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NOTICE TO ALL FIRMS

Date: November 8, 2023

To: All Prospective Bidders

From: Sam Li
Interim Director of Procurement Services

Re: Addendum Number 3
IFB # C1605 – Men's Locker Room – Shower and Restroom Upgrades

Note:

1) **Reminder that the bids are due on November 14, 2023, 12:00 PM. Your bid must be emailed to Purchasingbids@fitnyc.edu by November 14, 2023, on or before 12:00 PM.**

2) An updated "Attachment C – Bid Analysis Form" is attached to the bottom of addendum no. 3, please use this form when submitting your bid. (Add Alt #2 has been updated on Attachment C)

3) See updated Specifications attached. Only changes were made to section 012300.

Questions

Q1. Clarification is needed on ADD ALT #2 (Provide alternate pricing for installation of tile on sheathing in lieu of tile over the tile installation in areas indicated). The base bid calls for the existing tile to be removed on the demo plans so the alternate does not make sense, please clarify Alt #2.

A1. Add Alt # 2 should state: Provide alternate pricing for installation of tile on sheathing, in lieu of tile over scarified CMU wall in all areas with glazed CMU walls to remain.

THIS ADDENDUM IS PART OF THE CONTRACT DOCUMENT AND SHALL BE INCLUDED WITH YOUR SUBMITTAL. YOUR SIGNATURE BELOW WARRANTS THAT YOU UNDERSTAND THIS ADDENDUM AND THAT YOU HAVE MADE THE APPRORIATE ADJUSTMENTS IN YOUR PROPOSAL AND CALCULATIONS.

_____
Signature

_____
Print Name and Title of Authorized Representative

_____
Print Name of Company/Partnership/Individual

_____
Date

ATTACHMENT C – BID ANALYSIS FORM (Updated 11/8/2023)

FASHION INSTITUTE OF TECHNOLOGY
DUBINSKY BUILDING
MEN'S LOCKER ROOM – SHOWERS & RESTROOM UPGRADES
INVITATION FOR BID NUMBER C1605
NYS PREVAILING WAGE SCHEDULE PRC # 2023011197

BID BREAKDOWN

Line	Description	Total Labor Cost	Total Materials, Tools & Equipment	Line Total
1	SELECTIVE DEMOLITION	$	$	$
2	MASONRY	$	$	$
3	CONCRETE	$	$	$
4	METALS	$	$	$
5	WOOD, PLASTICS & COMPOSITES	$	$	$
6	THERMAL & MOISTURE PROTECTION	$	$	$
7	OPENINGS	$	$	$
8	FINISHES	$	$	$
9	SPECIALTIES	$	$	$
10	EQUIPMENT	$	$	$
11	FURNISHINGS	$	$	$
12	PLUMBING	$	$	$
13	HVAC	$	$	$
14	ELECTRICAL	$	$	$
15	ELECTRONIC SAFETY & SECURITY	$	$	$
16	GENERAL REQUIREMENTS	$	$	$
17	GENERAL CONDITIONS	$	$	$

TOTAL BID PRICE (1-17) **$_____**

ADD ALT #1 (Painting Ceiling and above lockers in room BX-06) $_____
ADD ALT #2 (Provide alternate pricing for installation of tile on sheathing, in lieu of tile over scarified CMU wall in all areas with glazed CMU walls to remain) $_____
ADD ALT #3 (Add SS trim all around the dispenser to allow for shallower niche pocket) $_____
ADD ALT #4 (Replace south wall of bathroom in its entirety, allow for new paint and wall base on corridor side to match existing repair ceiling and ceiling grid, tie into new walls) $_____

As stated in Section IV of the front end documents: Subcontracting shall be permitted **not to exceed 90%** of the work of the project. Please provide the ratio of the contractors and subcontractors work that will be used on this project.

