-Resistance Characteristics: Where indicated, provide acoustical panel ceilings identical to those of assemblies tested per ASTM E 119 by UL or another testing and inspecting agency acceptable to authorities having jurisdiction.
  - 2. Surface Burning Characteristics: Provide acoustical panels with the following surface-burning characteristics complying with ASTM E 1264 for Class A materials as determined by testing identical products per ASTM E 84.
    - a. Smoke Developed: 450 or less.

#### 1.06 DELIVERY, STORAGE, AND HANDLING

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

#### 1.07 PROJECT CONDITIONS

- A. Environmental Limitations: Do not install acoustical panel ceilings until spaces are enclosed and weatherproof, wet work in spaces is complete and dry, work above ceilings is complete and ambient temperature and humidity conditions are maintained at the levels indicated for project when occupied for its intended use.
- B. Mechanical, electrical, and other utility service installations above the ceiling plane shall have been completed prior to the installation of the ceilings.

#### 1.08 COORDINATION

- A. Coordinate layout and installation of acoustical panels and suspension system with other construction that penetrates ceilings or is supported by them, including light fixtures, HVAC equipment, fire-suppression system, and partition assemblies.

### PART 2 - PRODUCTS

#### 2.01 MANUFACTURERS

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply for product selection:
  - 1. Products: Subject to compliance with requirements, provide one of the products specified.

## 2.02 ACOUSTICAL PANELS, GENERAL

- A. Acoustical Panel Standard: Provide manufacturer's standard panels of configuration indicated that comply with ASTM E 1264 classifications as designated by types, patterns, acoustical ratings, and light reflectance, unless otherwise indicated.
  - 1. Mounting Method for Measuring NRC: Type E-400; plenum mounting in which face of test specimen is 15 3/4 inches away from test surface per ASTM E 795.
  - 2. Test Method for Ceiling Attenuation Class (CAC): Where acoustical panel ceilings are specified to have a CAC, provide units identical to those tested per ASTM E 1414 by a qualified testing agency.
- B. Acoustical Panel Colors and Patterns: Match appearance characteristics indicated for each product type.

## 2.03 ACOUSTICAL PANELS

- A. Acoustic Panels: ACT – 1: Complying with ASTM E 1264, matching existing panels, and having the following characteristics:
  - 1. Surface Texture: fine.
  - 2. Composition: Mineral Fiber
  - 3. Color: White
  - 4. Size: 24x24x3/4"
  - 5. Edge Profile: Square layin for interface with Prelude XL 15/16-inch Exposed Tee.
  - 6. Noise Reduction Coefficient (NRC): ASTM C 423; Classified with UL label on product carton, .90.
  - 7. Ceiling Attenuation Class (CAC): ASTM C 1414, Classified with UL label on product carton, 35.
  - 8. Flame Spread: ASTME E 1264; Class A (UL).
  - 9. Light Reflectance (LR): ASTME E 1477; White panel; Light Reflectance: 0.90.
  - 10. Acceptable Product: Armstrong World Industries, Armstrong Optima Open Plan 3150.

## 2.04 METAL SUSPENSION SYSTEMS, GENERAL

- A. Metal Suspension Systems Standard: Provide manufacturer's standard direct-hung metal suspension systems of types, structural classifications, and finishes indicated that comply with applicable requirements in ASTM C 635.
- B. Finishes and Colors, General: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes. Provide manufacturer's standard factory-applied finish for type of system indicated.
  - 1. High-Humidity Finish: Comply with ASTM C 635 requirements for "Coating Classification for Severe Environmental Performance" where high-humidity finishes are indicated.
- C. Attachment Devices: Size for 5 times design load indicated in ASTM C 635, Table 1, "Direct Hung" unless otherwise indicated.
  - 1. Power-Actuated Fasteners in Concrete: Fastener system of type suitable for application

indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attaching hangers of type indicated, and with capability to sustain, without failure, a load equal to 10 times that imposed by ceiling construction as determined by testing per ASTM E 1190, conducted by a qualified testing and inspecting agency.

- D. Wire Hangers, Braces and Ties: Provide wires complying with the following requirements:
1. Zinc-coated carbon-steel wire: ASTM A 641/A 641 M, Class 1 zinc coating, soft temper.
  2. Size: Select wire diameter so its stress at 3 times hanger design load (ASTM C 635, Table 1, Direct-Hung), will be less than yield stress of wire, but provide not less than 0.106-inch diameter wire.

## 2.05 METAL SUSPENSION SYSTEMS FOR ACOUSTICAL PANEL CEILINGS

- A. Wide-Face, Capped, Double-Web, Steel Suspension System: Main and cross runners roll formed from cold-rolled steel sheet, prepainted, electrolytically zinc coated, or hot-dip galvanized according to ASTM A 653/A 653M, not less than G30 coating designation, with prefinished 15/16 inch wide metal caps on flanges.
1. Structural Classification: Intermediate-duty system
  2. End Conditions of Cross Runners: Override (stepped) or butt-edge type, as standard with manufacturer.
  3. Face Design: Flat, flush
  4. Cap Material: Steel or aluminum cold-rolled sheet, as standard with manufacturer.
  5. Cap Finish: Painted white
  6. Locations: For all suspended acoustical ceilings, except as otherwise noted.
  7. Products:
    - a. Armstrong World Industries, Inc.; Prelude Exposed Tee System, 7300 Series
    - b. Chicago Metallic Corporation; 1200 System
    - c. USG Interiors, Inc; DX System

## PART 3 - EXECUTION

### 3.01 EXAMINATION

- A. Examine substrates, areas, and conditions, including structural framing to which ceiling system attaches or abuts, with Installer present, for compliance with requirements specified in this and other sections that affect installation and anchorage and with requirements for installation tolerances and other conditions affecting performance of acoustical panel ceilings.
- B. Do not proceed with installation until unsatisfactory conditions have been corrected.

### 3.02 PREPARATION

- A. Measure each ceiling area and establish layout of acoustical units to balance border widths at opposite edges of each ceiling. Avoid use of less-than-half-width units at borders, and comply with reflected ceiling plans.

### 3.03 INSTALLATION, GENERAL



- A. General: Install acoustical ceiling systems to comply with ASTM C 636 and seismic requirements indicated, per manufacturer's written instructions and CISCA "Ceiling Systems Handbook."
- B. Suspend ceiling hangers from building structural members and as follows:
1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structural or ceiling suspension system.
  2. Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, counter-splaying, or other equally effective means.
  3. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with the location of hangers at spacings required to support standard suspension system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards and publications.
  4. Secure wire hangers to ceiling suspension members to supports above with a minimum of three tight turns. Connect hangers directly either to structures or to inserts, eye screws, or other devices that are secure and appropriate for substrate and that will not deteriorate or otherwise fail due to age, corrosion, or elevated temperatures.
  5. Space hangers not more than 48 inches o.c. along each member supported directly from hangers, unless otherwise indicated; provide hangers not more than 8 inches from ends of each member.
  6. Exposed pop rivets for grid alignment purposes shall not be permitted.
- C. Suspension system shall be reinforced to support diffusers, light fixtures and any additional members. Install hanger wires to grid at each corner of light fixtures. Coordinate location with electrical and other trades.
1. Each individual fixture and attachment with combined weight of 56 pounds or less shall have two 12 gage wire hangers attached at diagonal corners of the fixture. These wires shall be slack. Fixtures and attachments with a combined weight of greater than 56 pounds shall be independently supported from the structure at all four corners.
- D. Install edge moldings and trim of type indicated at perimeter of acoustical ceiling area and where necessary to conceal edges of acoustical units.
1. Apply acoustical sealant in a continuous ribbon concealed on back of vertical's of moldings before they are installed.
    - a. Provide at all locations where gypsum wallboard does not go full height of studs.
  2. Screw attach moldings to substrate at intervals not more than 16 inches o.c. and not more than 3 inches from ends, leveling with ceiling suspension system to a tolerance of 1/8 inch in 12 feet. Miter corners accurately and connect securely.
  3. Do not use exposed fasteners, including pop rivets, on moldings and trim.
- E. Install suspension system runners so they are square and securely interlocked with one another. Remove and replace dented, bent or kinked members.
- F. Install acoustical panels with undamaged edges and fit accurately into suspension system runners and edge moldings. Scribe and cut panels at borders and at penetrations to provide a neat, precise fit. Coordinate tile edge details with existing conditions (tile) to remain.

### 3.04 CLEANING

- A. Clean exposed surfaces of acoustical ceilings, including trim, edge moldings, and suspension members. Comply with manufacturer's instructions for cleaning and touch up of minor finish damage. Remove and replace work that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

END OF SECTION 09511

SECTION 09650

RESILIENT 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. This Section includes the following:
  - 1. Vinyl composition tile (VCT)
  - 2. Luxury Vinyl Plank
  - 3. Resilient wall base, reducer strips, and other accessories.
- B. Allowances: Provide wood truss bracing under the Metal-Plate-Connected Truss Bracing Allowance as specified in Division 01 Section "Allowances."

1.3 SUBMITTALS

- A. General: Submit in accordance with Section 01330.
- B. Product Data: For each type of product indicated.
- C. Samples: For each type of product indicated. Samples shall be in form of manufacturer's color charts consisting of the following:
  - 1. Welding Bead: Color charts consisting of strips of welding bead showing full range of colors available for each manufacturer.
  - 2. Resilient Accessories: Color charts consisting of strips of resilient base showing full range of colors available for each product exposed to view.
- D. Test Results: Provide results of specified alkalinity and adhesion tests, calcium chloride moisture tests, and relative humidity test specified. Include manufacturer's written moisture requirements for each resilient flooring type specified.
- E. Product Certifications: Signed by resilient flooring manufacturer of products supplied that comply with the specifications and state/local regulations controlling the use of volatile organic compounds (VOC's).
- F. Qualification Data: For Installer of sheet vinyl flooring.
- G. Maintenance Data: For resilient products to include in maintenance manuals.

1.4 QUALITY ASSURANCE

- A. Sheet Vinyl Installer Qualifications: A qualified Installer who employs workers for this Project that are competent in heat-welding techniques required by manufacturer for floor covering installation.
- B. Source Limitations for Sheet Vinyl Flooring: Obtain each type, color, and patter of sheet vinyl flooring from a single source with resources to provide products of consistent quality in appearance and physical properties without delaying progress of the Work.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver resilient flooring materials and installation accessories to project site in original manufacturer's unopened cartons and containers each bearing name of product and manufacturer, Project identification, and shipping and handling instructions.
- B. 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 degrees Fahrenheit or more than 90 degrees Fahrenheit. Store tiles on flat surfaces and rolls upright.
- C. Move flooring materials and accessories and installation products into spaces where they will be installed at least 48 hours in advance of installation. Do not install flooring materials until they are at the same temperature as the space where they are to be installed.

1.6 PROJECT CONDITIONS

- A. Maintain ambient and substrate temperatures with range recommended by manufacturer, but not less than 70 degrees Fahrenheit or more than 85 degrees Fahrenheit, in spaces to receive floor tile during the following time periods:
  - 1. 48 hours before installation.
  - 2. During installation.
  - 3. 48 hours after installation.
- B. After post installation period, maintain temperatures within range recommended by manufacturer, but not less than 55 degrees Fahrenheit or more than 95 degrees Fahrenheit.
- C. Close spaces to traffic during floor covering installation.
- D. Close spaces to traffic for 48 hours after floor covering installation.

1.7 SEQUENCE AND SCHEDULING

- A. Install resilient products after other finishing operations, including painting, have been completed.
- B. Do not install flooring over concrete slabs until slabs have cured and are efficiently dry to bond with adhesive as determined by manufacturer's recommended bond and moisture test.

1.8 EXTRA MATERIALS

- A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
  - 1. Floor Tile: Furnish 1 box of each type, color, and pattern of floor tile installed.
  - 2. Sheet Rubber Flooring: Furnish 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.
  - 3. Sheet Vinyl Flooring: Furnish 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.
  - 4. Resilient Wall Base and Accessories: Furnish not less than 10 linear feet for every 500 linear feet or fraction thereof, of each type, color, pattern, and size of resilient product installed.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

- A. Products: Subject to compliance with requirements, provide one of the products listed in other Part 2 articles.

2.2 VINYL COMPOSITION TILE

- A. Vinyl Composition Tile, VCT1: ASTM F 1066
  - 1. Product: Mannington commercial
    - a. Colors – As indicated in Interior Finish Legend.
  - 2. Class: 2 (through pattern tile).
  - 3. Wearing Surface: Smooth
  - 4. Thickness: 3.2 mm.
  - 5. Size: 12-inches by 12-inches.
  - 6. Fire-Test-Response Characteristics:
    - a. Critical Radiant Flux Classifications – Class 1, not less than 0.45 W/sq. cm per ASTM E648.

