CONTRACT CONDITIONS AND SPECIFICATIONS

FOR

THE CONSTRUCTION

OF THE

# Spellman Museum of Forney History

200-202 S. Bois D'Arc Street

Forney, Texas 75126

**Project Manual**

**Architect:**
**Dennehy Architects, Inc.**
Architecture – Interiors

3464-A Bluebonnet Circle
Fort Worth, Texas 76109
Tel: 817-922-9933
Fax: 817-922-9997


**21 AUGUST 2012**

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Not Used

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Not Used

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By Owner's Direct Contract

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By Owner's Direct Contract

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By Owner's Direct Contract

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By Owner's Direct Contract

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## DOCUMENT 00 3126

## EXISTING HAZARDOUS MATERIALS DATA

### 1.1 INVESTIGATION

A. Hazardous materials investigations were performed at the site, the results of which can be found in the following reports:
   1. Lead Based Paint Survey Report by Resource Environmental Consulting, Irving Texas; Report No. 111131 dated may 9, 2011.
   2. Asbestos Survey/Inspection Report by EHP Consulting, LLP, Dallas, Texas; Report No. 090979 dated August 18, 2009.

B. Copies of the reports are bound into the Project Manual.

### 1.2 INTERPRETATION

A. The reports are provided only for bidder's information and convenience and are not part of the Contract Documents. Owner and Architect do not warrant the accuracy or extent of the reports or locations of the test samples.

B. Interpretation of the reports is bidder's responsibility. Owner and Architect will not be responsible for interpretation of reports by bidders.

C. Bidders are urged to examine the reports and the site.

D. Additional exploratory operations may be made by bidders at no additional cost to Owner, provided such operations are approved by Owner in advance.

E. Comply with applicable codes, ordinances, rules, and regulations of authorities having jurisdiction when removing, handling, transporting, and disposing of hazardous materials.

F. Refer to Conditions of the Contract for additional information.

END OF DOCUMENT

## DOCUMENT 00 3132

## GEOTECHNICAL DATA

### 1.1 INVESTIGATION

A. Geotechnical investigations were conducted at the site, the results of which can be found in the report issued by Alpha Testing< inc., Dallas, Texas; Report No. G110139 dated March 8, 2011.

B. A copy of the report is bound into the Project Manual.

### 1.2 INTERPRETATION

A. The report is provided only for bidder's information and convenience and is not part of the Contract Documents. Owner and Architect do not warrant the accuracy or extent of the report or locations of the test borings.

B. The report is based upon the assumption that uniform variation exists in soil properties between borings. Interpretation of the report is bidder's responsibility. Owner and Architect will not be responsible for interpretation of report by bidders.

C. Bidders are urged to examine the report and the site.

D. Additional soil borings or other exploratory operations may be made by bidders at no additional cost to Owner, provided such operations are approved by Owner in advance.

E. Refer to Conditions of the Contract for additional information.

END OF DOCUMENT

## DOCUMENT 00 7200

## GENERAL CONDITIONS

### 1.1 SUMMARY

A. Related Documents:
   1. Document 00 7300 - Supplementary Conditions.
   2. Division 01 - General Requirements.

### 1.2 DOCUMENT

A. American Institute of Architects (AIA) Document A201-2007, General Conditions of the Contract for Construction, forms a part of this Contract and by reference is incorporated herein as fully as if repeated at length.

END OF DOCUMENT

## SECTION 01 1100

## SUMMARY OF WORK

### PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Project description.
   2. Work by Others.
   3. Contractor's use of site and premises.

1.2 PROJECT DESCRIPTION

A. Work of this Project is described as the restoration of an existing single story building for use as the Spellman Museum of Forney History, Forney, Texas.

B. Work includes site construction, general construction, fire protection, plumbing, HVAC, and electrical.

C. The Project will be constructed under a single prime contract.

1.3 WORK BY OTHERS

A. Separate Contracts:
   1. The Owner may execute contracts for additional work at the site, that is excluded from the work of this Contract.
   2. Work under separate contract may be executed concurrent with Work of this Contract.
   3. Cooperate with the Owner and separate contractors to accommodate this requirement.

1.4 CONTRACTOR'S USE OF SITE AND PREMISES

A. Limit use of site and premises to allow for:
   1. Work by separate contractors.
   2. Work by Owner.

B. Move any stored products under Contractor's control that interfere with the operations of the Owner or separate contractors.

C. Assume full responsibility for protection and safekeeping of products under this Contract stored on site.

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

E. Coordinate use of site and premises with the Owner.

F. Do not use or store hazardous or flammable materials on premises without Owner's approval; follow requirements of governing authorities having jurisdiction over the work.

G. Prohibit smoking within interior spaces.

### PART 2 PRODUCTS

Not used

## PART 3 EXECUTION

Not used

END OF SECTION

## SECTION 01 2200

## UNIT PRICES

### PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Measurement.
   2. Payment.

B. Related Sections:
   1. Individual specification sections.

1.2 UNIT PRICES

A. Provide unit prices for items listed, for inclusion in Contract, guaranteed to apply for duration of Project as basis for additions to or deductions from Contract Sum.

B. Take measurements and compute quantities.

C. Quantities and measurements indicated are for Contract purposes only. Actual quantities and measurements supplied or placed in the Work will determine payment.

D. Payment includes full compensation for all required labor, Products, tools, equipment, plant, transportation, services, and incidentals, and for erection, application, or installation of an item of the Work.

E. Adjustments to Contract Sum will be made by Change Order based on net cumulative change for each item of the Work.

### PART 2 PRODUCTS

Not used

### PART 3 EXECUTION

3.1 UNIT PRICE SCHEDULE

A. Drilled Concrete Piers:
   1. Pier depth:
      a. Unit of measure: By the linear foot including shaft drilling, dewatering, reinforcement, and concrete.
      b. Basis of payment:
         1) Contract Sum to be based on design depths indicated on Drawings.
         2) Adjustments to Contract Sum will be made using actual pier depth measured from top of pier to top of bearing strata. Payment for penetration into bearing strata is not included in unit price, and is to be included in Contract Sum.
   2. Temporary casings:
      a. Unit of measure: By the linear foot including placement and removal.
      b. Basis of payment:
         1) Cost of pier casings is not to be included in Contract Sum.
         2) If pier casings are required Contract Sum will be adjusted based on actual depth measured from top of pier to top of bearing strata.

B. Brick Replacement:
   1. Unit of measure: By the square foot, including removal of existing brick, replacement brick, and installation.

2. Basis of payment:
   a. Contract Sum to be based on quantities indicated on Drawings.
   b. Adjustments to Contract Sum will be made based on actual quantity of brick replaced.

C. Wood Roof Framing:
   1. Unit of measure: By the linear foot, including removal of existing framing members, new framing members, and installation.
   2. Basis of payment:
      a. Contract Sum to be based on replacement of 100 linear feet of framing members.
      b. Adjustments to Contract Sum will be made based on actual quantity of framing members replaced.

END OF SECTION

## SECTION 01 2500

## SUBSTITUTION PROCEDURES

### PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Product Substitution Procedures.

1.2 GENERAL

A. Definition: Proposal by Contractor to use manufacturer, product, material, or system different from one required in Contract Documents.

B. Do not substitute Products unless a substitution request has been approved by Architect.

C. Substitutions during Bidding: Refer to Instructions to Bidders.

D. Architect will consider substitution requests within 30 days after award of Contract. After initial 30 day period, substitutions requests will be considered only due to non-availability of a specified Product through no fault of Contractor.

E. In case of non-availability of a specified Product notify Architect in writing as soon as non-availability becomes apparent.

1.3 SUBSTITUTION REQUESTS

A. Submit substitution requests on copy of form bound into Project Manual.

B. Document specified product and proposed substitution with complete data, including:
   1. Product identification, including name and address of manufacturer.
   2. Product description, performance and test data, and reference standards.
   3. Sample, if requested.
   4. Description of any anticipated effect that acceptance of proposed substitution will have on Progress Schedule, construction methods, or other items of Work.
   5. Description of any differences between specified product and proposed substitution.
   6. Difference in cost between specified product and proposed substitution.

C. Burden of proof for substantiating compliance of proposed substitution with Contract Document requirements remains with Contractor.

D. A request constitutes a representation that the Contractor:
   1. Has investigated the 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.
   4. Waives claims for additional costs or time extension that may subsequently become apparent.
   5. Will reimburse Owner for design services associated with re-approval by authorities or revisions to Contract Documents to accommodate the substitution.

E. Substitutions will not be considered if:
   1. They are indicated or implied on Shop Drawings or other submittals without submittal of a substitution request.
   2. Approval will require substantial revision of Contract Documents without additional compensation to Architect.

F. Submit electronically in Adobe PDF format.

G. Architect will notify Contractor of approval or rejection of each Substitution Request.

## PART 2 PRODUCTS

Not used

## PART 3 EXECUTION

Not used

END OF SECTION

**DOCUMENT 01 2519**

**SUBSTITUTION REQUEST FORM**

DATE: _____

TO: _____

ATTENTION: _____

PROJECT: _____

We submit for your consideration the following product as a substitution for the specified product:

| Section No. | Paragraph | Specified Product |
|---|---|---|
| _____ | _____ | _____ |

Proposed Substitution: _____

_____

Reason for Substitution: _____

_____

Product Data:

Attach complete technical data for both the specified product and the proposed substitution. Include information on changes to Contract Documents that the proposed substitution will require for its proper installation.

Samples:

___ Attached ___ Will be furnished upon request

Does the substitution affect dimensions shown on Drawings?

___ No ___ Yes (explain) _____

_____

Effects of proposed substitution on other Work:

_____

_____

Differences between proposed substitution and specified Product:

_____

_____

Manufacturer's warranties of the proposed substitution are:

___ Same ___ Different (explain) _____

_____

Maintenance service and spare parts are available for proposed substitution from:

_____

_____

Previous installations where proposed substitution may be seen:

Project: _____ Project: _____

Owner: _____ Owner: _____

Architect: _____ Architect: _____

Date Installed: _____ Date Installed: _____

Cost savings to be realized by Owner, if proposed substitution is approved:

_____

Change to Contract Time, if proposed substitution is approved:

___ No Change ___ Add _____ days ___ Deduct _____ days

Submittal constitutes a representation that Contractor has read and agrees to the provisions of Section 01 2500.

Submitted by Contractor:

_____
Signature

_____
Firm

For Use by Architect:

Based on the information supplied by the Contractor, the Architect has reviewed the proposed substitution on the basis of design concept of the Work and conformance with information given in Contract Documents.

___ Approved ___ Approved as Noted ___ Rejected

Submit Additional Information: _____

_____

By: _____ Date: _____

SECTION 01 2600

CONTRACT MODIFICATION PROCEDURES

## PART 1 GENERAL

### 1.1 SUMMARY

A. Section Includes:
   1. Supplemental Instructions.
   2. Proposal Requests.
   3. Contractor proposed changes.
   4. Construction Change Directives.
   5. Change Orders.

B. Related Sections:
   1. Section 01 6000 - Product Requirements.

### 1.2 CHANGE PROCEDURES

A. Architect's Supplemental Instructions:
   1. Format: AIA Document G710 - Architect's Supplemental Instructions.
   2. Architect will advise of minor changes in Work not involving an adjustment to Contract Sum or Contract Time as authorized by the Conditions of the Contract.

B. Proposal Requests:
   1. Format: AIA Document G709 - Proposal Request.
   2. Architect may issue a Proposal Request that includes a detailed description of a proposed change with supplemental or revised Drawings and specifications.
   3. Prepare and submit an estimate of any change to Contract Sum or Contract Time within 7 days after receipt. Include:
      a. Quantities and unit costs, with total cost or credit to Owner. If requested, furnish documentation of quantities.
      b. Taxes, delivery charges, equipment rentals, and trade discounts as applicable.
      c. If change in Contract Time is involved, provide updated Progress Schedule.
   4. Do not stop work or initiate changes in response to a Proposal Request. If approved, Architect will prepare and issue a Change Order.
   5. Submit electronically in Adobe PDF format.

C. Contractor Proposed Changes:
   1. Format: Contractor's standard.
   2. Contractor may propose a change by submitting request for change to Architect.
   3. Describe proposed change, reason for change, its full effect on Work, and any change to Contract Sum or Contract Time. Include:
      a. Quantities and unit costs, with total cost or credit to Owner. If requested, furnish documentation of quantities.
      b. Taxes, delivery charges, equipment rentals, and trade discounts as applicable.
      c. If change in Contract Time is involved, provide updated Progress Schedule.
   4. Document any required substitutions in accordance with Section 01 6000.
   5. Submit electronically in Adobe PDF format.

D. Construction Change Directive:
   1. Architect may issue a directive, signed by Owner, instructing Contractor to proceed with a change for subsequent inclusion in a Change Order.
   2. Documentation will describe changes in Work and designate method of determining any change to Contract Sum or Contract Time. Promptly execute change.

E. Change Orders:
   1. Format: AIA Document G701 - Change Order.

2. Execution: Prepare Change Orders for signature of parties as provided in Conditions of the Contract.

## PART 2 PRODUCTS

Not used

## PART 3 EXECUTION

Not used

END OF SECTION

## SECTION 01 2900

## PAYMENT PROCEDURES

### PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Schedule of Values.
   2. Applications for Payment.

B. Related Sections:
   1. Section 01 7700 - Closeout Procedures.

1.2 SCHEDULE OF VALUES

A. General:
   1. Submit a Schedule of Values to Architect at least 20 days prior to submitting first Application for Payment.
   2. Upon request of Architect, furnish additional data to support values given that will substantiate their correctness.
   3. Approved Schedule of Values will be used as basis for reviewing Contractor's Applications for Payment.

B. Form and Content:
   1. Format: AIA Document G703 - Continuation Sheet of Application and Certification for Payment or Contractor's standard electronic media format.
   2. Use Table of Contents of Project Manual as basis of format for listing costs of Work.
   3. List installed value of component parts of Work in sufficient detail to serve as basis for computing values for progress payments.
   4. Include separate line items for:
      a. Site mobilization.
      b. Bonds and insurance.
      c. Contractor's overhead and profit.
   5. For items on which payment will be requested for stored materials, break down value into:
      a. Cost of materials, delivered and unloaded.
      b. Total installed value.
   6. For each line item that has a value of more than $25,000.00, break down costs to list major products or operations under each item.
   7. Total of costs listed in Schedule shall equal Contract Sum.

C. Submit electronically in Adobe PDF format.

D. Review and Resubmittal:
   1. After initial review by Architect, revise and resubmit if required.
   2. Revise and resubmit along with next Application for Payment when a Change Order is issued. List each Change Order as a new line item.

1.3 APPLICATIONS FOR PAYMENT

A. Preparation:
   1. Format: AIA Document G702 - Application and Certification for Payment, supported by AIA Document G703 - Continuation Sheet or Contractor's standard electronic media format.
   2. Prepare required information in typewritten format or on electronic media format.
   3. Use data from reviewed Schedule of Values. Provide dollar value in each column for each line item representing portion of work performed.
   4. List each authorized Change Order as a separate line item, listing Change Order number and dollar value.

5. Prepare Application for Final Payment as specified in Section 01 7700.

B. Waivers of Lien:
   1. Along with the each Application for Payment, submit waivers of lien from Contractor and each Subcontractor or Sub-subcontractor included on the current month's Application for Payment.
   2. Submit partial waivers on each item for amount requested, prior to deduction of retainage.
   3. For completed items, submit full or final waiver.

C. Substantiating Data:
   1. When Architect requires substantiating information, submit data justifying dollar amounts in question.
   2. Provide one copy of data with cover letter showing Application number and date, and line item number and description.

D. Submittal:
   1. Submit electronically in Adobe PDF format.
   2. Payment period: Submit at intervals stipulated in Owner/Contractor Agreement.

**PART 2 PRODUCTS**

Not used

**PART 3 EXECUTION**

Not used

END OF SECTION

## SECTION 01 3100

## PROJECT MANAGEMENT AND COORDINATION

### PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Project coordination.
   2. Project meetings.

B. Related Sections:
   1. Section 01 7700 - Contract Closeout.

1.2 PROJECT COORDINATION

A. Submit required project submittals electronically in Abode PDF format.

B. Coordinate scheduling, submittals, and work of various Sections of specifications to assure efficient and orderly sequence of installation of interdependent construction elements.

C. Verify that utility requirement characteristics of operating equipment are compatible with building utilities. Coordinate work of various Sections having interdependent responsibilities for installing, connecting to, and placing in service such equipment.

D. Coordinate space requirements and installation of mechanical and electrical items that are indicated diagrammatically on Drawings.
   1. Follow routing shown as closely as practical; place runs parallel with building lines.
   2. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.

E. In finished areas, conceal pipes, ducts, and wiring within construction. Coordinate locations of fixtures and outlets with finish elements.

F. Coordinate completion and clean up of work of separate Sections in preparation for Substantial Completion.

G. After Owner occupancy, coordinate access to site for correction of defective Work and Work not in accordance with Contract Documents to minimize disruption of Owner's activities.

1.3 PROJECT MEETINGS

A. Schedule and administer preconstruction conference, progress meetings, and pre-installation conferences.

B. Make physical arrangements for meetings; notify involved parties at least 4 days in advance.

C. Record significant proceedings and decisions at each meeting; reproduce and distribute copies to parties in attendance and others affected by proceedings and decisions made.

1.4 PRECONSTRUCTION CONFERENCE

A. Schedule within 15 days after date of Notice to Proceed at project field office.

B. Attendance:
   1. Contractor.
   2. Owner.
   3. Architect.

4. Major subcontractors and suppliers as Contractor deems appropriate.
5. Representative of Testing Laboratory.

C. Review and Discuss:
1. Relation and coordination of various parties, and responsible personnel for each party.
2. Use of premises, including office and storage areas, temporary controls, and security procedures.
3. Construction schedule and critical work sequencing.
4. Processing of:
   a. Contract modifications.
   b. Shop Drawings, Product Data, and Samples.
   c. Applications for Payment.
   d. Substitutions.
   e. Other required submittals.
5. Adequacy of distribution of Contract Documents.
6. Procedures for maintaining contract closeout submittals.
7. Installation and removal of temporary facilities.
8. Notification procedures and extent of testing and inspection services.

1.5 PROGRESS MEETINGS

A. Schedule biweekly progress meetings.

B. Location: Contractor's project field office.

C. Attendance:
1. Contractor.
2. Owner.
3. Architect.
4. Subcontractors and suppliers as appropriate to agenda.
5. Others as appropriate to agenda.

D. Review and Discuss:
1. Work progress since previous meeting, including:
   a. Field observations, deficiencies, conflicts, and problems.
   b. Progress and completion date.
   c. Corrective measures needed to maintain quality standards, progress, and completion date.
2. Status of:
   a. Requests for information.
   b. Submittals.
   c. Contract modifications.
3. Coordination between various elements of Work.
4. Maintenance of Project Record Documents.

1.6 PRE-INSTALLATION CONFERENCES

A. Where required in individual specification Section, convene a pre-installation conference at project site or other designated location.

B. Require attendance of parties directly affecting or affected by work of the specific Section.

C. Review conditions of installation, preparation and installation procedures, and coordination with related work.

**PART 2 PRODUCTS**

Not used

## PART 3 EXECUTION

Not used

END OF SECTION

## SECTION 01 3216

## CONSTRUCTION PROGRESS SCHEDULES

### PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Construction progress schedule.

B. Related Sections:
   1. Section 01 2900 - Payment Procedures.

1.2 FORMAT

A. Prepare Progress Schedule as a horizontal bar chart with separate bar for each major portion of Work or operation, identifying first work day of each week.

B. Sequence of Listings: The chronological order of the start of each item of Work.

C. Scale and Spacing: To provide space for notations and revisions.

D. Sheet Size: Multiples of 8-1/2 x 11 inches.

1.3 CONTENT

A. Show complete sequence of construction by activity, with dates for beginning and completion of each element of construction.

B. Identify each item by specification Section number.

C. Provide subschedules to define critical portions of the entire Progress Schedule.

D. Show accumulated percentage of completion of each item, and total percentage of Work completed, as of the first day of each month.

E. Provide separate schedule of submittal dates for Shop Drawings, Product Data, and Samples, including:
   1. Dates reviewed submittals will be required from Architect.
   2. Decision dates for selection of finishes.

F. Coordinate content with Schedule of Values specified in Section 01 2900.

G. Revisions:
   1. Indicate progress of each activity to date of submittal, and projected completion date of each activity.
   2. Identify activities modified since previous submittal, major changes in scope, and other identifiable changes.

H. Provide narrative report to define problem areas, anticipated delays, and impact on Progress Schedule. Report corrective action taken, or proposed, and its effect.

1.4 SUBMITTAL

A. Submit initial Progress Schedule within 15 days after date of Notice to Proceed. After review, resubmit required revised data within 10 days.

B. Submit revised Progress Schedule with each Application for Payment.

C. Submit electronically in Adobe PDF format.

1.5 DISTRIBUTION

A. Distribute copies of approved Progress Schedule to project site file, Subcontractors, suppliers, and other concerned parties.

B. Instruct recipients to promptly report, in writing, problems anticipated by projections indicated in Progress Schedule.

## PART 2 PRODUCTS

Not used

## PART 3 EXECUTION

Not used

END OF SECTION

## SECTION 01 3300

## SUBMITTAL PROCEDURES

### PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Submittal procedures.
2. Shop Drawings.
3. Product Data.
4. Samples.
5. Quality control submittals.

B. Related Sections:
1. Section 01 4000 - Quality Requirements.

1.2 SUBMITTAL PROCEDURES

A. Number each submittal with Project Manual section number and a sequential number within each section. Number resubmittals with original number and an alphabetic suffix.

B. Identify Project, Contractor, Subcontractor or supplier, pertinent Drawing sheet and detail numbers, and specification Section number, as appropriate.

C. Submit all submittals listed under "Submittals for Review" simultaneously for each Product or Specification Section.

D. Where multiple Products function as an assembly, group submittals for all related Products into single submittal.

E. Architect will not review incomplete submittals.

F. Apply Contractor's stamp, signed or initialed certifying that:
1. Submittal was reviewed.
2. Products, field dimensions, and adjacent construction have been verified.
3. Information has been coordinated with requirements of Work and Contract Documents.

G. Schedule submittals to expedite the Project, and deliver to Architect. Coordinate submittal of related items.

H. For each submittal, allow 14 days for Architect's review, excluding delivery time to and from Contractor.

I. Submittal:
1. For items requiring Architect's review only, submit directly to Architect.
2. For items requiring review by Architect's consultants, submit directly to appropriate consultant and to Architect.
3. Architect will provide a standard transmittal form containing Architect's and consultants' addresses, actions, and other procedural information.

J. Distribution after Review:
1. Approved submittals: Distribute copies of approved submittals to concerned parties and to Project Record Documents file. Instruct parties to promptly report any inability to comply with provisions.
2. Submittals requiring resubmittal:
   a. Distribute copies of reviewed submittals to concerned parties. Instruct affected parties to revise and resubmit submittals; identify all changes made since previous submittal.

b. Identify changes made since previous submittal.

K. Submittal Log:
1. Maintain electronic log of all submittals required for Project, organized by submittal type.
2. Make log available to Architect upon request.

1.3 SHOP DRAWINGS

A. Present information in clear and thorough manner.

B. Identify details by reference to sheet and detail numbers or room number shown on Drawings.

C. Reproductions of details contained in Contract Documents are not acceptable.

D. Submit electronically in Adobe PDF format. Architect will return one copy to Contractor for printing and distribution.

1.4 PRODUCT DATA

A. Mark each copy to identify applicable products, models, options, and other data.

B. Supplement manufacturers' standard data to provide information unique to this Project.

C. Submit electronically in Adobe PDF format. Architect will return one copy to Contractor for printing and distribution.

1.5 SAMPLES

A. Submit samples to illustrate functional and aesthetic characteristics of Products, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.

B. Where so indicated, submit samples of finishes from the full range of manufacturers' standard colors, textures, and patterns for Architect's selection.

C. Include identification on each sample, with full Project information.

D. Unless otherwise specified in individual specifications, submit two of each sample.

E. Architect will notify Contractor of approval or rejection of samples, or of selection of color, texture, or pattern if full range is submitted.

1.6 QUALITY CONTROL SUBMITTALS

A. Quality control submittals specified in Section 01 4000 are for information and do not require Architect's responsive action except to require resubmission of incomplete or incorrect information.

**PART 2 PRODUCTS**

Not used

**PART 3 EXECUTION**

Not used

END OF SECTION

## SECTION 01 3591

## RESTORATION PROJECT PROCEDURES

### PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Definitions.
   2. Historic significance.
   3. Restoration procedures.
   4. Historic artifacts.
   5. Salvaged materials.
   6. Alterations.
   7. Hazardous material procedures.

B. Related Sections:
   1. Division 01: Administrative, procedural, and temporary work requirements.

1.2 DEFINITIONS

A. Disassemble: The act or process of taking apart a component element by element and salvaging for reassembly.

B. Match Original: Provide new materials to match the original material in all aspects as closely as possible. Original materials are those which were originally installed in the building at the time of its completion, prior to previous alterations, and which may predate existing materials.

C. Preservation: The act or process of applying measures necessary to sustain the existing form, integrity, and materials of an historic property.

D. Reassemble: The act or process of putting a component back in its original location after disassembly and repair or replacement.

E. Reconstruction: The act or process of reproducing, by means of new construction, the form, features, and detailing of a non-surviving building, structure, or object for the purpose of replicating its appearance at a specific period of time and in its historic location.

F. Restoration: The act or process of accurately depicting the form, features, and character as it appeared at a particular time by means of the removal of features from other periods in its history and reconstruction of missing features from the restoration period.

G. Salvage: The act of careful removal, cataloguing, and tagging, documentation of original location, packaging and crating with documentation enclosed for long-term storage and delivery to Owner. Does not include salvage for recycling.

H. Salvage for Reuse: The act of careful removal, cataloguing, and tagging, documentation of original location, packaging and crating for reinstallation at a later point during the Work.

1.3 QUALITY ASSURANCE

A. Historic Significance:
   1. This site is a designated historic site by the City of Forney, Texas.
   2. Due to its historical significance, special procedures and precautions must be used in selective demolition and restoration.
   3. The building is to be rehabilitated for use as a local history museum.

B. Restoration Procedures:
   1. Preserve original materials, finishes, and profiles.
   2. Blend new and original work to provide smooth transitions and uniform appearance.
   3. Cease work, notify Architect, and await instructions if materials or conditions encountered at the site are not as indicated by the Contract Documents or if structure is in danger of movement or collapse.

C. Historic Artifacts: If artifacts of a historic nature are encountered during the Work:
   1. Cease work in the affected area immediately.
   2. Protect artifacts from damage.
   3. Notify Owner and Architect and await instructions.
   4. Salvage or dispose of artifacts as directed by the Owner.

## PART 2 PRODUCTS

### 2.1 MATERIALS

A. New Materials:
   1. Provide new materials to match original adjacent materials or original materials for closing of openings, repairs, and reconstructions where suitable salvaged materials do not exist, are insufficient in quantity, or where reuse is not permitted.
   2. Retain samples of original materials on site for comparison purposes.
   3. Match original materials in material, type, size, quality, color, finish, and other attributes.

B. Reused Materials:
   1. Clean and prepare salvaged materials for reuse.
   2. Do not use materials with objectionable chips, cracks, splits, dents, scratches, or other defects.
   3. Repair operable items to function properly.

## PART 3 EXECUTION

### 3.1 PREPARATION

A. Test materials to be used in repairs for compatibility with existing original materials; do not use incompatible materials.

B. Cut, move, or remove items to provide access for alterations and restoration work. Replace and restore upon completion.

C. Protect original materials and surfaces from damage by construction operations.

### 3.2 ALTERATIONS

A. Coordinate alterations and renovations to expedite completion.

B. Minimize damage to original materials and surfaces; provide means for restoring products and finishes to their original or specified new condition.

C. Remove unsuitable materials not marked for salvage.

D. Remove debris and abandoned items from areas of work and from concealed spaces.

E. Refinish visible surfaces to specified condition, with neat transition to adjacent surfaces.

F. Install products and finish surfaces as specified in individual sections, or where no specification section exists, to match original.

## SECTION 01 3300

## SUBMITTAL PROCEDURES

### PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Submittal procedures.
   2. Shop Drawings.
   3. Product Data.
   4. Samples.
   5. Quality control submittals.

B. Related Sections:
   1. Section 01 4000 - Quality Requirements.

1.2 SUBMITTAL PROCEDURES

A. Number each submittal with Project Manual section number and a sequential number within each section. Number resubmittals with original number and an alphabetic suffix.

B. Identify Project, Contractor, Subcontractor or supplier, pertinent Drawing sheet and detail numbers, and specification Section number, as appropriate.

C. Submit all submittals listed under "Submittals for Review" simultaneously for each Product or Specification Section.

D. Where multiple Products function as an assembly, group submittals for all related Products into single submittal.

E. Architect will not review incomplete submittals.

F. Apply Contractor's stamp, signed or initialed certifying that:
   1. Submittal was reviewed.
   2. Products, field dimensions, and adjacent construction have been verified.
   3. Information has been coordinated with requirements of Work and Contract Documents.