Contractor _____%, Subcontractor(s) _____%

For Bidding Purposes: the following sections pricing should cover the following items:

General Requirements: permits & licenses; project meetings; administrative overhead for submissions and shop drawings; progress photos; temporary facilities & controls; storage & protection of materials; project closeout; and project record documents.

General Conditions: supervision of work; all testing; coordination drawings; safety programs; insurance and performance & payment bonds.

The undersigned, having carefully examined all Contract Documents, including Notice to Bidders, Bid Terms and Conditions, Contract Terms and Conditions, General Requirements, General Conditions, Labor & Material Payment Bond, Performance Bond, Form of Bid, Non-Collusive Bidding Certification, Substitution Form Request, Contract, Affirmative Action Form, Change Order, Form, Contractor's Trade Payment Breakdown, Safety EHS Plan, Prevailing Wage Schedule, Specifications, and Drawings and having examined the existing conditions by on-site visit(s), hereby submits this Bid Analysis, covering all labor, materials, equipment, tools, machinery, licensing, insurance, taxes, and fees required to perform the specified work at the above-referenced site, in accordance with the Contract Documents. **No exclusions & no exceptions**.

Company Name and Address of Bidder:

_____

_____

_____

Signature of Bidder _____ Date_____

Printed Name and Title of Representative:_____

Email Address: _____

Telephone #: _____

EIN #: _____

IMPORTANT:
This bid analysis form is the **only** pricing format acceptable. Bidders **must** submit pricing

using this form. **FIT will not accept bid responses on any other form.**

NOTE:
FIT will not sign any bidder generated contract, agreement or scope of work. FIT Bid and Terms and Conditions apply. Bidder requirement for FIT to sign any document will be grounds for rejection. Bidder inclusion of any conditions, clarifications, exceptions or changes which are not in compliance with FIT Bid and Terms and Conditions will be grounds for rejection.

EXHIBIT C: SPECIFICATIONS

TABLE OF CONTENTS

SECTION 011000 - SUMMARY

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

A. Perform the work of this Section in accordance with the requirements of the Contract Documents.

1 Reference men's locker room – showers & restroom upgrades bidding documents and FIT guidelines for additional requirements.
2 Contractor shall comply with contract and University and State requirements for work on the project site.

1.2 SUMMARY

A. Section Includes:

1. Project information.
2. Work covered by Contract Documents.
3. Work restrictions.

1.3 INTERPRETATION OF DRAWINGS AND SPECIFICATIONS

A. Direct questions relating to the intent of the Specifications or Drawings quality of work required thereby to the Architect. In the event of disagreement, the Architect's interpretations becomes final conclusive and binding on all parties.

1.4 PROJECT INFORMATION

A. Project Identification: 227 West 27th Street New York N.Y 10001

B. Owner (Client): FIT STATE UNIVERSITY OF NEW YORK

C. Architect: Gerner Kronick + Valcarcael Architects DPC.

1.5 WORK COVERED BY CONTRACT DOCUMENTS

A. The Work of Project is defined by the Contract Documents and consists of the following:

1. The Work consists of interior construction of existing space to extent as indicated on Drawings.
2. Finishes shall be to the extent shown on Drawings and as specified.

1.6 PHASED CONSTRUCTION

A. The Work shall be conducted in one phase as scheduled with each phase substantially complete as indicated:

B. Before commencing Work of each phase submit an updated copy of Contractor's construction schedule showing the sequence commencement and completion dates and move-out and -in dates of Owner's personnel for all phases of the Work.

1.7 WORK UNDER SEPARATE CONTRACTS

A. General: Cooperate fully with separate contractors so work on those contracts may be carried out smoothly without interfering with or delaying work under this Contract or other contracts. Coordinate the Work of this Contract with work performed under separate contracts.

1.8 ACCESS TO SITE

A. General: Contractor shall have full use of Project site for construction operations during construction period. Contractor's use of Project site is limited only by Owner's right to perform work or to retain other contractors on portions of Project.