2.3 LUXURY VINYL PLANKS

- A. Vinyl Flooring Covering VP1

1. Product: Roppe Wood Naturals.
  - a. Color: As indicated in Interior Finish Legend
2. Thickness: 1/8"
3. Wearing Layer: .040"
4. Sheet Width: 3" x 36"
5. Static Load: complies with ASTM F970
6. Warranty: 10 years from date of substantial completion if used with Roppe Adhesives

## 2.5 RESILIENT MOLDING ACCESSORY

- A. Description: Flooring Transition Strips.
  1. Manufacturer: Armstrong
- B. Material: Vinyl
- C. Transition Strips: The following product identification numbers are for products manufacturer by Johnsonite.
  1. Carpet to Resilient: No. CTA-XX-D.
- D. Color to be selected by Architect.

## 2.7 INSTALLATION MATERIALS

- A. Concrete Slab Primer: No staining type as recommended by flooring manufacturer.
- B. Trowelable Leveling and Patching Compounds: Latex-modified, Portland cement based or blended hydraulic cement based formulation provided or approved by resilient product manufacturer for applications indicated.
  1. Product: Ardex; SD-F Feather Finish.
- C. Latex Adhesives (Cements): Premium Grade, water-resistant type recommended by manufacturer to suit resilient products and substrate conditions indicated.

## PART 3 – EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates, with Installer present, for compliance with requirements for installation tolerances, moisture content, and other conditions affecting performance.
  1. Verify that substrates comply with tolerances and other requirements specified in other Sections and those substrates are free of cracks, ridges, depressions, scale, and foreign deposits that might interfere with adhesion of resilient products.

- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Prepare substrates according to manufacturer's written recommendations to ensure adhesion of resilient products.
- B. Concrete Substrates: Verify that concrete slabs comply with ASTM F 710 and the following:
1. Verify that substrates are dry and free of curing compounds, sealers, hardeners, and other material whose presence would interfere with bonding of adhesive. Determine adhesion and dryness characteristics by performing bond and moisture tests recommended by flooring manufacturer, and with the specified requirements.
  2. An independent testing agency shall perform alkalinity and adhesion tests, calcium chloride moisture tests, and relative humidity test. Testing shall be conducted as follows:
    - a. Maintain a minimum temperature of 70 degrees Fahrenheit in spaces to receive flooring for at least 72 hours prior to and during the tests.
    - b. Perform the tests at rate of not less than 1 test/1000 sq. ft. of floor area for slabs-on-grade.
    - c. Provide additional tests on floors after radiant heat has been in operation for not less than 2 weeks. Perform tests while system is operating.
  3. Alkalinity and Adhesion Testing: Perform tests recommended by manufacturer. Proceed with installation only after substrates pass testing.
  4. Moisture Testing:
    - a. Anhydrous Calcium Chloride Test: Perform test in accordance with recommendations of flooring manufacturer and ASTM F 1869, except area of CaCl<sub>2</sub> dish shall not be deducted.
    - b. Relative Humidity Test: Perform test using in situ probes, ASTM F 2170.
  5. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 3 lbs of water/1000 sq. ft in 24 hours, a maximum 75% relative humidity level measurement, and manufacturer's requirements for alkalinity and adhesion are met.
- C. 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.
- D. Use trowelable leveling and patching compound to fill cracks, holes, and depressions in substrates.
- E. Move resilient products and installation materials into spaces where they will be installed at least 48 hours in advance of installation.
- F. Sweep and vacuum clean substrates to be covered by resilient products immediately before installation. After cleaning, examine substrates for moisture, alkaline salts, carbonation, and dust. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.3 TILE INSTALLATION

- A. Install in accordance with the manufacturer's written instructions and the requirements of this Section.
- B. Lay out tiles from center marks established with principal walls, discounting minor offsets, so tiles at opposite edges of room are of equal width. Adjust as necessary to avoid using cut widths that equal less than one-half tile at perimeter. Install tiles square with room axis, unless otherwise indicated.
- C. Match tiles for color and pattern by selecting tiles from cartons in the same sequence as manufactured and packaged, if so numbered. Discard broken, cracked, chipped, or deformed tiles.
  - 1. Verify pattern and grain direction with Architect prior to installation.
- D. Adhere tiles to flooring 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.
- E. Hand roll tiles where required by tile manufacturer.

### 3.4 INSTALLATION OF SHEET FLOOR COVERING

- A. Unroll sheet floor coverings and allow them to stabilize before cutting and fitting.
- B. Lay out sheet 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 and pattern at seams.
  - 4. No cross seams.
- C. 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. Comply with floor covering manufacturer's directions, including those for trowel notching, adhesive mixing, and adhesive open and working times.
- D. Heat-Welded Seams: Comply with ASTM F 1516. Rout joints and use welding bead to permanently fuse sections into a seamless floor covering. Prepare, weld, and finish seams to produce surfaces flush with adjoining floor covering surfaces.
- E. Integral Flash Cove Base: Where indicated, cove floor coverings 6-inches up vertical surfaces. Support floor coverings at horizontal and vertical junction by cove strip. Butt at top against cap strip. Form inside and outside corners uniformly, without tears, open joints or irregularities.
- F. Hand roll sheet vinyl floor coverings in both directions from center out to embed floor coverings in adhesive and eliminate trapped air. At walls, door casings, and other locations



where access by roller is impractical, press floor coverings firmly in place with flat-bladed instrument.

### 3.5 CLEANING AND PROTECTION

- A. Perform the following operations immediately after completing resilient product installation:
  - 1. Remove adhesive and other blemishes from exposed surfaces using cleaner recommended by resilient products manufacturers.
  - 2. Sweep and vacuum surfaces thoroughly.
  - 3. Damp mop surface to remove marks and soil.
    - a. Do not wash surfaces until after time period recommended by manufacturer.
- B. Protect resilient products from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period. Use protection methods recommended in writing by manufacturer.
  - 1. Do not move heavy and sharp objects directly over surfaces. Place hardboard or plywood panels over flooring and under objects while they are being moved. Slide or roll objects over panels without moving panels.
- C. Final cleaning and buffing specified in Division 1 Section "Closeout Procedures."

END OF SECTION



SECTION 09680

CARPET

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specifications Sections, apply to this Section.
- B. Related Sections include the following:
  - 1. Division 2 Section "Selective Demolition and Alterations" for removing existing floor coverings.
  - 2. Division 9 Section "Resilient Flooring" for resilient wall base and accessories installed with carpet.

1.02 SUMMARY

- A. This Section includes tufted carpets and double stick carpet pad.
- B. Related Sections include the following:
  - 1. Division 2 Section "Selective Demolition and Alternations" for removing existing floor coverings.
  - 2. Division 9 Section "Resilient Flooring" for resilient wall base and accessories installed with carpet.

1.03 SUBMITTALS

- A. General: Submit in accordance with Section 01330.
- B. Product Data: For each type of product indicated. Include manufacturer's written data on physical characteristics, durability, and fade resistance. Include installation recommendations for each type of substrate required.
- C. Shop Drawings – Show the following:
  - 1. Columns, doorways, enclosing walls or partitions, built-in cabinets, and locations where cutouts are required in carpet.
  - 2. Carpet type, color and dye lot.
  - 3. Seam locations, types and methods.
  - 4. Type of installation for each type of substrate.
  - 5. Pattern type, repeat size, location, direction, and starting point.
  - 6. Type, color, and location of edge, transition and other accessory strips.
  - 7. Transition details to other flooring materials.
  - 8. Carpet pad type and installation.
- D. 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: 12-inch square sample.

2. Exposed Edge Stripping and Accessory: 12-inch long samples.

- E. Test Results: Provide results of specified moisture tests and manufacturer's written moisture requirements for each type of carpet specified.
- F. Maintenance Data: For carpet to include in maintenance manuals specified in Division 1. Include the following:
  - 1. Methods for maintaining carpet, including cleaning and stain removal products and procedures and manufacturer's recommended maintenance schedule.
  - 2. Precautions for cleaning materials and methods that could be determined to carpet.

#### 1.04 QUALITY ASSURANCE

- A. 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.
- B. Source Limitations: Obtain each type of carpet through a single source from a single manufacturer.
- C. Preinstallation Conference: Conduct conference at project site. Review specified moisture test results, installation process, adhesive application, seam sealing procedures and seam layouts.

#### 1.05 DELIVERY, STORAGE, AND HANDLING

- A. General: Comply with CRI 104, Section 5, "Storage and Handling".
- B. Deliver materials to project site in original factory wrappings and containers, labeled with identification of manufacturer, brand name, and lot number.
- C. Store materials on-site in original undamaged packages, inside well ventilated area protected from weather, moisture, soilage, extreme temperatures, and humidity. Lay flat with continuous blocking off floor.

#### 1.06 PROJECT CONDITIONS

- A. General: Comply with CRI 104, Section 7.2, "Site Conditions: Temperature and Humidity" and Section 7.12, "Ventilation".
- B. Environmental Limitations: Do not install carpet until wet work in spaces is complete and dry, and ambient temperature and humidity conditions are maintained and will continuously be maintained at the levels indicated for project when occupied for its intended use.
- D. Do not install carpet over concrete slabs until slabs have cured and are sufficiently dry to bond with adhesive and concrete slabs have pH range recommended by carpet manufacturer.

1.07 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 Warranty: Written warranty, signed by carpet manufacturer agreeing to replace carpet that does not comply with requirements or that fails within specified warranty period. Warranty does not include deterioration or failure of carpet due to failure of substrate, vandalism, or abuse. Warranty shall not require the use of chair pads. Failures include, but are not limited to, more than 10 percent loss of face fiber, edge raveling, snags, zippering, backing resiliency loss, and delamination.

PART 2 – PRODUCTS

2.01 CARPET

- A. Shall be in color indicated on Interior Finish Legend; no substitutions. No seconds or imperfections shall be acceptable. Carpet shall meet the following minimum construction:

C-1:

1. Style Name	Overlay tile
2. Style No.	59598
3. Construction	Multi-level pattern loop
4. Fiber	Eco solution q@nylon
5. Dye Method	100% solution dyed
6. Pattern Repeat	None
7. Tufted Weight	24.0
8. Gauge	1/12
9. Stitches per inch	11
10. Finished Pile Thickness	0.127
11. Total Thickness	0.256
12. Average Density	6803
13. Product Size	18” x 36”
14. Primary Backing	Synthetic
15. Secondary Backing	ecoworx® tile
16. Protective treatments	ssp® shaw soil protection
17. Smoke	ASTM E - 662
18. Static Generation	Less than 3.0 kv (AATCC-134)
19. ADA Compliance	Compliant for Accessible Routes
20. Warranties	Basketweave, herringbone, boxed in, brick, half basketweave.

C-2:

1. Style Name	Blur Tile
2. Style No.	59596
3. Construction	Multi-level pattern loop
4. Fiber	Eco solution q@nylon
5. Dye Method	100% solution dyed
6. Pattern Repeat	None
7. Tufted Weight	24.0
8. Gauge	1/12
9. Stitches per inch	11.0
10. Finished Pile Thickness	0.132
11. Total Thickness	0.260
12. Average Density	6545
13. Product Size	18" x 36"
14. Primary Backing	Synthetic
15. Secondary Backing	ecoworx® tile
16. Protective treatments	ssp® shaw soil protection
17. Smoke	ASTM E - 662
18. Static Generation	Less than 3.0 kv (AATCC-134)
19. ADA Compliance	Compliant for Accessible Routes
20. Warranties	Lifetime Commercial Limited
21. Recommended Installation	Basketweave, herringbone, boxed in, brick, Half basketweave.

C-3:

1. Style Name	Chroma Tile
2. Style No.	59583
3. Construction	Multi-level pattern loop
4. Fiber	Solution q@nylon
5. Dye Method	100% solution dyed
6. Pattern Repeat	None
7. Tufted Weight	20.0
8. Gauge	1/12
9. Stitches per inch	8.0
10. Finished Pile Thickness	0.113
11. Total Thickness	0.254
12. Average Density	6372
13. Product Size	24" x 24"
14. Primary Backing	Synthetic
15. Secondary Backing	ecoworx® tile
16. Protective treatments	Inherent stain resistance
17. Smoke	ASTM E - 662
18. Static Generation	Less than 3.0 kv (AATCC-134)
19. ADA Compliance	Compliant for Accessible Routes
20. Warranties	Lifetime Commercial Limited
21. Recommended Installation	Ashlar, random monolithic, quarterturn, brick.