G. Schedule submittals to expedite the Project, and deliver to Architect. Coordinate submittal of related items.

H. For each submittal, allow 14 days for Architect's review, excluding delivery time to and from Contractor.

I. Submittal:
   1. For items requiring Architect's review only, submit directly to Architect.
   2. For items requiring review by Architect's consultants, submit directly to appropriate consultant and to Architect.
   3. Architect will provide a standard transmittal form containing Architect's and consultants' addresses, actions, and other procedural information.

J. Distribution after Review:
   1. Approved submittals: Distribute copies of approved submittals to concerned parties and to Project Record Documents file. Instruct parties to promptly report any inability to comply with provisions.
   2. Submittals requiring resubmittal:
      a. Distribute copies of reviewed submittals to concerned parties. Instruct affected parties to revise and resubmit submittals; identify all changes made since previous submittal.

b. Identify changes made since previous submittal.

K. Submittal Log:
1. Maintain electronic log of all submittals required for Project, organized by submittal type.
2. Make log available to Architect upon request.

1.3 SHOP DRAWINGS

A. Present information in clear and thorough manner.

B. Identify details by reference to sheet and detail numbers or room number shown on Drawings.

C. Reproductions of details contained in Contract Documents are not acceptable.

D. Submit electronically in Adobe PDF format. Architect will return one copy to Contractor for printing and distribution.

1.4 PRODUCT DATA

A. Mark each copy to identify applicable products, models, options, and other data.

B. Supplement manufacturers' standard data to provide information unique to this Project.

C. Submit electronically in Adobe PDF format. Architect will return one copy to Contractor for printing and distribution.

1.5 SAMPLES

A. Submit samples to illustrate functional and aesthetic characteristics of Products, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.

B. Where so indicated, submit samples of finishes from the full range of manufacturers' standard colors, textures, and patterns for Architect's selection.

C. Include identification on each sample, with full Project information.

D. Unless otherwise specified in individual specifications, submit two of each sample.

E. Architect will notify Contractor of approval or rejection of samples, or of selection of color, texture, or pattern if full range is submitted.

1.6 QUALITY CONTROL SUBMITTALS

A. Quality control submittals specified in Section 01 4000 are for information and do not require Architect's responsive action except to require resubmission of incomplete or incorrect information.

**PART 2 PRODUCTS**

Not used

**PART 3 EXECUTION**

Not used

END OF SECTION

G. Finish patches to provide uniform color and texture over entire surface, with repairs not discernible from normal viewing distance. If finish cannot be matched, refinish entire surface to nearest intersections.

H. Rework finished surfaces to smooth plane, without breaks, steps, or bulkheads:
   1. Where new work abuts or aligns with existing, provide smooth and even transition.
   2. Where a change in plane of 1/4 inch or more occurs, submit recommendation to Architect for transition.

I. Where alterations expose mechanical and electrical components which were previously concealed, rework to be concealed in completed work.

## 3.3 HAZARDOUS MATERIAL PROCEDURES

A. If hazardous or suspected hazardous materials are encountered:
   1. Stop work in affected area immediately.
   2. Notify Owner and Architect and await instructions.
   3. Prevent damage to materials.
   4. Prevent human contact.
   5. Owner will arrange for abatement or removal of hazardous materials under a separate contract.

END OF SECTION

## SECTION 01 4000

## QUALITY REQUIREMENTS

### PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. References.
2. Quality assurance and control of installation.
3. Mockups.
4. Manufacturer's field services and reports.
5. Design data and calculations.
6. Test reports and certifications.
7. Manufacturer's installation instructions.

1.2 REFERENCES

A. For products or workmanship specified by reference to association, trade, or industry standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.

B. Should specified reference standards conflict with Contract Documents, request clarification from Architect before proceeding.

C. Conform to edition of reference standard in effect as of date of Owner/Contractor Agreement.

D. The contractual relationship of the parties to the Contract shall not be altered from the Contract Documents by mention or inference otherwise in any reference document.

1.3 QUALITY ASSURANCE AND CONTROL OF INSTALLATION

A. Monitor quality control over suppliers, manufacturers, Products, services, site conditions, and workmanship, to produce Work of specified quality.

B. Comply fully with manufacturers' instructions, including each step in sequence.

C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Architect before proceeding.

D. Comply with specified standards as a minimum quality for the Work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

E. Perform work by persons qualified to produce workmanship of specified quality.

F. Secure Products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion or disfigurement.

1.4 MOCKUPS

A. Definition:
1. Mockups are field samples constructed, applied, or assembled at the project site for review by the Owner and Architect that illustrate materials, equipment, or workmanship.
2. Approved mockups establish the standard of quality by which the Work will be judged.

B. Construct, apply, or assemble specified items, with related attachment and anchorage devices, flashings, seals, and finishes.

C. Perform work in accordance with applicable specifications sections.

D. Erect at project site at location acceptable to Architect. Protect from damage.

E. Removal:
   1. Mockups may remain as part of the Work only when so designated in individual specification sections.
   2. Do not remove mockups until removal is approved by Architect or upon Final Completion.
   3. Where mockup is not permitted to remain as part of the Work, clear area after removal of mockup has been approved by Architect.

1.5 MANUFACTURERS' FIELD SERVICES AND REPORTS

A. When specified in individual specification Sections, require material or Product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, or startup of equipment, as applicable, and to initiate instructions when necessary.

B. Individuals to report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

C. Submit electronically in Adobe PDF format within 10 days after each observation.

1.6 DESIGN DATA AND CALCULATIONS

A. When specified in individual specification Sections, require material or Product suppliers or manufacturers to provide design data and calculations.

B. Accuracy of design data and calculations is the responsibility of the Contractor.

C. When so specified, prepare design data and calculations under the direction of a professional engineer licensed in the state in which the Project is located. Affix engineer's seal to submittals.

D. Submit electronically in Adobe PDF format.

1.7 TEST REPORTS AND CERTIFICATIONS

A. When specified in individual specification Sections, require material or Product suppliers or manufacturers to provide test reports and manufacturers' certifications.

B. Indicate that material or Product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.

C. Submittals may be recent or previous test results on material or Product, but must be acceptable to Architect.

D. Submit electronically in Adobe PDF format.

1.8 MANUFACTURER'S INSTALLATION INSTRUCTIONS

A. When Contract Documents require that Products be installed in accordance with manufacturer's instructions:
   1. Submit manufacturer's most recent printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, as applicable.
      a. Submit in quantities specified for Product Data.
      b. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.
      c. Identify conflicts between manufacturers' instructions and requirements of Contract Documents.
   2. Perform installation of Products to comply with requirements of manufacturer's instructions.

3. If installation cannot be performed in accordance with manufacturer's instructions, notify Architect and await instructions.
4. Submit electronically in Adobe PDF format.

## PART 2 PRODUCTS

Not used

## PART 3 EXECUTION

Not used

END OF SECTION

SECTION 01 4523

TESTING AND INSPECTION SERVICES

## PART 1 GENERAL

### 1.1 SUMMARY

A. Section Includes:
   1. Laboratory selection and payment.
   2. Laboratory duties.
   3. Contractor's responsibilities.

B. Related Sections: Individual specifications sections contain specific tests and inspections to be performed.

### 1.2 REFERENCES

A. ASTM International (ASTM):
   1. C1077 - Standard Practice for Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation.
   2. D3740 - Standard Practice for Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction.
   3. E329 - Standard Specification for Agencies Engaged in Construction Inspection and/or Testing.
   4. E543 - Standard Specification for Agencies Performing Nondestructive Testing.

### 1.3 QUALITY ASSURANCE

A. Owner will employ and pay for services of an independent testing laboratory to perform specified testing and inspection.

B. Contractor shall cooperate with the Testing Laboratory to facilitate performance of its work.

C. Refer to the Conditions of the Contract for provisions related to special inspections and testing.

D. Qualifications of Laboratory:
   1. Meet requirements of ASTM C1077, D3740, E329, and E543.
   2. Authorized to operate in State in which project is located.

### 1.4 LABORATORY DUTIES

A. Cooperate with Architect and Contractor; provide qualified personnel after due notice.

B. Perform specified inspections, sampling, and testing of materials and methods of construction:
   1. Comply with specified standards.
   2. Ascertain compliance or noncompliance of materials with requirements of Contract Documents.

C. Promptly notify Architect and Contractor of observed irregularities or deficiencies of Work or products.

D. Promptly submit report of each test and inspection; submit electronically in Adobe PDF format.

E. Each report shall include:
   1. Date issued.
   2. Project title and number.
   3. Testing Laboratory name, address, and telephone number.
   4. Name of Inspector and signature of individual in charge.
   5. Date and time of sampling or inspection.
   6. Record of temperature and weather conditions.
   7. Date of test.

8. Identification of product and specification section.
9. Location of sample or test in project.
10. Type of inspection or test.
11. Results of tests and compliance or noncompliance with Contract Documents.
12. Interpretation of test results when requested by Architect or Contractor.

F. Perform additional tests when required by Architect or Contractor.

G. Laboratory is not authorized to:
1. Release, revoke, alter, or enlarge on requirements of Contract Documents.
2. Approve or accept any portion of work.
3. Perform any duties of Contractor.

1.5 CONTRACTOR'S RESPONSIBILITIES

A. Cooperate with Laboratory personnel, provide access to Work, and to manufacturer's operations.

B. When materials require testing prior to being incorporated into Work, secure and deliver to Laboratory adequate quantities of representative samples of materials proposed to be used.

C. Furnish copies of product test reports as required.

D. Furnish incidental labor and facilities:
1. To provide access to work to be tested.
2. To obtain and handle samples at site or at source of product to be tested.
3. To facilitate inspections and tests.
4. For safe storage and curing of test samples.

E. Notify Laboratory sufficiently in advance of operations to allow for Laboratory assignment of personnel and scheduling of tests.

F. When tests or inspections cannot be performed after such notice, reimburse Owner for Laboratory personnel and travel expenses incurred due to Contractor's negligence.

G. Make arrangements with Laboratory and pay for additional samples and tests required for Contractor's convenience.

**PART 2 PRODUCTS**

Not used

**PART 3 EXECUTION**

Not used

END OF SECTION

## SECTION 01 5000

## TEMPORARY FACILITIES AND CONTROLS

### PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Temporary utilities.
2. Field offices and sheds.
3. Temporary controls.
4. Protection of installed Work.
5. Progress cleaning.
6. Water, erosion, sediment, dust, and mold and mildew control.
7. Removal.

### PART 2 PRODUCTS

Not used

### PART 3 EXECUTION

3.1 TEMPORARY ELECTRICITY

A. Provide temporary electrical service of capacity and characteristics required for construction.

B. Provide power outlets for construction operations, with branch wiring and distribution boxes located as required. Provide flexible power cords as required.

C. Maintain distribution system and provide routine repairs.

3.2 TEMPORARY LIGHTING

A. Provide temporary lighting for construction and security purposes.

B. Provide branch wiring from power source to distribution boxes with lighting conductors, pigtails, and lamps as required.

C. Maintain lamps and provide routine repairs.

D. Provide portable lights when required to provide minimum lighting levels necessary for specific work.

3.3 TEMPORARY HEAT

A. Provide temporary heating devices required to maintain specified ambient temperatures for construction.

B. Maintain minimum ambient temperature of 50 degrees F in areas where construction is in progress, unless otherwise indicated in individual specification sections.

3.4 TEMPORARY VENTILATION

A. Ventilate enclosed areas to facilitate curing of materials, disperse humidity, and prevent accumulations of dust, fumes, vapors, or gases.

B. Provide temporary fan units as required to maintain clean air for construction.

3.5 TEMPORARY TELEPHONE, FACSIMILE, AND COMPUTER SERVICES

A. Provide temporary telephone service required during construction.

B. Provide plain paper facsimile machine in Contractor's field office on separate telephone line from Contractor's field telephone.

C. Provide computer in Contractor's field office with printer, Internet access, scanner, and email service.

3.6 TEMPORARY WATER

A. Provide temporary water required for construction.

B. Extend branch piping and provide temporary hoses so that water is available at locations needed for work.

C. Protect from freezing.

D. Maintain distribution system and provide routine repairs.

3.7 TEMPORARY SANITARY FACILITIES

A. Provide chemical toilets for use during construction.

B. Permanent toilets may not be used during construction.

C. Maintain facilities in clean and sanitary condition.

3.8 FIELD OFFICES AND SHEDS

A. Provide temporary field offices and storage sheds required for construction.

B. Do not unreasonably encumber site or premises with excess materials or equipment.

C. Temporary Structures:
1. Portable or mobile buildings, structurally sound, weathertight, with floors raised above ground.
2. Temperature transmission resistance: Compatible with occupancy and storage requirements.
3. Provide connections for utility services when required.
4. Provide steps and landings at entrances.

D. Field Office:
1. Size required for Contractor's use and to provide space for project meetings.
2. Adequate electrical power, lighting, heating, and cooling to maintain human comfort.
3. Provide facilities for storage of Project Record Documents.
4. Provide thermometer mounted at convenient outside location, not in direct sunlight.

3.9 BARRIERS

A. Provide barriers to prevent unauthorized entry to construction areas and to protect existing facilities and adjacent properties from construction operations.

B. Provide barricades required by governing authorities for public right-of-ways.

C. Fencing:
1. Provide temporary fencing for construction operations.
2. Construction: Commercial grade chain link.
3. Height: 6 feet.
4. Locate to protect construction operations, materials, and equipment.
5. Provide vehicular and pedestrian gates.

D. Tree Protection:
   1. Protect existing trees at site that are designated to remain.
   2. Employ qualified tree surgeon to remove roots and branches that interfere with construction.
   3. Provide temporary barriers to height of 6 feet around individual or groups of trees and plants.
   4. Do not permit vehicular traffic, parking, storage of materials, dumping of harmful chemicals or liquids, or standing or continuously running water within root zones.
   5. Supervise earthwork operations to prevent damage to root zones.
   6. Replace trees and plants that are damaged or destroyed due to construction operations.

## 3.10 EXTERIOR CLOSURES

A. Provide temporary weathertight closures for exterior openings to provide acceptable interior working conditions, to allow for temporary heating and maintenance of ambient temperatures required in individual specification sections, to protect the Work, and to prevent entry of unauthorized persons.

B. Provide access doors with locking hardware.

## 3.11 PROTECTION OF INSTALLED WORK

A. Protect installed work from construction operations; provide special protection when required in individual specification sections.

B. Minimize traffic, storage, and construction activities on roof surfaces. If traffic, storage, or activity is necessary, obtain recommendations for protection from roofing manufacturer.

C. Prohibit traffic from landscaped areas.

## 3.12 PROGRESS CLEANING

A. Maintain areas free from waste materials, debris, and rubbish. Maintain site in clean and orderly condition.

B. Provide containers for collection of waste materials, debris, and rubbish; remove and dispose of off site as required by construction activities.

C. Periodically clean interior areas to provide suitable conditions for finish work.

## 3.13 TEMPORARY CONTROLS

A. Water Control:
   1. Grade site to drain. Prevent puddling water.
   2. Maintain excavations free of water. Provide, operate, and maintain pumping equipment.
   3. Provide water barriers to protect site from soil erosion.

B. Erosion and Sediment Control:
   1. Plan and execute methods to control surface drainage from cuts, fills, borrow areas, and waste disposal areas. Prevent erosion and sedimentation.
   2. Minimize amount of bare soil exposed at any one time.
   3. Provide temporary measures such as silt fences, dikes, berms, settlement basins, and drainage systems to prevent water flow and sedimentation.
   4. Periodically inspect earthwork to detect erosion and sedimentation; promptly employ corrective measures.

C. Dust Control:
   1. Provide dust control materials and methods to minimize dust from construction operations.
   2. Prevent dust from dispersing into atmosphere.

D. Mold and Mildew Control:
   1. Provide continuous measures to prevent formation of mold and mildew in construction.
   2. Do not install materials sensitive to mold and mildew growth until protection can be provided.

3. Promptly remove and replace materials exhibiting mold and mildew growth.

3.14 REMOVAL

A. Remove temporary utilities, equipment, facilities, and services when construction needs can be met by use of permanent construction or upon completion of Project.

B. Remove foundations and underground installations; grade site as indicated.

C. Clean and repair damage caused by installation or use of temporary work.

D. Restore existing and permanent facilities used during construction to original or to specified condition.

END OF SECTION

SECTION 01 5800

PROJECT IDENTIFICATION

## PART 1 GENERAL

### 1.1 SUMMARY

A. Section Includes:
   1. Project identification sign.
   2. Maintenance and removal.

### 1.2 QUALITY ASSURANCE

A. Project Sign:
   1. Design sign and structure to withstand 50 MPH wind velocity.
   2. Sign Painter: Experienced as a professional sign painter for minimum 3 years.
   3. Finishes, Painting: Adequate to withstand weathering, fading, and chipping for duration of construction.

B. Do not erect other signs at site without Owner's approval, except those required by governing authorities.

### 1.3 SUBMITTALS

A. Submittals for Review:
   1. Shop Drawings: Show content, layout, lettering, colors, structure, sizes, and grades of members.
   2. Samples: 3 x 3 inch samples of each paint color.

## PART 2 PRODUCTS

### 2.1 MATERIALS

A. Structure and Framing: New lumber, structurally adequate.

B. Sign Surfaces: Exterior grade plywood with medium density overlay, nominally 3/4 inch thick, standard large sizes to minimize joints.

C. Rough Hardware: Galvanized steel or aluminum.

D. Paints: Alkyd type, exterior quality, semigloss sheen.

### 2.2 FABRICATION

A. Provide one sign of following design:
   1. Area: 32 square feet.
   2. Bottom edge of sign: 6 feet above ground.
   3. Content:
      a. Project title.
      b. Owner's name.
      c. Names and titles of Architect and Consultants.
      d. Name of Contractor.
   4. Graphic design, colors, and lettering style: As designated by Architect.

## PART 3 EXECUTION

### 3.1 INSTALLATION

A. Install project identification sign within 30 days after date of Notice to Proceed.

B. Erect at designated location.

C. Erect supports and framing on secure foundation, rigidly braced and framed to resist wind loadings.

D. Install sign surface plumb and level, with butt joints. Anchor securely.

E. Paint exposed surfaces of sign, supports, and framing.

### 3.2 MAINTENANCE

A. Maintain signs and supports clean. Repair deterioration and damage.

### 3.3 REMOVAL

A. Remove signs, framing, supports, and foundations at completion of Project and restore the area.

END OF SECTION

## SECTION 01 6000

## PRODUCT REQUIREMENTS

### PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Products.
2. Transportation and handling.
3. Storage and protection.
4. Reuse of existing materials.
5. Product options.

B. Related Sections:
1. Section 01 2500 - Substitution Procedures.

1.2 PRODUCTS

A. Provide interchangeable components by the same manufacturer for identical items.

B. Do not use products containing asbestos or other known hazardous materials.

C. Do not reuse materials and equipment removed from existing construction in completed Work, except as specifically permitted by the Contract Documents.

1.3 TRANSPORTATION AND HANDLING

A. Coordinate delivery of Products to prevent conflict with Work and adverse conditions at site.

B. Transport and handle Products in accordance with manufacturer's instructions.

C. Promptly inspect shipments to ensure that Products comply with requirements of Contract Documents, are undamaged, and quantities are correct.

D. Provide equipment and personnel to handle products by methods to prevent damage.

1.4 STORAGE AND PROTECTION

A. Store and protect Products in accordance with manufacturer's instructions with manufacturer's seals and labels intact and legible.

B. Store Products on site unless prior written approval to store off site has been obtained from Owner.

C. Store Products subject to damage by elements in weathertight enclosures. Maintain temperature and humidity within ranges required by manufacturer's instructions.

D. Exterior Storage:
1. Store fabricated Products above ground; prevent soiling and staining.
2. Cover products subject to deterioration with impervious sheet coverings; provide ventilation to prevent condensation.
3. Store loose granular materials in well drained area on solid surfaces; prevent mixing with foreign matter.

E. Arrange storage areas to permit access for inspection. Periodically inspect stored products to verify that products are undamaged and in acceptable condition.

1.5 REUSE OF EXISTING MATERIALS

A. Carefully remove, handle, protect, and store Products.

B. Clean and refinish Products to original or specified condition.

C. Restore operable components to working condition.

D. Arrange and pay for transportation, storage, and handling of Products requiring off site storage, restoration, or renovation.

1.6 PRODUCT OPTIONS

A. Products specified by reference standard only:
   1. Select any Product meeting the specified standard.
   2. Submit Product Data to substantiate compliance of proposed Product with specified requirements.

B. Products specified by naming two or more acceptable Products: Select any named Product.

C. Products specified by stating that the Contract Documents are based on a Product by a single manufacturer followed by the statement "Equivalent products by the following manufacturers are acceptable":
   1. Select the specified Product or a Product by a named manufacturer having equivalent or superior characteristics to the specified Product and meeting the requirements of the Contract Documents.
   2. If the specified Product is not selected, submit Product Data to substantiate compliance of proposed Product with specified requirements.
   3. The specified Product establishes the required standard of quality.

D. Products specified by naming one or more Products followed by "or approved substitute" or similar statement:
   1. Submit a substitution request under provisions of Section 01 2500 for Products not listed.
   2. The specified Product establishes the required standard of quality.

E. Products specified by naming one or more Products or manufacturers followed by the statement "Substitutions: Under provisions of Division 01":
   1. Submit a substitution request under provisions of Section 01 2500 for Products not listed.
   2. The specified Product establishes the required standard of quality.

F. Products specified by naming one Product followed by the statement "Substitutions: Not permitted": Substitutions will not be allowed.

G. Products specified by required performance or attributes, without naming a manufacturer or Product:
   1. Select any Product meeting specified requirements.
   2. Submit Product Data to substantiate compliance of proposed Product with specified requirements.

**PART 2 PRODUCTS**

Not used

**PART 3 EXECUTION**

Not used

END OF SECTION

## SECTION 01 7329

## CUTTING AND PATCHING

### PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Requirements and limitations for cutting and patching of work.

B. Related sections:
   1. Section 01 2500 - Substitution Procedures.

1.2 SUBMITTALS

A. Submit written request in advance of executing cutting or alteration that affects:
   1. Work of Owner or separate contractor.
   2. Structural integrity of project.
   3. Integrity or effectiveness of weather exposed or moisture resistant elements or systems.
   4. Efficiency, operational life, maintenance, or safety of operational elements.
   5. Visual qualities of sight exposed elements.

B. Include in Request:
   1. Identification of project.
   2. Description of work affected.
   3. Necessity for cutting or patching.
   4. Effect of cutting or patching on work of Owner or separate contractor, or on structural, weatherproof, or visual integrity of project.
   5. Description of proposed work:
      a. Scope of cutting and patching.
      b. Subcontractor and trades to execute work.
      c. Products proposed to be used.
      d. Extent of refinishing.
   6. Alternate to cutting and patching.
   7. Cost proposal, if applicable.
   8. Written permission of any separate contractor whose work will be affected.

C. If conditions of work or schedule necessitate a change of material from that originally installed, submit substitution request in accordance with Section 01 2500.

### PART 2 PRODUCTS

Not used

### PART 3 EXECUTION

3.1 PREPARATION

A. Examine existing conditions of work, including elements subject to movement or damage during cutting and patching.

B. After uncovering work, examine conditions affecting installation of new products or performance of work.

C. Provide protection for other portions of project.

D. Provide protection from elements.

## 3.2 CUTTING AND PATCHING

A. Execute cutting to include excavating, fitting, and patching of Work required to:
   1. Make several parts fit properly.
   2. Uncover work to provide for installation of ill timed work.
   3. Remove and replace defective work.
   4. Remove and replace work not conforming to requirements of Contract Documents.
   5. Provide routine penetrations of nonstructural surfaces for installation of piping and electrical conduit.

B. Execute fitting and adjustment of products to provide finished installation to comply with specified tolerances, and finishes.

C. Execute cutting and demolition by methods that will prevent damage to other work, and will provide proper surfaces to receive installation of repairs and new work.

D. Execute excavating and backfilling by methods that will prevent damage to other Work, and will prevent settlement.

E. Employ original installer or fabricator to perform cutting and patching for:
   1. Weather exposed or moisture resistant elements.
   2. Sight exposed finished surfaces.

F. Restore work that has been cut or removed; install new products to provide completed Work in accordance with requirements of Contract Documents.

G. Refinish entire surfaces as necessary to provide an even finish:
   1. Continuous surfaces: To nearest intersections.
   2. Assembly: Refinish entirely.

END OF SECTION

## SECTION 01 7700

## CLOSEOUT PROCEDURES

### PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Closeout procedures.
2. Final cleaning.
3. Adjusting.
4. Project record documents.
5. Operation and maintenance data.
6. Warranties.
7. Spare parts and maintenance materials.

B. Related Sections:
1. Section 01 1100 - Summary of Work.

1.2 CLOSEOUT PROCEDURES

A. Final Inspection:
1. Submit written certification that Contract Documents have been reviewed, Work has been inspected, and that Work is complete in accordance with the Contract Documents and ready for Architect's inspection.
2. If Architect performs reinspection due to failure of Work to comply with claims of status of completion made by Contractor, Owner will compensate Architect for such additional services and will deduct the amount of such compensation from final payment to Contractor.

B. Submit final Application for Payment showing original Contract Sum, adjustments, previous payments, retainage withheld from previous payments, and sum remaining due.

C. Closeout Submittals:
1. Evidence of compliance with requirements of governing authorities.
2. Certificate of Occupancy.
3. Project Record Documents.
4. Operation and Maintenance Data.
5. Warranties.
6. Keys and keying schedule.
7. Spare parts and maintenance materials.
8. Evidence of payment of Subcontractors and suppliers.
9. Final lien waiver.
10. Certificate of Insurance for products and completed operations.
11. Consent of Surety to final payment.

1.3 FINAL CLEANING

A. Execute final cleaning prior to final inspection.

B. Clean surfaces exposed to view:
1. Clean glass.
2. Remove temporary labels, stains and foreign substances.
3. Polish transparent and glossy surfaces.
4. Damp mop hard surface flooring.

C. Clean equipment and fixtures to a sanitary condition.

D. Clean or replace filters of operating equipment.

E. Clean debris from roofs and drainage systems.

F. Clean site; sweep paved areas, rake clean landscaped surfaces.

G. Remove waste and surplus materials, rubbish, and construction facilities from the site.

1.4 ADJUSTING

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

1.5 PROJECT RECORD DOCUMENTS

A. Maintain following record documents on site; record actual revisions to the Work:
   1. Drawings.
   2. Specifications.
   3. Addenda.
   4. Change Orders and other Modifications to the Contract.
   5. Reviewed Shop Drawings, Product Data, and Samples.
   6. Material Safety Data Sheets.

B. Store Record Documents separate from documents used for construction.

C. Record information concurrent with construction progress.

D. Make entries neatly and accurately.

E. Label each set or volume with "PROJECT RECORD DOCUMENTS", project title, and description of contents.
   1. Organize contents according to Project Manual table of Contents.
   2. Provide table of contents for each volume.

F. Drawings: Mark each item to record actual construction including:
   1. Measured depths of foundations in relation to finish floor datum.
   2. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
   3. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
   4. Field changes of dimension and detail.
   5. Details not on original Drawings.

G. Specifications: Mark each Product section description of actual Products installed, including the following:
   1. Manufacturer's name and product model and number.
   2. Product substitutions or alternates utilized.
   3. Changes made by Addenda and Modifications.

H. Shop Drawings: Mark each item to record actual construction including:
   1. Field changes of dimension and detail.
   2. Details not on original Shop Drawings.

I. Submit electronically in Adobe PDF format along with final Application for Payment.

1.6 OPERATION AND MAINTENANCE DATA

A. Identify as "OPERATION AND MAINTENANCE INSTRUCTIONS" and title of project.

B. Contents:
   1. Directory: List names, addresses, and telephone numbers of Architect, Contractor, Subcontractors, and major equipment suppliers.

2. Operation and maintenance instructions: Arranged by system and subdivided by specification section. For each category, identify names, addresses, and telephone numbers of Subcontractors and suppliers. Identify the following:
   a. Significant design criteria.
   b. List of equipment.
   c. Parts list for each component.
   d. Operating instructions.
   e. Maintenance instructions for equipment and systems.
   f. Maintenance instructions for special finishes, including recommended cleaning methods and materials and special precautions identifying detrimental agents.
3. Project documents and certificates including:
   a. Shop drawings and product data.
   b. Certificates.
   c. Copies of warranties and bonds.

C. Submittal:
1. Submit electronically in Adobe PDF format at least 15 days prior to final inspection.
2. Architect will notify Contractor of any required revisions after final inspection.
3. Revise content of documents as required prior to final submittal.
4. Submit revised documents electronically in Adobe PDF format within 10 days after final inspection.

1.7 WARRANTIES

A. Execute and assemble documents from Subcontractors, suppliers, and manufacturers.

B. Include Table of Contents.

C. Submit electronically in Adobe PDF format along with final Application for Payment.

D. For items of Work delayed beyond date of Substantial Completion, provide updated submittal within 10 days after acceptance, listing date of acceptance as start of warranty period.

1.8 SPARE PARTS AND MAINTENANCE MATERIALS

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

B. Deliver to Project site in location as directed; obtain receipt prior to final payment.

**PART 2 PRODUCTS**

Not used

**PART 3 EXECUTION**

Not used

END OF SECTION

## SECTION 02 4120

## SELECTIVE BUILDING DEMOLITION

### PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Removal of designated building construction, equipment, and fixtures.
   2. Identification of utilities.