1.9 WORK RESTRICTIONS

A. Work Restrictions General: Comply with Owner restrictions on construction operations.

1. Comply with limitations on use of public streets and with other requirements of authorities having jurisdiction.

B. Work Hours/Code requirements: Comply with the requirements of the Owner requirements and Building Code of the City of New York unless otherwise indicated.

C. Nonsmoking Site: Smoking is not permitted on the site or within 25 feet of entrances operable windows or outdoor-air intakes and as per Owner requirements.

D. Controlled Substances: Use of tobacco products and other controlled substances within the existing building on project site is not permitted.

1.10 SPECIFICATION AND DRAWING CONVENTIONS

A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms words and phrases when used in particular situations. These conventions are as follows:

1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall" "shall be" or "shall comply with" depending on the context are implied where a colon (:) is used within a sentence or phrase.
2. Specification requirements are to be performed by Contractor unless specifically stated otherwise.

B. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.

C. Drawing Coordination: Requirements for materials and products identified on Drawings are described in detail in the Specifications. One or more of the following are used on Drawings to identify materials and products:

1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
2. Abbreviations: Materials and products are identified by abbreviations published as part of the U.S. National CAD Standard and scheduled on Drawings.
3. Keynoting: Materials and products are identified by reference keynotes referencing Specification Section numbers found in this Project Manual.

D. If a conflict arises within the drawings or with the specifications the stringent or extensive requirement as judged by the Architect shall govern and shall be deemed the contract requirement.

PART 2 - PRODUCTS (Not Used)
PART 3 - EXECUTION (Not Used)

END OF SECTION 011000

SECTION 012300 - ALTERNATES

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

A. Perform the work of this Section in accordance with the requirements of the Contract Documents.

1 Reference men's locker room – showers & restroom upgrades bidding documents and FIT guidelines for additional requirements.
2 Contractor shall comply with contract and University and State requirements for work on the project site.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for alternates.

1.3 DEFINITIONS

A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the bidding requirements that may be added to or deducted from the base bid amount if Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products materials equipment systems or installation methods described in the Contract Documents.

1. Alternates described in this Section are part of the Work only if enumerated in the Agreement.
2. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternate into the Work. No other adjustments are made to the Contract Sum.

1.4 PROCEDURES

A. Coordination: Revise or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.

1. Include as part of each alternate miscellaneous devices accessory objects and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.

B. Notification: Immediately following award of the Contract notify each party involved in writing of the status of each alternate. Indicate if alternates have been accepted rejected or deferred for later consideration. Include a complete description of negotiated revisions to alternates.

C. Execute accepted alternates under the same conditions as other work of the Contract.

D. Schedule: A schedule of alternates is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

PART 2 - PRODUCTS (Not Used

PART 3 - EXECUTION

1.5 SCHEDULE OF ALTERNATES

A. Refer to individual Specification Sections for alternate listing and description.

B. Alternate (1): Provide alternate pricing for installation of tile on sheathing, in lieu of tile over scarified CMU wall in all areas with glazed CMU walls to remain.

END OF SECTION 012300

SECTION 013100 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

A. Perform the work of this Section in accordance with the requirements of the Contract Documents.

1 Reference men's locker room – showers & restroom upgrades bidding documents and FIT guidelines for additional requirements.
2 Contractor shall comply with contract and University and State requirements for work on the project site.

1.2 SUMMARY

A. Section includes:

1. Administrative provisions for coordinating construction operations on Project including but not limited to the following:

a. General coordination procedures.
b. Owner's requirements
c. Coordination drawings.
d. Requests for Information (RFIs).
e. Project meetings.

B. Each contractor shall participate in coordination requirements. Certain areas of responsibility are assigned to a specific contractor.

1.3 INTERPRETATION OF DRAWINGS AND SPECIFICATIONS

A. Direct questions relating to the intent of the Specifications or Drawings quality of work required thereby to the Architect in the event of disagreement the Architect's interpretations becomes final conclusive and binding on all parties.

1.4 DEFINITIONS

A. RFI: Request from Architect or Contractor seeking information required by or clarifications of the Contract Documents.