2.02 INSTALLATION ACCESSORIES

- A. Concrete Slab Primer: Nonstaining type provided or recommended by the carpet manufacturer.
- B. Trowelable Leveling and Patching Compounds: Portland-cement-based formulation provided by or recommended by carpet manufacturer.
- C. Adhesives: Premium grade, water-resistant, mildew-resistant, nonstaining type to suit products subfloor conditions indicated, that complies with flammability requirements for installed carpet and that is recommended by the carpet manufacturer, permitting a moisture emission rate up to 5 lb/1000 sq.ft./24 hours.
- D. Seaming Cement: Adhesive product recommended by carpet manufacturer for sealing seams and butting cut edges at backing to form secure seams.

### PART 3 – EXECUTION

#### 3.01 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for maximum moisture content, alkalinity range, installation tolerances, and other conditions affecting carpet performance. Verify that substrates and conditions are satisfactory for carpet 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 manufacturer, carpet cushion manufacturer, and with the following specified requirements:
    - a. An independent testing agency shall perform calcium chloride moisture tests on concrete slabs-on-grad and elevated slabs to receive carpeting at the rate of 1 test per 1000 sq. ft. of floor area at locations receiving glue down installation.
    - b. Maintain a minimum temperature of 70 degrees Fahrenheit in spaces to be tested for at least 72 hours prior to and during the tests.
    - c. Tests shall be conducted in accordance with ASTM F-1869-02, except that the area of the CaCl<sub>2</sub> dish shall not be deducted.
  - 2. Concrete pH Test: Perform pH tests on concrete floors regardless of age or grade level.
  - 3. Subfloor finishes comply with requirements specified in Division 3 Section "Cast-in-Place Concrete" for slabs receiving carpet.
  - 4. Subfloors are free of cracks, ridges, depressions, scale and foreign deposits of any kind.
- C. If conditions detrimental to work are encountered, prepare written report, signed by the Installer, documenting unsatisfactory conditions and send to the Architect.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.02 PREPARATION

- A. General: Comply with CRI 104, Section 6.2, "Site Conditions: Floor Preparation", and carpet manufacturer's written installation instructions for preparing substrates indicated to receive carpet installation.
- B. Use towelable leveling and patching compounds, according to manufacturer's written instructions, to fill cracks, holes, and depressions in substrates using product recommended by manufacturer.
- C. Level subfloor with ¼-inch in 10 feet, noncumulative in all directions using product recommended by manufacturer. Sand or grind protrusions, bumps, and ridges.
  - 1. Use leveling and patching compounds to fill cracks, holes, and depressions in subfloor as recommended by carpet manufacturer.
- D. Remove coatings, including curing compounds, and other substances that are incompatible with adhesives and that contact soap, wax, oil, or silicone, without using solvents. Use mechanical methods recommended in writing by the carpet manufacturer.
- E. Existing Floor Slabs: Scrape and remove adhesive from floor where existing floor coverings are removed. Trowel-apply underlayment, compound over entire floor to smooth substrate surface and prevent telegraphing of surface irregularities.
- F. Broom and vacuum clean substrates to be covered immediately before installing carpet. After cleaning, examine substrates for moisture, alkaline salts, carbonation, or dust. Proceed with installation only after unsatisfactory conditions have been corrected.
- G. Concrete Subfloor Preparation: Apply concrete slab primer, according to manufacturer's directions, where recommended by the carpet manufacturer.

### 3.03 INSTALLATION

- A. Direct-Glue-Down Installation: Comply with RI 104, Section 9, "Direct-Glue-Down Installation", and manufacturer's requirements.
- B. Stair Installation: Comply with CRI 104, Section 13, "Carpets on Stairs" and manufacturer's requirements.
- C. Comply with manufacturer's recommendations for seam locations and directions of carpet; maintain uniformity of carpet direction and lay of pile. At doorways, center seams under door in closed position.
- D. Where demountable partitions or other items are indicated for installation on top of finished carpet, install carpet before installation of these items.
- E. Cut and fit carpet 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 manufacturer.
- F. Extend carpet under removable flanges and furnishings and into alcoves and closets of each space.



- G. Maintain references 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.
- H. Install pattern parallel to walls and borders.

### 3.04 CLEANING AND PROTECTION

- A. Perform the following operations immediately after installing carpet:
  - 1. Remove excess adhesive, seam sealer, and other surface blemishes using cleaner recommended by carpet manufacturer.
  - 2. Remove yarns that protrude from carpet surface.
  - 3. Vacuum carpet using commercial machine with face-beater element.
- B. Protect installed carpet to comply with CRI 104, Section 16, "Protection of Indoor Installations".
- C. Protect carpet 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 manufacturer to ensure carpet is without damage or deterioration at the time of Substantial Completion.

END OF SECTION 09680



SECTION 09900

PAINTING

PART I – GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. This Section includes the following:
1. Exposed interior items and surfaces with low VOC coatings complying with ME DEP regulations.
  2. Surface preparation, priming, and finish coats specified in this Section are in addition to shop priming and surface treatment specified in other Sections.
  3. Refinishing existing doors to remain
  4. Specialty wall covering
- B. Related Sections include the following:
1. Division 6, Section "Finish Carpentry" for surface preparation of exterior and interior standing and running trim, siding and finish carpentry.
  2. Division 6, Section "Architectural Woodwork" for shop finishing of architectural casework.
  3. Division 9, Section "Gypsum Board Assemblies" for surface preparation of gypsum board.
  4. Review all sections for shop primed items requiring field painting.

1.03 DEFINITIONS

- A. General: Standard coating terms defined in ASTM D 16 apply to this Section.
1. Flat refers to a lusterless or matte finish with a gloss range below 15 when measured at an 85-degree meter.
  2. Eggshell refers to low-sheen finish with a gloss range between 20 and 35 when measured at a 60-degree meter.
  3. Satin refers to low-sheen finish with a gloss range between 15 and 35 when measured at a 60-degree meter.
  4. Semi gloss refers to medium-sheen finish with a gloss range between 35 and 70 when measured at a 60-degree meter.
  5. Full gloss refers to high-sheen finish with a gloss range more than 70 when measured at a 60-degree meter.

1.04 SUBMITTALS

- A. General: Submit in accordance with Section 01330.

- B. Product Data: For each paint system indicated. Include block fillers and primers.
  - 1. Material List: 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: Manufacturer's technical information, including label analysis and instructions for handling, storing, and applying each coating material proposed for use.
  - 3. VOC Limits: Manufacturer's product data for paints and coatings, including printed statement of VOC content and chemical components.
- C. Schedule: Provide schedule of all surfaces to be coated, with prime and finish coat material listed, and manufacturer's recommended wet film thickness.
- D. Samples: For each type of exposed finish required, submit color chips, 3-inches by 5-inches, matching colors indicated on Finish Schedule.
- E. Manufacturer Certificates: Signed by manufacturer certifying that product(s) with limit VOC amounts specified comply with requirements.
- F. Qualifications Data: For Applicator.

#### 1.05 QUALITY ASSURANCE

- A. Applicator Qualifications: Engage an experienced Applicator who has completed painting system applications similar in material, design, and extent to those indicated for this Project, whose work has resulted in applications 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 for each type of coating and substrate required. Duplicate finish of approved sample Submittals.
  - 1. 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 of at least 100 sq. ft.
    - b. Small Areas and Items: Architect will designate items or areas required.
  - 2. After permanent lighting and other environmental services have been activated, apply benchmark samples, according to requirements for completed Work. Provide required sheen, color, and texture on each surface.
  - 3. Final approval of colors will be from benchmark samples.

#### 1.06 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 that are not in use in tightly covered containers in a well-ventilated area at a minimum ambient temperature of 45 deg F. Maintain containers used for storage in a clean condition, free of foreign materials and residue.
1. Protect from freezing. Keep storage area neat and orderly.
  2. Remove oily rags and waste daily.
  3. Take necessary measures to ensure that workers and work areas are protected from fire and health hazards resulting from handling, mixing, and application.

#### 1.07 PROJECT CONDITIONS

- A. Apply paints only when temperatures of surfaces to be painted and surrounding air are between 45 and 95 deg F.
- B. Do not apply paint in snow, rain, fog, or mist; or when relative humidity exceeds 85 percent; or at temperatures less than 5°F 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.
  2. Allow wet surfaces to dry thoroughly and attain temperature and conditions specified before proceeding with or continuing coating operation.

#### 1.08 EXTRA MATERIALS

- A. Furnish extra paint materials from the same production run as the materials applied and in the quantities described below. Package with protective covering for storage and identify with labels describing contents. Deliver extra materials to Owner.
1. Quantity: Furnish Owner with an additional 3 percent, but not less than 1 gal. or 1 case, as appropriate, of each material and color applied.

### PART 2 – PRODUCTS

#### 2.01 MANUFACTURERS

- A. Products: Subject to compliance with requirements, provide one of the products listed in other Part 2 articles.
- B. Manufacturers' Names: Shortened versions (shown in parenthesis) of the following manufacturers' names are used in other Part 2 articles:
1. Sherwin Williams Co. (S-W).
  2. Benjamin Moore & Company (Moore) Super Spec Green

3. ICI Dulux Paints (ICI)

2.02 COATING MATERIALS – GENERAL

- A. Material Compatibility: Provide primers, undercoats, and finish-coat materials that are compatible with one another and with 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 coating material of the various coating types specified that are factory formulated and recommended by manufacturer for application indicated. Paint material containers not displaying manufacturer's product identification will not be acceptable.
1. Where schedule says no substitutions, use proprietary product only. Do not propose substitutions, as the products from the other manufacturers have been considered, and are not acceptable.
- C. VOC Compliance for Paints and Coatings: Provide the manufacturer's formulation for the products specified below that are VOC compliant with the State of Maine Department of Environmental Protection Regulation, "Chapter 151: Architectural and Industrial Maintenance (AIM) Coatings" and the following chemical restrictions expressed in grams per liter:
1. Flat Paints and Coatings: VOC content of not more than 100 g/L.
  2. Non-Flat Paints and Coatings: VOC content of not more than 150 g/L.
  3. Non-Flat Paints and Coatings – High Gloss: VOC content of not more than 250 g/L.
  4. Anticorrosive (Rust Preventative) Coatings: VOC content of not more than 400 g/L.
  5. Clear Wood Coatings:
    - a. Clear Brushing Lacquers: VOC content of not more than 680 g/L.
    - b. Lacquers (including Lacquer Sanding Sealers): VOC content of not more than 550 g/L.
    - c. Varnishes: VOC content of not more than 350 g/L.
  6. Fire Retardant Coatings:
    - a. Clear: VOC content of not more than 650 g/L.
    - b. Opaque: VOC content of not more than 350 g/L.
  7. Primers, Sealers, and Undercoaters: VOC content of not more than 200 g/L.
  8. Quick-Dry Enamels: VOC content of not more than 250 g/L.
  9. Quick-Dry Primers, Sealers, and Undercoaters: VOC content of not more than 200 g/L.
  10. Specialty Primers, Sealers, and Undercoaters: VOC content of not more than 350 g/L.
  11. Stains: VOC content of not more than 250 g/L.
- D. Colors: Provide color selections made by the Architect.

PART 3 – EXECUTION

3.01 EXAMINATION

- A. Examine substrates, areas, and conditions, with Applicator and drywall subcontractor present, under which painting will be performed for compliance with paint application requirements.
  - 1. Inspect walls for dents and imperfections prior to painting. Inspect walls again after primer and first coat of paint applied, with Applicator and drywall subcontractor present. Drywall subcontractor shall touch-up as follows:
    - a. Touch-up visible gypsum board imperfections before priming of walls.
    - b. Touch-up imperfections found in field of boards and joints made visible from painting after first finish coat applied.
  - 2. If unacceptable conditions are encountered, prepare written report, endorsed by Applicator, listing conditions detrimental to performance of work.
  - 3. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
  - 4. Application coating indicates Applicator's acceptance of surfaces and conditions within a particular area.
  - 5. Being coating application only after unsatisfactory conditions have been corrected and surfaces are dry.
  
- 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 specified finish materials to ensure use of compatible primers.
  - 1. Notify Architect about anticipated problems when using the materials specified over substrates primed by others.

### 3.02 PREPARATION

- 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 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 workmen skilled in the trades involved.
  