B. Related Sections:
   1. Division 01 - Administrative, procedural, and temporary work requirements.

1.2 REGULATORY REQUIREMENTS

A. Conform to applicable code for demolition work, safety of structure, and dust control.

B. Obtain required permits from authorities.

C. Notify affected utility companies before starting work and comply with their requirements.

D. Conform to applicable codes when hazardous or contaminated materials are discovered.

1.3 PROJECT CONDITIONS

A. Minimize interference with streets, walks, public right-of-ways, and adjacent facilities.

B. If hazardous materials are discovered, notify Architect and await instructions.

C. If any of the following conditions are encountered, cease work immediately, notify Architect, and await instructions:
   1. Structure is in danger of movement or collapse.
   2. Materials or conditions encountered differ from those designated in the Contract Documents.

### PART 2 PRODUCTS

Not used

### PART 3 EXECUTION

3.1 PREPARATION

A. Erect temporary partitions, barricades, warning devices, and controls.

B. Provide protective coverings, shoring, bracing, and supports for construction designated to remain.

C. Temporarily or permanently disconnect utilities as required.

3.2 DEMOLITION

A. Remove existing construction to extent indicated and as necessary to join new work to existing. Do not remove more than is necessary to allow for new construction.

B. Do not damage work designated to remain.

C. Minimize noise and spread of dirt and dust.

D. Assign work to trades skilled in procedures involved.

E. Plug ends of disconnected utilities with threaded or welded caps.

F. Protect and support active utilities designated to remain. Post warning signs showing location and type of utility and type of hazard.

G. Store items designated to remain property of Owner where directed by Owner.

H. Remove and dispose of waste materials off site.

END OF SECTION

## SECTION 04 0342

## MASONRY RESTORATION

### PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Replacement of damaged and missing brick.
2. Patching deteriorated and damaged brick.
3. Repointing mortar joints.

B. Related Sections:
1. Division 01: Administrative, procedural, and temporary work requirements.
2. Section 04 0341 - Restoration Mortar.
3. Section 04 0344 - Chemical Cleaning of Masonry.
4. Section 07 9200 - Joint Sealers.

1.2 REFERENCES

A. ASTM International (ASTM) C67 - Standard Test Methods for Sampling and Testing Brick and Structural Clay Tile.

B. The Masonry Society (TMS):
1. 402 - Building Code for Masonry Structures.
2. 602 - Specification for Masonry Structures.

1.3 DEFINITIONS

A. Defective Mortar Joints:
1. Joints in which mortar is missing, loose, spalled, eroded, powdered, broken, hollow, unsound, soft, or weathered more than 3/16 inch from original plane.
2. Sound joints containing fine hairline cracks are excluded.

1.4 SUBMITTALS

A. Submittals for Review:
1. Samples: Brick samples showing full color and texture range.

B. Quality Control Submittals:
1. Qualifications: Restorer qualifications, including previous projects.

1.5 QUALITY ASSURANCE

A. Restorer Qualifications:
1. Minimum 3 years experience in work of this Section.
2. Successful completion of at least 3 projects of similar scope and complexity within past 5 years.

B. Perform Work in accordance with TMS 402 and 602.

C. Preconstruction Testing Laboratory Services:
1. Select four samples of original brick.
2. Test brick in accordance with ASTM C67.
3. Report compressive strength, absorption, and initial rate of absorption.
4. Identify physical and mechanical characteristics.

D. Mockups:
1. Restore 10 square feet of original masonry. Show:
a. Brick replacement.
b. Brick patching.
c. Routing and repointing procedures.
d. Mortar color and texture.
e. Joint tooling sequence and profile.
2. Locate where directed.

1.6 PROJECT CONDITIONS

A. Wall Protection:
1. During erection, cover tops of partially completed walls with strong waterproof membrane at end of each day or work stoppage.
2. Extend cover minimum of 24 inches down both sides; hold securely in place.

B. Environmental Requirements:
1. Hot weather requirements: If ambient temperature is over 95 degrees F or relative humidity is less than 50 percent, protect from direct sun and wind exposure for minimum 48 hours after installation.
2. Cold weather requirements: Do not use frozen materials or build on frozen work.

1.7 SEQUENCING

A. Restore and clean masonry in following sequence:
1. Clean masonry under provisions of Section 04 0344. 0345.
2. Replace and patch brick.
3. Rout and repoint mortar joints.

**PART 2 PRODUCTS**

2.1 MANUFACTURERS

A. Acceptable Manufacturers - Patching Compound:
1. Cathedral Stone Products, Inc. (www.cathedralstone.com)
2. Edison Coatings, Inc. (www.edisoncoatings.com)

B. Acceptable Manufacturers - Bonding Agents:
1. Bonstone Materials Corp. (www.bonstone.com)
2. IPA Systems, Inc. (www.ipasystems.com)

C. Substitutions: Under provisions of Division 01.

2.2 MATERIALS

A. Brick:
1. Reuse original brick salvaged during selective demolition.
2. If salvaged brick are insufficient or unsuitable for reuse, provide new materials or materials salvaged from an off-site source to match original brick in compressive strength, absorption, initial rate of absorption, color, size, and surface texture.
3. Source for replacement brick: Metro Brick and Stone Company, Dallas, Texas. (www.metrobrick.com)

B. Mortar: Specified in Section 04 0341.

2.3 ACCESSORIES

A. Joint Sealers: Specified in Section 07 9200.

B. Patching Compound: Premixed cementitious mortar mix, color to match original brick; Jahn Restoration Mortar by Cathedral Stone Products, Inc. or approved substitute.

C. Bonding Agent: Two component modified epoxy resin.

## PART 3 EXECUTION

### 3.1 PREPARATION

A. Prior to beginning work examine existing mortar joints to determine procedures required to match new mortar to existing, including:
   1. Order in which horizontal and vertical joints were tooled.
   2. Style of tooling including depth and profile.

### 3.2 REPLACEMENT OF DAMAGED AND MISSING BRICK

A. Remove damaged and deteriorated brick without damage to adjacent brick.

B. Install new or salvaged brick where existing brick is missing or was removed.

C. Establish lines, levels, and courses to match original. Fit new masonry to bond and coursing of original masonry.

D. Lay masonry plumb and true to line.

E. Do not shift masonry after mortar has achieved initial set. If adjustments must be made after initial set, remove mortar and replace with new.

F. Lay brick in full mortar bed, with full head joints.

G. Do not butter corners or excessively furrow joints.

H. Cut masonry with straight, true cuts and clean, unchipped edges. Prevent oversized or undersized joints. Discard damaged units.

I. Do not expose cut cells in finished work.

J. Where fresh masonry joins existing or partially set masonry, remove loose brick and mortar; clean and lightly wet exposed surface of set masonry.

K. Do not permit mortar to accumulate in cavities.

L. Rake out joints to 1/2 inch depth.

### 3.3 PATCHING BRICK

A. Patch brick with patching compound to match original.

B. Remove deteriorated brick until sound material is reached.

C. Score or groove contact surfaces of brick to form mechanical bond with patching compound.

D. Lightly wet masonry. Apply bonding agent in accordance with manufacturer's instructions.

E. Mix and apply patching compound in accordance with manufacturer's instructions. Build up in maximum 1/2 inch thick layers.

F. Allow each layer to cure minimum 12 hours before proceeding. Lightly wet set material and existing masonry before applying next layer.

G. Finish patches to match color and texture of original brick so that patches are nearly indistinguishable.

H. Keep patches moist until fully cured.

3.4 REPOINTING MORTAR JOINTS

A. Rout out defective mortar joints.

B. Prepare dynamic joints and cracks to receive sealer as specified in Section 07 9200.

C. Repoint static joints with pointing mortar to match original.

D. Remove existing mortar to depth equal to 2-1/2 times joint width, but not less than 1/2 inch or depth at which sound mortar is reached.

E. Remove mortar using hand tools only.

F. Remove mortar cleanly, without damaging brick. Cut back of joints square.

G. Remove loose particles with compressed air.

H. Lightly wet masonry just prior to repointing.

I. Fill areas where mortar has been removed to greatest depth first.

J. Build up mortar in several 1/4 inch compacted layers until outer face of brick is reached.

K. Allow each layer to reach thumbprint hardness prior to applying next layer.

L. If existing brick has worn, rounded edges, recess mortar slightly from face of brick.

M. When final mortar layer has reached thumbprint hardness, tool to match sequence and profile of original. Avoid light streaks, hairline cracks, tool burning, open joints, and other defects caused by tooling when mortar is excessively wet or dry.

N. Remove excess mortar from edge of joint by brushing with stiff bristle brush; wire brushes not permitted.

O. If necessary to more closely match original mortar color and texture, artificially age mortar using one of following methods:
   1. Lightly brush with stiff natural brush after tooling.
   2. Apply fine mortar spray with low pressure water after tooling.
   3. Staining is not permitted.

END OF SECTION

## SECTION 04 0513

## MASONRY MORTARING

### PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Mortar for masonry.

B. Related Sections:
1. Division 01: Administrative, procedural, and temporary work requirements.
2. Section 04 2000 - Unit Masonry.

1.2 REFERENCES

A. ASTM International (ASTM):
1. C144 - Standard Specification for Aggregate for Masonry Mortar.
2. C150 - Standard Specification for Portland Cement.
3. C207 - Standard Specification for Hydrated Lime for Masonry Purposes.
4. C270 - Standard Specification for Mortar for Unit Masonry.

B. The Masonry Society (TMS):
1. 402 - Building Code for Masonry Structures.
2. 602 - Specification for Masonry Structures.

1.3 SUBMITTALS

A. Quality Control Submittals:
1. Test reports: Indicating mortar compliance with ASTM C270.

1.4 QUALITY ASSURANCE

A. Perform Work in accordance with TMS 402 and 602.

1.5 DELIVERY, STORAGE AND HANDLING

A. Deliver cement and lime in manufacturer's original, unopened packages or containers.

B. Protect materials from moisture absorption and damage; reject damaged containers.

C. Store aggregate to prevent inclusion of foreign matter.

### PART 2 PRODUCTS

2.1 MATERIALS

A. Portland Cement: ASTM C150, Type I.

B. Aggregate: ASTM C144, standard masonry type.

C. Lime: ASTM C207, Type S.

D. Water: Clean and free from oils, acids, alkalies, organic matter, and other substances in amounts deleterious to mortar or metals in masonry.

2.2 MIXES

A. Mortar Mix: ASTM C270, Type S, using the Property Method.

2.3 MIXING

A. Mix mortar in accordance with ASTM C270.

B. Mix using mechanical mixer. Hand mixing not permitted.

C. Mix approximately three-quarters of required water, all of cement and lime, and one-half of aggregate for minimum of 2 minutes.

D. Add remainder of water and aggregate; mix for minimum of 3 minutes.

E. Thoroughly mix ingredients in quantities needed for immediate use.

F. Discard lumpy, caked, frozen, and hardened mixes.

G. Mortar may be retempered by adding water as required. Use mortar within 2-1/2 hours after initial mixing at ambient temperatures below 80 degrees F and within 1-1/2 hours after initial mixing at ambient temperatures over 80 degrees F.

H. Do not add accelerators, retarders, water repellents, antifreeze compounds, or other additives without Architect's approval.

**PART 3 EXECUTION**

3.1 INSTALLATION

A. Follow requirements specified in referenced sections.

END OF SECTION

## SECTION 04 0516

## MASONRY GROUTING

### PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Grout for masonry.

B. Related Sections:
   1. Division 01: Administrative, procedural, and temporary work requirements.
   2. Section 04 2000 - Unit Masonry.

1.2 REFERENCES

A. ASTM International (ASTM):
   1. C150 - Standard Specification for Portland Cement.
   2. C207 - Standard Specification for Hydrated Lime for Masonry Purposes.
   3. C404 - Standard Specification for Aggregates for Masonry Grout.
   4. C476 - Standard Specification for Mortar and Grout for Reinforced Masonry.

B. The Masonry Society (TMS):
   1. 402 - Building Code for Masonry Structures.
   2. 602 - Specification for Masonry Structures.

1.3 SUBMITTALS

A. Quality Control Submittals:
   1. Test reports: Indicating grout compliance with ASTM C476.

1.4 QUALITY ASSURANCE

A. Perform Work in accordance with TMS 402 and 602.

1.5 DELIVERY, STORAGE AND HANDLING

A. Deliver cement and lime in manufacturer's original, unopened packages or containers.

B. Protect materials from moisture absorption and damage; reject damaged containers.

C. Store aggregate to prevent inclusion of foreign matter.

### PART 2 PRODUCTS

2.1 MATERIALS

A. Portland Cement: ASTM C150, Type I.

B. Aggregate: ASTM C404.

C. Lime: ASTM C207, Type S.

D. Water: Clean and free from oils, acids, alkalies, organic matter, and other substances in amounts deleterious to mortar or metals in masonry.

2.2 MIXES

A. Grout Mix:
   1. ASTM C476, coarse grout.
   2. Compressive strength: Minimum 2500 psi at 28 days.
   3. Slump: 7 to 8 inches.

2.3 MIXING

A. Mix grout in accordance with ASTM C476.

B. Thoroughly mix ingredients in quantities needed for immediate use.

C. Mix dry ingredients mechanically until uniformly distributed; add water to achieve workable consistency.

D. Discard lumpy, caked, frozen, and hardened mixes.

E. Use grout within 2-1/2 hours after initial mixing at ambient temperatures below 80 degrees F and within 1-1/2 hours after initial mixing at ambient temperatures over 80 degrees F.

F. Do not add accelerators, retarders, water repellents, antifreeze compounds, or other additives without Architect's approval.

**PART 3 EXECUTION**

3.1 INSTALLATION

A. Follow requirements specified in referenced sections.

END OF SECTION

## SECTION 04 2000

## UNIT MASONRY

### PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Concrete unit masonry.

B. Related Sections:
   1. Division 01: Administrative, procedural, and temporary work requirements.
   2. Section 04 0513 - Masonry Mortaring.
   3. Section 04 0516 - Masonry Grouting.

1.2 REFERENCES

A. ASTM International (ASTM):
   1. A615/A615M - Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.
   2. A951 - Standard Specification for Masonry Joint Reinforcement.
   3. C90 - Standard Specification for Hollow Loadbearing Concrete Masonry Units.

B. The Masonry Society (TMS):
   1. 402 - Building Code for Masonry Structures.
   2. 602 - Specification for Masonry Structures.

1.3 SUBMITTALS

A. Submittals for Review:
   1. Product Data: Provide information on reinforcing and anchors including sizes, profiles, materials, and finishes.

1.4 QUALITY ASSURANCE

A. Perform Work in accordance with TMS 402 and 602.

1.5 DELIVERY, STORAGE AND HANDLING

A. Store masonry off ground; prevent contact with materials that could cause staining or damage.

B. Protect reinforcement and anchors from corrosion.

1.6 PROJECT CONDITIONS

A. Wall Protection:
   1. During erection, cover tops of partially completed walls with strong waterproof membrane at end of each day or work stoppage.
   2. Extend cover minimum of 24 inches down both sides; hold securely in place.

B. Load Application:
   1. Do not apply uniform loads for at least 12 hours after building masonry walls.
   2. Do not apply concentrated loads for at least 3 days after building masonry walls.

C. Environmental Requirements:
   1. Hot weather requirements: If ambient temperature is over 95 degrees F or relative humidity is less than 50 percent, protect from direct sun and wind exposure for minimum 48 hours after installation.

2. Cold weather requirements: Do not use frozen materials or build on frozen work.

## PART 2 PRODUCTS

### 2.1 MANUFACTURERS

A. Acceptable Manufacturers - Masonry Accessories:
   1. Blok-Lok Ltd. (www.blok-lok.com)
   2. Dur-O-Wal. (www.dur-o-wal.com)
   3. Heckmann Building Products. (www.heckmannbuildingprods.com)
   4. Hohmann and Barnard, Inc. (www.h-b.com)

B. Substitutions: Under provisions of Division 01.

### 2.2 MATERIALS

A. Concrete Masonry Units:
   1. ASTM C90, hollow load bearing type, light weight.
   2. Size: Nominally 8 inches high x 16 inches long x thickness indicated.

### 2.3 ACCESSORIES

A. Mortar: Specified in Section 04 0513.

B. Grout: Specified in Section 04 0516.

C. Joint Reinforcement:
   1. Ladder type; ASTM A951, hot-dip galvanized steel wire, 9 gage side rods with 9 gage cross ties.
   2. Width: Nominal wall thickness less 1-1/2 inches.

D. Anchors: Formed steel wire, 9 gage thickness, two piece adjustable type, hot dip galvanized, ASTM A153/A153M, B2 finish.

## PART 3 EXECUTION

### 3.1 PREPARATION

A. Remove dirt, loose rust, and other foreign matter from reinforcement and anchors.

### 3.2 INSTALLATION

A. Establish lines, levels and courses indicated. Protect from displacement.

B. Maintain masonry courses to uniform dimensions. Form horizontal and vertical joints of uniform thickness.

C. Lay concrete masonry in running bond. Course one masonry unit and one mortar joint to equal 8 inches.

D. Lay masonry plumb and level. Do not adjust masonry units after mortar has set.

E. Lay masonry units with face shell bedding on head and bed joints.

F. Do not butter corners or excessively furrow joints.

G. Machine cut masonry with straight cuts and clean edges; prevent oversized or undersized joints. Discard damaged units. Do not expose cut cells.

H. When joining fresh masonry to partially set masonry, remove loose masonry and mortar; clean and lightly wet exposed surface of set masonry.

I. Stop horizontal runs by racking back normal bond unit in each course. Toothing not permitted.

J. Horizontal Reinforcement:
   1. Place reinforcement at maximum 16 inches on center vertically, at topmost course, and at first two courses above and below openings.
   2. Extend minimum 24 inches each side of openings.
   3. Center reinforcing in wall.
   4. Lap ends 6 inches minimum; use fabricated tee and corner fittings at corners and intersections.

K. Secure masonry to existing masonry with anchors spaced maximum 16 inches on center.

L. Finishing Mortar Joints: Cut joints flush.

M. Reinforcing Bars:
   1. Position reinforcing accurately and hold securely in place to prevent displacement. Maintain minimum 1 inch space between masonry and reinforcing.
   2. Grout at intervals of not more than 60 inches in 6 to 8 inch lifts.
   3. Vibrate grout during and after placement to ensure complete filling.
   4. Stop grout 1-1/2 inch below top of masonry if grouting is stopped for 1 hour or more, except where completing grouting of finished wall.

N. Installation Tolerances; Maximum variation from:
   1. Alignment face to face of adjacent units: Plus or minus 1/8 inch.
   2. Vertical alignment of head joints: Plus or minus 1/2 inch in 10 feet.
   3. True plane of wall: Plus or minus 1/4 inch in 10 feet and 1/2 inch in 20 feet or more.
   4. Plumb: Plus or minus 1/4 inch in 10 feet noncumulative; 1/2 inch in 20 feet or more.
   5. Level coursing: Plus or minus 1/8 inch in 3 feet; 1/4 inch in 10 feet; 1/2 inch in 30 feet.
   6. Joint thickness: Plus or minus 1/8 inch.

## 3.3 CLEANING

A. Protect adjacent and underlying surfaces.

B. Apply masonry cleaner in accordance with manufacturer's instructions.

C. Thoroughly rinse surfaces with clean water after completion of cleaning; remove all traces of cleaning solution.

END OF SECTION

SECTION 05 0350

ORNAMENTAL METAL RESTORATION

## PART 1 GENERAL

### 1.1 SUMMARY

A. Section Includes:
   1. Repair and replacement of damaged and missing ornamental metal components.

B. Related Sections:
   1. Division 01: Administrative, procedural, and temporary work requirements.

### 1.2 REFERENCES

A. ASTM International (ASTM):
   1. A47/A47M - Standard Specification for Ferritic Malleable Iron Castings.
   2. A48/A48M - Standard Specification for Gray Iron Castings.

B. Society for Protective Coatings (SSPC) - Painting Manual.

### 1.3 SUBMITTALS

A. Quality Control Submittals:
   1. Qualifications: Restorer qualifications, including previous projects.

### 1.4 QUALITY ASSURANCE

A. Restorer Qualifications:
   1. Minimum 3 years experience in work of this Section.
   2. Successful completion of at least 3 projects of similar scope and complexity within past 5 years.

B. Mockup:
   1. Provide mockup showing each restoration process.
   2. Include associated attachments, joints and junctions, and terminating items.
   3. Locate where directed.
   4. Approved mockup may not remain as part of the Work.

## PART 2 PRODUCTS

### 2.1 MATERIALS

A. Cast Iron: ASTM A48/A48M, Class 30, or ASTM A47/A47M.

### 2.2 ACCESSORIES

A. Fasteners: Material compatible with base metal; countersunk Phillips's flat head where exposed.

B. Primer Paint for Ferrous Metals: SSPC Paint 15, Type 1.

C. Epoxy Patching Compound: Two component, hard setting.

### 2.3 FABRICATION

A. Shop assemble in largest practical pieces.

B. Form metal work to shape and size with sharp lines, angles and arises.

C. Fit joints and intersections accurately.

D. Exposed Components:
   1. Fabricate in longest practical lengths. Locate joints symmetrically.
   2. Fit adjacent pieces to hairline joints.
   3. Space exposed fasteners evenly and symmetrically.
   4. Miter corners and intersections.

E. Conceal fastenings wherever possible.

F. Welding:
   1. Use welds for permanent connections where possible.
   2. Grind exposed welds smooth.
   3. Tack welds prohibited on exposed surfaces.

2.4 FINISHES

A. Finish for Ferrous Metals:
   1. Shop painted except steel to be encased in concrete and surfaces to be welded.
   2. Surface preparation: SSPC SP2 - Hand Power Tool Cleaning or SP3 - Power Tool Cleaning.
   3. Application: One coat; follow coating manufacturer's instructions.
   4. Minimum dry film thickness: 2.0 mils.

**PART 3 EXECUTION**

3.1 INSTALLATION

A. Install items in accordance with approved Shop Drawings.

B. Install components plumb, level, and rigid.

C. Grind and fill exposed welds; finish smooth and flush.

D. Isolate dissimilar metals with zinc rich paint, bituminous coating, or non absorptive gaskets.

3.2 REPAIR OF EXISTING FERROUS METALS

A. Inspect welded connections and fasteners; remove damaged, stripped, missing, and deteriorated connections and fasteners.

B. Cut or grind damaged or deteriorated surfaces to provide smooth, flat surface for welding or brazing.

C. Make repairs as inconspicuous as possible.

D. Repair badly damaged, deteriorated, and missing wrought iron and steel by welding or brazing new pieces to the existing using conventional welding techniques. Grind exposed welds smooth.

E. Repair moderately damaged and deteriorated wrought iron and steel with epoxy; sand exposed epoxy smooth.

F. Replace missing fasteners with new to match original. Tighten existing fasteners.

G. Clean and touch up shop coatings at welded and abraded surfaces.

END OF SECTION

## SECTION 05 5000

## METAL FABRICATIONS

### PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Shop fabricated metal components.

B. Related Sections:
   1. Division 01: Administrative, procedural, and temporary work requirements.
   2. Section 07 4113 - Metal Roof Panels.

1.2 REFERENCES

A. American Welding Society (AWS) D1.1 - Structural Welding Code - Steel.

B. ASTM International (ASTM):
   1. A36/A36M - Standard Specification for Carbon Structural Steel.
   2. A108 - Standard Specification for Steel Bars, Carbon, Cold-Finished, Standard Quality.
   3. A123/A123M - Standard Specification for Zinc (Hot-Galvanized) Coatings on Iron and Steel Products.
   4. A283 - Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates, Shapes and Bars.
   5. A307 - Standard Specification for Carbon Steel Externally Threaded Standard Fasteners.
   6. A780 - Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings.
   7. A1008/A1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability.
   8. E527 - Standard Practice for Numbering Metals and Alloys.
   9. E985 - Standard Specification for Permanent Metal Railing Systems and Rails for Buildings.

C. Society for Protective Coatings (SSPC) - Painting Manual.

1.3 SYSTEM DESCRIPTION

A. Minimum design loads:
   1. Ladders:
      a. Uniform load of 100 PSF.
      b. Concentrated load of 300 pounds.
      c. Maximum deflection under loading: L/240.
   2. Guard rails:
      a. 50 pounds per linear foot applied in any direction at top, transferred via attachments and supports to building structure.
      b. Concentrated 200 pound load applied in any direction at any point along top, transferred via attachments and supports to building structure.
      c. Maximum deflection under loading: L/120.
   3. Concentrated and uniform loads do not need to be applied simultaneously.
   4. Perform design under direct supervision of Professional Structural Engineer licensed in State in which Project is located, with minimum 2 years experience in work of this Section.

1.4 SUBMITTALS

A. Submittals for Review:
   1. Shop Drawings: Show dimensions, metal thicknesses, finishes, joints, attachments, and relationship of work to adjacent construction.

B. Quality Control Submittals:
   1. Certificate of Compliance from Professional Structural Engineer performing system design.

1.5 QUALITY ASSURANCE

A. Fabricator Qualifications: Minimum 2 years documented experience in work of this Section.

## PART 2 PRODUCTS

2.1 MATERIALS - STEEL

A. Shapes: ASTM A36/A36M.

B. Plate: ASTM A283.

C. Sheet: ASTM A1008/A1008M.

D. Bars: ASTM A108.

2.2 MATERIALS - BRONZE

A. Bronze: Copper UNS Alloy No. C38500, architectural bronze.

2.3 ACCESSORIES

A. Exposed Screws: Same material as metal being fastened; Phillips flat head, countersunk, unless noted otherwise.

B. Bolts: ASTM A307, hexagonal head type.

C. Primer Paint: SSPC Paint 15, Type 1, red oxide.

D. Anchoring Cement: Non-shrink cementitious type.

2.4 FABRICATION

A. Acceptable Fabricators - Metal Canopy:
   1. Brad Oldham International Inc., Dallas, Texas.
   2. Substitutions: Under provisions of Division 01.

B. Fit and shop assemble items in largest practical sections, for delivery to site.

C. Fabricate items with joints tightly fitted and secured.

D. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.

E. Exposed Mechanical Fastenings: Flush countersunk screws or bolts, unobtrusively located, consistent with design of component except where specifically noted otherwise.

F. Supply components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.

G. Conceal fastenings where possible.

H. Welding to conform to AWS D1.1:
   1. Use welds for permanent connections where possible. Grind exposed welds smooth.
   2. Tack welds prohibited on exposed surfaces.

2.5 FINISHES

A. Exterior Ferrous Metal: Galvanized; ASTM A123/A123M, to 2.0 ounces per square foot.

B. Interior Ferrous Metal:
   1. Shop painted except steel to be encased in concrete and surfaces to be welded.
   2. Surface preparation: SSPC SP2 - Hand Tool Cleaning or SP3 - Power Tool Cleaning.
   3. Application: One coat; follow coating manufacturer's instructions.
   4. Minimum dry film thickness: 2.0 mils.

C. Bronze: Polished finish.

**PART 3 EXECUTION**

3.1 INSTALLATION

A. Install items in accordance with approved Shop Drawings.

B. Install components plumb, level, and rigid.

C. Welding: AWS D1.1. Grind and fill exposed welds; finish smooth and flush.

D. Install sleeved components with anchoring cement.

E. Prevent contact of exterior aluminum and dissimilar metals by use of zinc rich paint, bituminous coating, or non-absorptive gaskets.

3.2 ADJUSTING

A. Clean and touch up damaged primer paint with same product as applied in shop.

B. Clean and touch up galvanized coatings at welded and abraded surfaces in accordance with ASTM A780, Annex A2.

3.3 SCHEDULE

A. This Schedule includes principal items only; refer to Drawings for additional items not listed.

B. Ladders:
   1. Side rails: Continuous steel flat bars, minimum 1/2 x 2-1/2 inches, eased edges, spaced 18 inches apart.
   2. Rungs: Round steel bars, 3/4 inch diameter, spaced 12 inches on center. Fit rungs in centerline of side rails and plug weld on outer rail face.
   3. Support ladders at top, bottom, and at intermediate points spaced maximum 5'-0" on center with steel brackets, welded or bolted to supports.
   4. Provide hinged 14 gage steel sheet cover with padlock provisions.

C. Guard Rails:
   1. Fabricate from steel pipe or tube stock of sizes and types indicated.
   2. Make bends uniform and free from buckles and other defects.
   3. Cut intersections square to within 2 degrees and to length within 1/8 inch. Remove burrs from cut ends.
   4. Miter and cope intersections within 2 degrees, fit to within 1/8 inch.
   5. Continuously weld connections.
   6. Where length exceeds that suitable for shipping and handling, fabricate in sections with concealed internal sleeves forming slip joints. Extend sleeves minimum 2 inches on both sides of joint; field weld and grind smooth.

D. Overflow Nozzles: Cast bronze, lamb's tongue profile.

E. Metal Canopies:
   1. Fabricate support framing from steel stock of sizes and types indicated.
      a. Make bends uniform and free from buckles and other defects.
      b. Cut intersections square to within 2 degrees and to length within 1/8 inch. Remove burrs from cut ends.
      c. Miter and cope intersections within 2 degrees, fit to within 1/8 inch.
      d. Continuously weld connections.
   2. Metal panels: Refer to Section 07 4113.
   3. Where length exceeds that suitable for shipping and handling, fabricate in sections with concealed internal sleeves forming slip joints. Extend sleeves minimum 2 inches on both sides of joint; field weld and grind smooth.

END OF SECTION

## SECTION 06 0122

## FINISH CARPENTRY RESTORATION

### PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Restoration of existing wood storefront and beaded board ceilings.