1.5 INFORMATIONAL SUBMITTALS

A. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:

1. Name address and telephone number of entity performing subcontract or supplying products.
2. Number and title of related Specification Section(s) covered by subcontract.
3. Drawing number and detail references as appropriate
4. Work covered by subcontract.

B. Key Personnel Names: Within 15 days of starting construction operations submit a list of key personnel assignments including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers including home

office and cellular telephone numbers and e-mail addresses. Provide names addresses and telephone numbers of individuals assigned as alternates in the absence of individuals assigned to Project.

1. Post copies of list in project meeting room in temporary field office and by each temporary telephone. Keep list current at all times.

1.6 GENERAL COORDINATION PROCEDURES

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

1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components before or after its own installation.
2. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance service and repair.
3. Make adequate provisions to accommodate items scheduled for later installation.

B. Prepare memoranda for distribution to each party involved outlining special procedures required for coordination. Include such items as required notices reports and list of attendees at meetings.

1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.

C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include but are not limited to the following:

1. Preparation of Contractor's construction schedule.
2. Preparation of the schedule of values.
3. Installation and removal of temporary facilities and controls.
4. Delivery and processing of submittals.
5. Progress meetings.
6. Preinstallation conferences.
7. Project closeout activities.
8. Startup and adjustment of systems.

1.7 COORDINATION DRAWINGS

A. Coordination Drawings General: Prepare coordination drawings according to requirements in individual Sections and additionally where installation is not completely shown on Shop Drawings where limited space availability necessitates coordination or if coordination is required to facilitate integration of products and materials fabricated or installed by more than one entity.

1. Content: Project-specific information drawn accurately to a scale large enough to indicate and resolve conflicts. Do not base coordination drawings on standard printed data. Include the following information as applicable:

a. Use applicable Drawings as a basis for preparation of coordination drawings. Prepare sections elevations and details as needed to describe relationship of various systems and components.
b. Indicate functional and spatial relationships of components of architectural structural civil mechanical and electrical systems.

c. Indicate space requirements for routine maintenance and for anticipated replacement of components during the life of the installation.
d. Show location and size of access doors required for access to concealed dampers valves and other controls.
e. Indicate required installation sequences.
f. Indicate dimensions shown on the Drawings. Specifically note dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternate sketches to Architect indicating proposed resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.

B. Coordination Drawing Organization: Organize coordination drawings as follows:

1. Floor Plans and Reflected Ceiling Plans: Show architectural and structural elements and mechanical plumbing fire-protection fire-alarm and electrical Work. Show locations of visible ceiling-mounted devices relative to acoustical ceiling grid. Supplement plan drawings with section drawings where required to adequately represent the Work.
2. Mechanical and Plumbing Work: Show the following:

a. Sizes and bottom elevations of ductwork piping and conduit runs including insulation bracing flanges and support systems.
b. Dimensions of major components such as dampers valves diffusers access doors cleanouts and electrical distribution equipment.
c. Fire-rated enclosures around ductwork.

3. Electrical Work: Show the following:

a. Runs of vertical and horizontal conduit 1-1/4” inches in diameter and larger.
b. Panel board switch board locations.
c. Location of pull boxes and junction boxes dimensioned from column center lines.

4. Review: Architect will review coordination drawings to confirm that the Work is being coordinated but not for the details of the coordination which are Contractor's responsibility. If Architect determines that coordination drawings are not being prepared in sufficient scope or detail or are otherwise deficient Architect will so inform Contractor who shall make changes as directed and resubmit.
5. Coordination Drawing Prints: Prepare coordination drawing prints according to requirements in Section 013300 "Submittal Procedures."

C. Coordination Digital Data Files: Prepare coordination digital data files according to the following requirements:

1. File Preparation Format: Same digital data software program version and operating system as original Drawings.
2. File Submittal Format: Submit or post coordination drawing files using Portable Data File (PDF) format.
3. Architect will furnish Contractor one set of digital data files of Drawings for use in preparing coordination digital data files.

a. Architect makes no representations as to the accuracy or completeness of digital data files as they relate to Drawings.