- B. Cleaning: Before applying paint or other surface treatments, clean substrates of substances that could impair 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. 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. Sand exposed wood framing members to remove exposed grade stamps.
    - b. 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.
    - c. Prime, stain, or seal wood to be painted immediately on delivery. Prime edges, ends, faces, undersides, and back sides of wood, including paneling.

- d. If transparent finish is required, backprime with spar varnish.
  3. 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 SSPC's recommendations.
    - a. Treat bare and sandblasted or pickled clean metal with a metal treatment wash coat before priming.
    - b. 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 same primer as the shop coat.
  4. Galvanized Surfaces: Uniformly abrade galvanized surfaces with a palm sander and 60-grit aluminum oxide so surface is free of oil and surface contaminants. Remove pretreatment from galvanized sheet metal fabricated from coil stock by mechanical methods.
    - a. Clean field welds with non petroleum-based solvents so surface is free of oil and surface contaminants.
- D. Material 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 material before using.
  3. Use only thinners approved by paint manufacturer and only within recommended limits.

### 3.03 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 paint 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, grilles, convector covers, covers for finned-tube radiation, and similar components are in place. Extend coatings in these areas, as required, to maintain system integrity and provide desired protection.
  5. Paint surfaces behind movable equipment and furniture the same as similar exposed surfaces. Before 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. Sand lightly between each succeeding enamel and 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 film thickness required are the same regardless of application method. Do not apply succeeding coats until previous coat has cured as recommended by manufacturer. If sanding is required to produce a smooth, even surface according to manufacturer's written instructions, sand between applications.
  2. Omit primer over metal surfaces that have been shop primed and touch-up 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 that edges, corners, crevices, welds, and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.
  4. Allow sufficient time between successive coats to permit proper drying. Do not recoat surfaces until paint has dried to where it feels firm, and does not deform or feel stick under moderate thumb pressure, and until application of another coat of paint does not cause undercoat to lift or lose adhesion.
- C. Paint all 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 at all locations except mechanical and electrical rooms.
- D. Do not paint prefinished items, concealed surfaces, finished metal surfaces, operating parts, and labels.
1. Labels: Do not paint over Underwriters Laboratories (UL), Factory Mutual (FM), or other code-required labels or equipment name, identification, performance rating, or nomenclature plates.
- E. Application Procedures: Apply paints and coatings by brush, roller, spray, or other applicators according to manufacturer's written instructions. Walls shall have roller finish.
1. Brushes: Use brushes best suited for type of material applied. Use brush of appropriate size for surface or item being painted.
  2. Rollers: Use rollers of carpet, velvet-back, or high-pile sheep's wool as recommended by manufacturer for material and texture required.
- F. Minimum Coating Thickness: Apply paint materials no thinner than manufacturer's recommended spreading rate to achieve dry film thickness indicated. Provide total dry film thickness of the entire system as recommended by manufacturer.
- G. Mechanical and Electrical Work: Painting of mechanical and electrical work is limited to items exposed in occupied spaces (outside mechanical and electrical rooms).

- H. Mechanical items to be painted include, but not limited to, the following:
1. Piping, pipe hangers and supports.
  2. Heat exchangers.
  3. Tanks.
  4. Ductwork, including interior of ductwork visible through air devices.
  5. Insulation.
  6. Motors and mechanical equipment.
  7. Exposed rooftop units.
  8. Accessory items.
- I. Electrical items to be painted include, but are not limited to, the following:
1. Conduit and fittings.
  2. Switchgear.
  3. Panelboards.
- J. Prime Coats: Before applying coats, apply a prime coat, as recommended by 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.
- K. 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, sages, ropiness, or other surface imperfections will not be acceptable.
- L. Transparent (Clear) Finishes: Use multiple coats to produce a glass-smooth surface film of even luster. Provide 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, unless otherwise noted.
- M. Stipple Enamel Finish: Roll and redistribute paint to an even and fine texture. Leave no evidence of rolling, such as laps, irregularity in texture, skid marks, or other surface imperfections.
- N. Completed Work: Match approved samples for color, texture, and coverage. Remove, refinish, or repaint work not complying with requirements.
- O. Interior Ferrous Metal items to be painted include, but are not limited to, the following:
1. Steel frames.
  2. Wood door glass lite kits and astragals.
  3. Wood door louvers.
  4. Access panels (both sides).
  5. Countertop supports.
  6. Miscellaneous metal items.
  7. Roof structure exposed in Photo Lab.

3.04 CLEANING

- A. Cleanup: At the end of each workday, remove empty cans, rags, rubbish, and other discarded paint materials from the Project 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.
- 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.

3.05 LOW ODOR/LOW VOC INTERIOR COATINGS

- A. VOC Compliance – General: Provide the manufacturers' formulations for the products specified below that comply with VOC requirements for the State of Maine Department of Environmental Protection in paragraph 2.02.C. of this Section.
- B. Gypsum Board: Provide the following finish systems over interior gypsum board surfaces:
  - 1. Flat Acrylic Finish (Ceilings): 2 finish coats over a primer.
    - a. Primer: Latex-based, interior primer applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than indicated for product.
      - 1) S-W: PrepRite 200 Interior Latex B28W200 Series; 1.6 mils DFT.
    - b. First and Second Coats: Flat, acrylic-latex-based, interior paint applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than indicated for product.
      - 1) S-W: ProMar 200 Interior Latex Flat Wall Paint B30W200 Series; 2.8 mils DFT.
  - 2. Low-Luster (Eggshell), Acrylic-Enamel Finish (Walls): 2 finish coats over a primer.
    - a. Latex-based, interior primer applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than indicated for product.
      - 1) S-W: PrepRite 200 Interior Latex Primer B28W200 Series; 1.6 mils DFT.
    - b. First and Second Coats: Low-luster (eggshell or satin), acrylic-latex, interior enamel applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than indicated for product.
- C. Natural-Finish Woodwork: Provide the following natural finishes over new, interior woodwork:
  - 1. Waterborne, Satin-Varnish Finish: 3 finish coats of a waterborne, clear-satin varnish over an alkyd-based, interior wood stain.
    - a. Transparent Stain Coat: Alkyd-based, penetrating interior wood stain applied at spreading rate recommended by manufacturer. Stain color as selected by Architect from the manufacturer's full range of options.
      - 1) S-W: Minwax Wood Finish 250 VOC Compliant.

- b. First, Second, and Third Finish Coats: Waterborne, varnish finish applied at spreading rate recommended by the manufacturer.
  - 1) S-W: Minwax Polycrylic.
  
- E. Wood Trim, Opaque Finish: Provide the following paint finish systems over new, interior wood surfaces:
  - 1. Semi-gloss, Acrylic-Enamel Finish: 2 finish coats over a primer.
    - a. Primer: Quick drying, stain blocking alkyd primer applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than indicated for product.
      - 1) S-W: PrepRite Quick Seal Exterior/Interior Alkyd Fast Dry Primer Y24W980; 1.7 DFT.
    - b. First and Second Coats: Semi-gloss, acrylic-latex, interior enamel applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than indicated for product.
      - 1) S-W: ProMar 200 Interior Latex Egg-Shell Enamel B20W200 Series; 3.2 mils DFT.
  
- F. Ferrous Metal: Provide the following finish systems over ferrous metal:
  - 1. Semi-gloss, Acrylic-Enamel Finish: 2 finish coats over a primer.
    - a. Primer: Quick drying, corrosion resistant, alkyd-based or epoxy metal primer, as recommended by the manufacturer for this substrate, applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than indicated for product.
      - 1) S-W: Galvite HS paint B50WZ30; 3.5 mils DFT.
    - b. First and Second Coats: Semi-gloss, corrosion resistant, acrylic interior enamel, as recommended by manufacturer for this substrate, applied at spreading rate recommended by manufacturer to achieve a total dry film thickness of not less than indicated for product.
      - 1) S-W: ProMar 200 Interior Latex Semi-Gloss B31-2200 Series; 3.0 mils DFT.
  
- G. Telecommunication and Electrical Backboards: Provide the following finish over plywood:
  - 1. Flat In tumescent Finish: 2 finish coats over a primer.
    - a. Primer: Latex-based, interior primer applied at spreading rate recommended by the manufacturer to achieve a total dry film thickness of not less than indicated for product.
      - 1) Moore: Pristine EcoSpec Interior Latex Primer Sealer 231; 0.8 mils DFT.
    - b. First and Second Coats: In tumescent-type, fire retardant paint applied at spreading rate recommended by manufacturer to achieve a total dry film thickness of not less than 4 mils DFT; white color for telecommunications and black for electrical.
      - 1) Moore: M59-220 Latex Fire Retardant Coating.

END OF SECTION 09900

SECTION 10431

SIGNS

PART I – GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specifications Sections, apply to this Section.

1.02 SUMMARY

- A. This Section includes the following:
  - 1. ADA Required Signage

1.03 SUBMITTALS

- A. General: Submit in accordance with Section 01330.
- B. Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type of sign.
- C. Shop Drawings: Include plans, elevations, and large scale sections of typical members and other components. Show mounting methods, grounds, mounting heights, layout, spacing, reinforcement, accessories, and installation details.
  - 1. Provide message list for each sign, including large scale details of wording, lettering, artwork, and Braille layout.
- D. Samples for Initial Selection: For each type of sign material indicated that involves color selection.
- E. Maintenance Data: For signage cleaning and maintenance requirements to include in maintenance manuals.

1.04 QUALITY ASSURANCE

- A. Source Limitations: Obtain each type through one source from a single manufacturer.

1.05 COORDINATION

- A. For signs supported by or anchored to permanent construction, advise Installers of anchorage devices about specific requirements for placement of anchorage devices and similar items to be used for attaching signs.

## PART 2 – PRODUCTS

### 2.01 SIGNS

- A. General: Provide panel signs that comply with requirements indicated for materials, thickness, finishes, colors, designs, shapes, sizes, and details of construction.
  - 1. Produce smooth panel sign surfaces constructed to remain flat under installed conditions within tolerance of plus or minus 1/16-inch measure diagonally.
- B. Fabricator: Welch Architectural Signage, 7 Glasgow Road, Scarborough, ME 04092, *Tel.* (207) 883-6200, *FAX* (207) 883-8588, Contact: Jeff Papalardo.

### 2.02 SIGN TYPES ADA AREAS

- A. Interior Panel Signs: Provide Sign(s) as detailed on drawings and having the following characteristics:
  - 1. Substrate: Fabricate signs from White Oak and 1/8-inch thick matte clear acrylic with ¼ inch beveled backer plate. Edges mechanically and smoothly finished eliminating cut marks. Background color to be sub surface design of sign.
  - 2. Background Color: Custom color to be selected by Architect.
  - 3. Edges: Straight.
  - 4. Corners: Straight.
  - 5. Size: As required to accommodate 20 letters.
  - 3. Font: TBD.
  - 4. Colors: To be selected by Architect from manufacturer's standards and custom colors.

### 2.03 FINISHES – GENERAL

- A. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of range of approved Samples. Noticeable variations in same piece are not acceptable. Variations in appearance of other components are acceptable if they are within range of approved Samples and are assembled or installed to minimize contrast.

## PART 3 – EXECUTION

### 3.01 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of work.
- B. Verify that items provided under other sections of Work are sized and located to accommodate signs.

- C. Examine supporting members to ensure that surfaces are at elevations indicated or required to comply with authorities having jurisdiction and are free from dirt and other deleterious matter.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION

- A. General: Locate signs and accessories where indicated, using mounting methods in compliance with manufacturer's written instructions.
  - 1. Install signs level, plumb, and at heights indicated, with sign surfaces free from distortion and 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.

3.03 CLEANING AND PROTECTION

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

END OF SECTION 10431





SECTION 10520

FIRE-PROTECTION SPECIALTIES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and DIVISION 1 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. This Section includes the following:
  - 1. Portable fire extinguishers.
  - 2. Fire-protection cabinets for portable fire extinguishers.
- B. Related Sections include the following:
  - 1. DIVISION 7 Section "Through-Penetration Firestop Systems" for firestopping sealants at fire-rated cabinets.
  - 2. DIVISION 9 painting Sections for field painting fire-protection cabinets.

1.03 SUBMITTALS

- A. General: Submit in accordance with Section 01330.
- B. Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for fire-protection cabinets.
  - 1. Fire Extinguishers: Include rating and classification.
  - 2. Fire-Protection Cabinets: Include roughing-in dimensions, details showing mounting methods, relationships of box and trim to surrounding construction, door hardware, and cabinet type, trim style, and panel style.
- C. Maintenance Data: For fire extinguishers and fire-protection cabinets to include in maintenance manuals.