B. Related Sections:
   1. Division 01: Administrative, procedural, and temporary work requirements.

1.2 REFERENCES

A. Architectural Woodwork Institute/Architectural Woodwork Manufacturers of Canada/Woodwork Institute (AWI/AWMAC/WI) - Architectural Woodwork Standards.

1.3 SUBMITTALS

A. Quality Control Submittals:
   1. Qualifications: Restorer qualifications, including previous projects.

1.4 QUALITY ASSURANCE

A. Restorer Qualifications:
   1. Minimum 3 years experience in work of this Section.
   2. Successful completion of at least 3 projects of similar scope and complexity within past 5 years.

B. Mockup:
   1. Provide mockups of:
      a. Wood storefront: One glass panel wide.
      b. Beaded board ceiling: Minimum 4 x 4 feet.
   2. Show: Each wood restoration process and finishing.
   3. Include associated attachments, joints and junctions, and terminating items.
   4. Locate where directed.
   5. Approved mockups may not remain as part of the Work.

1.5 DELIVERY, STORAGE AND HANDLING

A. Store materials minimum 6 inches above ground on framework or blocking and cover with protective waterproof covering providing for adequate air circulation.

B. Do not store seasoned materials in damp location.

### PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturers - Consolidant and Patching Compound:
   1. Abatron, Inc. (www.abatron.com)
   2. Advanced Repair Technology, Inc. (www.advancedrepair.com)

B. Substitutions: Under provisions of Division 01.

2.2 MATERIALS

A. Lumber:
   1. Provide new materials or materials salvaged from an off-site source to match original wood in species, cut, appearance, and other characteristics.
   2. Do not reuse rotten, split, termite damaged, or otherwise defective pieces.

2.3 ACCESSORIES

A. Patching Compound: Epoxy based, multiple component.

B. Fasteners: Type and size as required by conditions of use; plain steel for interior use; hot dip galvanized steel for exterior use.

2.4 FABRICATION

A. Quality: AWI/AWMAC/WI Architectural Woodwork Standards, Section 12, Custom Grade.

B. Fabricate new wood components with profiles and dimensions to match original using salvaged materials as a template.

**PART 3 EXECUTION**

3.1 PREPARATION

A. Prior to installation, condition wood to average humidity that will prevail after installation.

B. Back prime exterior wood and wood in contact with masonry or cementitious materials prior to installation.

3.2 PATCHING EXISTING WOOD

A. Remove loose and deteriorated wood down to a point at which sound material is reached.

B. Fill voids with patching compound. Mix and apply in accordance with manufacturer's instructions.

C. Embed wood in center of large patches to reduce amount of filler.

D. After filler has cured, sand, chisel, or plane off to smooth surface, flush with adjacent surfaces.

3.3 REPLACEMENT OF EXISTING WOOD

A. Remove existing damaged and deteriorated wood in manner to minimize damage to adjacent surfaces.

B. Fit new components to original profiles and lines.

C. Feather new materials into existing.

D. Secure at maximum 16 inches on center. Use concealed or exposed nailing to match original.

E. Miter corners and end joints.

F. Scribe to adjacent construction with maximum 1/8 inch gaps.

G. Sand cut ends and edges smooth.

END OF SECTION

## SECTION 06 1000

## ROUGH CARPENTRY

### PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Partition framing.
2. Wood blocking and furring.
3. Telephone and electrical panel backboards.
4. Roof curbs.

B. Related Sections:
1. Division 01: Administrative, procedural, and temporary work requirements.

1.2 REFERENCES

A. American Wood Protection Association (AWPA) U1 - Use Category System - User Specification for Treated Wood.

B. ASTM International (ASTM) A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.

C. Engineered Wood Association (APA) PRP-108 - Performance Standards and Qualification Policy for Structural-Use Panels.

D. Southern Pine Inspection Bureau (SPIB) - Standard Grading Rules for Southern Pine Lumber.

1.3 QUALITY ASSURANCE

A. Lumber Grading Agency: Certified to NIST PS 20.

B. Identify lumber and panel products by official grade mark.

1.4 DELIVERY, STORAGE AND HANDLING

A. Store materials minimum 6 inches above ground on framework or blocking and cover with protective waterproof covering providing for adequate air circulation.

B. Do not store seasoned or treated materials in damp location.

C. Protect edges and corners of sheet materials from damage.

### PART 2 PRODUCTS

2.1 MATERIALS

A. Dimension Lumber:
1. Grading rules: SPIB.
2. Species: Southern Yellow Pine.
3. Grade: No. 2.
4. Surfacing: Surfaced four sides (S4S).
5. Maximum moisture content: 19 percent.

B. Panel Products:
1. Type: APA Plywood.
2. Panel grade: APA Rated Sheathing.



END OF SECTION

## SECTION 07 2600

## VAPOR RETARDERS

### PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Sheet materials for controlling vapor diffusion at floor slabs on grade.
2. Sheet materials for controlling vapor diffusion at exterior walls.

B. Related Sections:
1. Division 01: Administrative, procedural, and temporary work requirements.

1.2 REFERENCES

A. ASTM International (ASTM):
1. D1709 - Standard Test Method for Impact Resistance of Plastic Film by the Free-Falling Dart Method.
2. E96/E96M - Standard Test Method for Water Vapor Transmission of Materials.
3. E154 - Standard Test Method for Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs, on Walls, or as Ground Cover.
4. E1643 - Standard Practice for Installation of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs.
5. E1745 - Standard Test Method for Water Vapor Retarders Used in Contact with Soil or Granular Fill Under Concrete Slabs.

1.3 SUBMITTALS

A. Submittals for Review:
1. Product Data: Include product description and performance characteristics.
2. Samples: 12 x 12 inch vapor retarder samples.

### PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturers:
1. Griffolyn, Division of Reef Industries. (www.reefindustries.com)
2. Raven Industries. (www.rufco.com)
3. W.R. Meadows, Inc. (www.wrmeadows.com)

B. Substitutions: Under provisions of Division 01.

2.2 MATERIALS

A. Vapor Retarder:
1. Type: ASTM E1745, Class A.
2. Description: Reinforced two ply polyethylene film.
3. Water vapor permeance: Maximum 0.3 grams/100 square inches/24 hours, tested to ASTM E96.
4. Tensile strength: Minimum 13.6 lbf per inch, tested to ASTM E154.
5. Puncture resistance: Minimum 475 grams, tested to ASTM D1709.

2.3 ACCESSORIES

A. Adhesive: Compatible with vapor retarder and substrate, permanently non hardening.

2.3 FABRICATION

A. Panel Profile: PBC by MBCI. (www.mbci.com) or approved substitute; 7/8 inch deep x 32 inch net coverage, corrugated at 2.67 inches on center, nesting edges.

B. Fabricate panels from minimum 26 gage galvanized steel sheet.

C. Trim: Profiles as indicated or as required, fabricated from same material as panels.

D. Roll form panels and trim to required profiles in longest practical lengths.

**PART 3 EXECUTION**

3.1 INSTALLATION

A. Install in accordance with manufacturer's instructions and approved Shop Drawings.

B. Install aligned, level, and plumb.

C. Fasten panels to supports with exposed fasteners.

D. Locate panel joints over supports.

E. Install trim to maintain visual continuity of system.

F. Install joint sealers and gaskets to prevent water penetration.

3.2 ADJUSTING

A. Touch up field cuts and abrasions on finished surfaces using galvanizing repair paint.

END OF SECTION

## SECTION 07 51 00

## BUILT-UP BITUMINOUS ROOF

### PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

A. Provisions established within the General and Supplementary Conditions of the Contract. Division 1-General Requirements and the Drawings are collectively applicable to this Section.

1.02 SUMMARY:

B. Section includes: Asphalt and glass-fiber felt built-up bituminous roof membrane with aggregate surface and membrane base flashing and rigid insulation over roof deck.

C. Related Sections:

1. Section 07620 - Sheet Metal Flashing and Trim.

1.03 REFERENCES:

A. American Society for Testing and Materials (ASTM):

1. ASTM C 208 – Specification for Insulation Board (Cellulosic Fiber), Structural and Decorative.

2. ASTM/ASTM C 728 – Specification for Perlite Thermal Insulation Board.

2. ASTM D 41 – Specification for Asphalt Primer Used in Roofing and Waterproofing.

3. ASTM D 312 – Specification for Asphalt Used in Roofing.

4. ASTM D 1863 – Specification for Mineral Aggregate Used on Built-Up Roofs.

5. ASTM D 2178 – Specification for Asphalt Glass (Felt) Used in Roofing and Waterproofing.

6. ASTM D 4586 – Specification for Asphalt Roof Cement, Asbestos Free.

B. Factory Mutual (FM):

1. Factory Mutual Approval Guide and Supplements (1992).

2. Loss Prevention Data 1-28 June 1980 Insulated Steel Deck

C. Underwriters Laboratories, Inc,.(UL):

1. Building Materials Directory, latest edition.

1.04 SYSTEM DESCRIPTION:

A. Regulatory Requirements:

1. UL Listing: Provide built-up roofing system and component materials which have been tested for application and slopes indicated and are listed by UL for Class A external fire exposure.

2. FM Listing: Provide built-up roofing system and component materials which have been evaluated by Factory Mutual System for fire spread, wind-uplift and hail damage and are listed in "Factory Mutual Approval Guide" for Class I-90 construction.

B. Roofing Systems: Materials for 100-sq. ft. of roofing.

1. Felts: Three plies of glass fiber roofing felts.

2. Bitumen Inter-ply moppings: 25-30 lbs. Type III asphalt for each ply, total of 100 lbs.

3. Surfacing:

a) 60-75 lbs. Type III asphalt

b) 400 lbs. aggregate.

1.05 SUBMITTALS:

A. General: Submit in accordance with SECTION 01340 – SHOP DRAWINGS, PRODUCT DATA AND SAMPLES.

B. Product Data:

1. Include data substantiating that materials comply with requirements.

2. Provide label on each container or certification with each load of bulk bitumen, indicating flash point, finished blowing temperature, softening point and equiviscous temperature.

3. Provide manufacturer's complete installation instructions, specifically written and identified for this project.

4. Manufacturer's approval of all roofing elements and installation methods.

5. Provide written verification that complete roof assembly will meet required U.L. ratings.

C. Shop Drawings: Include design of tapered insulation system showing layout, slope and thickness of entire system.

D. Samples: Submit a sample of each type of roof insulation fastener with documentation of FM listing.

1.06 QUALITY ASSURANCE:

A. Manufacturer Qualifications:

1. Provide primary products, including each type of roofing felt, bitumen and composition flashings produced by a single manufacturer which has produced that type product successfully for not less than five years.

2. Provide secondary products only as recommended by manufacturer of primary products for use with roofing system specified.

B. Manufacturer Certification: Provide written certification of manufacturer's approval of all components proposed to be used in the roof system.

C. Installer Qualifications:

1. Firm with not less than five years of successful experience in installation of built-up roofing systems similar to those required for this project and which is acceptable to or licensed by manufacturer of primary roofing materials.

2. Insulation applicator and application method shall be approved by the manufacturer of the built-up roofing materials to be installed.

D. Installer Certification: Obtain written certification from manufacturer of built-up roofing system certifying that installer is approved by manufacturer for installation of specified roofing system. Provide copy of certification to Engineer prior to award of roofing work.

E. Compatibility of Roofing System: Roof insulation, roof crickets and tapered roof insulation system shall be compatible with the roofing materials to be used and shall be approved by the manufacturer of the built-up bituminous roofing materials.

F. Pre-Installation Roofing Conference:

1. Prior to scheduled commencement of built-up roofing installation and associated work, meet at project site with installer; installer of each component of associated work; installers of deck or substrate construction to receive roofing work; installers of roof-top units and other work in and around roofing which must precede or follow roofing work, including mechanical work; Architect; Owner; roofing system manufacturer's representative; and other representatives directly concerned with performance of work.

2. Review methods and procedures related to roofing work.

3. Tour representative areas of roofing decks and inspect and discuss condition of substrate, curbs, penetrations and other preparatory work performed by other trades.
4. Review structural loading limitations of deck and inspect deck for loss of flatness and for required mechanical fastening.

5. Review roofing system requirements, including drawings, specifications and other contract documents.

6. Review required submittals, both completed and yet to be completed.

7. Review and finalize construction schedule related to roofing work, verify availability of materials, equipment and facilities needed to make progress and avoid delays.

8. Review required inspection, testing, certifying and materials usage accounting procedures.

9. Review weather and forecasted weather conditions, and procedures for coping with unfavorable conditions, including possibility of temporary roofing.

10. Record discussions of conference and decisions and agreements reached, and furnish copy of record to each party attending.

1.07 PROJECT CONDITIONS:

A. Weather Condition Limitations: Proceed with roofing work only when existing and forecasted weather conditions will permit work to be performed in accordance with manufacturers' recommendations and warranty requirements.

B. Temporary Roofing: When adverse project conditions or weather conditions prevent permanent roofing and associated work from being installed in accordance with requirements, provide temporary roofing and remove prior to proceeding with permanent roofing work.

C. Do not use completed roof as a working platform for other trades.

D. Protection: Protect finished surfaces of the building from damage and straining during the insulation work with suitable covers.

E. The contractor may <u>not</u> torch apply any materials nor weld any materials.

1.08 DELIVERY, STORAGE AND HANDLING:

A. Deliver materials in manufacturer's original unopened packaging with legible labels intact.

B. Store and handle roofing felts to ensure that there is no possibility of significant moisture pick-up. Store in dry, well ventilated, weather-tight place. Do not leave unprotected unused felts on roof overnight or when roofing work is not in progress. Store rolls of felt and other sheet materials on end on pallets or other raised surface.

C. Insulation stored on the site shall be raised above deck or ground level on pallets and covered with waterproof tarpaulins or plastic sheeting.

D. Handle and store materials or equipment to avoid significant or permanent deflection of deck.

E. Provide roof covering materials bearing UL classification and FM approval marking on bundle package, or container indicating that materials have been produced under UL's Classification and Follow-up Service.

1.09 WARRANTY:

A. Special Project Warranty: Submit 2 executed copies of standard 2-year "Roofing Guarantee" on form included at end of this section, covering work of this section including roofing membrane, flashing, roof insulation and roofing accessories, signed by installer (roofer).

B. Manufacturer's Warranty: Submit executed copy of roofing manufacturer's standard single source, single responsibility guarantee, including membrane, insulation, flashing and walkways, signed by authorized representative of built-up roofing system manufacturer. Provide a 10-year No Dollar Limit Guarantee, from the manufacturer, from the date of substantial completion.

**PART 2 - PRODUCTS**

2.01 ACCEPTABLE MANUFACTURERS:

A. Provide built-up bituminous roofing system as manufactured by one of the following:

1. GAF Corp.

2. Schuller Corp.

3. Tamko Asphalt Products, Inc.

2.02 MATERIALS:

A. Roofing and Stripping Felts: ASTM D 2178, Type IV, asphalt-impregnated glass-fiber mats.

B. Asphalt: ASTM D 312, Type III, 185 F. minimum to 250 F. maximum softening point.

C. Primer: ASTM D 41, asphalt cut-back primer.

D. Flashing Cement: ASTM D 4586, asphaltic cement, troweling consistency, designed for vertical application.

E. Base Flashing Felt: Reinforced modified bitumen membrane flashing consisting of a fiberglass scrim, 2 polyester mats, an elastomeric base material of SBS rubber and asphalt, with ceramic granule surface. Ceramic surfacing of base flashing shall be white.

F. Aggregate: ASTM D 1863, Size6, washed and graded gravel or crushed stone, 3/8' to 3/4'; no more than 5% of any lot shall be outside these size requirements. Aggregate smaller than No. 4 will not be permitted. Aggregate shall be dry and free of dust, soil and foreign matter.

G. Insulation Joint Tape: 6" or 8" wide coated fiber mat.

H. Cant Strip: Asphalt impregnated fiberboard, 4" high, 5 5/8 face, 1 1/2" thickness.

I. Fiberboard: ASTM C 208, asphalt impregnated, fibrous-felted wood or cane fiberboard for Construction Grade Roof Insulating Board.

J. Insulation:

1. Crickets and Cants: Provide crickets and cants at locations as shown. Cricket and cant must be compatible with built-up roofing material.

2. Tapered Roof Insulation: Provide tapered roof insulation as required to fulfill slope requirements. Tapered roof insulation must be compatible with built-up roofing material.

3. Steep Asphalt: ASTM D 312, Type III.

4. Mechanical fasteners: Concrete deck fasteners shall be FM Listed and shall be approved by roof insulation manufacturer.

**PART 3 - EXECUTION**

3.01 INSPECTION:

A. Verify that work of other trades which penetrated roof deck or requires men and equipment to traverse roof deck has been completed.

B. Examine deck surfaces to receive insulation for conditions that will adversely affect the execution and quality of work. Do not start this work until unsatisfactory conditions are corrected.

C. Examine surfaces to receive roofing and flashing for conditions that will adversely affect the execution and quality of work. Do not start this work until unsatisfactory conditions have been corrected.

3.02 INSULATION INSTALLATION:

A. Install first layer over all areas to receive roof insulation.

1. Tapered roof insulation system and crickets shall be installed per manufacturer's instructions as required to meet Factory Mutual Windstorm Resistance Classification I-90.

2. Bring insulation panels into moderate contact with each other and cope to fit neatly around projections. Joints parallel to ribs on steel deck installation shall be located over solid bearing.

3. Do not install more insulation at one time than the amount which can be covered with roofing the same day.

4. At the end of each day's work and after any other work stoppage, apply temporary water cutoffs in accordance with built-up bituminous roofing manufacturer's recommendations.

3.03 MEMBRANE INSTALLATION:

A. Protect other work from spillage of built-up roofing materials, and prevent liquid materials from entering or clogging drains and conductors. Replace and restore other work damaged by installation of built-up roofing system work.

B. Cutoffs:

1. Coordinate installation of insulation, roofing sheets, flashings, stripping, coatings and surfacing, so that insulation and felts are not exposed to precipitation nor exposed overnight.

2. Provide cut-offs at end of each day's work, to cover exposed felts and insulation with course of coated felt with joints and edges sealed with roofing cement.

3. Remove cut-offs immediately before resuming work.

4. Glaze coat installed ply-sheet courses at end of each day's work where final surfacing has not been installed.

C. Asphalt Bitumen Heating:

1. Heat and apply bitumen in accordance with equiviscous temperature method ("EVT Method") as recommended by National Roofing Contractor's Association and manufacturer.

2. Do not raise temperature above minimum normal fluid-holding temperature necessary to attain EVT (±25 F. at point of application) more than one hour prior to time of application.

3. Discard bitumen which has been held at temperature exceeding finished blowing temperature (FBT) for period exceeding three hours.

4. Determine flash point, finished blowing temperature and EVT of bitumen, either by information from bitumen producer or by suitable tests, and determine maximum fire-safe handling temperature and do not exceed that temperature in heating bitumen.

5. Do not heat bitumen to temperature higher than 25 F. below flash point.

6. For aggregate-surfaced pour coats of bitumen, limit application temperature to minimum required for proper embedment of aggregate and maximum which will permit retention of coating of weight required.

7. Keep kettle lid closed except when adding bitumen.

D. Bitumen Mopping Weights: For interply mopping, and for other moppings, apply bitumen at rate of 25 lbs. of asphalt (±25% on total job average basis) for each roof square (100 sq. ft.) between plies.

E. Substrate Joint Penetrations: Do not allow bitumen to penetrate substrate joints and enter building or damage insulation, or other construction. Tape insulation joints.

F. Shingling of Plies:

1. General: Install membrane with ply sheets shingled uniformly to achieve required number of thickness of membrane throughout. Shingle in proper direction to shed water on each large area of roofing.

2. Starting at the low edge apply one 12" width felt, then over that one 24" width, then over both, a full 36" wide felt.

3. Follow with full 36" width felts, shingle fashion, overlapping the preceding felt by 24 3/4" so that at least 3 plies of felt cover the substrate at all locations.

4. Install each felt so that it shall be firmly and uniformly set, without voids, into the hot (at EVT) asphalt applied just before the felt at a nominal uniform rate over the entire surface.

5. Apply felts smooth, free from air pockets, wrinkles, fishmouths, lap joints, or tears. Solid mop under and between felts to provide complete, uniform coverage. Felt shall not touch felt.

G. Cant and Tapered Edge Strips:

1. Install preformed 45 insulation cant strips at junctures of built-up roofing membrane with vertical surface.

2. Set in plastic cement.

H. Set-on Accessories: Where small roof accessories are set in built-up roofing membrane, set metal flanges in bed of roofing cement, and seal penetration of membrane with bead of roofing cement to prevent flow of bitumen from membrane.

I. Base Flashing:

1. General: Install base flashing membrane in strict compliance with manufacturer's printed instructions (as of date of bidding) and recommendations; and as required to meet warranty requirements.

2. Provide at cant strips and other sloping and vertical surfaces, and at roof edges, and at penetrations through roof.

J. Compositions Stripping:

1. Provide where metal flanges are set on roofing.

2. Provide one ply of asphalt-impregnated glass fiber fabric and one ply of base flashing each set in continuous coating of roofing cement.

K. Fold-Back Envelopes:

1. Provide fold-back envelope stripping at edges, gravel stops and roof penetrations to prevent bitumen flow into or onto building surfaces.

2. Fold back over roofing membrane and set in solid troweling of plastic cement.

L. Allow for expansion of running metal flashing and edge trim which adjoins roofing. Do not seal or bond built-up roofing membrane or composition flashing and stripping to metal flanges over 3'-0" in length.

M. Aggregate Surfacing:

1. After completion of built-up roofing membrane, edge treatment and set-on accessories in each substantial area of roofing, flood-coat surface; while each small area is hot and fluid, cast following approximate weight of aggregate in uniform course.

2. Flood Coat: 60 lbs./square of Type III asphalt.

3. Aggregate: Averaging 400 lbs./square.

4. Do not install flood coating of bitumen and aggregate surface source at edges of roofing until composition flashing and stripping work has been completed.

5. Glaze-coat organic ply sheet courses where surfacing cannot be installed on same day.

6. Delay aggregate surfacing only as long as necessary to substantially complete edge work and tests.

3.04 FIELD QUALITY CONTROL:

A. During progress of the work make visual inspections as necessary, and verify that:

1. All material used comply with the specified requirements.

2. All materials are properly stored and handled.
3. Bitumen kettles are maintained at proper temperature.

4. Bitumens are applied uniformly, without voids or skips and in the proper quantity.

5. The proper number and types of plies are installed, with the specified overlaps.

6. The proper type and spacing of fasteners are used.

7. Associated flashing and sheet metal are installed in a timely manner in accordance with the specified requirements.

8. All elements of the work of this section are completed on the same day and not installed in phases.

9. Insulation is properly secured to the substrate and nailers are provided where and as needed.

B. Manufacturer's Field Services: Provide inspection, monitoring and reporting services as deemed necessary by manufacturer of membrane to adequately monitor quality of materials and workmanship for the type warranty specified.

3.05 ADJUSTING:

A. Repair for replace deteriorated or defective work found at time of final inspection. Repair or replace roofing and associated work to condition free of damage and deterioration at time of substantial completion.

3.06 CLEANING:

A. Remove bituminous markings from finished surfaces.

B. In areas where finished surfaces are soiled by asphalt or any other source of soiling caused by work of this Section, consult manufacturer of surfaces for cleaning advice and conform to their documented instructions.

C. Repair or replace defaced or disfigured finishes caused by the work of this Section.

ROOFING WARRANTY

WHEREAS_____

Of (Address)_____

herein called the "Roofing Contractor", has performed roofing and associated work ("work") on following project:

Owner:_____

Address: _____

Name and Type of Building:_____

Address: _____

_____

Area of Work:_____Date of Acceptance: _____

Warranty Period:_____Date of Expiration:_____

AND WHEREAS Roofing Contractor has contracted (either directly with Owner or indirectly as a subcontractor) to warrant said work against leaks and faulty or defective materials and workmanship for designated Warranty Period.

NOW THEREFORE Roofing Contractor hereby warrants, subject to terms and conditions herein set forth, that during Warranty Period he will at his own cost and expense, make or cause to be made such repairs to or replacements of said work as are necessary to correct faulty and defective work and as are necessary to maintain said work in watertight condition.

This Warranty is made subject to the following terms and conditions:

1. Specifically excluded from this Warranty are damages to work and other parts of the building, and to building contents, caused by: a) lightning, windstorm; b) fire; c) failure of roofing system substrate including cracking, settlement, excessive deflection, deterioration and decomposition; d) faulty construction of parapet walls, copings, chimneys, skylights, vents, equipment supports and other edge conditions and penetrations of the work; e) vapor condensation on bottom of roofing; and f) activity on roofing by others including construction contractors, maintenance personnel, other persons and animals whether authorized or unauthorized or unauthorized by Owner. When work has been damaged by any of the foregoing causes, Warranty shall be null and void until such damage has been repaired by Roofing Contractor, and until cost and expense thereof has been paid by Owner or by another responsible party so designated.

2. The Roofing Contractor is responsible for damage to work covered by this Warranty, but is not liable for consequential damages to building or building contents, resulting from leaks or faults or defects of work.

3. During Warranty Period, if Owner allows alteration of work by anyone other than Roofing Contractor, including cutting, patching and maintenance in connection with penetrations, attachment of other work and positioning of anything on roof, this Warranty shall become null and void upon date of said alterations, but only to extent said alterations affect work covered by this Warranty. If Owner engages Roofing Contractor to perform said alterations, Warranty shall not become null and void, unless Roofing Contractor, prior to proceeding with said work, shall have notified Owner in writing, showing reasonable cause for claim that said alterations would likely damage or deteriorate work, thereby reasonably justifying a limitation or termination of this warranty.

4. During Warranty Period, if original use of roof is changed and it becomes used for, but was not originally specified for, a promenade, work deck, spray-cooled surface, flooded basin, or other use or service more severe than originally specified, this Warranty shall become null and void upon date of said change, but only to extent said change affects work covered by this Warranty.

5. The Owner shall promptly notify Roofing Contractor of observed, known or suspected leaks, defect, or deterioration and shall afford reasonable opportunity for Roofing Contractor to inspect work, and to examine evidence of such leaks, defects, or deterioration.

6. This Warranty is recognized to be the only warranty of Roofing Contractor on said work and shall not operate to restrict or cut off Owner from other remedies and resources lawfully available to him in cases of roofing failure. Specifically, this Warranty shall not operate to relieve Roofing Contractor of responsibility for performance of original work in accordance with requirements of the Contract Documents, regardless of whether Contract was a contract directly with Owner or a subcontract with Owner's General Contractor.

_____
Installation Company

_____
By

_____
Title

_____
Business Address

_____
Telephone Number Fax Number

ATTEST:

_____
Secretary

IN WITNESS THEREOF, this instrument has been duly executed this _____

Day of_____, 20_____.

## SECTION 07 55 10

## MODIFIED BITUMINOUS MEMBRANE ROOFING

### PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Installation of 'hot-applied' APP-modified bituminous membrane roofing.
2. Roof insulation.

1.2 DEFINITIONS

A. Roofing Terminology: Refer to ASTM D 1079 and glossary of NRCA's "The NRCA Roofing and Waterproofing Manual" for definition of terms related to roofing work in this Section.

B. Hot Roofing Asphalt: Roofing asphalt heated to its equiviscous temperature, the temperature at which its viscosity is 125 centipoise for mop-applied roofing asphalt and 75 centipoise for mechanical spreader-applied roofing asphalt, within a range of plus or minus 25 deg F (14 deg C), measured at the mop cart or mechanical spreader immediately before application.

1.3 PERFORMANCE REQUIREMENTS

A. General: Provide installed roofing membrane and base flashings that remain watertight; do not permit the passage of water; and resist specified uplift pressures, thermally induced movement, and exposure to weather without failure.

B. Material Compatibility: Provide roofing materials that are compatible with one another under conditions of service and application required, as demonstrated by roofing manufacturer based on testing and field experience.

C. Roofing System Design: Provide a roofing system that is identical to systems that have been successfully tested for application and slopes indicated and are listed by UL for Class A external fire exposure and Class 90 wind uplift requirements.

D. FMG Listing: Provide roofing membrane, base flashings, and component materials that comply with requirements in FMG 4450 and FMG 4470 as part of a roofing system and that are listed in FMG's "Approval Guide" for Class 1 and I-90 wind uplift requirements. Hail Resistance: SH

1.4 SUBMITTALS

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

B. Shop Drawings: For roofing system. Include plans, elevations, sections, details, and attachments to other Work.

1. Base flashings, cants, and membrane terminations.
2. Tapered insulation, including slopes.
3. Crickets, saddles, and tapered edge strips, including slopes.
4. Insulation fastening patterns.

C. Installer Certificates: Signed by roofing system manufacturer certifying that Installer is approved, authorized, or licensed by manufacturer to install roofing system.

D. Manufacturer Certificates: Signed by roofing manufacturer certifying that roofing system complies with requirements specified in "Performance Requirements" Article.

1. Submit evidence of meeting performance requirements.

E. Qualification Data: For Installer and manufacturer.

F. Maintenance Data: For roofing system to include in maintenance manuals.

G. Warranties: Special warranties specified in this Section.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: A qualified firm that is approved, authorized, or licensed by roofing system manufacturer to install manufacturer's product and that is eligible to receive manufacturer's warranty.