1.8 REQUESTS FOR INFORMATION (RFIs)

A. General: Immediately on discovery of the need for additional information or interpretation of the Contract Documents Contractor shall prepare and submit an RFI in the form specified.

1. Architect will return RFIs submitted to Architect by other entities controlled by Contractor with no response.
2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.

B. Content of the RFI: Include a detailed legible description of item needing information or interpretation and the following:

1. Project name.
2. Project number.
3. Date.
4. Name of Contractor.
5. Name of Architect and University representative.
6. RFI number numbered sequentially.
7. RFI subject.
8. Specification Section number and title and related paragraphs as appropriate.
9. Drawing number and detail references as appropriate.
10. Field dimensions and conditions as appropriate.
11. Contractor's suggested resolution. If Contractor's suggested resolution impacts the Contract Time or the Contract Sum Contractor shall state impact in the RFI.
12. Contractor's signature.
13. Attachments: Include sketches descriptions measurements photos Product Data Shop Drawings coordination drawings and other information necessary to fully describe items needing interpretation.

    a. Include dimensions thickness structural grid references and details of affected materials assemblies and attachments on attached sketches.

C. RFI Forms: AIA Document G716 or other forms approved by he Architect.

1. Attachments shall be electronic files in Adobe Acrobat PDF format.

D. Architect's Action: Architect will review each RFI determine action required and respond. Allow seven working days for Architect's response for each RFI. RFIs received by Architect after 1:00 p.m. will be considered as received the following working day.

1. The following Contractor-generated RFIs will be returned without action:

    a. Requests for approval of submittals.
    b. Requests for approval of substitutions.
    c. Requests for approval of Contractor's means and methods.
    d. Requests for coordination information already indicated in the Contract Documents.
    e. Requests for adjustments in the Contract Time or the Contract Sum.
    f. Requests for interpretation of Architect's actions on submittals.
    g. Incomplete RFIs or inaccurately prepared RFIs.

2. Architect's action may include a request for additional information in which case Architect's time for response will date from time of receipt of additional information.
3. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal

a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum notify Architect in writing within 10 days of receipt of the RFI response.

E. RFI Log: Prepare maintain and submit a tabular log of RFIs organized by the RFI number. Submit log weekly. Include the following:

1. Project name.
2. Name and address of Contractor.
3. Name and address of Architect and University Representative.
4. RFI number including RFIs that were returned without action or withdrawn.
5. RFI description.
6. Date the RFI was submitted.
7. Date Architect's response was received.

F. On receipt of Architect's action update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect within seven days if Contractor disagrees with response.

1. Identification of related Minor Change in the Work Construction Change Directive and Proposal Request as appropriate.

1.9 PROJECT MEETINGS

A. General: Contractor will schedule and conduct meetings and conferences at Project site unless otherwise indicated.

1. Minutes: Entity responsible for conducting meeting will record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned including Owner and Architect within three days of the meeting.

B. Preconstruction Conference: Contractor will schedule and conduct a preconstruction conference before starting construction at a time convenient to Owner and Architect but no later than 15 days after execution of the Agreement.

1. Conduct the conference to review responsibilities and personnel assignments.
2. Attendees: Authorized representatives of Owner Architect and their consultants; Contractor and its superintendent major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
3. Agenda: Discuss items of significance that could affect progress including the following:

a. Tentative construction schedule.
b. Critical work sequencing and long-lead items.
c. Lines of communications.
d. Procedures for processing field decisions and Change Orders.
e. Procedures for RFIs.
f. Procedures for testing and inspecting.
g. Procedures for processing Applications for Payment.
h. Submittal procedures.
i. Sustainable design requirements.
j. Preparation of record documents.
k. Working hours.
l. Responsibility for temporary facilities and controls.
m. Construction waste management and recycling.
n. Office work and storage areas.
o. Equipment deliveries and priorities.

p. Security.