1.04 QUALITY ASSURANCE

- A. Source Limitations: Obtain fire extinguishers and fire-protection cabinets through one source from a single manufacturer.
- B. NFPA Compliance: Fabricate and label fire extinguishers to comply with NFPA 10, "Portable Fire Extinguishers."
- C. Fire Extinguishers: Listed and labeled for type, rating, and classification by an independent testing agency acceptable to authorities having jurisdiction.
  - 1. Provide fire extinguishers approved, listed, and labeled by FMG.

- D. Fire-Rated Fire-Protection Cabinets: Listed and labeled to comply with requirements of ASTM E 814 for fire-resistance rating of walls where they are installed.

#### 1.05 COORDINATION

- A. Coordinate size of fire-protection cabinets to ensure that type and capacity of fire extinguishers indicated are accommodated.

#### 1.06 SEQUENCING

- A. Apply vinyl lettering on field-painted fire-protection cabinets after painting is complete.

### PART 2 - PRODUCTS

#### 2.01 MATERIALS

- A. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B.
- B. Aluminum: Alloy and temper recommended by aluminum producer and manufacturer for type of use and finish indicated, and as follows:
  - 1. Sheet: ASTM B 209.
  - 2. Extruded Shapes: ASTM B 221.
- C. Tempered Float Glass: ASTM C 1048, Kind FT, Condition A, Type I, Quality q3, 3 mm thick, Class 1 (clear).

#### 2.02 PORTABLE FIRE EXTINGUISHERS

- A. Manufacturers:
  - 1. Amerex Corporation.
  - 2. JL Industries, Inc.
  - 3. Larsen's Manufacturing Company.
  - 4. Potter Roemer; Div. of Smith Industries, Inc.
- B. General: Provide six (6) fire extinguishers of type, size, and capacity for each fire-protection cabinet and mounting bracket indicated.
- C. Multipurpose Dry-Chemical Type in Steel Container: UL-rated, with mono ammonium phosphate-based dry chemical in enameled-steel container in the following nominal capacities:
  - 1. Provide -A: 60-B: C, 10-lb

#### 2.03 FIRE-PROTECTION CABINET

- A. Products:
  - 1. JL Industries, Inc.; Ambassador Series.
  - 2. Larsen's Manufacturing Company; Architectural Series.
  - 3. Potter Roemer; Div. of Smith Industries, Inc.; Alta Series.

- B. Cabinet Type: Suitable for fire extinguisher.
- C. Cabinet Construction: Non-rated and 1-hour rated as required for wall construction where cabinet is located.
- D. Cabinet Material: Enameled-steel sheet.
  - 1. Shelf: Same metal and finish as cabinet.
- E. Semi recessed Cabinet: Cabinet box partially recessed in walls of shallow depth to suit style of trim indicated; with one-piece combination trim and perimeter door frame overlapping surrounding wall surface with exposed trim face and wall return at outer edge (backbend).
  - 1. Rolled-Edge Trim: 2-1/2-inch backbend depth.
- F. Cabinet Trim Material: Steel sheet.
- G. Door Material: Steel sheet.
- H. Door Style: Vertical duo panel with frame.
- I. Door Glazing: Tempered float glass (clear).
- J. Door Hardware: Manufacturer's standard door-operating hardware of proper type for cabinet type, trim style, and door material and style indicated.
  - 1. Provide manufacturer's standard.
- K. Accessories:
  - 1. Mounting Bracket: Manufacturer's standard steel, designed to secure fire extinguisher to fire-protection cabinet, of sizes required for types and capacities of fire extinguishers indicated, with plated or baked-enamel finish.
- L. Finishes:
  - 1. Steel: Factory primed for field painting.

#### 2.04 FABRICATION

- A. Fire-Protection Cabinets: Provide manufacturer's standard box (tub), with trim, frame, door, and hardware to suit cabinet type, trim style, and door style indicated.
  - 1. Weld joints and grind smooth.
  - 2. Construct fire-rated cabinets with double walls fabricated from 0.0428-inch thick, cold-rolled steel sheet lined with minimum 5/8-inch-thick, fire-barrier material.
    - a. Provide factory-drilled mounting holes.
- B. Cabinet Doors: Fabricate doors according to manufacturer's standards, from materials indicated and coordinated with cabinet types and trim styles selected.
  - 1. Fabricate doorframes with tubular stiles and rails and hollow-metal design, minimum 1/2-inch thick.
  - 2. Miter and weld perimeter door frames.
- C. Cabinet Trim: Fabricate cabinet trim in one piece with corners mitered, welded, and ground

smooth.

## 2.05 FINISHES, GENERAL

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Finish fire-protection cabinets after assembly.

## 2.06 STEEL FINISHES

- A. Surface Preparation: Clean surfaces of dirt, oil, grease, mill scale, rust, and other contaminants that could impair paint bond using manufacturer's standard methods.
- B. Factory Priming for Field-Painted Finish: Apply shop primer specified below immediately after surface preparation and pretreatment.
  - 1. Shop Primer: Manufacturer's or fabricator's standard, fast-curing, lead- and chromate-free, universal primer, selected for resistance to normal atmospheric corrosion, for compatibility with substrate and field-applied finish paint system indicated, and for capability to provide a sound foundation for field-applied topcoats despite prolonged exposure.

## PART 3 - EXECUTION

### 3.01 EXAMINATION

- A. Examine walls and partitions for suitable framing depth and blocking where semi recessed cabinets will be installed.
- B. Examine fire extinguishers for proper charging and tagging.
  - 1. Remove and replace damaged, defective, or undercharged units.

### 3.02 PREPARATION

- A. Prepare recesses for semi recessed fire-protection cabinets as required by type and size of cabinet and trim style.

### 3.03 INSTALLATION

- A. General: Install fire-protection specialties in locations and at mounting heights indicated or, if not indicated, at heights indicated below:
  - 1. Fire-Protection Cabinets: 54-inches above finished floor to top of cabinet.
- B. Fire-Protection Cabinets: Fasten fire-protection cabinets to structure, square and plumb.
  - 1. Fasten mounting brackets to inside surface of fire-protection cabinets, square and plumb.

- C. Mounting Brackets: Fasten mounting brackets to surfaces, square and plumb, at locations indicated, or if not indicated, as directed by Architect.
- D. Identification: Apply vinyl lettering for wall-mounted fire extinguishers at locations indicated.

3.04 ADJUSTING AND CLEANING

- A. Remove temporary protective coverings and strippable films, if any, as fire-protection specialties are installed, unless otherwise indicated in manufacturer's written installation instructions.
- B. Adjust fire-protection cabinet doors to operate easily without binding. Verify that integral locking devices operate properly.
- C. On completion of fire-protection cabinet installation, clean interior and exterior surfaces as recommended by manufacturer.
- D. Replace fire-protection cabinets that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION 10520



SECTION 11451

RESIDENTIAL APPLIANCES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. This Section includes the following:
  - 1. Under Counter Refrigerator
- B. Related Sections: Other specification Sections which directly relate to the work of this Section include, but are not limited to, the following:
  - 1. Division 6 Section "Finish Carpentry" for coordination with casework receiving appliances.
  - 2. Division 15 Sections for water distribution, drainage, vent piping, and plumbing fixtures.
  - 3. Division 16 Sections for electrical services and connections to residential appliances.

1.03 SUBMITTALS

- A. General: Submit in accordance with Section 01330.
- B. Product Data: For each appliance type required indicating compliance with requirements. Include complete operating and maintenance instructions for each appliance.
- C. Appliance Schedule: Submit schedule of appliances, using the same room designations shown on Drawings.

1.04 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced Installer who is an authorized representative of the appliance manufacturer for both installation and maintenance of appliances required for this Project.
- B. Source Limitations: Obtain appliances through one source from a single manufacturer.
  - 1. Provide products from the same manufacturer for each type of appliance required.
- C. UL and NEMA Compliance: Provide electrical components required as part of appliances that are listed and labeled by UL and that comply with applicable NEMA standards.
- D. Regulatory Requirements, Accessibility: Where residential appliances are indicated to comply with accessibility requirements, comply with the U.S. Architectural & Transportation Barriers Compliance Board's "Americans with Disabilities Act (ADA), Accessibility Guidelines for Buildings and Facilities (ADAAG)," ANSI A117.1, and the Fair Housing Accessibility Guidelines. If conflicts occur between regulatory guidelines, comply with the more restrictive as determined by the Architect.

1. Operable Parts: Provide controls with forward reach no higher than 48 inches (1219 mm) above the floor, horizontal front reach no more than 25 inches (635 mm), horizontal side- reach no more than 24 inches (610 mm), and that do not require tight grasping, pinching, or twisting of the wrist and that operate with a force of not more than 5 lbf (22.2 N).
  2. Refrigerator/Freezer: Provide 50 percent of freezer space within 54 inches (1370 mm) of the floor.
- E. AHAM Standards: Provide appliances that comply with the following AHAM standards:
1. Dishwashers: AHAM DW-DW1.
  2. Electric Ovens: AHAM ER-1.
  3. Refrigerators and Freezers: Total volume and shelf area ratings certified according to ANSI/AHAM HRF-1.
- F. Energy Ratings: Provide appliances that carry labels indicating energy-cost analysis (estimated annual operating costs) and efficiency information as required by the Federal Trade Commission.
- 1.05 DELIVERY
- A. Deliver appliances only after utility rough-in is complete and construction in the spaces to receive appliances is substantially complete and ready for installation.
- 1.06 WARRANTIES
- 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 Warranties: Written warranties, executed by manufacturer of each appliance specified agreeing to repair or replace appliances or components that fail in materials or workmanship within specified warranty period.
1. Microwave Oven: 10-year limited warranty for service on defects in the magnetron tube.
  2. Refrigerator/Freezer: Five-year limited warranty on the sealed refrigeration system.
  3. Dishwasher: 10-year warranty against deterioration of tub and door liner.

## PART 2 - PRODUCTS

### 2.01 PRODUCTS AND MANUFACTURERS

- A. Products: Subject to compliance with requirements, provide the appliances indicated for each designation in the Appliance Schedule at the end of Part 3.

### 2.02 RESIDENTIAL APPLIANCES

- A. Under Counter Refrigerator: Under counter refrigerator, listed by UL..



PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine roughing-in for plumbing, mechanical, and electrical services, with Installer present, to verify actual locations of services before appliance installation.
  - 1. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION

- A. General: Comply with manufacturer's written instructions.
- B. Built-In Appliances: Securely anchor to supporting cabinetry or countertops with concealed fasteners. Verify that clearances are adequate for proper functioning and rough openings are completely concealed.
- C. Freestanding Appliances: Place units in final locations after finishes have been completed in each area. Verify that clearances are adequate to properly operate equipment.
- D. Utilities: Refer to Divisions 15 and 16 for plumbing and electrical requirements.

3.03 ADJUSTING AND CLEANING

- A. Test each item of appliances to verify proper operation. Make necessary adjustments.
- B. Verify that accessories required have been furnished and installed.
- C. Remove packing material from appliances and leave units in clean condition, ready for operation.
- D. Under Counter Refrigerator: Provide freestanding, under counter refrigerator. Auto defrost, tight seal to lock in freshness, adjustable temperature control.
  - 1. Capacity: Provide the following minimum values, measured according to ANSI/AHAM HRF-1 and certified by AHAM:
    - a. Total Volume: 5.7cu. ft.
  - 2. Temperature Controls: Include dual knob/single thermostat.
  - 3. Color: Stainless Steel.
  - 4. Location: Waiting 101 – Coffee Counter
  - 5. Model # KURS24LSBS
  - 6. Quantity: 1

END OF SECTION 11451



## SECTION 12484 - FLOOR MATS AND FRAMES

### PART 1 - GENERAL

#### 1.01 RELATED DOCUMENTS

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

#### 1.02 SUMMARY

- A. This Section includes the following:
  - 1. Entrance mats
  - 2. Vinyl Edge Walk-Off Mats – Custom Design.

#### 1.03 SUBMITTALS

- A. General: Submit in accordance with Section 01330.
- B. Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.
- C. Shop Drawings: For floor mats, foot grilles, and frames. Show assembly, joint locations, installation details, layout, plans, elevations, sections, accessories, anchors, and attachments to other Work.
  - 1. Coordinate Shop Drawings showing oversized recess for deferred installation of frames with concrete work.
- D. Maintenance Data: For floor mats to include in maintenance manuals.

#### 1.04 QUALITY ASSURANCE

- A. Source Limitations: Obtain floor mats, foot grilles, and frames through one source from a single manufacturer.
- B. Accessibility Requirements: Provide installed floor mats and grilles that comply with Section 4.5 in the U.S. Architectural & Transportation Barriers Compliance Board's "Americans with Disabilities Act (ADA), Accessibility Guidelines for Buildings and Facilities (ADAAG)."