B. Manufacturer Qualifications: A qualified manufacturer that has UL listing and FMG approval for roofing system identical to that used for this Project.

F. Preinstallation Conference: Conduct conference at Project site. Comply with requirements in Division 1 Section "Project Management and Coordination." Review methods and procedures related to roofing system including, but not limited to, the following:

1. Meet with Owner, Architect, Owner's insurer if applicable, testing and inspecting agency representative, roofing Installer, roofing system manufacturer's representative, deck Installer, and installers whose work interfaces with or affects roofing including installers of roof accessories and roof-mounted equipment.
2. Review methods and procedures related to roofing installation, including manufacturer's written instructions.
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. Examine deck substrate conditions and finishes for compliance with requirements, including flatness and fastening.
5. Review structural loading limitations of roof deck during and after roofing.
6. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect roofing system.
7. Review governing regulations and requirements for insurance and certificates if applicable.
8. Review temporary protection requirements for roofing system during and after installation.
9. Review roof observation and repair procedures after roofing installation.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver roofing materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, and directions for storage.

B. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer. Protect stored liquid material from direct sunlight.

1. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.

C. Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacturer's written instructions for handling, storing, temperature requirements and protecting during installation.

D. Handle and store roofing materials and place equipment in a manner to avoid permanent deflection of deck.

1.7 PROJECT CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed according to manufacturer's written instructions and warranty requirements.

B. Ambeient temperatures must be above 55^ F (12.6^C) a minimum of 24 hours prior to application.

1.8 WARRANTY

A. Special Roofing Manufacturer's Warranty: Provide Manufacturers standard No Dollar Limit (NDL) Guarantee with single source coverage and no monetary limitation, where the

manufacturer agrees to repair of replace components in the roofing system, which cause a leak due to a failure in materials or workmanship.

1. Special warranty includes roofing membrane, base flashings, roofing membrane accessories, roof insulation, fasteners, walkway products and other components of roofing system.

2. Warranty Period: 20 years from date of Substantial Completion.

B. Installer's Warranty: If not bound into Manufacturer's Warranty above, submit roofing Installer's warranty, signed by Installer, covering Work of this Section, including all components of roofing system such as roofing membrane, base flashing, roof insulation, fasteners, cover boards, substrate boards, vapor retarders, roof pavers, and walkway products, for the following warranty period:

1. Warranty Period: Two years from date of Substantial Completion.

**PART 2 - PRODUCTS**

2.1 MANUFACTURERS

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

1. APP-Modified Bituminous Membrane Roofing:

a. GAF Materials Corporation.
b. Johns Manville International, Inc.
c. U.S. Intec, Inc. (GBFR-B3SP-RI)

2.2 APP-MODIFIED ASPHALT-SHEET MATERIALS

A. Smooth surfaced – Resilient, asphalt modified bitumen membrane containing a core of non-woven polyester mat coated with weather resistant, APP polymer-modified asphalt. Conforming to or exceeding ASTM D 6222 Type I Grade S.

B. Roofing Membrane Cap Sheet: ASTM D 6223, Grade G, Type I or II, composite polyester- and glass-fiber-reinforced, fire resistant, APP-modified asphalt sheet; granular surfaced; suitable for application method specified, and as follows:

1. Granule Material: Mineral ceramic coated.
2. Granule Color: Color as selected by Architect from Manufacturer's standard colors.

2.3 BASE FLASHING SHEET MATERIALS

A. Flashing Sheet: Heavyweight asphalt coated fiber base sheet: Conforming to ASTM D 4601, Type II, UL Type G@ BUR, and Federal Spec SS-R-620B Type II.

2.4 AUXILIARY ROOFING MEMBRANE MATERIALS

A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with roofing membrane.

E. Cold-Applied Adhesive: Roofing system manufacturer's standard asphalt-based, one- or two-part, asbestos-free, cold-applied adhesive specially formulated for compatibility and use with roofing membrane and base flashings.

F. Asphalt Roofing Cement: ASTM D 4586, asbestos free, of consistency required by roofing system manufacturer for application and warranty requirements.

G. Mastic Sealant: Polyisobutylene, plain or modified bitumen, nonhardening, nonmigrating, nonskinning, and nondrying.

H. Fasteners: Factory-coated steel fasteners and metal or plastic plates meeting corrosion-resistance provisions in FMG 4470, designed for fastening roofing membrane components to substrate, tested by manufacturer for required pullout strength, and acceptable to roofing system manufacturer.

I. Metal Flashing Sheet: Metal flashing sheet is specified in Division 7 Section "Sheet Metal Flashing and Trim."

J. Roofing Granules: Ceramic-coated roofing granules, No. 11 screen size with 100 percent passing No. 8 (2.36-mm) sieve and 98 percent of mass retained on No. 40 (0.425-mm) sieve, color to match roofing membrane.

K. Sealant Pans: Structural urethane outer shell, bonded to the roof surface, filled with a urethane rubber sealant. The urethane sealant shall conform to the shape of any roof penetration through the roof surface to protect the roof system from moisture.

K. Miscellaneous Accessories: Provide miscellaneous accessories recommended by roofing system manufacturer.

2.5 ROOF INSULATION

A. General: Provide preformed roof insulation boards that comply with requirements and referenced standards, selected from manufacturer's standard sizes and of thicknesses indicated and compatable with required system warranty.

B. Polyisocyanurate Board Insulation: ASTM C 1289, Type II, felt or glass-fiber mat facer on both major surfaces.

1. Board Thickness: 3.0" (minimum)

2. Thermal Resistance (LTTR value) of: 18.5 min.

3. Available Manufacturers:

   a. Firestone Building Products Company.
   b. GAF Materials Corporation.
   c. Johns Manville International, Inc.

C. Tapered Insulation: Provide factory-fabricated, tapered rigid perlite insulation boards cut at angles to provide a smooth transition between differences in elevation.

D. Provide preformed saddles, crickets, tapered edge strips, and other insulation shapes where indicated for sloping to drain. Fabricate to slopes indicated.

2.6 INSULATION ACCESSORIES

A. General: Roof insulation accessories recommended by insulation manufacturer for intended use and compatible with membrane roofing.

B. Fasteners: Factory-coated steel fasteners and metal or plastic plates meeting corrosion-resistance provisions in FMG 4470, designed for fastening roof insulation to substrate, and acceptable to roofing system manufacturer.

C. Insulation Cant Strips: ASTM C 728, perlite insulation board. Cut at angles to provide a true 45^ angle between horizontal and vertical surfaces.

D. Tapered Edge Strips: ASTM C 728, perlite insulation board.

E. Substrate Joint Tape: 6- or 8-inch- (150- or 200-mm-) wide, coated, glass-fiber joint tape.

2.7 WALKWAYS

A. Walkway Pads: Mineral-granule-surfaced, reinforced asphaltic composition, slip-resisting pads, manufactured as a traffic pad for foot traffic and acceptable to roofing system manufacturer, 3/8 inch (10 mm) thick, minimum.

1. Pad Size: 3'-0" x 3'-0"

**PART 3 - EXECUTION**

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with the following requirements and other conditions affecting performance of roofing system:

1. Verify that roof openings and penetrations are in place and set and braced and that roof drains are securely clamped in place.
2. Verify that wood cants, blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations and that nailers match thicknesses of insulation.
3. Verify that surface plane flatness and fastening of steel roof deck complies with requirements in Division 5 Section "Steel Deck.
4. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Clean substrate of dust, debris, moisture, and other substances detrimental to roofing installation according to roofing system manufacturer's written instructions. Remove sharp projections.

B. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction. Remove roof-drain plugs when no work is taking place or when rain is forecast.

C. Install acoustical roof deck rib insulation strips, specified in Division 5 Section "Steel Deck," according to acoustical roof deck manufacturer's written instructions.

3.3 INSULATION INSTALLATION

A. Comply with roofing system manufacturer's written instructions for installing roof insulation. A vapor retarder coated lightly with asphalt may be applied to protect the inside of the structure prior to the insulation and final roofing application. Before the application of the insulation, any damage or deterioration to the vapor retarder must be repaired.

B. Insulation Cant Strips: Install and secure preformed 45-degree insulation cant strips at junctures of roofing membrane system with vertical surfaces or angle changes greater than 45 degrees.

C. Install tapered insulation under area of roofing to conform to slopes indicated. Do not install wet, damaged or warped insulation boards.

D. Install insulation with long joints of insulation in a continuous straight line with end joints staggered between rows, abutting edges and ends between boards. Fill gaps exceeding 1/4 inch (6 mm) with insulation.

1. Cut and fit insulation within 1/4 inch (6 mm) of nailers, projections, and penetrations.

E. Install one or more layers of insulation under area of roofing to achieve required thickness. Where overall insulation thickness is 2 inches (50 mm) or greater, install 2 or more layers with joints of each succeeding layer staggered from joints of previous layer a minimum of 6 inches (150 mm) in each direction.

F. Wood nailers must be 3 ½" (8.9 cm) minimum width or 1" (25 mm) wider than metal flange. They shall be of equal thickness as the insulation with a minimum 1" (25 mm) thickness. All nailers must be securely fastened to the deck.

G. Trim surface of insulation where necessary at roof drains so completed surface is flush and does not restrict flow of water.

H. Install tapered edge strips at perimeter edges of roof that do not terminate at vertical surfaces.

I. Mechanically Fastened and Adhered Insulation: Install each layer of insulation and secure first layer of insulation to deck using mechanical fasteners specifically designed and sized for fastening specified board-type roof insulation to deck type.

1. Fasten first layer of insulation according to requirements in FMG's "Approval Guide" for specified Windstorm Resistance Classification.
2. Install subsequent layers of insulation in a solid mopping of hot roofing asphalt.

3.4 ROOFING MEMBRANE INSTALLATION, GENERAL

A. Install roofing membrane system according to roofing system manufacturer's written instructions and applicable recommendations of ARMA/NRCA's "Quality Control Guidelines for the Application of Polymer Modified Bitumen Roofing."

B. Install roofing system MBA1-I-T-G(2-with base sheet)-M, according to specification-plate classifications in NRCA's "The NRCA Roofing and Waterproofing Manual" and requirements in this Section.

1. Backnail roofing membrane sheets to nailer strips according to roofing system manufacturer's written instructions.

E. Cooperate with testing and inspecting agencies engaged or required to perform services for installing roofing system.

F. Backer plies installed over masonry or other non-nailable substrates shall be cut into manageable lengths to ensure adequate adhesion to the cant strip and vertical surfaces without voids. All vertical laps shall be 4" (10.2 cm). Backer plies shall extend onto the field of the roof per the manufacturer's guidelines.

G. Prime all metal and masonry surfaces with asphalt primer, and allow adequate drying time prior to adhering flashing plies.

H. Nailable curbs and walls must be covered with a layer of approved base sheet or backer ply fastened 8" (20.3 cm) o.c. in all directions with approved fasteners. All verticl laps shall be 4" (10.2 cm). Base sheet or backer ply must extend out onto the field of the roof per the manufacturer's guidelines for installation.

I. Coordinate installing roofing system so insulation and other components of the roofing membrane system not permanently exposed are not subjected to precipitation or left uncovered at the end of the workday or when rain is forecast.

1. Provide tie-offs at end of each day's work to cover exposed roofing membrane sheets and insulation with a course of coated felt set in roofing cement or hot roofing asphalt with joints and edges sealed.
2. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system.
3. Remove and discard temporary seals before beginning work on adjoining roofing.

J. Substrate-Joint Penetrations: Prevent roofing asphalt from penetrating substrate joints, entering building, or damaging roofing system components or adjacent building construction.

## 3.5 APP-MODIFIED BITUMINOUS MEMBRANE INSTALLATION

A. Install modified bituminous roofing membrane sheet and cap sheet according to roofing manufacturer's written instructions, starting at low point of roofing system. Extend roofing membrane sheets over and terminate beyond cants, installing as follows:

1. Torch apply to substrate.
2. Unroll roofing membrane sheets and allow them to relax for minimum time period required by manufacturer.

B. Laps: Accurately align roofing membrane sheets, without stretching, and maintain uniform side and end laps. Stagger end laps. Completely bond and seal laps, leaving no voids.

1. Repair tears and voids in laps and lapped seams not completely sealed.
2. Apply roofing granules to cover exuded bead at laps while bead is hot.

C. Install roofing membrane sheets so side and end laps shed water.

## 3.6 FLASHING AND STRIPPING INSTALLATION

A. Install base flashing over cant strips and other sloping and vertical surfaces, at roof edges, and at penetrations through roof, and secure to substrates according to roofing system manufacturer's written instructions and as follows:

1. Prime substrates with asphalt primer if required by roofing system manufacturer.
2. Flashing Sheet Application: Adhere flashing sheet to substrate in asphalt roofing cement; apply cement at rate required by roofing system manufacturer.

B. Extend base flashing up walls or parapets a minimum of 8 inches (200 mm) above roofing membrane and 4 inches (100 mm) onto field of roofing membrane.

C. Mechanically fasten top of base flashing securely at terminations and perimeter of roofing.

D. Install roofing membrane cap-sheet stripping where metal flanges and edgings are set on membrane roofing according to roofing system manufacturer's written instructions and warranty requirements.

1. Install stripping according to roofing system manufacturer's written instructions and warranty requirements.

3.7 WALKWAY INSTALLATION

A. Walkway Pads: Walkways for normal rooftop traffic may be constructed from two plies of modified bituminous membrane of the same type as the field of the roof.

B. Construct walkways by solidly adhering a first ply of smooth surfaced membrane to the field of the roof followed by a granule surfaced membrane to the surface of the first ply.

C. Walkway sections should be no longer than 10' (3m), with a 6" (15.2 cm) minimum gap between each section to allow for drainage.

3.8 EXPANSION JOINT ASSEMBLY INSTALLATION

A. Expansion Joint cover, transition and termination components shall cover the nailer to edge of joint opening.

B. Flanges must be sealed to roof membrance with manufacturer recommended tape sealant..

C. Expansion joint covers must be mechanicaaly attached per the manufacturers recommendation for compliance with the specified warranty.

3.8 FIELD QUALITY CONTROL

A. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion and submit report to Architect. All application errors must be addressed ans a final punch list completed.

B. Repair or remove and replace components of roofing system where test results or inspections indicate that they do not comply with specified requirements.

C. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.9 PROTECTING AND CLEANING

A. Protect roofing system from damage and wear during remainder of construction period. When remaining construction will not affect or endanger roofing, inspect roofing for

deterioration and damage, describing its nature and extent in a written report, with copies to Architect and Owner.

B. When it is not possible to stage materials away from locations where partial or complete installation has taken place, temporary walkways and platforms shall be installed in order to protect all completed roof areas from traffic and point loading during the application process.

C. Correct deficiencies in or remove roofing system that does not comply with requirements, repair substrates, and repair or reinstall roofing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.

D. All tools and unused mateials must be collected at the end of each workday and stored properly off of the finished roof surface and protected from exposure to the elements.

E. Properly clean and finished roof surface after completion, and make sure the drains and gutters are not clogged.

**END OF SECTION**

## SECTION 07 6200

## SHEET METAL FLASHING AND TRIM

### PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Copings.
2. Gutters, scuppers, and downspouts.
3. Counterflashings over membrane roof base flashings.
4. Counterflashings at roof mounted equipment and utility penetrations.

B. Related Sections:
1. Division 01: Administrative, procedural, and temporary work requirements.
2. Section 07 9200 - Joint Sealers.

1.2 REFERENCES

A. American National Standards Institute/Single Ply Roofing Institute (ANSI/SPRI) ES-1 - Wind Design Standard for Edge Systems Used with Low Slope Roofing Systems.

B. ASTM International (ASTM):
1. A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy Coated (Galvannealed) by the Hot-Dip Process.
2. B32 - Standard Specification for Solder Metal.

C. Sheet Metal and Air Conditioning Manufacturer's Association International (SMACNA) - Architectural Sheet Metal Manual.

1.3 SUBMITTALS

A. Submittals for Review:
1. Shop Drawings: Show locations, types and thicknesses of metal, profiles, dimensions, fastening methods, provisions for expansion and contraction, and joint details.
2. Samples:
a. Each flashing and trim profile, minimum 12 inches long. Include corners where applicable.
b. 3 x 3 inch prefinished metal samples showing available colors.

1.4 QUALITY ASSURANCE

A. Fabricator and Installer Qualifications: Minimum 2 years documented experience in work of this Section.

B. Design, fabricate, and install copings in accordance with ANSI/SPRI ES-1.

### PART 2 PRODUCTS

2.1 MATERIALS

A. Galvanized Steel Sheet:
1. ASTM A653/A653M, Structural Quality, G90 coating class, 24 gage core steel unless noted otherwise.
2. Where sheet metal is to be painted, apply phosphate film at factory.

B. Precoated Galvanized Steel Sheet:
1. ASTM A653/A653M, Structural Quality, G90 coating class, 24 gage core steel unless noted otherwise.

2. Finish: Precoated with fluoropolymer coating, containing minimum 70 percent PVDF resins, color to be selected from manufacturer's full color range.

2.2 ACCESSORIES

A. Solder: ASTM B32.

B. Fasteners: Same material and finish as sheet metal, with neoprene gasketed washers where exposed.

C. Joint Sealers: Specified in Section 07 9200.

2.3 FABRICATION

A. Fabricate components in accordance with SMACNA Manual.

B. Fabricate end caps, downspout outlets and headers, straps, brackets, and downspout strainers in profile to suit gutters and downspouts.

C. Solder shop formed joints except at prefinished metal. After soldering, remove flux and wash clean.

D. Fabricate corners in single units with minimum 18 inch long legs.

E. Fabricate vertical faces with bottom edge formed outward 1/4 inch and hemmed to form drip.

F. Form sections accurate to size and shape, square and free from distortion and defects.

G. Provide for thermal expansion and contraction in sheet metal:
   1. Gutters:
      a. Place expansion joints at maximum 50 feet on center.
      b. Locate expansion joints between downspouts; prevent water flow over joint.
   2. Other sheet metal:
      a. Provide expansion joints in sheet metal exceeding 15 feet in running length.
      b. Place expansion joints at 10 feet on center maximum and maximum 2 feet from corners and intersections.
   3. Joint width: Consistent with types and sizes of materials, minimum width 1/4 inch.

H. Fabricate expansion joints in metal copings with cover plates formed to flashing profile and minimum 4 inches long.

I. Unless otherwise indicated, provide minimum 3/4 inch wide flat lock seams; lap in direction of water flow.

J. Fabricate cleats and starter strips of same material as sheet metal.

**PART 3 EXECUTION**

3.1 INSTALLATION

A. Install flashing and sheet metal as indicated and in accordance with SMACNA Manual.

B. Install cleats and starter strips before starting installation of sheet metal.

C. Expansion Joints in Metal Copings:
   1. Seal expansion space between ends of flashing sections.
   2. Apply continuous bead of joint sealer between cover plate and flashing sections at each end.

D. Secure flashings with concealed fasteners where possible.

E. Fit flashings tight, with square corners and surfaces true and straight.

F. Seam and seal field joints.

G. Separate dissimilar metals with bituminous coating or non-absorptive gaskets.

H. Reglets:
   1. Install reglets true to line and level. Seal top of surface mounted reglet with joint sealer.
   2. Install flashings into reglets to form tight fit. Secure with lead or plastic wedges at 9 inches on center maximum. Seal remaining space with joint sealer.

I. Gutters: Secure with straps spaced maximum 36 inches on center and within 12 inches of ends.

J. Downspouts:
   1. Secure with straps spaced maximum 8 feet on center and within 2 feet of ends and elbows.
   2. Flash downspouts into gutters and fasten.
   3. Flash upper sections into lower sections minimum 2 inches at joints; fasten sections together.

K. Apply joint sealers as specified in Section 07 9200.

3.2 CLEANING

A. Clean sheet metal; remove slag, flux, stains, spots, and minor abrasions without etching surfaces.

END OF SECTION

**SECTION 07 9200**

**JOINT SEALERS**

## PART 1 GENERAL

### 1.1 SUMMARY

A. Section Includes:
   1. Joint backup materials.
   2. Joint sealers.

B. Related Sections:
   1. Division 01: Administrative, procedural, and temporary work requirements.

### 1.2 REFERENCES

A. ASTM International (ASTM):
   1. C834 - Standard Specification for Latex Sealing Compounds.
   2. C919 - Standard Practice for Use of Sealants in Acoustical Applications.
   3. C920 - Standard Specification for Elastomeric Joint Sealants.
   4. C1193 - Standard Guide for Use of Joint Sealants.
   5. C1330 - Standard Specification for Cylindrical Sealant Backing for Use with Cold Liquid Applied Sealants.

### 1.3 SUBMITTALS

A. Submittals for Review:
   1. Product Data: Indicate sealers, primers, backup materials, bond breakers, and accessories proposed for use.
   2. Samples:
      a. 1/2 x 1/2 x 3 inch long joint sealer samples showing available colors.
      b. 6 inch long joint backup material samples.
   3. Warranty: Sample warranty form.

### 1.4 PROJECT CONDITIONS

A. Do not apply sealers at temperatures below 40 degrees F unless approved by sealer manufacturer.

### 1.5 WARRANTIES

A. Furnish manufacturer's 10 year warranty providing coverage for exterior sealers and accessories that fail to provide air and water tight seal, exhibit loss of adhesion or cohesion, or do not cure.

## PART 2 PRODUCTS

### 2.1 MANUFACTURERS

A. Acceptable Manufacturers:
   1. BASF Building Systems. (www.buildingsystems.basf.com)
   2. Dow Corning Corp. (www.dowcorning.com)
   3. GE Silicones. (www.gesealants.com)
   4. Pecora Corp. (www.pecora.com)
   5. Sika Corp. (www.sikausa.com)
   6. Tremco, Inc. (www.tremcosealants.com)

B. Substitutions: Under provisions of Division 01.

2.2 MATERIALS

A. Joint Sealer Type 1:
   1. ASTM C920, Grade P, multiple component polyurethane type, self-leveling and slope grades.
   2. Movement capability: Plus or minus 25 percent.
   3. Color: To be selected from manufacturer's full color range.

B. Joint Sealer Type 2:
   1. ASTM C920, Grade NS, single component silicone type, non sag.
   2. Movement capability: Plus or minus 50 percent.
   3. Colors: To be selected from manufacturer's full color range.

C. Joint Sealer Type 3:
   1. ASTM C834, single component acrylic latex, non sag.
   2. Movement capability: Plus or minus 7-1/2 percent.
   3. Color: White.

D. Joint Sealer Type 4:
   1. ASTM C920, Grade NS, single component silicone, non sag, mildew resistant.
   2. Movement capability: Plus or minus 25 percent.
   3. Colors: To be selected from manufacturer's full color range.

E. Joint Sealer Type 5:
   1. ASTM C834, single component acrylic latex, non sag, non-hardening, recommended by manufacturer for acoustical applications.
   2. Movement capability: Plus or minus 7-1/2 percent.
   3. Color: White.

2.3 ACCESSORIES

A. Primers, Bondbreakers, and Solvents: As recommended by sealer manufacturer.

B. Joint Backing:
   1. ASTM C1330, closed cell polyethylene foam, preformed round joint filler, non absorbing, non staining, resilient, compatible with sealer and primer, recommended by sealer manufacturer for each sealer type.
   2. Size: Minimum 1.25 times joint width.

2.4 MIXES

A. Mix multiple component sealers in accordance with manufacturer's instructions.
   1. Mix with mechanical mixer; prevent air entrainment and overheating.
   2. Continue mixing until color is uniform.

**PART 3 EXECUTION**

3.1 PREPARATION

A. Remove loose and foreign matter that could impair adhesion. If surface has been subject to chemical contamination, contact sealer manufacturer for recommendation.

B. Clean and prime joints in accordance with manufacturer's instructions.

C. Protect adjacent surfaces with masking tape or protective coverings.

D. Sealer Dimensions:
   1. Minimum joint size: 1/4 x 1/4 inch.
   2. Joints 1/4 to 1/2 inch wide: Depth equal to width.
   3. Joints over 1/2 inch wide: Depth equal to one half of width.

3.2 APPLICATION

A. Apply products in accordance with manufacturer's instructions.

B. Install sealers and accessories in accordance with ASTM C1193.

C. Install acoustical sealers and accessories in accordance with ASTM C919.

D. Install joint backing to maintain required sealer dimensions. Compress backing approximately 25 percent without puncturing skin. Do not twist or stretch.

E. Use bondbreaker tape where joint backing is not installed.

F. Fill joints full without air pockets, embedded materials, ridges, and sags.

G. Tool sealer to smooth profile.

H. Apply sealer within manufacturer's recommended temperature range.

3.3 CLEANING

A. Remove masking tape and protective coverings after sealer has cured.

B. Clean adjacent surfaces.

3.4 SCHEDULE

| JOINT LOCATION OR TYPE | SEALER TYPE |
|---|---|
| Exterior Joints: | |
| Joints in horizontal surfaces subject to pedestrian or vehicular traffic | 1 |
| Joints in above-grade surfaces | 2 |
| Interior Joints: | |
| Joints in horizontal surfaces subject to pedestrian traffic | 1 |
| Joints in toilet rooms | 4 |
| Joints in acoustical assemblies | 5 |
| Other joints | 3 |

END OF SECTION

## SECTION 08 0383

## WOOD WINDOW RESTORATION

### PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Restoration of existing wood windows.

B. Related Sections:
   1. Division 01: Administrative, procedural, and temporary work requirements.
   2. Section 08 8000 - Glazing.
   3. Section 09 9100 - Painting.

1.2 SUBMITTALS

A. Submittals for Review:
   1. Samples: 6 inch long samples of each weatherstripping profile.

B. Quality Control Submittals:
   1. Restorer Qualifications: Include names of projects, street address, year completed, description of work, client's name, and name, address, and telephone number of contact person.

1.3 QUALITY ASSURANCE

A. Restorer Qualifications:
   1. Minimum 3 years experience in work of this Section.
   2. Successful completion of at least 3 projects of similar scope and complexity within past 5 years.

B. Mockups:
   1. Provide mockup of restored window.
   2. Show each wood restoration process, hardware, glazing, reinstallation, finishing, and glazing film.
   3. Locate where directed.
   4. Approved mockups may remain as part of the Work.

### PART 2 PRODUCTS

2.1 MATERIALS

A. Consolidant: Low viscosity penetrating consolidant, 8 hour minimum cure time.

B. Patching Compound: Epoxy based, multiple component.

C. Glass and Glazing Accessories:
   1. Salvage existing glass for reuse where possible. Do not reuse cracked, chipped, scratched, or otherwise damaged glass.
   2. New glass: Specified in Sections 08 8000.

D. Hardware: Material, profile, and finish to match original.

E. Window Weights:
   1. Reuse existing salvaged weights where possible. Provide new weights to match original in profile and weight where existing original weights are damaged or missing.
   2. New weights: Cast iron, profile to fit available space, weight equal to approximately 80 percent of total sash weight.

F. Sash Cord: Cotton cord with nylon core.

G. Weatherstripping:
   1. Reuse existing weatherstripping where possible.
   2. New weatherstripping:
      a. Zinc, profile to match existing.
      b. Zinc, compressible type to fit between upper and lower sash at meeting stile.

## PART 3 EXECUTION

### 3.1 PREPARATION

A. Where restoration of windows will require removal from openings, number windows corresponding to key on exterior elevations prior to removing.

B. Remove paint under provisions of Section 09 9100.

### 3.2 RESTORATION

A. Consolidation of Existing Wood:
   1. Apply consolidant in accordance with manufacturer's instructions.
   2. Completely saturate damaged wood with consolidant; allow to cure 8 hours minimum.
   3. Apply to end grain where exposed. Where end grain is not exposed, drill 1/8 inch holes staggered and at angles to side grain to expose as much end grain as possible.
   4. Prevent leakage with wax or clay plugs. Clean leakage before it cures.
   5. Apply second coat if first coat does not completely saturate and harden wood.

B. Patching Existing Wood:
   1. Remove loose and deteriorated wood down to a point at which sound material is reached.
   2. Apply consolidant as specified above.
   3. After consolidant has cured, fill voids with patching compound. Mix and apply in accordance with manufacturer's instructions.
   4. Embed wood in center of large patches to reduce amount of filler.
   5. After filler has cured, sand, chisel, or plane off to smooth surface, flush with adjacent surfaces.

C. Replacement of Existing Wood:
   1. Remove existing damaged and deteriorated wood in manner to minimize damage to adjacent surfaces.
   2. Fit new components to original profiles and lines.
   3. Feather new materials into existing.
   4. Sand cut ends and edges smooth.

D. Sand or plane windows to provide tight fit without binding or sticking.

### 3.3 REPLACEMENT OF GLASS

A. Install glass under provisions of Section 08 8000.

B. Replace glazing putty.

### 3.4 INSTALLATION OF WEATHERSTRIPPING

A. Apply in full length strips without splices.

B. Secure with double faced adhesive tape and fasteners spaced maximum 6 inches on center.

3.5 REFINISHING WOOD

A. Refinish wood as specified in Section 09 9100.

B. Do not finish sash edges.

END OF SECTION

## SECTION 08 1113

## HOLLOW METAL DOORS AND FRAMES

### PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Hollow steel doors and frames.

B. Related Sections:
   1. Division 01: Administrative, procedural, and temporary work requirements.
   2. Section 08 7100 - Door Hardware.