4. Minutes: Entity responsible for conducting meeting will record and distribute meeting minutes.

C. Project Closeout Conference: Contractor will schedule and conduct a project closeout conference at a time convenient to Owner and Architect but no later than 90 days prior to the scheduled date of Substantial Completion.

1. Conduct the conference to review requirements and responsibilities related to Project closeout.
2. Attendees: Authorized representatives of Owner Architect and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the meeting. Participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
3. Agenda: Discuss items of significance that could affect or delay Project closeout including the following:

   a. Preparation of record documents.
   b. Submittal of written warranties.
   c. Requirements for completing sustainable design documentation.
   d. Requirements for preparing operations and maintenance data.
   e. Procedures for processing Applications for Payment at Substantial Completion and for final payment.

4. Minutes: Entity conducting meeting will record and distribute meeting minutes.

D. Progress Meetings: Contractor will conduct progress meetings at regular intervals.

1. Coordinate dates of meetings with preparation of payment requests.
2. Attendees: In addition to representatives of Owner and Architect each contractor subcontractor supplier and other entity concerned with current progress or involved in planning coordination or performance of future activities shall be represented at these meetings. All participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
3. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.

   a. Review present and future needs of each entity present including the following:

      1) Status of submittals.
      2) Status of sustainable design documentation.
      3) Deliveries.
      4) Status of correction of deficient items.
      5) Field observations.
      6) Status of RFIs.
      7) Status of proposal requests.
      8) Status of Change Orders.
      9) Documentation of information for payment requests.

4. Minutes: Entity responsible for conducting the meeting will record and distribute the meeting minutes to each party present and to parties requiring information.

   a. Schedule Updating: Revise Contractor's construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

PART 2 - PRODUCTS (Not Used)
PART 3 - EXECUTION (Not Used)

END OF SECTION 013100

SECTION 013300 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

A. Perform the work of this Section in accordance with the requirements of the Contract Documents.

1 Reference men's locker room – showers & restroom upgrades bidding documents and FIT guidelines for additional requirements.
2 Contractor shall comply with contract and University and State requirements for work on the project site.

1.2 SUMMARY

A. Section includes:

1. Requirements for the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.

B. Related Sections: The following Sections contain requirements related to this Section:

1. All sections in Division 1 - General Requirements
2. Owner Contract requirements

1.3 INTERPRETATION OF DRAWINGS AND SPECIFICATIONS

A. Direct questions relating to the intent of the Specifications or Drawings, quality of work required thereby, to the Architect, in the event of disagreement the Architect's interpretations becomes final, conclusive, and binding on all parties.

1.4 DEFINITIONS

A. Action Submittals: Written and graphic information and physical samples that require Architect's responsive action. Action submittals are those submittals indicated in individual Specification Sections as "action submittals."

B. Informational Submittals: Written and graphic information and physical samples that do not require Architect's responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual Specification Sections as "informational submittals."

C. File Transfer Protocol (FTP): Communications protocol that enables transfer of files to and from another computer over a network and that serves as the basis for standard Internet protocols. An FTP site is a portion of a network located outside of network firewalls within which internal and external users are able to access files.

D. Portable Document Format (PDF): An open standard file format licensed by Adobe Systems used for representing documents in a device-independent and display resolution-independent fixed-layout document format.

1.5 SUBMITTALS

1.6 Submittal Schedule: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Architect and additional time for handling and reviewing submittals required by those corrections.

1. Initial Submittal: Submit concurrently with startup construction schedule. Include submittals required during the first 60 days of construction. List those submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
2. Final Submittal: Submit concurrently with the first complete submittal of construction schedule.

    a. Submit revised submittal schedule to reflect changes in current status and timing for submittals.