#### 1.05 COORDINATION

- A. Coordinate size and location of oversized recesses in concrete work to receive foot grilles and frames. Defer frame installations until building enclosure is completed and related interior finish work is in progress. Concrete, reinforcement, and formwork requirements are specified in Division 3.

### PART 2 - PRODUCTS

2.01 ENTRANCE MAT EM1

- A. Carpet-type Mat, EM1: Runway (7000)/Modular.
1. Yarn: 100% Encore® SD Nylon (with recycled content)
  2. Dye Method: Solution Dyed
  3. Surface texture: Dense Textured Loop
  4. Yarn Weight: 34 oz/sy (1153 grams/m<sup>2</sup>)
  5. Stitches per inch: 10.6
  6. Pile Thickness: .150 inch (3.81 mm) (ASTM D-418)
  7. Density: 8,160
  8. Secondary backing: Nexus® Modular
  9. Special treatments: Protex® Fluorochemical
  10. Static generation: Less than 3.0 kv (AATCC-134)
  11. Quick ship: No
  12. Tile Size: 24 in. x 24 in.
  13. Warranties: Lifetime for the following:
    - Stain Removal
    - Colorfastness to Light and Atmospheric contaminants
    - Fiber performance for Wear
    - Fiber performance for Static
    - Protection from Delamination Failure
    - Tuft Bind Strength (edge ravel, yarn pulls, zippering)
    - Mosiure Barrier
    - Dimensional Stability
  14. Manufacturer: J & J/Invision

2.02 CARPET EM2

- A. Carpet-type Mat, EM2: 100” heat set nylons, Type 6.6; carpet bonded to vinyl backing to form mats 3/8-inch thick with 1-inch wide vinyl edge.
1. Backing: Slip resistant nitrilerubber
  2. Colors, Textures, and Patterns: As indicated by manufacturer's full range.
  2. Mat Size: As indicated ON SHEET A900.
  3. Product: Mats, Inc., designer print logo mat

2.03 FABRICATION

- A. Floor Mats: Shop fabricate units to greatest extent possible in sizes as indicated. If not otherwise indicated, provide single unit for each mat installation; do not exceed manufacturer's recommended maximum sizes for units that are removed for maintenance and cleaning. Where joints in mats are necessary, space symmetrically and away from normal traffic lanes.

PART 3 – EXECUTION

3.01 INSTALLATION

- A. Install surface-type units to comply with manufacturer's written instructions at locations indicated; coordinate with entrance locations and traffic patterns.

3.02 PROTECTION

- A. Defer installation of floor mats until Project is near Substantial Completion.

END OF SECTION 12484



## SECTION 16000 - ELECTRICAL

### PART 1 - GENERAL

#### 1.1 SCOPE

- A. The work covered by this section includes the furnishing of labor and materials, equipment, and incidentals and the performing of operations in connection with the "electrical work" as indicated on the drawings and/or specified herein and including incidental items to effect a finished, complete and operable system as indicated. The electrical work shall include but not be limited to:
1. New power distribution from the existing service. Secondary power distribution including replacing a panel and adding new panel.
  2. Lighting system – interior & exterior.
  3. Fire alarm system extend existing Simplex system as indicated. Provide all devices, cabling, power extenders testing, testing, riser diagrams as needed for complete code complaint installation.
  4. Connections and disconnects as shown for mechanical equipment and kitchen equipment.
  5. Exit and emergency lighting.
  6. Computer/data infrastructure empty conduit and boxes. Cabling by others.

Work shall be subject to the conditions of the contract and shall be in strict accordance with these drawings and specifications.

- B. Assume responsibility to have thoroughly examined the drawings and specifications including all addenda. Questions over conflicting information shown on the drawings and specifications shall be referred to the Architect for clarification.
- C. The term "Contractor used hereinafter shall designate the Electrical Contractor.

#### 1.2 RELATED DOCUMENTS

- A. The General Conditions, Supplemental General Conditions and Instructions to Bidders shall apply to this work. Read these to become familiar with conditions related to the installation of the work.

#### 1.3 CODES AND STANDARDS

- A. Where referred to, published standard specifications of technical societies, trade associations and governmental agencies codes and regulations of Underwriters and protective organizations, Federal, State and Municipal regulations and codes and publications of a similar nature shall be the edition current as of the date of this Specification.

B. The applicable requirements of the publications of the following organizations shall apply to the work under this section as if fully written herein:

1. American National Standards Institute, Inc. (ANSI)
2. Institute of Electrical and Electronic Engineers (IEEE)
3. National Electrical Manufacturers Associations (NEMA)
4. National Fire Codes
5. Underwriters Laboratories, Inc. (UL)
6. Federal, State and Municipal Building Codes, and all other Authorities having jurisdiction.
7. National Electrical Code (NEC)
8. Insulated Power Cable Engineers Associated Specification (IPCES)
9. American Society for Testing Materials Specifications (ASTM)
10. National Bureau of Standards Handbook (NBS)
11. Occupational Safety and Health Administration (OSHA)
12. National Electrical Safety Code (NESC)
13. Americans with Disabilities Act (ADA)

#### 1.4 MATERIALS AND EQUIPMENT

- A. Materials shall be of the best quality. Workmanship shall be of highest grade and construction shall be done according to best practices of the trade.
- B. Provide, when required, labeled samples of material or equipment specified herein or proposed to be used in this work.
- C. Where words "furnish", "provide", or "install" are mentioned, either singly or in combination, these words are hereby interpreted to mean "furnish and install" or "provide and install", including materials complete with connections, supplemental devices, accessories and appurtenances, unless specifically noted otherwise. These words are likewise hereby interpreted as being prefixed to materials, equipment, and apparatus hereinafter mentioned, either in abbreviated or scheduled information or in the technical sections of the specifications.

#### 1.5 SHOP DRAWINGS

- A. Submit to the Architect for review, not less than eight (8) sets of Shop Drawings of the materials, fixtures and equipment to be incorporated in the work. Information shall contain specific reference to catalog numbers and shall be qualified in writing as required. No considerations will be given to brochure or catalog information not specifically designated or referenced to the specification by an identifying number.
- B. Shop drawings that are facsimiled, (FAX) produced, or a photocopies of FAX documents will not be considered or reviewed. Only originals and or photocopied originals, complying with paragraph A above will be considered.



- C. Before consideration, electrical submittal packages shall include cover pages for each of the electrical equipment groups, i.e. switchgear, lighting, fire alarm, lighting contactors, devices, wire, conduit, security system, master clock system. The cover page of each group shall be typewritten and contain the following information:
  - 1. Project location.
  - 2. Electrical Contractor and phone number.
  - 3. Product manufacturer and phone number.
  - 4. Distributor or supplier's company and phone number.
  - 5. Order date and distributor order number.
  - 6. Approximate on-site delivery date after submittal review and return.
- D. Shop drawings must bear the Architect's review stamp. In the event that the Architect rejects shop drawings, the shop drawing must be revised and resubmitted for review.
- E. Shop drawings shall be submitted to the Architect no later than 14 days after award of General Contract.

#### 1.6 SUBSTITUTIONS

- A. Reference in the specifications or on the drawings to any product, material, fixture, form or type of construction, by proprietary name, manufacturer, make or catalog number, establishes a standard of quality or design and is not meant to limit competition. Refer to Specification section 01 60 00 paragraph 2.2. Use any equivalent substitute provided favorable written review by the Architect is first obtained. Any substituted system must show a direct comparison to the system specified and all deviations to the specified system clearly identified. In all cases, the suitability of any substituted item or system shall be determined by the Architect/Engineer. If the substituted item or system is rejected, the item or systems specified shall be furnished.

#### 1.7 CODES, PERMITS, INSPECTIONS

- A. The installation shall comply with laws and regulations applying to the electrical installation in effect at the site with regulations of any other governmental body of agency having jurisdiction, and with regulations of the National Electrical Code (NEC).
- B. Obtain and pay for permits required by the ordinances at the site. After completion of the work, furnish the Owner a certificate of final inspection and approval from the Inspection Bureau having jurisdiction.
- C. Inspections and tests shall be made in accordance with the requirements of Division One. Rejected materials shall be removed from the site and new materials furnished, retested and installed to the satisfaction of the Architect without additional cost to the Owner.

- D. Inspect the site and survey the conditions to be encountered in the performance of the Work prior to starting the work. Failure to be familiar with the conditions shall not relieve or reduce responsibility for full completion of the work in accordance with the provisions of the contract.

#### 1.8 TEMPORARY LIGHT AND POWER

- A. Temporary light and power shall be installed and maintained by the Electrical Contractor under this contract for use by all trades for the duration of construction complete with wiring, switches, protective devices and similar equipment as may be required. Power bills will be paid by the General Contractor.

#### 1.9 ACCEPTANCE

- A. Before acceptance of the work under this section, damaged or imperfect materials shall be refinished or replaced, debris, scaffolding and tools shall be removed and premises shall be "broom clean" to the satisfaction of the Owner.

#### 1.10 GUARANTEE

- A. Guarantee materials and installations under normal use to be free of defects and poor workmanship for a period of one (1) year from the date of acceptance. Any replacement of parts or adjustments, including labor made necessary by inherent defects, shall be provided by the contractor without cost to the Owner within the guarantee period.

#### 1.11 PROTECTION OF EQUIPMENT AND MATERIALS

- A. Protect equipment and material for the electrical work after delivery, before and after installation. This protection must be extended against pilferage, dampness and damages from any cause until the work is accepted by the Owner.

#### 1.12 ELECTRICAL REFERENCE SYMBOLS

- A. Symbols shown on the Drawings show approximate locations of fixtures, outlet boxes, conduit runs and other equipment, unless otherwise detailed. The exact location shall be governed by structural conditions and obstructions. This is not to be construed as to permit redesigning systems. Outlets shall be connected from circuits as shown on the drawings. Locate and install boxes and equipment where they will be readily accessible.

#### 1.13 MATERIALS AND INSTALLATION

- A. Only the best materials of each class specified shall be used and the installation shall be made in a neat and workmanlike manner, complete in every detail, ready for immediate satisfactory operation by the Owner.

1.14 WORK UNDER OTHER SECTIONS

- A. Painting
- B. Cutting and patching

1.15 WORK BY OUTSIDE ORGANIZATIONS

- A. Telephone service entrance cable and equipment.
- B. Telephone system.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

- A. Unless otherwise indicated, the materials to be furnished under this specification shall be the standard products of manufacturers regularly engaged in the production of such equipment and shall be the manufacturer's latest standard design that complies with the specification requirements.
- B. Materials shall be delivered to the site in the original sealed containers of packages bearing the manufacturer's name and brand designated. Materials shall be stored in a clean, well-ventilated, warm area. Care shall be exercised in handling materials during delivery, storage and installation. Materials damaged, in the opinion of the Architect, shall be replaced at no additional cost to the Owner.

2.2 EQUIPMENT MOUNTING AND SUPPORTS

- A. Provide supports including supplementary steel, channels, rods and guys required for the proper installation, mounting and support of equipment.
- B. Supports shall be firmly attached and connected to building structural elements and constructed in an acceptable manner. Continuously threaded rods less than 3/8" in diameter, tie wire, or metal straps are not acceptable.
- C. Supports in structural systems shall be installed as an integral part of the structural system. Explosive or cartridge driven type anchors, insert or supports are not acceptable.
- D. Except as otherwise required by the Contract Documents the type and size of supports shall be as determined by the Contractor and shall be of sufficient strength and size to allow only a minimum deflection as required by codes or standards and the support manufacturer's requirements for loading.

- E. Inform all parties as to location, size details and method of attachment of supports and the weight which the support is to carry, so that the installation may be coordinated.
- F. Supports shall be installed in a neat and workmanlike manner, perpendicular or parallel to walls, floor, columns, beams or ceilings.
- G. Attachment to structural steel shall be bolted type.

## 2.3 GROUNDING

- A. Furnish and install grounding system conforming to IEEE Std. 142-1982 and as required by N.E.C.
- B. Feeder, subfeeders, lighting branch circuits and receptacle circuits shall contain a grounding conductor, minimum No. 12 copper with green insulation.
- C. Grounding terminal on receptacles and switches shall be bonded to outlet box with grounding conductor to establish grounding continuity.
- D. Flexible metal conduit and electric metallic tubing feeder raceways shall include grounding conductor.
- E. Grounding conductors shall be stranded copper wire type THW with green color insulation.
- F. Grounding bushings shall be provided for raceways where required. Other raceways shall be provided with insulating bushings.