1.2 REFERENCES

A. American National Standards Institute (ANSI)/Steel Door Institute (SDI):
   1. A250.3 - Test Procedure and Acceptance Criteria for Factory Applied Finished Painted Steel for Steel Doors and Frames.
   2. A250.4 - Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors, Frames, Frame Anchors and Hardware Reinforcings.
   3. A250.8 - Recommended Specifications for Standard Steel Doors and Frames.
   4. A250.10 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames.
   5. A250.11 - Recommended Erection Instructions for Steel Frames.

B. ASTM International (ASTM):
   1. A924 - Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process.
   2. A1008/A1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability.

C. National Fire Protection Association (NFPA) 80 - Standard for Fire Doors and Fire Windows.

D. Steel Door Institute (SDI) 117 - Manufacturing Tolerances for Standard Steel Doors and Frames.

E. Underwriters Laboratories (UL) 10C - Standard for Positive Pressure Fire Tests of Door Assemblies.

1.3 SUBMITTALS

A. Submittals for Review:
   1. Shop Drawings: Show locations, elevations, dimensions, model designations, thermal ratings, preparation for hardware, and anchoring details.
   2. Product Data: Show elevations, dimensions, gages of metal, hardware reinforcing gages and locations, and anchor types.

B. Quality Control Submittals:
   1. Certificates of Compliance: Certification that products furnished comply with ANSI/SDI A250.3, ANSI/SDI 250.4, and ANSI/SDI A250.10.

1.4 QUALITY ASSURANCE

A. Doors: ANSI/SDI A250.8.
   1. Grade: II - Heavy Duty.
   2. Model: 2 - Seamless.
   3. Minimum R value: 12.0.

B. Frames: ANSI/SDI A250.8, Grade II - Heavy Duty.

C. Fire Door and Frame Construction: Conform to UL 10C.

D. Installed Fire Rated Door and Frame Assemblies: Conform to NFPA 80.

1.5 DELIVERY, STORAGE AND HANDLING

A. Ship door frames with removable angle spreader; do not remove until frame is installed.

B. Store doors upright in protected, dry area, off ground or floor, with at least 1/4 inch space between individual units.

C. Do not cover with non vented coverings that create excessive humidity.

D. Remove wet coverings immediately.

**PART 2 PRODUCTS**

2.1 MANUFACTURERS

A. Acceptable Manufacturers:
1. Amweld Building Products LLC. (www.amweld.com)
2. Ceco Door Products. (www.cecodoor.com)
3. Curries Company. (www.curries.com)
4. Pioneer Industries, Inc. (www.pioneerindustries.com)
5. Steelcraft. (www.steelcraft.com)

B. Substitutions: Under provisions of Division 01.

2.2 MATERIALS

A. Steel Sheet: ASTM A1008/1008M, cold rolled.

B. Galvannealed Steel Sheet: ASTM A924, Class A40 galvannealed.

C. Door Core:
1. Exterior doors: Foamed-in-place polyurethane insulation.
2. Interior non-fire rated doors: Resin impregnated fibrous honeycomb.
3. Interior fire-rated doors: Rigid mineral fiberboard.

2.3 ACCESSORIES

A. Primer: Zinc rich type.

2.4 FABRICATION

A. Fabricate doors and frames in accordance with ANSI/SDI A250.8.

B. Fabricate exterior doors and frames from galvannealed steel sheet.

C. Doors:
1. Fabricate from minimum 18 gage sheets.
2. Close top and bottom edges of doors with steel channel, minimum 16 gage, extending full width of door, and spot welded to both faces, with top channel flush and bottom channel recessed.
3. Fabricate vertical door edges as vertical seam edge filled, dressed smooth, intermittently welded seams, edge filled, dressed smooth, or continuously welded seam, dressed smooth.

D. Frames:
1. Fabricate from minimum 16 gage sheets.

2. Close corner joints tight with trim faces mitered and face welded, full profile welded, or continuously welded and ground smooth.
3. Anchors:
   a. Provide one anchor at each jamb for each 30 inches of door height.
   b. Design anchors to provide positive fastenings to adjacent construction.
   c. Provide one floor anchor welded to each jamb.
4. Where frames will be filled with grout, install silencers in frames before erection.

E. Accurately form to required sizes and profiles.

F. Grind and dress exposed welds to form smooth, flush surfaces.

G. Do not use metallic filler to conceal manufacturing defects.

H. Fabricate with internal reinforcement for hardware specified in Section 08 7100; weld in place.

I. Design Clearances:
1. Between door and frame: Maximum 1/8 inch.
2. between meeting edges of pairs of doors:
   a. Non-fire rated doors: 3/16 inch plus or minus 1/16 inch.
   b. Fire-rated doors: 1/8 inch plus or minus 1/16 inch.
3. Undercut:
   a. Non-fire rated doors: Maximum 3/4 inch.
   b. Fire-rated doors: Comply with NFPA 80.
4. Between face of door and stop: 1/16 to 3/32 inch.

J. Manufacturing Tolerances: In accordance with SDI-117.

2.5 FINISHES

A. Dress tool marks and surface imperfections to smooth surfaces.

B. Clean and chemically treat steel surfaces.

C. Touch up damaged metallic coatings.

D. Apply manufacturer's standard rust inhibiting primer paint, air-dried or baked on, meeting requirements of ANSI/SDI A25010.

**PART 3 EXECUTION**

3.1 INSTALLATION

A. Install doors and frames in accordance with ANSI/SDI A250.11.

B. Set plumb and level.

C. Secure to adjacent construction using fastener type best suited to application.

D. Install hardware in accordance with Section 08 7100.

3.2 ADJUSTING

A. Touch up minor scratches and abrasions in primer paint to match factory finish.

END OF SECTION

## SECTION 08 1433

## STILE AND RAIL WOOD DOORS

### PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Wood stile and rail doors.

B. Related Sections:
   1. Division 01: Administrative, procedural, and temporary work requirements.
   2. Section 08 7100 - Door Hardware.
   3. Section 08 8000 - Glazing.

1.2 REFERENCES

A. Architectural Woodwork Institute/Architectural Woodwork Manufacturers of Canada/Woodwork Institute (AWI/AWMAC/WI) - Architectural Woodwork Standards.

1.3 SUBMITTALS

A. Submittals for Review:
   1. Shop Drawings: Show locations, elevations, dimensions, and preparation for hardware.
   2. Samples: 12 x 12 inch door samples showing stile, rail, and panel.
   3. Warranty: Sample warranty form.

1.4 DELIVERY, STORAGE AND HANDLING

A. Package doors in heavy plastic with identifying marks; slit plastic wrap on site to permit ventilation, but do not remove from plastic until ready to install.

B. Do not deliver doors until building is substantially water and weather tight.

C. Store doors flat and level, with spacers between doors to allow for air circulation, in protected, dry area.

D. Environmental Requirements: Maintain following conditions in building for minimum 7 days prior to, during, and after installation of doors:
   1. Temperature: 60 to 80 degrees F.
   2. Humidity: 25 to 55 percent.

1.5 WARRANTIES

A. Furnish manufacturer's 2 year warranty providing coverage against defects in materials and workmanship and warpage beyond specified amount.

### PART 2 PRODUCTS

2.1 MATERIALS

A. Stile and Rail Wood Doors:
   1. Type: AWI/AWMAC/WI Architectural Woodwork Standards, Section 9.
   2. Stiles and rails:
      a. Veneered construction.
      b. Core: Medium Density Fiberboard.
   3. Panels:
      a. Raised type.

b. Panel core: Medium Density Fiberboard.
4. Wood: Closed grain hardwood, of quality suitable for opaque finish.
5. Adhesives: Water Resistant type.

2.2 ACCESSORIES

A. Glass and Glazing Accessories: Specified in Section 08 8000.

2.3 FABRICATION

A. Fabricate doors in accordance with AWI/AWMAC/WI Architectural Woodwork Standards, Section 9.
1. Grade: Custom.
2. Performance Level: Extra Heavy Duty.

B. Prefitting; fit doors to frames at factory with following clearances:
1. Width: Cut hinge and lock edges equally.
2. Height: Cut bottom edge only; maximum 3/4 inch.
3. Edge clearances:
a. Jambs and head: 1/8 inch maximum between door and frame.
b. Sills: 1/8 inch maximum between door and top of finish floor.
c. Meeting stiles of pairs: 1/8 inch maximum between doors.
4. Lock edge: Bevel 1/8 inch in 2 inches.

C. Premachining: Machine doors at factory to receive hardware specified in Section 08 7100.

**PART 3 EXECUTION**

3.1 PREPARATION

A. Condition doors to average humidity that will be encountered after installation.

3.2 INSTALLATION

A. Install doors in accordance with AWI/AWMAC/WI Architectural Woodwork Standards.

B. Install doors plumb and level.

C. If field cutting for height is necessary, cut bottom edge only, 3/4 inch maximum.

D. Seal field cut surfaces with paint.

E. Install door hardware in accordance with Section 08 7100.

F. Install glass as specified in Section 08 8000.

G. Installation Tolerances:
1. Warp: Maximum 1/4 inch in any 3'-0" x 7'-0" portion of door, measured with taut string or straight edge on concave face of door.

END OF SECTION

## SECTION 08 3100

## ACCESS DOORS AND PANELS

### PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Access doors and frames for wall and ceiling surfaces.

B. Related Sections:
1. Division 01: Administrative, procedural, and temporary work requirements.

1.2 REFERENCES

A. ASTM International (ASTM) A1008/A1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability.

B. Underwriters Laboratories (UL) 10B - Standard for Fire Tests of Door Assemblies.

1.3 SUBMITTALS

A. Submittals for Review:
1. Product Data: Provide sizes, types, finishes, scheduled locations, and details of adjoining work.

1.4 QUALITY ASSURANCE

A. Fire Door Construction: Conform to UL 10B.

### PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturers:
1. Babcock-Davis Hatchways, Inc. (www.babcockdavis.com)
2. J.L. Industries. (www.jlindustries.com)
3. Karp Associates, Inc. (www.karpinc.com)
4. Milcor. (www.milcorinc.com)
5. Nystrom Building Products, Inc. (www.nystrom.com)

B. Substitutions: Under provisions of Division 01.

2.2 MATERIALS

A. Steel Sheet: ASTM A1008/A1008M, cold rolled.

2.3 FABRICATION

A. Fabricate door frame of steel sheet:
1. Doors 16 x 16 inches and smaller: Minimum 18 gage.
2. Doors over 16 x 16 inches: Minimum 16 gage.
3. Fabricate frames with flange type to suit installation conditions.

B. Fabricate non-rated door panels of minimum 14 gage steel sheet.

C. Fabricate fire rated door panels of two sheets of minimum 20 gage steel sheet. Fill core with noncombustible insulation.

D. Weld, fill, and grind joints to flush and square appearance.

E. Hardware:
   1. Continuous steel hinges, 175 degree opening.
   2. Screwdriver operated cam latch.
   3. Automatic closers for fire rated doors.

2.4 FINISHES

A. Steel: One coat rust-inhibiting primer paint, sprayed and baked.

**PART 3 EXECUTION**

3.1 INSTALLATION

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

B. Install plumb and level in openings. Secure rigidly in place.

C. Position units where indicated or where required to provide convenient access to concealed work requiring maintenance.

END OF SECTION

## SECTION 08 71 00

## FINISH HARDWARE

### PART I - GENERAL

1.01 RELATED DOCUMENTS:

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

1.02 WORK INCLUDED:

The work in this section shall include the furnishing of all items of finish hardware as hereinafter specified, or obviously necessary to complete the building, except those items which are specifically excluded from this section of the specification.

1.03 DESCRIPTION OF WORK:

A. Finish Hardware: Hardware used in building construction, but particularly that used on or in connection with doors and frames, cabinets and other movable members. It also has a finished appearance as well as functional purpose and may be considered as a part of the decorative treatment of a room or building.

1.04 QUALITY ASSURANCE:

A. Hardware has been specified herein by manufacturer's name, brand and catalog numbers for the purpose of establishing a basis for quality, finish, design and operational function. To insure a uniform basis of acceptable material, it is the intention that only manufacturer's items specified as "Acceptable and Approved" be furnished for use on this project.

B. Substitutions: Section 01630, SUBSTITUTIONS.

C. Supplier: A recognized builders hardware supplier who has been furnishing hardware in the project's vicinity for a period of not less than two (2) years, and who is, or has in employment, an Architectural Hardware Consultant (AHC) in good standing as certified by the Society of Architectural Hardware Consultants Council. This consultant shall have experience in the preparation of architectural hardware specifications, estimating, detailing, ordering, servicing of architectural hardware in all its branches and will be available at reasonable times during the course of the work for project hardware consultation to the Owner, Architect-Engineer and Contractor.

1.05 REFERENCES:

A. Finish Hardware in this section shall meet the following as established by the American National Standards Institute, Inc. (ANSI) which is sponsored by the Builders Hardware Manufacturers Association, Inc. (BHMA). Products tests are to be administered by the ETL Testing Laboratories, Inc., or other official testing laboratories which have been designed by BHMA for the testing of ANSI standards latest revision will be in effect.

| | | |
|---|---|---|
| B. | Materials and Finishes | BHMA 1301 |
| | Butts and Hinges | ANSI A156.1 |
| | Locks and Lock Trim | ANSI A156.2 |
| | Exit Devices ANSI A156.3 | |
| | Door Controls-Closers | ANSI A156.4 |
| | Auxiliary Lock & Assoc. Products | ANSI A156.5 |
| | Architectural Door Trim | ANSI A156.6 |
| | Template Hinge Dimensions | ANSI A156.7 |
| | Door Controls-Overhead Holders | ANSI A156.8 |
| | Mortise Locks and Latches | ANSI A156.13 |

C. Listed Hardware: Hardware which is to be installed in or on fire labeled doors and frames, Class A or lesser, single or pairs shall be tested and listed by Underwriters Laboratories and/or Warnock Hersey Fire Laboratories Division. Exit devices which are to be used as panic hardware shall be tested and listed in Underwriters Laboratories "Accident Equipment List - Panic Hardware". All listed hardware shall be in compliance with National Fire Protection Association (NFPA) Standard Number 80 and be properly stamped or labeled for easy identification.

1.06 SUBMITTALS:

A. The finish hardware supplier shall, after award of a formal contract, submit to the Architect-Engineer, six (6) complete typewritten copies of the proposed Finish Hardware Schedule for approval. This schedule shall be prepared using the "Sequence and Format for the Hardware Schedule" as approved and recommended by the Door and Hardware Institute (DHI).

B. When submitting schedules for approval, include six (6) copies of cut sheets on each hardware item proposed. Index it with the use of number or letters or a combination of both, with the hardware schedule. The index numbers/letters are to be in the right hand column on the same line as the respective manufacturers numbers shall be indexed even when appearing more than once.

C. Samples: As part of this contract, provide to the Architect-Engineer one sample of each item of finish hardware that is to be furnished for this project if requested.

D. Template: The hardware supplier shall provide necessary templates and/or physical hardware to all trades requiring them in order they may cut, reinforce or otherwise prepare their material or product to receive the hardware item. If physical hardware is required by any manufacturer, the hardware supplier shall ship to them such hardware via prepaid freight in sufficient time to prevent any delay in the execution of their work.

1.07 DELIVERY, STORAGE AND HANDLING:

A. All items of hardware to be delivered to the job site shall be completely packaged with all necessary screws, bolts, miscellaneous parts, instructions and where necessary installation templates for manufacturers' suggested installation. They are to be clearly labeled as to conveniently identify them and their intended location in the building.

B. A representative of the Contractor shall receive the hardware when delivered at the job site. A dry locked storage space complete with shelving, shall be set aside for the purpose of unpacking, sorting out, checking and storage.

C. Finish Hardware shall be delivered to the Contractor by the hardware supplier. Direct factory shipments to the job site are not acceptable.

D. The hardware shall be jointly inventoried by representatives of the Contractor and the Hardware Supplier to the Contractor.

E. Items damaged in shipment shall be replaced promptly and with proper material without additional cost to the Contractor.

F. All hardware shall be handled in a manner to minimize marring, scratching or damage.

1.08 WARRANTY:

The finish hardware shall carry a limited warranty against defects in workmanship and operation for a period of one (1) year from date of Substantial Completion. No liability is to be assumed where damage of faulty operation is due to abuse, improper usage, improper installation or failure to exercise normal maintenance.

**PART 2 - PRODUCTS**

2.01 FINISH OF HARDWARE:

A. Finish of items shall be as specified under the finish hardware sets of this section.

B. The finish of items not specially mentioned above nor set forth in the schedule shall be US26D, unless shown otherwise.

2.02 HINGES AND PIVOTS:

A. Template Hinges: Except for hinges and pivots to be installed entirely (both leaves) into wood doors and frames, provide only template hinges which conform to ANSI whenever applicable.

B. Use ball bearing hinges on heavy doors, doors where high frequency service is expected and doors equipped with door closers. (Oil impregnated bearing hinges are not acceptable.)

C. All hinges to be used on exterior doors or doors subject to special atmospheric conditions (pool areas, chemical laboratories, sewage disposal plants, etc.) shall be of non-ferrous materials, brass, bronze or stainless steel.

D. Hinge pins, except as otherwise indicated, shall be as follows:

| | |
|---|---|
| 1. Steel hinges: | Steel pins |
| 2. Non-ferrous hinges: | Stainless steel pins |

3. Exterior doors: Non-removable pins (NRP)
4. Out-swing corridor doors: Non-removable pins (NRP)
5. Interior doors: Non-rising pins

E. Sizes of hinges shall be as follows:

| Door Thickness and Width | Hinge Height | Hinge Width |
|---|---|---|
| 1-3/4" to 36" | 4-1/2 | 4 or 4-1/2 |
| 1-3/4" over 36" | 5 | 4-1/2 Extra Heavy Ball Bearings |
| 1-3/4" over 48" | 6 | 4-1/2 Extra Heavy Ball Bearings |
| 2-1/4" to 42" | 5 | 4-1/2 Extra Heavy Ball Bearings |
| 2-14/" over 42" | 6 | 4-1/2 Extra Heavy Ball Bearings |

F. Number of hinges per door, provided quantities as follows:

For doors less than 5 feet high: 1 pair
For doors 5 feet to 7 feet 6 inches high: 1-1/2 pair and additional hinge for each additional 2-1/2 feet or fraction thereof.

G. Where projection of door trim is such as to prevent degree of opening, the proper hinge width shall be provided to allow the door to clear the trim.

H. Acceptable Manufacturers:

1. Hager
2. Stanley
3. McKinney
4. H. Soss

2.03 KEYING:

**A. All locks and cylinders shall be master keyed in accordance with Johnson County Rural Water Supply Corporation's recommendation.**

**B. All keying shall be thoroughly checked with Johnson County Rural Water Supply Corporation before final approval.**

2.04 LOCKS:

A. Mortise Locks:

1. Locks shall have all functions available in one size case manufactured from heavy gauge steel, minimum thickness 3/32" completely chrome-plated for corrosion resistance and lubricity of parts. Cases are to be closed on all sides to protect internal parts. Locks are to have adjustable, beveled and armored fronts, standard 2-3/4" backset, convertible from one function to another, a full 3/4" throw anti-friction latch bolt, a 1" throw dead bolt with hardened steel insert and

available for a minimum door thickness of 1-3/8". Internal parts shall be heavy gauge steel, zinc dichromate plated and nickel steel hubs.

2. All locksets with latch bolts, regardless of trim, shall be listed by Underwriters Laboratories for a lesser labeled doors, single or pairs.

3. Lock trim, knob, lever, sectional or escutcheon type, shall be thru bolted through the lock case to assure correct alignment and proper operation.

4. Locksets shall conform to Federal Specifications, type 86 and 87 and be certified as meeting ANSI A156.2 Grade 1 requirements.

   Locksets listed as acceptable and approved are permitted provided they meet the preceding lock specifications.

5. Acceptable manufacturers and products:

| | | |
|---|---|---|
| 1. | Schlage L-Series | Design – 06 (D Rhodes) |
| 1. | Russwin 5000 Series | Design - W4 Ashford |
| 2. | Corbin 95009 Series | Design - 863 Global |
| 3. | Sargent 12-15-18-7700 Series (Modified to meet specifications) | Design - OB |
| 4. | Yale 8700 Series | Design - COR |
| 5. | Other as recommended by Owner. | |

2.05 CLOSERS:

A. Closers shall be rack and pinion construction. They shall be non-sized with adjustable spring power to accommodate size 1 thru 6. Closing the door shall be controlled by two valves, one to control closing and one to control latching speed. Closers shall be regularly furnished with fully adjustable backcheck and a backcheck selector valve allowing approximate 70 degree backcheck on both regular and parallel arm closers. Delayed action shall be available. Valves shall be concealed against unauthorized adjustment and be non-critical needle valve type. Closers shall be surface applied with full covers.

B. Closers shall be certified as meeting the ANSI A156.4 Grade 1 requirements and be listed by Underwriters Laboratories for all classes of labeled doors.

C. Acceptable manufacturers:

1. Norton
2. Russwin
3. LCN

2.06 TRIM, KICK PLATES, DOOR STOPS:

A. Acceptable manufacturers:

1. Trimco
2. Glynn Johnson
3. Quality
4. Ives

2.07 WEATHERSTRIP/THRESHOLD/SMOKE SEALS:

A. Provide for each opening as scheduled.

B. Provide from one of the following manufacturers:

1. National Guard
2. Pemko
3. Zero
4. Hager/Barrier

**PART 3 - EXECUTION**

3.01 INSTALLATION:

A. Mount hardware units at heights indicated in "Recommended Locations for Builders Hardware" for (Standard Steel Doors and Frames) by the Door and Hardware Institute (DHI), except if otherwise specifically indicated or to comply with requirements of governing regulations, requirements for the handicapped, or if otherwise directed by the Architect-Engineer.

B. All exposed screws/fasteners shall be (SHS) spanner head type where scheduled. Provide 5 each spanner head bits for installation of each type finish hardware.

C. All hardware shall be installed by a tradesman skilled in the application of commercial grade hardware.

D. Install each hardware item in compliance with the manufacturer's instructions and recommendations. Securely fasten all parts to be attached. Fit faces of mortised parts snug and flush. Make sure all operating parts move freely and smoothly without binding, sticking or excessive clearance. Wherever cutting and fitting is required to install hardware onto or into surfaces which are later to be painted or finished in another way, the hardware shall be removed and stored prior to the painting or finishing. Items shall then be reinstalled only when the finished have been completed on the surface to which the hardware is to be applied.

E. At exterior doors and elsewhere as indicated, set thresholds in a bed of caulking as specified in Section 07900 to completely fill concealed voids and excluded moisture from every source. Do not plug drain hole or block weeps. Remove excess sealant.

F. After installation, representative templates, instruction sheets and installation details shall be placed in a file folder to be turned over to the Owner upon Substantial Completion. Included shall be at least five each of any special adjusting and/or installation tools furnished with the hardware by the manufacturer.

3.02 HARDWARE SCHEDULE: Refer to Drawings

**END OF SECTION**

## SECTION 08 8000

## GLAZING

### PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Glass for other sections referencing this Section.

B. Related Sections:
   1. Division 01: Administrative, procedural, and temporary work requirements.

1.2 REFERENCES

A. American Architectural Manufacturers Association (AAMA) 800 - Voluntary Specifications and Test Methods for Sealants.

B. American National Standards Institute (ANSI) Z97.1 - Safety Performance Specifications and Methods of Test for Safety Glazing Material Used in Buildings.

C. ASTM International (ASTM):
   1. C864 - Standard Specification for Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers.
   2. C1036 - Standard Specification for Flat Glass.
   3. C1048 - Standard Specification for Heat-Treated Flat Glass-Kind HS, Kind FT, Coated and Uncoated Glass.
   4. C1115 - Standard Specification for Dense Elastomeric Silicone Rubber Gaskets and Accessories.
   5. C1172 - Standard Specification for Laminated Architectural Flat Glass.
   6. C1294 - Standard Test Method for Compatibility of Insulating Glass Edge Sealants with Liquid-Applied Glazing Materials.
   7. C1330 - Standard Specification for Cylindrical Sealant Backing for Use with Cold Liquid Applied Sealants.
   8. E2190 - Standard Specification for Insulating Glass Unit Performance and Evaluation.

D. Consumer Product Safety Commission (CPSC) 16 CFR 1201 - Safety Standard for Architectural Glazing Materials.

E. Glass Association of North America (GANA):
   1. Engineering Standards Manual.
   2. Glazing Manual.
   3. Laminated Glass Design Guide.

F. Insulating Glass Manufacturers Alliance (IGMA) SIGMA TM-3000 - Glazing Guidelines for Sealed Insulating Glass Units.

1.3 SUBMITTALS

A. Submittals for Review:
   1. Samples:
      a. 12 x 12 inch laminated glass samples.
      b. 1/4 x 1/4 x 3 inch long sealant and glazing compound samples showing available colors.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: Minimum 2 years documented experience in work of this Section.

B. Regulatory Requirements:
   1. Provide safety glass for locations subject to human impact as required by Building Code.
   2. Safety glass: Tested and labeled to CPSC 16 CFR 1201.

C. Perform Work in accordance with GANA Glazing Manual and GANA Laminated Glass Design Guide.

1.5 PROJECT CONDITIONS

A. Perform glazing when ambient temperature is above 40 degrees F.

B. Perform glazing on dry surfaces.

1.6 WARRANTIES

A. Insulating Glass Units: Provide manufacturer's 10 year warranty against material obstruction of vision through unit due to:
   1. Intrusion of dust or moisture.
   2. Internal condensation.
   3. Film formation on internal glass surfaces caused by failure of hermetic seal except failure caused in whole or in part by breakage or fracturing of any portion of glass surface.

B. Glass Coatings: Provide manufacturer's 10 year warranty against peeling, cracking, or deterioration of coating under normal conditions.

C. Laminated Glass Units: Provide manufacturer's 5 year warranty against manufacturing defects resulting in edge separation, delamination, or material obstruction of vision through glass surface.

**PART 2 PRODUCTS**

2.1 MATERIALS - GLASS

A. Clear Glass: ASTM C1036, Type 1 transparent flat, Class 1 clear, Quality q3 glazing select.

B. Clear Tempered Glass: ASTM C1048, Type 1 transparent flat, Class 1 clear, Quality q3 glazing select, Kind FT fully tempered.

2.2 ACCESSORIES

A. Setting Blocks: ASTM C864, neoprene or EPDM, or ASTM C1115, silicone; 80 to 90 Shore A durometer hardness.

B. Spacers: ASTM C864, neoprene or EPDM, or ASTM C1115, silicone; 50 to 60 Shore A durometer hardness.

C. Glazing Sealant: ASTM C920, Type S, Grade NS, Class 25; single component silicone, low modulus, non sag, color to be selected from manufacturer's full color range.

D. Sealant Backing: ASTM C1330, Type O, size and density to control glazing sealant depth and produce optimum glazing sealant performance.

E. Primer: As recommended by glazing sealant manufacturer.

F. Glazing Tape: AAMA 800; closed cell polyvinyl chloride foam, maximum 2 percent water absorption by volume, designed for 25 percent compression percent for air barrier and vapor retarder seal, black color, coiled on release paper over adhesive on two sides; widths required for installation.

G. Glazing Compound: Modified oil type, non hardening, knife grade consistency, color to be selected from manufacturer's full color range.

H. Laminating Film: Polyvinyl butyral sheet, minimum 30 mils thick, clear, ultraviolet reducing.

2.3 FABRICATION

A. Tempered Glass:
   1. Comply with ASTM C1048.
   2. Process in horizontal position so that inherent roller distortion will run parallel to building floor lines after installation.

B. Sealed Insulating Glass:
   1. Comply with ASTM E2190.
   2. Fabricate spacer bar frame of tubular aluminum filled with desiccant.
   3. Bond spacer bar frame to glass panes with twin primary seals.
   4. Fill space outside frame to glass edge with elastomeric sealant.

C. Laminated Glass:
   1. Comply with ASTM C1172 and ANSI Z97.1.
   2. Laminate glass with laminating film by manufacturer's standard heat and pressure process.
   3. Cut glass to required size at factory.
   4. Discard glass with voids, delamination, or entrapped dirt or foreign matter.

D. Fabrication Tolerances: ASTM C1036 and ASTM C1048.

E. Glass Identification:
   1. Apply manufacturer's label indicating type and thickness to each light of glass. Show position of exterior face when installed, where applicable.
   2. Etch manufacturer's label on each light of tempered glass.

**PART 3 EXECUTION**

3.1 PREPARATION

A. Clean glazing rabbets; remove loose and foreign matter.

B. Remove protective coatings on metal surfaces.

C. Clean glass just prior to installation.

3.2 INSTALLATION - GENERAL

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

B. Maintain manufacturer's recommended edge and face clearances between glass and frame members.

3.3 INSTALLATION - SEALANT AND TAPE GLAZING METHOD

A. Apply tape to permanent stops, projecting slightly above sight line.

B. Press glass into contact with tape.

C. Install removable stops with spacer shims between stop and glass.

D. Fill gap between removable stop and glass with glazing sealant.

E. Trim protruding tape edges.

3.4 INSTALLATION - COMPOUND GLAZING METHOD

A. Locate and secure glass using glazing clips.

B. Fill voids between glass and stops with glazing compound; tool to straight line. Slope to exterior for watershed.

3.5 PROTECTION

A. After installation, mark glass with an 'X' using removable plastic tape.

3.6 SCHEDULE

A. Type GL-1:
   1. Description:
      a. Outboard lite: Nominally 1/4 inch thick clear laminated glass, with low-e coating on No. 2 surface.
      b. Inboard lite: Nominally 1/4 inch thick clear glass, heat strengthened or tempered where required.
   2. Total unit thickness: 1 inch.
   3. Locations:
      a. Wood and glass storefront.
      b. New wood windows.