3. Format: Arrange the following information in a tabular format:

    a. Scheduled date for first submittal.
    b. Specification Section number and title.
    c. Submittal category: Action; informational.
    d. Name of subcontractor.
    e. Description of the Work covered.
    f. Scheduled date for Architect's final release or approval.
    g. Scheduled date of fabrication.
    h. Scheduled dates for purchasing.
    i. Scheduled dates for installation.
    j. Activity or event number.

1.7 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

A. Architect's Digital Data Files: Electronic digital data files of the Contract Drawings will not be provided by Architect for Contractor's use in preparing submittals.

B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.

1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.
3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.
4. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.

    a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

C. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.

1. Initial Review: Allow 10 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. University Representative will advise Contractor when a submittal being processed must be delayed for coordination.
2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
3. Resubmittal Review: Allow 10 days for review of each resubmittal.
4. Sequential Review: Where sequential review of submittals by Architect's consultants, Owner, or other parties is indicated, allow 20 days for initial review of each submittal.

D. Electronic Submittals: Identify and incorporate information in each electronic submittal file as follows:

1. Assemble complete submittal package into a single indexed file incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.
2. Name file with submittal number or other unique identifier, including revision identifier.

    a. File name shall use project identifier and Specification Section number followed by a decimal point and then a sequential number (e.g., LNHS-061000.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., LNHS-061000.01.A).

3. Provide means for insertion to permanently record Contractor's review and Architect approval markings and action taken by Architect.
4. Transmittal Form for Electronic Submittals: Use software-generated form from electronic project management software acceptable to Architect**,** containing the following information:

    a. Project name.
    b. Date.
    c. Name and address of Architect.
    d. Name of University Representative.
    e. Name of Contractor.
    f. Name of firm or entity that prepared submittal.
    g. Names of subcontractor, manufacturer, and supplier.
    h. Category and type of submittal.
    i. Submittal purpose and description.
    j. Specification Section number and title.
    k. Specification paragraph number or drawing designation and generic name for each of multiple items.
    l. Drawing number and detail references, as appropriate.
    m. Location(s) where product is to be installed, as appropriate.
    n. Related physical samples submitted directly.
    o. Indication of full or partial submittal.
    p. Transmittal number.
    q. Submittal and transmittal distribution record.
    r. Other necessary identification.
    s. Remarks.

5. Metadata: Include the following information as keywords in the electronic submittal file metadata:

    a. Project name.
    b. Number and title of appropriate Specification Section.
    c. Manufacturer name.
    d. Product name.

E. Options: Identify options requiring selection by Architect.

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

G. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.

1. Note date and content of previous submittal.
2. Note date and content of revision in label or title block and clearly indicate extent of revision.
3. Resubmit submittals until they are marked with approval notation from Architect's action stamp.

H. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

I. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Architect's action stamp.

PART 2 - PRODUCTS

2.1 SUBMITTAL PROCEDURES

A. General Submittal Procedure Requirements: Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.

1. Submit electronic submittals via email as editable PDF electronic files.

    a. Architect through University Representative will return annotated file. Annotate and retain one copy of file as an electronic Project record document file.

2. Action Submittals: Submit three paper copies of each submittal unless otherwise indicated. Architect, through University Representative will return two copies.
3. Informational Submittals: Submit two paper copies of each submittal unless otherwise indicated. Architect and University Representative will not return copies.
4. Certificates and Certifications Submittals: Provide a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.

    a. Provide a digital signature with digital certificate on electronically submitted certificates and certifications where indicated.
    b. Provide a notarized statement on original paper copy certificates and certifications where indicated.

B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.

1. If information must be specially prepared for submittal because standard published data are not suitable for use, submit as Shop Drawings, not as Product Data.
2. Mark each copy of each submittal to show which products and options are applicable.
3. Include the following information, as applicable:

    a. Manufacturer's catalog cuts.
    b. Manufacturer's product specifications.
    c. Standard color charts.

d. Statement of compliance with specified referenced standards.
e. Testing by recognized testing agency.