## 2.4 PANELBOARDS

- A. Panelboard cabinets shall be of the dead-front, safety type, provided with the size and number of single, double or triple pole branches as indicated in the schedules. Cabinets shall be constructed of zinc coated sheet steel and shall conform to Underwriters Laboratories, Inc, Standard for Cabinet and Boxes. Cabinet heights shall not exceed 72" and shall be mounted so that the distance from the floor to center of the top circuit breaker will not exceed 6'. Cabinets shall be provided with trims having adjustable trim clamps. Trims, unless otherwise noted, shall be fitted with hinged doors having combination lock and latch with locks keyed alike. A typewritten directory, properly identifying the circuits, shall be mounted in each frame. Panels shall be as scheduled on the Drawings.
- B. Panelboards shall be surface or flush mounted with branch circuit breakers, main breakers or main lugs as indicated on the Drawings.
- C. Branch circuit breakers installed in the panels shall have a minimum short circuit rating as indicated on the panel schedules.

## 2.5 RACEWAYS

- A. Install wiring in hot dipped galvanized or sheradized threaded rigid steel conduit (RSC), electric metallic tubing (EMT), or schedule 40 PVC. Schedule 40 PVC may be used outside only, raceways within the building shall be metal.
- B. Raceways and wiring, except as otherwise noted, shall be installed concealed in hung or furred ceilings, concrete slabs, masonry walls and partitions. Raceways may be exposed in unfinished areas such as electric and boiler rooms. Raceways exposed in finished areas shall be surface metal raceways (Wiremold).
- C. Electric metallic tubing shall not be installed in concrete on grade, in concrete in contact with earth or underground.
- D. Connections to portable equipment junction boxes and conduit termination to motors shall be made with liquid-tight flexible metal conduit. Flexible connections shall be maximum of 18" long with grounding conductor.
- E. Magnetic conduit used with power wiring shall be bonded to provide an effective ground. In addition to this, equipment grounding conductors shall also be installed in raceways.
- F. Buried steel conduit shall have two coats of bituminuous protection. EMT is acceptable where permitted by the NEC. Raceway sizes shall be as shown on the drawings.
- G. Run flexible metallic conduit to equipment with motors or equipment requiring alignment or movement and to sound generating equipment. Use liquidtight flexible metallic conduit in areas such as outdoor equipment or where subject to moisture.
- H. Install PVC expansion joints in PVC conduit runs per manufacturer's recommendations.

## 2.6 CONDUCTORS - WIRE AND CABLE

- A. Secondary power conductors installed in raceway shall be insulated type THWN, 600 volt. Conductors with higher insulation temperature rating shall be provided as required. Cables shall be type "MC" where permitted by the N.E.C.
- B. Conductor and conduit sizes shown on the Drawings are based on copper conductors with THWN insulation, unless otherwise noted.
- C. Joints and splices shall be made in manner equivalent electrically and mechanically to the conductor itself. Connections shall be of the compression type.

- D. Equipment requiring electric service is shown on the Drawings. Where receptacles or convenience outlets are specified to service named equipment, furnish, install and connect approved flexible cable and cap to equipment.
- E. Drawings, in general, indicate required number of conductors in each raceway, however, unless it is specifically noted that raceways are empty by the word "empty" provide required conductors, power, control, supervisory, computer, alarm or branch circuits. Make final connections, flexible or fixed as required to equipment shown requiring final electrical connections.
- F. Conductors shall be color coded as follows:

480/277 Volts		208/120 Volts
<u>3 phase 4 wire</u>		<u>3 phase, 4 wire</u>
Brown	Phase A	Black
Orange	Phase B	Red
Yellow	Phase C	Blue
Gray	Neutral	White
Green	Grounding	Green

- G. Colors, except colors for conductors No. 4 and larger, shall be factory applied the entire length of the conductors by solid color compound, solid color coating or colored striping or bands, 2 sets 180 degree apart. On-site coloring shall not be done, except color coding by means of paint or tapes is acceptable only for conductors No. 4 and larger.
- H. Voltage rating, manufacturers, type and conductor, AWG size indication shall be continuous, factory applied the entire length for each conductor.
- I. Terminals shall be arranged Phase A, Phase B, Phase C from left to right, top to bottom and front to back.
- J. Wires, conductors and cables shall be single conductor, except as otherwise specified or indicated on the Drawings. Wire No. 8 AWG and larger shall be stranded. Wires smaller than No. 8 AWG shall be solid.

2.7 WIRING DEVICES

- A. Switches, receptacles and other utilization devices shall be specification grade. Switches and receptacles shall have a minimum rating of 20 amperes. Color shall be by Architect.
- B. Receptacles and switches shall have a grounding pole and grounding terminal, which shall be connected to the outlet box with grounding conductor to establish grounding continuity. Green grounding screw must be used for grounding.
- C. Verify mounting height of devices prior to roughing.

- D. Wiring devices flush mounted in exterior walls shall be furnished with draft stops.

## 2.8 WIRING DEVICE PLATES

- A. Provide stainless steel device plates for devices, switches, receptacles, and miscellaneous outlets.
- B. All plates shall be stainless steel.

## 2.9 PULL BOXES AND JUNCTION BOXES

- A. Pull boxes and junction boxes shall be of code gauge galvanized steel with screw covers to match, shall be as required and shall be as shown on the Contract Drawings.
- B. Conductors passing through pull boxes shall be identified to indicate their origin and termination.
- C. Pull and junction boxes and covers shall be for indoor use, except provide other types as required because of location.
- D. Covers shall not be installed until installation has been observed. Provide nameplate on cover: example: Feeder-Panel LP1.

## 2.10 NAMEPLATES

- A. Provide nameplates for panelboards, pull boxes, junction boxes, and motor disconnect switches designating equipment controlled. Empty raceways shall be labeled.
- B. Nameplates shall be laminated plastic with engraved white letters. Letters shall be 1/4 inches high. Nameplates shall have identifying color background for each system.
- C. Nameplates shall be secured by means of phillips head screws or rivets, adhesive shall not be used. Other types of nameplate identification shall not be acceptable.

## 2.11 OUTLETS

- A. Outlets shall be centered in panels and spaces provided therefore, if any discrepancy is found to exist between outlets as shown on Electrical Drawings and Architectural Drawings notify Architect to have location verified prior to installation.
- B. Where outlets of any system occur provide suitable boxes and conduit so that they may be built in as the work progresses. Box offsets shall be made at outlets to provide proper adjustment to structural finish.

- C. Verify power wiring with equipment wiring diagrams before wiring equipment. Disconnects for motors shall be lockable if beyond 50 feet of motor or out of sight of the motor. Disconnects and starters shall have nameplates indicating the loads they control. Flush mounted exhaust fan switches in finished areas shall have plates with nameplates and pilot lights.
- D. Install nameplates on disconnects furnished with equipment.
- E. Wire special equipment per manufacturer's wiring instruction and furnish disconnect switch as shown.

## 2.12 LIGHTING FIXTURES AND LAMPS

- A. Fixtures shall be the manufacturers specified in the Lighting Fixture Schedule.
- B. Energy Saving Ballasts for fluorescent fixtures shall be Class P: electronic - with less than 10% total harmonic distortion; high power factor; shall incorporate UL listed automatic resetting protection: shall be classified for quiet operation, "A" sound rating: shall be designed for a nominal 120 volt system as shown. Interchangeability of lamps and ballasts must be provided. Ballasts shall be designed, manufactured, and tested to meet the latest UL and ANSI standards and this requirement shall be certified by an independent testing organization. In addition to internal integral protection each ballast shall have separate exterior fuse protection. Fixtures shall contain fuse and fuse holder, sized as recommended by manufacturer, mounted in ballasts compartment. Fuse shall provide rapid interruption of short circuits or ground fault current within fixture or ballasts. Fuse protection shall be provided for each type of ballast.
- C. Energy saving lamps of wattage, type and color indicated shall be furnished and installed in necessary quantity to completely lamp every fixture. Incandescent lamps installed in permanent lighting fixtures and used for lighting during construction shall be replaced on or just after the date of substantial completion.
- D. Fixtures shall be complete with all accessories such as close nipples, extension couplings, connecting straps, screws, locknuts, hickies, plaster rings, to provide complete fixture installation for use with any type of standard outlet or switch box. Special fittings required to support fixtures shall be supplied as well as wood, or metal supports or grounds to support surface of pendant mounted fixtures on suspended ceilings.

## 2.13 FIRE ALARM SYSTEM

- A. The fire alarm system shall consist of the existing Simplex fire alarm control panel, pull stations, horns and strobes, strobes only per ADA, and smoke detectors, remote annunciators. Furnish and install wire, cables, conduit and conduit fittings, wiring and wiring devices, junction boxes and outlet boxes, fire alarm boxes, fire detectors and control equipment and accessories indicated or specified herein for a complete fire



detection installation. The system shall be low voltage as manufactured by Simplex Company.

- B. The system shall be complete with 60 hours of rechargeable pure lead battery standby, remote alarm and trouble indication, city connection and ground detection. The fire alarm system shall be connected to the emergency distribution system. The system shall be a closed circuit, non-coded, fully supervised fire alarm installed according to the drawings and specifications and in accordance with NFPA Code 72 and local codes and the Portland Fire Department. Material shall be new, first quality and the best of each class specified. Work shall be executed in a workmanlike manner and shall present a neat appearance when completed. Equipment shall be installed in accordance with the recommendations of the manufacturer and best standard practice for this type of work.
- C. Require the manufacturer of the equipment to include the selection of the proper type and size of stand by batteries. The finishing of complete installation Drawings and Riser Diagram and connection diagrams and catalog cuts of components shall also be required of the manufacturer by this contractor.
- D. Provide the services of the manufacturer of the equipment to supervise the installation, to adjust and test the system, to assure a complete and fully operative facility in accordance with the Specifications and to instruct designated personnel in the operation, adjustment, testing and maintenance of the system.
- E. Notify the Architect, Owner and the Portland Fire Department when the system is ready for final approval tests. The system shall be considered ready for such testing only after all necessary preliminary tests have been made and all deficiencies found have been corrected to the satisfaction of the equipment manufacturer's technical representative. Two copies of the test report shall be submitted to the Owner.
- F. Furnish and install a complete 24VDC, closed circuit, electrically supervised, zone annunciated fire alarm system as specified herein and indicated on the drawings. The system shall include but not be limited to all control equipment, power supplies, signal initiating devices, audible and visual alarm devices, conduit, wire, fittings and other accessories required to provide a complete and operable system. The system shall operate as a zoned, non-coded, continuous sounding system which shall have multiple or zoned audible alarm circuits as specified and indicated on the drawings.
- G. Provide and install required equipment and accessories necessary for the proper operation of the system.
- H. Fire system equipment shall be labeled with the manufacturer's name and logo to assure the integration of the complete system.
- I. Wiring for the fire alarm system shall be subject to the same restriction as herein before specified for light and power circuitry. (NEC Article 760) Raceways containing conductors shall not contain any other conductors and no A.C. carrying

conductors will be allowed in the same raceway with the D.C. fire alarm detection and signaling conductors. Fire alarm cable not run in raceways shall be plenum rated fire alarm cable.

- J. Equipment shall be listed by Underwriters Laboratories, Inc. or approved by Factory Mutual or as accepted by the authority having jurisdiction. The fire alarm system in its entirety shall be in compliance with all applicable fire and electrical codes and comply with the requirements of the local authority having jurisdiction over said systems.
- K. General requirements from the manufacturer are as follows:
1. A riser diagram of the complete fire alarm system, (Typical riser diagrams are not acceptable).
  2. A complete point-to-point installation diagram. (Typical wiring diagrams are not acceptable).
  3. A complete list of current drain requirements during normal supervisory, trouble and alarm condition.
  4. Battery standby calculations showing total standby power required to meet the specified system requirements.
- L. The operation of any manual station or automatic activation of any smoke detector, waterflow device or the activation of the kitchen hood fire suppression system shall cause:
1. Fire alarm horns to sound in the building.
  2. Evacuation lamps to flash in the building.
  3. Automatically shut down fans to prevent the re-circulation of smoke.
  4. Notify the Portland Fire Department via the fire alarm digital alarm communicator transmitter (4 channel) and monitoring company.
  5. Indicate the zone in alarm on the fire alarm panel.
  6. Closure of the tamper switch shall result in a zone identified "trouble" condition on the fire alarm panel.
- M. Each initiating circuit shall be represented on the zone cards in the control panel by an amber trouble LED and a red alarm LED. The LED's for each zone shall be identified on the control panel by custom lettering showing the zone designation. Circuit trouble shall be indicated by the amber LED. Audible trouble and alarm devices shall be supervised. Flashing lights to be supervised.