B. Type GL-2:
   1. Description: Nominally 5/16 inch thick clear laminated glass.
   2. Locations:
      a. New and restored wood windows.
      b. Restored wood and glass storefront.
      c. Exterior wood doors.

C. Type GL-3:
   1. Description: 1/4 inch thick clear tempered glass.
   2. Locations: Interior doors and glazed openings at locations subject to human impact,

D. Type GL-4:
   1. Description: 1/4 inch thick clear glass.
   2. Locations: Interior glazed openings at locations not subject to human impact.

END OF SECTION

## SECTION 09 0392

## PORTLAND CEMENT PLASTER RESTORATION

### PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Repair of portland cement plaster.

B. Related Sections:
   1. Division 01: Administrative, procedural, and temporary work requirements.

1.2 REFERENCES

A. ASTM International (ASTM):
   1. C150 - Standard Specification for Portland Cement.
   2. C206 - Standard Specification for Finishing Hydrated Lime.
   3. C631 - Standard Specification for Bonding Compounds for Interior Plastering.

1.3 SUBMITTALS

A. Submittals for Review:
   1. Samples: 12 x 12 inch samples illustrating each texture.

B. Quality Control Submittals:
   1. Qualifications: Restorer qualifications, including previous projects.

1.4 QUALITY ASSURANCE

A. Restorer Qualifications:
   1. Minimum 3 years experience in work of this Section.
   2. Successful completion of at least 3 projects of similar scope and complexity within past 5 years.

B. Analysis of Existing Plaster:
   1. Remove four samples of existing original plaster from different locations.
   2. Retain one sample for later comparison.
   3. Break up remaining samples individually with mallet until constituent parts remain. Examine under microscope to determine:
      a. Approximate proportions of cement, lime, and aggregate.
      b. Type, size, and color of aggregate.
      c. Types of additives.

C. Mockup:
   1. Size: Minimum 4 square feet.
   2. Include each restoration process, surface texture, and color.
   3. Locate where directed.
   4. Approved mockup may remain as part of the Work.

1.5 DELIVERY, STORAGE AND HANDLING

A. Protect materials from moisture absorption and damage; reject damaged containers.

B. Store sand to prevent inclusion of foreign matter.

1.6 PROJECT CONDITIONS

A. Do not apply plaster when ambient or substrate temperature is less than 40 degrees F nor more than 85 degrees F.

B. Maintain minimum ambient temperature of 50 degrees F during and after application of plaster.

## PART 2 PRODUCTS

2.1 MATERIALS

A. Portland Cement: ASTM C150, Type I.

B. Lime: ASTM C206, Type S.

C. Aggregate: Natural sand, size, color, and texture to match original plaster.

D. Additives: As determined by existing plaster analysis, to match original plaster.

E. Water: Clean and potable.

2.2 ACCESSORIES

A. Patching Compound: Premixed, containing portland cement and aggregate.

B. Bonding Agent: ASTM C631; type recommended for bonding plaster directly to plaster surfaces.

2.3 MIXES

A. Scratch, Brown, and Finish Coats:
   1. Mix cement, lime, additives, and aggregate in proportions to match original plaster.
   2. Add water to achieve workable consistency.

B. Patching Compound: Mix in accordance with manufacturer's instructions.

## PART 3 EXECUTION

3.1 PREPARATION

A. Remove damaged plaster back to a point at which sound material is reached.

B. Remove loose and foreign matter that could impair adhesion.

3.2 REPAIR OF SMALL CRACKS AND MINOR DAMAGE

A. Thoroughly wet adjacent plaster surfaces to minimize suction. Remove excess water.

B. Fill voids with plaster; apply with sufficient pressure to eliminate voids and ensure adhesion.

C. Finish to match adjacent surfaces.

3.3 REPAIR OF DELAMINATED PLASTER LAYERS

A. Apply bonding agent to remaining plaster in accordance with manufacturer's instructions.

B. Fill voids with plaster; apply with sufficient pressure to eliminate voids and ensure adhesion.

C. Finish to match adjacent surfaces.

3.4 REPAIR OF DAMAGED PLASTER OVER MASONRY

A. Rout out mortar joint to 5/8 inch depth.

B. Apply bonding agent to masonry and to adjacent plaster surfaces in accordance with manufacturer's instructions.

C. Apply scratch, brown, and finish coats to thickness to match original plaster.

D. Finish to match adjacent surfaces.

END OF SECTION

## SECTION 09 2400

## PORTLAND CEMENT PLASTERING

### PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Portland cement plaster on masonry base.
2. Trim.

B. Related Sections:
1. Division 01: Administrative, procedural, and temporary work requirements.

1.2 REFERENCES

A. ASTM International (ASTM):
1. C150 - Standard Specification for Portland Cement.
2. C206 - Standard Specification for Finishing Hydrated Lime.
3. C897 - Standard Specification for Aggregates for Job-Mixed Portland Cement-Based Plasters.
4. C926 - Standard Practice for Application of Portland Cement-Based Plaster.
5. C932 - Standard Specification for Surface-Applied Bonding Compounds for Exterior Plastering.
6. C1116 - Standard Specification for Fiber-Reinforced Concrete and Shotcrete.

1.3 SUBMITTALS

A. Submittals for Review:
1. Samples:
   a. 12 x 12 inch plaster samples showing finish coat in proposed texture.
   b. 6 inch long trim samples.
2. Hot weather procedures: Description of proposed application and curing procedures.

1.4 QUALITY ASSURANCE

A. Applicator Qualifications: Minimum 3 years documented experience in work of this Section.

1.5 PROJECT CONDITIONS

A. Cold Weather Requirements: Do not apply plaster unless minimum ambient temperature is above 50 degrees F for 48 hours prior to, during, and after application and during curing period.

B. Hot Weather Requirements:
1. At ambient temperature above 85 degrees F, relative humidity less than 75 percent, or winds in excess of 20 MPH, fog surface with water and cover with minimum 6 mil polyethylene film weighted or taped in place.
2. Leave coverings in place minimum 48 hours after application.

### PART 2 PRODUCTS

2.1 MATERIALS

A. Plaster Materials:
1. Portland cement: ASTM C150, Type 1.
2. Lime: ASTM C206, Type S.
3. Sand: ASTM C897, natural or manufactured, uniformly graded.
4. Plaster mix reinforcement: ASTM C116, glass fibers, produced specifically for integral plaster reinforcement, chopped to 1/2 inch nominal length, alkali resistant.
5. Water: Potable.

2.2 ACCESSORIES

A. Trim Accessories:
   1. Material: Formed steel sheet, hot dip galvanized finish, expanded flanges.
   2. Corner bead: Beaded edge, size and profile to suit application.
   3. Casing bead: Thickness governed by plaster thickness, square edge.

B. Fasteners: Type and size suited to application, hot-dip galvanized or fluoropolymer coated steel.

C. Bonding Agent: ASTM C932; type recommended for bonding plaster directly to masonry surfaces.

2.3 MIXES

A. Proportions:
   1. Scratch and brown coats: ASTM C926, Type C. Add glass fibers at a rate of 1-1/2 pounds per sack of cement.
   2. Finish coat: ASTM C926, Type F.

B. Mixing:
   1. Use mechanical mixer.
   2. Mix each batch separately; double batching with single batch discharge not acceptable.
   3. Accurately proportion materials for initial mixture using measuring devices of known volume. Sand may be added by shovel after mixer is calibrated with known volumes of materials, including water.
   4. Thoroughly mix materials dry before adding water. Continue mixing for 3 to 5 minutes after all ingredients have been added.
   5. Clean equipment after each batch.
   6. Mixtures may be retempered one time after initial mixing.
   7. Discard frozen, caked, and hardened mixes. Discard mixes not used within 1-1/2 hours after initial mixing.

**PART 3 EXECUTION**

3.1 PREPARATION

A. Clean substrate surfaces of foreign matter.

B. Apply bonding agent to masonry surfaces in accordance with manufacturer's instructions.

C. Wet high suction bases with fine water spray to produce uniformly damp surface.

3.2 INSTALLATION OF ACCESSORIES

A. Install casing beads where plaster abuts dissimilar material or stops with edge exposed.

B. Install corner beads at external corners.

C. Set level and true to line.

3.3 APPLICATION OF PLASTER

A. Apply plaster in accordance with ASTM C926.

B. Apply scratch, brown, and finish coats to minimum 5/8 inch thickness from face of masonry.

C. Dampen each coat prior to applying succeeding coats.

D. Scratch Coat:
   1. Apply to nominal 3/8 inch thickness.
   2. Cross rake surface to bond brown coat.

E. Brown Coat:
   1. Apply to nominal 3/8 inch thickness.
   2. Bring out to grounds and rod level.
   3. Float surface to provide surface texture receptive to application of finish coat.

F. Finish Coat:
   1. Apply to nominal 1/8 inch thickness.
   2. Work from wet edges to apply unbroken area in one continuous operation to eliminate joints.
   3. Finish surfaces to match texture of original plaster.
   4. Finish surfaces true to plane, plumb and with neat, sharp corners and intersections.
   5. Work in panels to nearest natural break formed by intersections, corners, trim, and accessories.
   6. Tool plaster to V-joint at trim, grounds and accessories.
   7. Not acceptable: Lines caused by variations in application or finishing techniques, cold joints, and other surface defects visible when viewed from a distance of 10 feet.

G. After application of each coat, fog spray plaster with clean water in sufficiently frequent applications to maintain plaster uniformly moist for minimum of 48 hours.

H. Installation Tolerances:
   1. Plaster: Maximum 1/4 inch in 10 feet variation from true flatness.
   2. Trim: Maximum 1/4 inch in 10 feet variation from plumb, level, or true plane, noncumulative.

3.4 ADJUSTING

A. Repair or replace damaged, discolored, and defective plaster. Match patched areas to surrounding plaster.

3.5 CLEANING

A. Clean plaster from trim and accessories before it sets.

END OF SECTION

**SECTION 09 2900**

**GYPSUM BOARD**

## PART 1 GENERAL

### 1.1 SUMMARY

A. Section Includes:
   1. Acoustical insulation.
   2. Gypsum board.
   3. Taping and bedding of gypsum board.

B. Related Sections:
   1. Division 01: Administrative, procedural, and temporary work requirements.
   2. Section 07 9200 - Joint Sealers.

### 1.2 REFERENCES

A. ASTM International (ASTM):
   1. C475 - Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board.
   2. C665 - Standard Specification for Mineral Fiber Blanket Thermal Insulation for Wood Frame and Light Construction Buildings.
   3. C1002 - Standard Specification for Steel Drill Screws for the Application of Gypsum Board.
   4. C1047 - Standard Specifications for Accessories for Gypsum Wallboard and Gypsum Veneer Base.
   5. C1178 - Standard Specification for Glass Mat Water-Resistant Gypsum Backing Panel.
   6. C1396 - Standard Specification for Gypsum Board.
   7. D3273 - Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber.

B. Gypsum Association (GA):
   1. GA-214 - Levels of Gypsum Board Finish.
   2. GA-216 - Recommended Specifications for the Application and Finishing of Gypsum Board.

### 1.3 SUBMITTALS

A. Submittals for Review:
   1. Product Data: Illustrate panel product types, thicknesses, and locations; acoustical insulation; and accessories.

### 1.4 PROJECT CONDITIONS

A. Do not install gypsum board until building is substantially weathertight.

B. Maintain temperature in spaces in which work is being performed above 50 degrees F during and after installation.

## PART 2 PRODUCTS

### 2.1 MANUFACTURERS

A. Acceptable Manufacturers - Gypsum Panels:
   1. CertainTeed Gypsum, Inc. (www.certainteed.com)
   2. GP Gypsum Corporation. (www.gp.com)
   3. National Gypsum Co. (www.nationalgypsum.com)
   4. Temple-Inland. (www.templeinland.com)
   5. United States Gypsum Co. (www.usg.com)

B. Substitutions: Under provisions of Division 01.

2.2 MATERIALS - GYPSUM PANELS

A. Regular Gypsum Board: ASTM C1396; 48 inches wide x 5/8 inch thick, maximum practical length, tapered edge.

B. Gypsum Backing Board:
1. ASTM C1178, fiberglass mat faced; 48 inches wide x 5/8 inch thick, maximum practical length, water resistant; apply to walls to receive tile.
2. Mold resistance: Minimum 10, tested to ASTM D3273.

2.3 ACCESSORIES

A. Fasteners: ASTM C1002, minimum 5/8 inch penetration into framing.

B. Acoustical Insulation: ASTM C665, Type I, glass fiber composition, unfaced.

C. Trim Accessories: ASTM C1047.
1. Material: Formed steel, minimum 26 gage core steel, hot dip galvanized finish, expanded flanges.
2. Corner reinforcement: GA-216, Type CB-100 x 100.
3. Casing: GA-216, Type LC.
4. Control joint.

D. Acoustical Sealer: Specified in Section 07 9200.

E. Joint Treatment Materials: Reinforcing tape and joint compound; ASTM C475.

**PART 3 EXECUTION**

3.1 INSTALLATION OF GYPSUM PANELS

A. Install panels and accessories in accordance with ASTM C754, GA-216, and manufacturer's instructions.

B. Accurately cut panels to fit around openings and projections. Do not tear face paper or break gypsum core.

C. Apply panels in most economical manner, with ends and edges occurring over supports.

D. Stagger joints on opposite sides of partitions.

E. Do not locate joints to align with edges of openings unless a control joint is installed.

F. Mechanically fasten panels to framing. Place fasteners minimum 3/8 inch from edges of panels; drive heads slightly below surface. Stagger fasteners at abutting edges.

3.2 INSTALLATION OF ACOUSTICAL PARTITIONS

A. Extend acoustical partitions past intersecting non-acoustical partitions.

B. Install acoustical insulation:
1. Butt to framing members and adjacent construction.
2. Carry around pipes, wiring, outlets, and other construction without voids.
3. Press against one gypsum board surface to form slight air space on opposite side.

C. Seal acoustical partitions at perimeter and around penetrations:
1. Apply continuous bead of sealer between gypsum panel edges and adjacent construction.
2. Seal space between gypsum panels at control joints, prior to installing metal control joint.

3. Apply sealer to penetrations through partitions.

## 3.3 INSTALLATION OF ACCESSORIES

A. Install in accordance with manufacturer's instructions.

B. Install corner reinforcement at outside corners. Use single lengths where length of corner does not exceed standard length.

C. Install casings where indicated and where gypsum board abuts dissimilar materials or stops with edge exposed.

D. Install control joints at ceilings:
   1. At maximum 50 feet on center.
   2. Where ceiling framing changes direction.

E. Install control joints at walls and partitions:
   1. At changes in backup material.
   2. At maximum 30 feet on center.
   3. Above both jambs of openings in partitions.

## 3.4 JOINT TREATMENT

A. Treat joints and fasteners in gypsum board in accordance with GA-214.

B. Levels of Finish:
   1. Surfaces to receive tile: Level 2 finish.
   2. Other surfaces: Level 4 finish.

END OF SECTION

## SECTION 09 3000

## TILING

### PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Tile floor and wall finishes.
2. Marble thresholds.

B. Related Sections:
1. Division 01: Administrative, procedural, and temporary work requirements.
2. Section 07 9200 - Joint Sealers.

1.2 REFERENCES

A. American National Standards Institute (ANSI):
1. A108/A118/A136.1 - American National Standard for Installation of Ceramic Tile.
2. A137.1 - Specifications for Ceramic Tile.

B. ASTM International (ASTM):
1. C1028 - Standard Test Method for Static Coefficient of Friction of Ceramic Tile and Other Like Surfaces by the Horizontal Dynamometer Pull-Meter Method.
2. D4263 - Standard Test Method for Indicating Moisture in Concrete by the Plastic Sheet Method.

C. Tile Council of North America (TCNA) - Handbook for Ceramic Tile Installation.

1.3 SUBMITTALS

A. Submittals for Review:
1. Product Data: Manufacturer's installation, cleaning, and maintenance instructions.
2. Samples:
a. Tile: 1 x 1 inch samples showing available colors.
b. Grout: 1/2 x 1/2 x 3 inch long samples showing available colors.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: Minimum 2 years experience in work of this Section.

B. Tile and Trim Units: Meet ANSI A137.1, Standard Grade.

C. Static Coefficient of Friction for Floor Tile: Minimum 0.60, tested to ASTM C1028 in dry condition.

1.5 DELIVERY, STORAGE AND HANDLING

A. Deliver mortar, adhesive, and grout containers bearing hallmark certifying compliance with reference standards.

B. Protect adhesive containers from freezing and overheating according to manufacturer's instructions.

1.6 PROJECT CONDITIONS

A. Environmental Requirements: Maintain minimum ambient temperature of 50 degrees F during and after installation.

1.7 MAINTENANCE

A. Extra Materials: 2 percent of each tile.

## PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturers - Tile:
1. American Marazzi Tile, Inc. (www.marazzitile.com)
2. American Olean Tile Co., Inc. (www.aotile.com)
3. Dal-Tile Corp. (www.daltileproducts.com)
4. Florida Tile Industries, Inc. (www.floridatile.com)
5. Interceramic USA. (www.interceramicusa.com)
6. Summitville Tiles, Inc. (www.summitville.com)

B. Acceptable Manufacturers - Setting and Grouting Materials:
1. BASF Corporation. (www.buildingsystems.basf.com)
2. Bostik Findley. (www.bostik-us.com)
3. Laticrete International, Inc. (www.laticrete.com)
4. Mapei Corporation. (www.mapei.us)
5. TEC. (www.tecspecialty.com)

C. Substitutions: Under provisions of Division 01.

2.2 MATERIALS

A. Toilet Room Floor Tile:
1. Source: Keystone by Dal-Tile Corp. or approved substitute.
2. Size: 1 x 1 inch x 1/4 inch thick, hexagonal shaped.
3. Edge: Cushioned.
4. Color: To be selected from manufacturer's full color range.
5. Surface finish: Unglazed.

B. Kitchen Floor Tile:
1. Source: Glazed Porcelain by Dal-Tile Corp. or approved substitute.
2. Size: 6 x 6 inch x 5/16 inch thick, hexagonal shaped.
3. Edge: Cushioned.
4. Color: To be selected from manufacturer's full color range.
5. Surface finish: Glazed.

C. Toilet Room Wall Tile:
1. Source: Natural Hues by Dal-Tile Corp. or approved substitute.
2. Size: 4 x 4 inches x 5/16 inch thick.
3. Edge: Cushioned.
4. Color: To be selected from manufacturer's full color range.
5. Surface finish: Glazed.

2.3 ACCESSORIES

A. Latex-Portland Cement Mortar: ANSI A118.4, polymer modified dry set type.

B. Organic Adhesive: ANSI A136.1, Type 2, thin set bond type.

C. Water: Clean, potable.

D. Grout:
1. ANSI A118.6, polymer modified dry set type, sanded.
2. Colors: To be selected from manufacturer's full color range.

E. Thresholds: Class A white marble, honed finish, beveled both sides, radiused from bevels to vertical planes, one piece for full width of door or opening.

F. Joint Sealers: Specified in Section 07 9200.

G. Crack Suppression Membrane: ANSI A118.12, load bearing, single component, cold liquid applied type with reinforcing fabric, or reinforced self-adhering sheet type.

## PART 3 EXECUTION

### 3.1 PREPARATION

A. Clean surfaces to remove loose and foreign matter that could impair adhesion.

B. Remove ridges and projections. Fill voids and depressions with patching compound compatible with setting materials.

C. Allowable Substrate Tolerances:
   1. Maximum variation in substrate surface: 1/8 inch in 8 feet.
   2. Maximum height of abrupt irregularities: 1/32 inch.

D. Test concrete substrate to ASTM D4263; do not install tile until surfaces are sufficiently dry.

### 3.2 INSTALLATION

A. Methods:
   1. Walls: ANSI A108.4, thin set with organic adhesive.
   2. Floors:
      a. Install crack suppression membrane in accordance with manufacturer's instructions.
      b. Install tile in accordance with ANSI A108.5, thin set with latex-portland cement mortar.

B. Minimize pieces less than one half size. Locate cuts to be inconspicuous.

C. Lay tile to pattern furnished by Architect. Do not interrupt tile pattern through openings.

D. Joint Width: 1/8 3/16 inch, plus or minus 1/16 inch.

E. Make joints watertight, without voids, cracks, excess mortar, or excess grout.

F. Fit tile around projections and at perimeter. Smooth and clean cut edges. Ensure that trim will completely cover cut edges.

G. Install Trim:
   1. Inside corners: Cove units.
   2. Outside corners: Bead units.
   3. Base: Base units.
   4. Exposed tile ends: Bullnose units.

H. Install thresholds where tile abuts dissimilar floor finish. Center on door or opening.

I. Allow tile to set for a minimum of 48 hours before grouting.

J. Grout tile joints in accordance with ANSI A108.10 without excess grout.

K. Control Joints:
   1. Provide control joints at:
      a. Changes in backup material.
      b. Changes in plane.
      c. Over joints in substrate.

d. Maximum 24 feet on center except maximum 8 feet at surfaces exposed to direct sunlight.

2. Form joints per TCNA Method EJ-171.
3. Install joint backing and joint sealer as specified in Section 07 9200.

3.3 ADJUSTING

A. Remove and replace pieces that have been damaged during installation.

3.4 PROTECTION

A. Provide protection for completed work using nonstaining sheet coverings.

B. Prohibit traffic on tile floors for minimum 3 days after installation.

END OF SECTION

SECTION 09 5100

ACOUSTICAL CEILINGS

## PART 1 GENERAL

### 1.1 SUMMARY

A. Section Includes:
   1. Suspended metal ceiling grid system.
   2. Acoustical panels.

B. Related Sections:
   1. Division 01: Administrative, procedural, and temporary work requirements.

### 1.2 REFERENCES

A. ASTM International (ASTM):
   1. A641 - Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire.
   2. C635 - Standard Specification for Metal Suspension Systems for Acoustical Tile and Lay-In Panel Ceilings.
   3. C636 - Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels.
   4. E1264 - Standard Classification of Acoustical Ceiling Products.

B. Ceiling and Interior Systems Construction Association (CISCA) - Ceiling Systems Handbook.

### 1.3 SUBMITTALS

A. Submittals for Review:
   1. Samples:
      a. 12 x 12 inch acoustical panel samples.
      b. 6 inch long suspension system samples showing each profile.

B. Quality Control Submittals:
   1. Certificates of Compliance: Certification from an independent testing laboratory that acoustical panels meet fire hazard classification requirements.

### 1.4 QUALITY ASSURANCE

A. Installer Qualifications: Minimum 2 years experience in work of this Section.

B. Fire Hazard Classification: Class A rated, tested to ASTM E1264.

### 1.5 PROJECT CONDITIONS

A. Environmental Requirements: Install in approximately same conditions of temperature and humidity as will prevail after installation.

### 1.6 MAINTENANCE

A. Extra Materials: 2 percent of acoustical panels.

## PART 2 PRODUCTS

### 2.1 MANUFACTURERS

A. Acceptable Manufacturers - Suspension System:
   1. Armstrong World Industries, Inc. (www.armstrong.com/ceilings)

2. Chicago Metallic Corporation. (www.chicago-metallic.com)
3. USG Interiors, Inc. (www.usg.com)

B. Acceptable Manufacturers - Acoustical Units:
1. Armstrong World Industries, Inc. (www.armstrong.com/ceilings)
2. Certainteed Corporation (www.certainteed.com)
3. USG Interiors, Inc. (www.usg.com)

C. Substitutions: Under provisions of Division 01.

2.2 MATERIALS

A. Suspension Grid System:
1. ASTM C635, intermediate duty, die cut, interlocking ends.
2. Grid type: Exposed T.
3. Material: Galvanized steel.
4. Runners: 1-1/2 inches high, 9/16 inch exposed width, flush profile.
5. Perimeter molding: Angle shape.
6. Finish: Factory applied enamel paint, sprayed and baked, white.

B. Acoustical Panels:
1. Source: No. 590 Cirrus by Armstrong World Industries, Inc. or approved substitute.
2. Size: 24 x 24 inches x 3/4 inch thick.
3. Edge configuration: Tegular.
4. Performance requirements: Tested in accordance with ASTM E1264.
   a. NRC: 0.65.
   b. CAC: 35.
   c. Light reflectance: LR-0.85.

2.3 ACCESSORIES

A. Support Channels: Galvanized steel; size and type to suit application.

B. Hanger Wire: ASTM A641, minimum 12 gage galvanized steel.

C. Touch-Up Paint: Color to match acoustical panels and suspension grid.

**PART 3 EXECUTION**

3.1 INSTALLATION

A. Install ceilings in accordance with ASTM C636 and CISCA Handbook.

B. Minimize panels less than one half size.

C. Install molding around perimeters and abutting surfaces. Miter molding at exterior corners; cut flanges and bend web to form interior corners.

D. Space hanger wires maximum 48 inches on center. Install additional hangers where required to support light fixtures and ceiling supported equipment.

E. Do not suspend hangers directly from metal deck. Attach steel channel horizontally to adjacent framing members; place hanger at regular spacing.

F. Hang suspension system independent of walls, columns, ducts, pipes, and conduit.

G. Where ducts or other equipment prevent regular spacing of hangers:
1. Reinforce nearest related hangers to span extra distance, or;
2. Suspend steel channel horizontally beneath duct or equipment; place hanger at regular spacing.

H. Install main tees at maximum 48 inches on center.

I. Install cross tees to form 24 x 24 inch modules. Lock cross tees to main tees.

J. Support ends of tees on flange of perimeter molding.

K. Place acoustical panels with edges resting flat on suspension grid.

L. Cutting Acoustic Units:
   1. Cut to fit irregular grid and perimeter edge trim and around penetrations.
   2. Locate cuts to be concealed.

M. Installation Tolerances: Ceilings level to 1/8 inch in 12 feet measured in any direction.

3.2 ADJUSTING

A. Touch up minor scratches and abrasions to match factory finish.

END OF SECTION

## SECTION 09 6116

## FLOOR SEALER

### PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Preparation of existing concrete floors.
2. Floor sealer for exposed concrete floors.

B. Related Sections:
1. Division 01: Administrative, procedural, and temporary work requirements.

1.2 REFERENCES

A. ASTM International (ASTM) D4260 - Standard Practice for Liquid and Gelled Acid Etching of Concrete.

1.3 SUBMITTALS

A. Submittals for Review:
1. Product Data: Include descriptive data, application instructions, and coverage rate.

1.4 QUALITY ASSURANCE

A. Applicator Qualifications: Minimum 2 years documented experience in work of this Section.

B. Mockup:
1. Apply sealer to approximately 20 square feet of actual substrate to determine coverage rate and application procedures.
2. Locate where directed.
3. Demonstrate that sealer will penetrate and bond with existing surface.

### PART 2 PRODUCTS

2.1 MATERIALS

A. Floor Sealer:
1. Type: Colorless, penetrating sealer produced specifically for sealing and hardening concrete surfaces.
2. Product: Lapidolith by BASF Building Systems (www.buildingsystems.basf.com) or approved substitute.

2.2 ACCESSORIES

A. Muriatic Acid: Maximum 10 percent solution.

B. Water: Clean, potable.

### PART 3 EXECUTION

3.1 PREPARATION

A. Clean surfaces to ASTM D4260.

B. Remove adhered matter by scraping or machine sanding with 60 to 80 grit sandpaper. Prevent damage to surface.

C. Remove paints with non-acidic solvent or stripper.

3.2 APPLICATION

A. Apply sealer in accordance with manufacturer's instructions for application and coverage.

B. Apply in two coats; do not over apply.

C. Allow first coat to dry completely before applying second coat.

D. Apply second coat perpendicular to direction in which first coat was applied.

E. Allow sealer to dry minimum 24 hours, then buff to uniform sheen using power buffer.

3.3 PROTECTION

A. Close areas to traffic until sealer has dried.

END OF SECTION

## SECTION 09 6816

## SHEET CARPETING

### PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Sheet carpet.
   2. Carpet pad.
   3. Edgings.

B. Related Sections:
   1. Division 01: Administrative, procedural, and temporary work requirements.

1.2 REFERENCES

A. ASTM International (ASTM):
   1. E648 - Standard Test Method for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source.
   2. E662 - Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials.
   3. F1869 - Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride.

B. Carpet and Rug Institute (CRI) 105 - Standard for Installation of Residential Carpet.

C. National Fire Protection Association (NFPA) 253 - Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source.

1.3 SUBMITTALS

A. Submittals for Review:
   1. Shop Drawings: Indicate carpet locations, dye lot limitations, seaming plan, method of joining seams, direction of carpet in each room or area, and type and location of edgings.
   2. Samples:
      a. Carpet: 12 x 12 inch samples showing available colors.
      b. Carpet pad: 12 x 12 inch samples.
      c. Edgings: 4 inch long samples showing available colors.
   3. Warranty: Sample warranty form.

B. Quality Control Submittals:
   1. Certificates of Compliance: Certification from an independent testing laboratory that carpet meets fire hazard classification requirements.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: Minimum 2 years documented experience in work of this Section.