- N. Each initiating circuit shall be electrically supervised for opens and ground faults in wiring, and for short circuit faults and shall be so arranged that a fault condition in any circuit or groups of circuits will not cause an alarm to be sounded. The occurrence of any fault will light a trouble LED and sound the sonolert but will not interfere with the proper operations of any circuit which does not have a fault condition.
- O. Lightning protection shall be a standard feature of the fire alarm control panel.
- P. The control unit shall be flush mounted in a textured finish, 316 gauge steel cabinet equipped with hinged door, and secured by a lock keyed common to the manual stations. Reset switches, silence switches, fuses, etc., shall be clearly marked and shall be behind the locked door to prevent unauthorized entry. Opening of the main door shall expose all components for inspection of adjustment without further dismantling of the cabinet, control unit or wiring.
- Q. The installer shall coordinate the installation of the fire alarm equipment with the manufacturer. Conductors and wiring shall be installed per the manufacturer's recommendations. It shall be the installer's responsibility to coordinate with the manufacturer the correct wiring procedures in accordance with the latest revisions of the appropriate NFPA pamphlets, the requirements contained herein, National Electrical Code, local and state regulations, the requirements of the fire department and other applicable authorities having jurisdiction (AHJ). Pigtail connections between circuit wires and detector terminals are not acceptable. Devices shall be connected to the circuit line wires.
- R. Guarantee equipment and wiring free from inherent mechanical and electrical defects for a period of one year from date of the final acceptance. Before the installations shall be considered completed and acceptable by the awarding authority, a test on the system shall be performed as follows: The contractor's job foreman, in the presence of a representative of the manufacturer, a representative of the owner, and the fire department shall operate the building annunciator and control panel. Where applying heat would destroy any detector, they may be manually operated. The initiating circuit and the signaling circuits shall be opened in at least two locations per zone to check for the presence of correct supervisory circuitry. When the testing has been completed to the satisfaction of both the contractors job foreman and the representatives of the manufacturer and owner, a notarized letter co-signed by each attesting to the satisfactory completion of said testing shall be forwarded to the owner and the fire department. The contractor shall leave the fire alarm system in proper working order and without additional expense to the owner, shall replace any defective materials or equipment provided by him under this contract within one year from the date of final acceptance by the awarding authority. Prior to final test, the fire department must be notified within a reasonable time of test date (at least 24 hours). The contractor shall provide the necessary personnel and equipment to conduct the tests outlined above.

- S. Detection and signaling circuits shall be run separate from all other conductors. Wiring shall be number 14 solid.
- T. Connection within the control equipment and devices shall be made with T and B "stakon" spade terminals. Wiring within the control equipment shall be secured with T and B "tyeraps" and placed in wired gutters.
- U. New fire alarm system components shall be as follows:
  1. Control Panel "FACP": Existing Simplex 4002, fire alarm control panel. Located in the Lobby of Plaza Level .
  2. System Smoke Detectors: Simplex , photoelectric head with base - Provide quantity as shown on the plans and at least one over the fire alarm control panel for NFPA compliance.
  3. Manual Pull Stations: dual action, key reset station with integral LED visible from the front of the pull station that blinks when the pull station is addressed by the control panel.
  4. Horn/Strobe Alarms: with adjustable candela settings and adjustable volume taps. Provide synchronized strobes in rooms where more than 2 strobes are visible within the same sightlines, provide synchronization modules as required. Provide the proper candela strobes for the room sizes as follows:

Room Size	Candela Rating
20' x 20'	15/75 cd
30' x 30'	30/75 cd
40' x 40'	75 cd
50' x 50=	110 cd

Use equivalent ratings for larger rooms per NFPA 72 Code.

5. Strobe Only Alarms: remote strobes with adjustable candela settings. Provide proper candela for each rooms as outlined above under horn/strobes.
6. Duct smoke detector: (includes integral relay; wire for HVAC shutdown) with ST-series sampling tube (sized as required for duct work) and with intelligent, addressable photoelectric head. Provide one duct smoke detector for HVAC units over 2,000 CFM and two detectors for HVAC units over 15,000 CFM.
7. Heat detectors: Provide (135 fixed temp) (combination 135 fixed temp and rate of rise) heat detector heads addressable or (200 fixed temp) wired to FMM-101 monitor module.

8. Sprinkler devices: Provide monitor module for each sprinkler alarm or tamper switch.
9. Control relay modules: Provide programmable relay modules as required to perform other specified or code required contacts to control other life safety alarm function in the building.
10. Magnetic Door Holder: Per manufacturer's requirements.

#### 2.14 TELEPHONE/DATA SYSTEM INFRASTRUCTURE

- A. Electrical Contractor shall provide empty raceway and box system all cabling.

#### 2.15 MECHANICAL SYSTEM CONNECTIONS

- A. Connect mechanical equipment shown on the drawings. Control wiring shall be furnished and installed by the Mechanical Contractor.

### PART 3 - EXECUTION

#### 3.1 LICENSE

- A. Electrical work shall be installed by persons duly licensed by the Electricians Board of the State of Maine.

#### 3.2 COORDINATION

- A. It shall be the responsibility of this contractor to coordinate his work with other trades, the Power Company, Telephone Company, CTV Company and the Fire Department to insure that his work is terminated in a satisfactory manner. Also, coordinate with Progressive Computer Inc. to ensure a proper computer/data system installation.

#### 3.3 WORKMANSHIP AND PREPARATION

- A. Work shall be executed in workmanlike manner by experienced electricians in accordance with the most modern engineering practice and shall present a neat appearance when completed. The work shall be carefully laid out in advance and where cutting, channeling, chasing, or drilling of floors, walls, partitions, and ceiling or other surfaces is necessary for the proper installation, support or anchorage of the conduit, raceways or other electrical work, this work shall be carefully done and any damage to the building, piping or equipment shall be repaired by skilled mechanics of the trades involved and at no additional cost to the Owner.
- B. After installation, electrical equipment shall be protected to prevent damage during the construction period. Openings in conduits and boxes shall be closed to prevent

entrance of foreign materials. The interior of boxes and cabinets shall be left clean, exposed surfaces shall be cleaned and plated surfaces polished.

### 3.4 OBTAINING INFORMATION

- A. Obtain information from the manufacturers of the apparatus which is to be provided for the proper methods of installation. Also obtain information from the General Contractor and other Sub-Contractor which may be necessary to facilitate work and the completion of the whole project.

### 3.5 GIVING INFORMATION

- A. The Contractor shall keep himself fully informed as to the shape, size and position of openings and foundations required for his apparatus and shall give full information to the General Contractor sufficiently in advance of the work so that such openings and foundation may be built in advance. Also furnish supports herein specified so the General Contractor may build same in place. In the case of a failure on the part of the Contractor to give proper information as noted above, he shall assume the cost of having the work done.

### 3.6 RACEWAYS

- A. Raceways shall be supported and secured at intervals of not more than 10 ft. with minimum of two supports shall be provided if required. Tie wire or perforated metal straps shall not be used to support or secure raceways or other equipment. Electric metallic tubing shall be supported within 18" of each coupling or connector. In finished areas, furnish and install escutcheons for exposed conduit passing through or entering finished floors or walls.
- B. Expansion coupling shall be provided in each raceway crossing building expansion joint and when length of raceway requires expansion coupling, expansion coupling shall have a total minimum expansion of 4" and shall have a flexible bonding conductor. Setting of expansion coupling shall be a function of the temperature at the time of installation. Flexible couplings shall be provided where required.
- C. Raceways shall have runs installed parallel or perpendicular to walls, structural members or intersections of vertical planes and ceilings. Field-made bends and offsets shall be avoided where possible, but where necessary, shall be made within an approved hickey or conduit bending machine. Crushed or deformed raceways shall not be installed. Trapped raceways shall be avoided. Care shall be taken to prevent the lodgement of plaster, dirt or trash in raceway boxes, fittings and equipment during the construction. Clogged raceways shall be entirely free of obstructions or shall be replaced. Wooden plugs inserted in concrete or masonry are not acceptable as a base for raceway fastenings nor shall raceways or pipe straps be welded to steel structures. Raceways shall be secured by pipe straps or shall be supported by wall brackets, strap hangers or ceiling trapeze fastened by wood screws on wood, toggle

bolts on hollow units, expansion bolts on concrete or brick and machine screws or welded studs on steel work.

### 3.7 OUTLETS

- A. Each outlet in the wiring or raceway systems shall be provided with an outlet box to suit the conditions encountered. Each box shall have sufficient volume to accommodate the number of conductors entering the box in accordance with the requirements of the National Electrical Code. Boxes shall not be less than 1-1/2" deep unless shallower boxes are required by structural conditions and are specifically approved.
- B. Ceiling and bracket outlet boxes shall be not less than 4" except that smaller boxes may be used where required by the particular fixture to be installed. Boxes shall be installed in a rigid and satisfactory manner and shall be fastened directly with wood screws on wood, bolts and expansion shield on concrete or brick, toggle bolts on hollow masonry units and machine screws or welded threaded studs on steel work. Threaded studs driven in by a powder charge and provided with lock washers and nuts are acceptable in lieu of wood screw, expansion shields or machine screws if permitted by local authorities.

### 3.8 FIXTURES

- A. Incandescent and fluorescent fixtures shall be supported by building structural elements independent of furred or suspended ceilings.
- B. Recessed fluorescent fixtures shall be supported by rod or bowchain, minimum of two (2) supports per 4' of fixture.
- C. The minimum number of supports for surface mounted fluorescent or suspended fluorescent fixtures shall equal one for each 4' of length plus one additional support: 4' two (2) supports: 8' three (3) supports: 12' four (4) supports. Additional supports shall be provided if required. Attachment to structural steel shall be bolted type, anchors and inserts shall be installed as an integral part of structural system. Explosive or cartridge driven type insert, anchors or supports are not acceptable.
- D. Subsequent to review of shop drawings and prior to ordering fixtures, verify voltage at each fixture, also consult with others to determine the type of ceiling and ceiling suspension system in each and every room and order fixtures to suit and fit the particular ceiling and ceiling suspension system. Any extra costs because of failure on the part of this Contractor to verify voltage or ceiling requirements shall be paid for by this Contractor.

3.9 WIRING DEVICES

- A. Switches and convenience outlets shall have a rating as indicated on the drawings. Outlets connected to exposed conduits shall be installed in a surface mounted, conduit device box, 4-1/2" long by 2-1/8" wide and with a suitable cover for the device to be installed (box shall be galvanized). Plates on finished walls and on boxes connected to concealed cable and conduits shall be as noted in the specifications.

3.10 INTENT OF DRAWINGS

- A. The drawings do not show in detail every conduit, junction box, or fitting, but material necessary to complete the electrical system in accordance with the best practices of the trade and to the complete satisfaction of the Architect, shall be furnished without additional compensation under this section of the specifications. No deviation from the layout shall be made without written approval from the Architect.

3.11 RECORD DRAWINGS

- A. During the progress of the work, keep a set of drawings marked up to record deviations and changes from the Contract Drawings due to field conditions, change orders, amendments, revisions, addenda and other reasons to represent an accurate record of work as actually installed. Include an accurate layout of in-slab, under-slab, and buried conduits.
- B. Deviations from the Contract Documents shall be favorably reviewed by the Architect before installation.
- C. At the completion of the work, furnish to the Architect a complete set of prints of the original Contract Drawings on polyester film, corrected in a neat manner to reflect the above changes and representing an accurate record of work as actually installed.
- D. The record drawings shall be submitted to the Architect for review and corrected as deemed necessary.
- E. After favorable review, the record drawings shall become the property of the Owner.

3.12 INSTRUCTIONS, OPERATION AND MAINTENANCE DATA

- A. At the completion of the work, deliver one (1) set of operating and maintenance instructions of equipment and systems to the Owner. Submit name and address of nearest available source of repair service and replacement equipment and parts to the Owner and Architect. Explain and demonstrate the operation of the fire alarm system, the security system and the sound system (if Alternate 6C is taken) to the Owner's representative. The manufacturer's field technician shall be present at this demonstration.



- B. Arrange data in complete sets, properly indexed and marked.
- C. Data shall include a complete set of shop drawings.
- D. Material shall first be submitted in preliminary form for review by the Architect. After review, submit two (2) copies in bound volumes to the Architect for distribution.

\* END OF SECTION \*