B. Fire Hazard Classification: Class I rated, tested to ASTM E648.

C. Fire Hazard Classification: Maximum smoke density rating of 450 tested to ASTM E662.

1.5 PROJECT CONDITIONS

A. Do not begin installation until painting and finishing work have been completed.

B. Environmental Requirements:
   1. Temperature of spaces and subfloor between 65 and 90 degrees F.
   2. Humidity in spaces to receive carpet between 20 and 65 percent.

1.6 WARRANTIES

A. Furnish manufacturer's warranty providing coverage for:
   1. Colorfastness: 10 years.
   2. Staining: 10 years.
   3. Static control: Lifetime.

1.7 MAINTENANCE

A. Extra Materials: 2 percent of each color and pattern.

**PART 2 PRODUCTS**

2.1 MANUFACTURERS

A. Acceptable Manufacturers - Carpet:
   1. Bigelow Commercial Carpet. (www.bigelowcommercial.com)
   2. Karastan Contract. (www.karastan.com)
   3. Mohawk International (www.mohawkinternational.com)
   4. Shaw Contract. (www.shawcontract.com)

B. Acceptable Manufacturers - Carpet Pad:
   1. ER Carpenter Co. (www.carpenter.com)

C. Substitutions: Under provisions of Division 01.

2.2 MATERIALS

A. Carpet:
   1. Source: New Basics II 28 Weldlok by Bigelow Commercial Carpet or approved substitute.
   2. Color: To be selected from manufacturer's full color range.
   3. Construction: Tufted, level heathered loop.
   4. Face yarn type: Colorstrand SD nylon.
   5. Face yarn weight: 28 ounces per square yard.
   6. Backing: Weldlok.
   7. Width: 12 feet.

2.3 ACCESSORIES

A. Seaming Materials: As recommended by carpet manufacturer.

B. Carpet Pad: Rebonded polyurethane type, minimum 3/8 inch thick, minimum 7 PCF density.

C. Gripper Strip: As recommended by carpet manufacturer for carpet thickness, water resistant plywood with angular pins.

D. Edgings: Preformed rubber, profile required to suit conditions, color to be selected from manufacturer's full color range.

E. Leveling Compound: Premixed, latex based.

## PART 3 EXECUTION

### 3.1 EXAMINATION

A. Verify that concrete floors have cured a minimum 28 days and do not exhibit negative alkalinity, carbonization, or dusting.

### 3.2 PREPARATION

A. Clean substrate; remove loose and foreign matter that could impede performance of flooring.

B. Fill cracks, voids, and depressions with leveling compound.

C. Grind ridges and high spots smooth.

D. Test substrate for moisture content to ASTM F1869; do not install carpet until moisture emission level is acceptable to carpet manufacturer.

### 3.3 INSTALLATION OF CARPET

A. Install in accordance with CRI 105.

B. Install carpet and pad in accordance with manufacturer's instructions.

C. Lay out carpet so that seams will be minimized and as inconspicuous as possible.

D. Longitudinal seams not permitted where width of room or space is less than width of carpet.

E. Do not change run of pile in any room where carpet is continued through a wall opening into another room.

F. Verify carpet match before cutting to ensure minimal variation between dye lots.

G. Install gripper strip at perimeter and around abutting objects. Secure to subfloor.

H. Install pad using maximum size pieces. Butt edges together and tight to gripper strip. Remove air pockets and wrinkles; tape joints with 2 inch wide waterproof tape. Secure to substrate by spot adhesive method.

I. Stretch carpet according to manufacturer's instructions for percentage of stretch.

J. Fasten carpet securely to strips so that all pins penetrate carpet backing. Tuck raw edges behind strips.

K. Join seams with hot seaming tape. Form seams straight and free of peaks or gaps.

L. Lay carpet tight and flat on pad, well fastened at edges, with uniform appearance. Provide monolithic color, pattern, and texture match within any one room or area.

M. Fit carpet tight to abutting surfaces and penetrations without gaps. Ensure coverage of carpet edges by wall base, trim, escutcheons, and cover plates.

N. Provide monolithic color, pattern, and texture within each area.

### 3.4 INSTALLATION OF EDGINGS

A. Install strips where carpet abuts dissimilar flooring materials; secure to subfloor.

B. Center strips under doors where carpet terminates at door openings.

C. Install in longest practical lengths; butt ends tight.

D. Scribe to abutting surfaces.

3.5 CLEANING

A. Clean spots as recommended by carpet manufacturer.

B. Cut off loose threads flush with top surface.

C. Clean with commercial vacuum cleaner.

END OF SECTION

## SECTION 09 9100

## PAINTING

### PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Texturing of gypsum board.
   2. Surface preparation and field application of paints.

B. Related Sections:
   1. Division 01: Administrative, procedural, and temporary work requirements.

1.2 REFERENCES

A. ASTM International (ASTM) D4442 - Standard Test Method for Direct Moisture Content Measurement of Wood and Wood-Base Materials.

B. Master Painters Institute (MPI) - Architectural Painting Specification Manual.

C. Society for Protective Coatings (SSPC) - Painting Manual.

1.3 SUBMITTALS

A. Submittals for Review:
   1. Product Data: Manufacturer's data on materials proposed for use including:
      a. Product designation and grade.
      b. Product analysis and performance characteristics.
      c. Standards compliance.
      d. Material content.
      e. Mixing and application procedures.
   2. Samples:
      a. 3 x 6 inch samples of each coating system on representative substrate. Step back successive coats so that all coats remain exposed. Indicate type of material used for each coat.
      b. 12 x 12 inch texture samples on gypsum board backing.
   3. Paint Schedule: Indicate types and locations of each surface, paint materials, and number of coats to be applied.

1.4 QUALITY ASSURANCE

A. Materials, Preparation, and Workmanship: Conform to MPI Painting Manual.

1.5 DELIVERY, STORAGE AND HANDLING

A. Container Labels: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage rates, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.

B. Paint Materials: Store at ambient temperature from 45 to 90 degrees F in ventilated area, or as required by manufacturer's instructions.

1.6 PROJECT CONDITIONS

A. Do not apply materials when surface and ambient temperatures or relative humidity are outside ranges required by paint manufacturer.

B. Maintain ambient and substrate temperatures above manufacturer's minimum requirements for 24 hours before, during. and after paint application.

C. Do not apply materials when relative humidity is above 85 percent or when dew point is less than 5 degrees F different than ambient or surface temperature.

D. Provide lighting level of 30 footcandles at substrate surface.

1.7 MAINTENANCE

A. Extra Materials: 1 gallon of each color and sheen.

**PART 2 PRODUCTS**

2.1 MANUFACTURERS

A. Contract Documents are based on products by Sherwin Williams. (www.sherwin-williams.com)

B. Equivalent products by following manufacturers are acceptable:
1. Benjamin Moore and Co. (www.benjaminmoore.com).
2. The Comex Group. (www.thecomexgroup.com)
3. Devoe Paint Co. (www.devoepaint.com)
4. Fuller O'Brien Paints. (www.fullerpaint.com)
5. Glidden. (www.gliddenprofessional.com)
6. Kelly-Moore Paints. (www.kellymoore.com)
7. PPG Architectural Finishes, Inc. (www.pittsburghpaints.com)
8. Pratt and Lambert Paints. (www.prattandlambert.com)

C. Substitutions: Under provisions of Division 01.

2.2 MATERIALS

A. Paints:
1. As scheduled at end of Section, or approved substitute.
2. Free from all forms of lead and mercury.

2.3 ACCESSORIES

A. Accessory Materials: Paint thinners and other materials required to achieve specified finishes; commercial quality.

B. Patching Materials: Latex filler.

C. Fastener Head Cover Materials: Latex filler.

2.4 MIXES

A. Deliver paints pre-mixed and pre-tinted.

B. Uniformly mix to thoroughly disperse pigments.

C. Do not thin in excess of manufacturer's recommendations.

D. Re-mix paint during application; ensure complete dispersion of settled pigment and uniformity of color and gloss.

## PART 3 EXECUTION

### 3.1 EXAMINATION

A. Test shop applied primer for compatibility with subsequent coatings.

B. Measure moisture content of surfaces using electronic moisture meter. Do not apply coatings unless moisture content of surfaces are below following maximums:
   1. Gypsum board and plaster: 12 percent.
   2. Wood: 15 percent, measured to ASTM D4442.

### 3.2 PREPARATION

A. General:
   1. Protect adjacent and underlying surfaces.
   2. Remove or mask electrical plates, hardware, light fixture trim, escutcheons, and fittings prior to preparing surfaces or finishing.
   3. Correct defects and clean surfaces capable of affecting work of this section.
   4. Seal marks that may bleed through surface finishes with shellac.

B. Impervious Surfaces: Remove mildew by scrubbing with solution of trisodium phosphate and bleach. Rinse with clean water and allow to dry.

C. Gypsum Board:
   1. Fill minor defects with filler compound. Spot prime defects after repair.
   2. Apply light orange peel texture in accordance manufacturer's instructions.

D. Plaster:
   1. Fill hairline cracks, small holes, and imperfections with latex patching plaster. Finish smooth and flush with adjacent surfaces.
   2. Wash and neutralize high alkali surfaces.

E. Galvanized Steel: SSPC Method SP1 - Solvent Cleaning.

F. Aluminum: SSPC Method SP1 - Solvent Cleaning.

G. Uncoated Ferrous Metals: SSPC Method SP2 - Hand Tool Cleaning or Method SP3 - Power Tool Cleaning.

H. Shop Primed Ferrous Metals:
   1. SSPC Method SP2 - Hand Tool Cleaning or Method SP3 - Power Tool Cleaning.
   2. Feather edges to make patches inconspicuous.
   3. Prime bare steel surfaces.

I. Wood:
   1. Wipe off dust and grit.
   2. Seal knots, pitch streaks, and sappy sections with sealer.
   3. Fill nail holes and cracks after primer has dried; sand between coats.

J. Existing Surfaces:
   1. Remove loose, flaking, powdery, and peeling paints.
   2. Lightly sand glossy painted surfaces.
   3. Fill holes, cracks, depressions and other imperfections with patching compound; sand flush with surface.
   4. Remove oil, grease, and wax by scraping; solvent wash and thoroughly rinse.
   5. Remove rust by wire brushing to expose base metal.

### 3.3 APPLICATION

A. Apply paints in accordance with MPI Painting Manual, Custom Grade finish requirements.

B. Apply primer or first coat closely following surface preparation to prevent recontamination.

C. Do not apply finishes to surfaces that are not dry.

D. Apply coatings to minimum dry film thickness recommended by manufacturer.

E. Apply each coat of paint slightly darker than preceding coat unless specified otherwise.

F. Apply coatings to uniform appearance without laps, sags, curtains, holidays, and brush marks.

G. Allow applied coats to dry before next coat is applied.

H. When required on deep and bright colors apply an additional finish coat to ensure color consistency.

I. Continue paint finishes behind wall-mounted accessories.

J. Sand between coats on interior wood and metal surfaces.

K. Match final coat to approved color samples.

L. Mechanical and Electrical Components:
   1. Paint factory primed equipment.
   2. Remove unfinished and primed louvers, grilles, covers, and access panels; paint separately.
   3. Paint exposed and insulated pipes, conduit, boxes, ducts, hangers, brackets, collars, and supports unless factory finished.
   4. Do not paint name tags or identifying markings.
   5. Paint exposed conduit and electrical equipment in finished areas.
   6. Paint duct work behind louvers, grills, and diffusers flat black to minimum of 18 inches or beyond sight line.

M. Do not Paint:
   1. Surfaces indicated on Drawings or specified to be unpainted or unfinished.
   2. Surfaces with factory applied finish coat or integral finish.
   3. Architectural metals, including brass, bronze, stainless steel, and chrome plating.

## 3.4 ADJUSTING

A. Touch up or refinish disfigured surfaces.

## 3.5 CLEANING

A. Remove paint from adjacent surfaces.

## 3.6 PAINT SCHEDULE

A. Types of paint listed herein are set forth as standard of quality and type of coating required for each type of surface.
   1. Paint exposed surfaces of types listed in Paint Schedule.
   2. Paint other exposed surfaces not specifically listed with not less than two coats of appropriate type of coating.

B. Prime coat consists of touch up on shop primed and existing surfaces with intact coatings.

| SUBSTRATE | PRIMER | TOP COATS |
|---|---|---|

Exterior Surfaces:

| SUBSTRATE | PRIMER | TOP COATS |
|---|---|---|
| Ferrous and galvanized metals | One coat ProCryl Universal Primer | Two coats Duration Exterior Latex Satin Coating |
| Wood | One coat Exterior Oil Based Primer | Two coats A-100 Exterior Latex Satin |
| Plaster | One coat Loxon Masonry Primer | Two coats A-100 Exterior Latex Satin |
| Interior Surfaces: | | |
| Gypsum board and plaster, flat finish | One coat PrepRite Classic Latex Primer | Two coats ProMar 200 Interior Latex Flat Wall Paint |
| Gypsum board and plaster, semigloss finish | One coat PrepRite Classic Latex Primer | Two coats ProMar 200 Interior Latex Semi-Gloss Enamel |
| Ferrous and galvanized metals | One coat All Surface Enamel Latex Primer | Two coats ProClassic Interior Alkyd Semi-Gloss Enamel |
| Wood | One coat PrepRite Wall and Wood Interior Primer/Undercoater | Two coats ProClassic Interior Alkyd Semi-Gloss Enamel |

END OF SECTION

SECTION 09 9653

ELASTOMERIC COATINGS

## PART 1 GENERAL

### 1.1 SUMMARY

A. Section Includes:
   1. Exterior elastomeric coating applied to above-grade exterior plaster surfaces.

B. Related Sections:
   1. Division 01: Administrative, procedural, and temporary work requirements.

### 1.2 REFERENCES

A. ASTM International (ASTM):
   1. D412 - Standard Test Method for Rubber Properties in Tension.
   2. D1653 - Standard Test Method for Water Vapor Transmission of Organic Coatings Films.

### 1.3 SUBMITTALS

A. Submittals for Review:
   1. Product Data: Include product description, mixing, and application procedures.
   2. Samples:
      a. 3 x 3 inch samples showing available colors.
      b. After color selection, submit 12 x 12 inch samples in each color and texture.

### 1.4 QUALITY ASSURANCE

A. Mockup:
   1. Size: Minimum 20 square feet.
   2. Show: Surface preparation, color, and texture.
   3. Locate where directed.
   4. Approved mockup may remain as part of the Work.

### 1.5 DELIVERY, STORAGE AND HANDLING

A. Store materials in protected, dry area, at temperature between 40 and 90 degrees F.

### 1.6 PROJECT CONDITIONS

A. Apply coating under following prevailing conditions:
   1. Ambient temperature: 40 to 90 degrees F.
   2. Relative humidity: Maximum 85 percent; surface temperature at least 5 degrees F above dew point.
   3. Wind velocity: Under 20 MPH.
   4. During hot weather, do not apply in direct sunlight.

### 1.7 WARRANTIES

A. Furnish manufacturer's 2 year warranty providing coverage against loss of adhesion and fading.

### 1.8 MAINTENANCE

A. Extra Materials: 1 gallon of each color.

## PART 2 PRODUCTS

### 2.1 MANUFACTURERS

A. Acceptable Manufacturers:
   1. BASF Building Systems. (www.buildingsystems.basf.com)
   2. Neogard Corp. (www.neogard.com)
   3. Sherwin Williams Co. (www.sherwin-williams.com)
   4. Tamms Industries. (www.tamms.com)

B. Substitutions: Under provisions of Division 01.

### 2.2 MATERIALS

A. Elastomeric Coating:
   1. Type: High build, water based, breathable elastomeric coating containing minimum 30 percent solids by volume.
   2. Elongation: Minimum 250 percent, tested to ASTM D412.
   3. Water vapor transmission: Minimum 12 perms, tested to ASTM D1653.
   4. Texture: Medium.
   5. Color: To be selected from manufacturer's full color range.

### 2.3 ACCESSORIES

A. Primer: Type recommended by coating manufacturer.

B. Patching Compound: Type recommended by coating manufacturer; compatible with substrate materials.

### 2.4 MIXES

A. Mix in accordance with manufacturer's instructions.

## PART 3 EXECUTION

### 3.1 PREPARATION

A. Ensure that substrate has cured minimum 28 days.

B. Clean substrate; remove loose and foreign matter that could impede adhesion or performance of coating.

C. Grind off ridges and protrusions flush with adjacent surface.

D. Patch holes and depressions over 1/4 inch in width or depth flush with adjacent surface; use portland cement grout or other suitable patching material.

### 3.2 APPLICATION

A. Apply coatings in accordance with manufacturer's instructions.

B. Apply one coat primer and two coats elastomeric coating to minimum dry film thickness recommended by manufacturer.

C. Work material into surface voids and hairline cracks.

D. Cut edges in clean and sharp where work joins other materials.

E. Apply to uniform texture and color without streaks, laps, heavy buildup, runs, and missed areas.

3.3 ADJUSTING

A. Touch up as required to obtain uniform color and texture.

3.4 CLEANING

A. Remove coatings from adjacent surfaces.

END OF SECTION

## SECTION 10 1423

## INTERIOR PANEL SIGNS

### PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Plastic interior panel signs.

B. Related Sections:
   1. Division 01: Administrative, procedural, and temporary work requirements.

1.2 SUBMITTALS

A. Submittals for Review:
   1. Shop Drawings: Include sign locations, sizes, mounting heights, and content.
   2. Samples:
      a. 3 x 3 inch sign samples showing available colors. in selected color.
      b. Typical sign illustrating pictograms, characters, and Braille indications.

1.3 QUALITY ASSURANCE

A. Conform to applicable accessibility code for sign design, construction, location, and mounting height.

### PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturers:
   1. APCO Graphics, Inc. (www.apcosigns.com)
   2. Best Sign Systems, Inc. (www.bestsigns.com)
   3. Seton Identification Products. (www.seton.com)

B. Substitutions: Under provisions of Division 01.

2.2 MATERIALS

A. Signs:
   1. Type: Photo polymer sheet consisting of minimum 0.032 inch thick moisture resistant, non-glare nylon photo polymer on ultraviolet resistant clear PETG sign base, single piece construction.
   2. Thickness: 1/8 inch.
   3. Color: To be selected from manufacturer's full color range.

2.3 ACCESSORIES

A. Tape: Double sided, waterproof, pressure sensitive.

2.4 FABRICATION

A. Fabricate signs by photo polymer process using film negatives to produce characters and graphics in contrasting color, raised 1/32 inch.

B. Characters:
   1. Height: 5/8 inch.
   2. Style: Sans serif style to be selected, upper case.
   3. Width to height ratio: Between 3:5 and 1:1.
   4. Stroke width to height ratio: Between 1:5 and 1:10.

C. Pictograms: 6 inches high.

D. Provide Braille indications for each character.

E. Corners: 1/2 inch radius.

F. Edges: Square.

## PART 3 EXECUTION

3.1 PREPARATION

A. Clean surfaces of loose and foreign matter.

3.2 INSTALLATION

A. Install in accordance with manufacturer's instructions and approved Shop Drawings.

B. Locate signs on wall adjacent to scheduled doors.

3.3 SCHEDULE

| LOCATION | SIGN SIZE | CONTENT |
|---|---|---|
| Men's Toilets | 6 x 9 Inches | "MEN" and male pictogram |
| Women's Toilets | 6 x 9 inches | "WOMEN" and female pictogram |

END OF SECTION

## SECTION 10 2115

## PLASTIC-LAMINATE-CLAD TOILET COMPARTMENTS

### PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Plastic laminate faced toilet partitions.
   2. Plastic laminate faced urinal screens.

B. Related Sections:
   1. Division 01: Administrative, procedural, and temporary work requirements.
   2. Section 10 2813 - Toilet Accessories.

1.2 REFERENCES

A. American National Standards Institute (ANSI) A208.1 - Mat Formed Wood Particleboard.

B. Association of Electrical and Medical Imaging Equipment Manufacturers (NEMA) LD-3 - High Pressure Decorative Laminates.

1.3 SUBMITTALS

A. Submittals for Review:
   1. Shop Drawings: Include layout, dimensions, materials, panel construction, finishes, hardware, and accessories.
   2. Samples: 3 x 3 inch plastic laminate samples showing available colors.

### PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturers:
   1. Accurate Partitions Corp. (www.accuratepartitions.com)
   2. Bobrick Washroom Equipment, Inc. (www.bobrick.com)
   3. Global Steel Products Corp. (www.globalpartitions.com)
   4. Knickerbocker Partition Corp. (www.knickerbockerpartition.com)
   5. Metpar Corp. (www.metpar.com)

B. Substitutions: Under provisions of Division 01.

2.2 MATERIALS

A. Plastic Laminate: NEMA LD 3, nominally 1/16 inch thick.

B. Core: ANSI A208.1, wood chips set with waterproof resin binder, sanded faces, 45 PSF density.

C. Head Rail: Hollow, extruded aluminum, with anti-grip surface and cast wall sockets.

D. Hardware: Plated steel, stainless steel, or aluminum.
   1. Hinges: Gravity rising or non rising spring tension actuated; conceal operable parts in door.
   2. Latches: Sliding type requiring maximum 5 pound force to operate, with emergency release operation.
   3. Coat hook and door stop: Combination type with rubber tip.
   4. Door strike and keeper with rubber bumper.

E. Steel Plate Reinforcement: Carbon steel, prepared for fasteners, 1/8 inch thick.

F. Pilaster Reinforcement: Carbon steel welded to steel foot.

2.3 ACCESSORIES

A. Fasteners: Stainless steel, theft resistant where exposed.

2.4 FABRICATION

A. Configurations:
   1. Toilet partitions: Floor mounted, headrail braced.
   2. Urinal screens: Wall hung, with individual brackets.

B. Panel Construction:
   1. Plastic laminate faces, bonded under heat and pressure to solid panel core.
   2. Edges bound with self edged banding to match panel faces.
   3. Reinforce pilasters and panels with steel plate sandwiched within core at attachment points.
   4. Minimum panel thickness:
      a. Doors: 1-1/16 inch.
      b. Partitions: 3/4 inch.
      c. Pilasters: 1-1/4 inch.
   5. Coordinate with toilet room accessories specified in Section 10 2813; provide cutouts and internal reinforcement. Mark locations for partition mounted accessories.

C. Pilaster Shoes: Formed stainless steel.

2.5 FINISHES

A. Plastic Laminate: Color to be selected from manufacturer's full color range.

B. Hardware and Accessories:
   1. Stainless steel: No. 4 satin.
   2. Chrome plated steel: Bright polished.
   3. Aluminum: Clear anodized.

**PART 3 EXECUTION**

3.1 INSTALLATION

A. Install in accordance with manufacturer's instructions and approved Shop Drawings.

B. Set partitions straight, plumb, level, and aligned.

C. Provide 3/8 to 1/2 inch vertical clearances between walls and panels and between walls and end pilasters.

D. Attach panel and head rail brackets to walls using appropriate anchor devices.

E. Adjust for floor variations with screw jack integral in pilasters. Conceal floor fastenings with pilaster shoes.

F. Equip doors with two hinges, door latch, door strike and keeper, and bumper/coat hook. Provide one additional bumper/hook on inside of outswinging doors.

3.2 ADJUSTING

A. Adjust hardware for proper operation.

B. Adjust door hinges to hold door open 10 degrees when not latched.

END OF SECTION

## SECTION 10 2813

## TOILET ACCESSORIES

### PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Toilet accessories.
2. Framed mirrors.

B. Related Sections:
1. Division 01: Administrative, procedural, and temporary work requirements.

1.2 REFERENCES

A. ASTM International (ASTM):
1. A123/A123M - Standard Specification for Zinc (Hot-Galvanized) Coatings on Iron and Steel Products.
2. A269 - Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service.
3. A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar.
4. A1008/A1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability.
5. B456 - Standard Specification for Electrodeposited Coatings of Copper Plus Nickel Plus Chromium and Nickel Plus Chromium.
6. C1036 - Standard Specification for Flat Glass.

1.3 SUBMITTALS

A. Submittals for Review:
1. Product Data:
   a. Schedule accessories by room; show plans and elevations, and identify room name and number, type and quantity of accessories, and mounting heights.
   b. Include manufacturer's brochures showing sizes, details of function, finishes, and attachment methods.
2. Samples: One of each accessory, if requested.
3. Warranty: Sample warranty form.

1.4 QUALITY ASSURANCE

A. Conform to applicable accessibility code for locating accessories.

1.5 WARRANTIES

A. Furnish manufacturer's 5 year warranty providing coverage against mirror silver spoilage.

### PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Contract Documents are based on products by Bobrick Washroom Equipment, Inc. (www.bobrick.com)

B. Equivalent products by following manufacturers are acceptable:
1. A and J Washroom Accessories. (www.ajwashroom.com)
2. American Specialties, Inc. (www.americanspecialties.com)

3. Bradley Corp. (www.bradleycorp.com)
4. GAMCO. (www.gamcousa.com)

C. Substitutions: Under provisions of Division 01.

2.2 MATERIALS

A. Stainless Steel:
1. Sheet: ASTM A666, Type 304, rollable temper.
2. Tubing: ASTM A269.

B. Galvanized Steel: ASTM A1008/1008M.

C. Mirror Glass: ASTM C1036, Type I, Class 1, Quality q1, 3/16 inch thick.

2.3 ACCESSORIES

A. Fasteners: Stainless steel where exposed, hot dip galvanized where concealed; type best suited to substrate conditions.

2.4 FABRICATION

A. Use stainless steel for exposed surfaces; galvanized steel may be used in concealed locations.

B. Form exposed surfaces from single sheet of stock, free from joints, and flat, without distortion.

C. Weld joints of fabricated components and grind smooth.

D. Fabricate grab bars of tubing, free of visible joints, return to wall with end attachment flanges.

E. Fabricate soap dispensers to operate with less than 5 pound force.

F. Provide hangers, adapters, anchor plates, and accessories required for installation.

G. Key locks alike; furnish six keys.

H. Mirrors:
1. Frame: One piece, roll formed stainless steel channel, 1/2 x 1/2 inch, with corners mitered.
2. Mirror: Apply one coat of silver, one coat of electroplated copper, and one coat of organic mirror backing compound to back surface of glass.
3. Backing: Galvanized steel sheet.
4. Isolate glass from frame and backing with resilient, waterproof padding.

I. Shop assemble units and package complete with anchors and fittings.

2.5 FINISHES

A. Stainless Steel:
1. Mirrors: No. 8 polished.
2. Other: No. 4 satin.

B. Galvanizing: ASTM A123/A123M to 1.25 ounces per square foot.

C. Chrome Plating: ASTM B456, Type SC 2, polished.

**PART 3 EXECUTION**

3.1 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Set plumb, level, square, and rigid.

C. Install wiring between power supply and accessories.

3.2 SCHEDULE

| DESCRIPTION | MODEL NO. |
|---|---|
| Paper Towel Dispenser and Waste Receptacle | B-3803 |
| Toilet Tissue Dispenser and Utility Shelf | B-2840 |
| Soap Dispenser | B-4063 |
| Feminine Tampon/Napkin Disposal | B-270 |
| Grab Bars | B-6206 |
| Framed Mirror | B-165 |
| Coat Hook | B-671 |

END OF SECTION

## SECTION 10 4413

## FIRE EXTINGUISHERS AND CABINETS

### PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Portable fire extinguishers.
2. Cabinets.

B. Related Sections:
1. Division 01: Administrative, procedural, and temporary work requirements.

1.2 REFERENCES

A. National Fire Protection Association (NFPA) 10 - Portable Fire Extinguishers.

B. Underwriters Laboratories (UL):
1. 299 - Dry Chemical Fire Extinguishers.
2. 711 - Rating and Fire Testing of Fire Extinguishers.

1.3 SUBMITTALS

A. Submittals for Review:
1. Shop Drawings: Indicate cabinet locations and mounting heights.
2. Product Data: Include data on extinguishers and cabinets, cabinet dimensions, operational features, materials, finishes, and anchorage.

B. Closeout Submittals:
1. Maintenance Data: Include test, refill, or recharge schedules and re-certification requirements.

1.4 QUALITY ASSURANCE

A. Provide fire extinguishers complying with UL 711 and NFPA 10.

B. Conform to applicable accessibility code for locating extinguishers.

### PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturers:
1. JL Industries. (www.jlindustries.com)
2. Larsen's Mfg. Co. (www.larsensmfg.com)
3. Potter Roemer. (www.potterroemer.com)

B. Substitutions: Under provisions of Division 01.

2.2 COMPONENTS

A. Extinguishers: Multi-purpose dry chemical type, UL 299, cast steel tank, Class 4A:60B:C, 10 pound nominal capacity.

B. Cabinets:
1. Formed steel sheet, 18 gage minimum.
2. Configuration: Semi-recessed, sized to accommodate extinguishers.
3. Trim: Returned to wall surface.

4. Door:
   a. Solid style, equipped with recessed pull handle and latch.
   b. Hinge doors for 180 degree opening with continuous piano hinge.
   c. Glazing: Clear tempered glass.
   d. Graphics: Letter FIRE EXTINGUISHER horizontally on door in red die-cut vinyl pressure sensitive letters.

2.3 ACCESSORIES

A. Mounting Hardware: Type best suited to application.

2.4 FINISHES

A. Cabinet:
   1. Exterior and door: Primed for field painting.
   2. Interior: Baked enamel, white.

B. Extinguishers: Baked enamel, red.

**PART 3 EXECUTION**

3.1 INSTALLATION

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

B. Set plumb, level, and rigid.

C. Place an extinguisher in each cabinet.

END OF SECTION