4. Submit Product Data before or concurrent with Samples.
5. Submit Product Data in the following format:

a. Editable PDF electronic file.
b. Three paper copies of Product Data unless otherwise indicated. Architect, through University Representative will return two copies.

C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.

1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:

a. Identification of products.
b. Schedules.
c. Compliance with specified standards.
d. Relationship and attachment to adjoining construction clearly indicated.
e. Seal and signature of professional engineer if specified.

2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings as directed
3. Submit Shop Drawings in the following format:

a. Editable PDF electronic file.

D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.

1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
2. Identification: Attach label on unexposed side of Samples that includes the following:

a. Generic description of Sample.
b. Product name and name of manufacturer.
c. Sample source.
d. Number and title of applicable Specification Section.
e. Specification paragraph number and generic name of each item.

3. For projects where electronic submittals are required, provide corresponding electronic submittal of Sample transmittal, digital image file illustrating Sample characteristics, and identification information for record.
4. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.

a. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.

5. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.

a. Number of Samples: Submit one full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect, through University Representative will return submittal with options selected.

E. Maintenance Data: Comply with requirements

F. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.

G. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification and Procedure Qualification Record on AWS forms. Include names of firms and personnel certified.

H. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.

I. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.

J. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.

K. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.

L. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.

M. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.

2.2 DELEGATED-DESIGN SERVICES

A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.

1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.

B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit digitally signed PDF electronic file and paper copies of certificate, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.

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

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

A. Action and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect and University Representative.

B. Project Closeout and Maintenance Material Submittals: See requirements in Section 017700 "Closeout Procedures."

C. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 ARCHITECT'S ACTION

A. Action Submittals: Architect will review each submittal, make marks to indicate corrections or revisions required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action.

1. "No Exceptions Taken": "No Exceptions Taken" means the submission is in general conformance with design concept. Construction, fabrication and/ or manufacture can proceed subject to the provision that the work shall be in accordance with the requirements of the Contract Documents. Final acceptance of the work shall be contingent upon such compliance.
2. "Make Corrections Noted": "Make Corrections Noted" means the submission is in general conformance with the design concept subject to notations on the returned Shop Drawings. Construction, fabrication and/ or manufacturer can proceed subject to the provision that the work shall be carried out in compliance with all annotations and/ or corrections indicated on the returned Shop Drawings and Product Data and in accordance with the requirements of the Contract Documents. Final acceptance of the work shall be contingent upon such compliance.
3. "Revise and Resubmit": "Revise and Resubmit" means that the Contractor shall revise and resubmit the Action Submittals in accordance with all annotations and/ or corrections indicated therein. If construction, fabrication and/ or manufacture proceeds it is at the Contractor's risk. Action Submittals bearing "Revise and Resubmit" stamp shall not be permitted on the Project Site.
4. "Rejected": "Rejected" means that the submission is rejected for nonconformance with the construction documents and the Contractor shall make a new submittal which shall comply with the requirements of the Contract Documents. If construction, fabrication and/ or manufacture proceeds it is at the Contractor's risk. Action Submittals bearing "Rejected" stamp shall not be permitted on the Project Site. Any submittal rejected shall not be considered a first cycle submittal for the purpose of scheduling subsequent reviews, i.e., restart submittal process.

    a. Do not use, or allow others to use, Action Submittals marked “Revise and Resubmit” or "Rejected" at the Project Site or elsewhere where Work is in progress.

B. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.

C. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Architect.

D. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.

E. Submittals not required by the Contract Documents may be returned by the Architect without action.

END OF SECTION 013300

SECTION 014000 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

A. Perform the work of this Section in accordance with the requirements of the Contract Documents.

1 Reference men's locker room – showers & restroom upgrades bidding documents and FIT guidelines for additional requirements.
2 Contractor shall comply with contract and University and State requirements for work on the project site.

1.2 SUMMARY

A. Section includes.

1. Administrative and procedural requirements for quality assurance and quality control.

B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.

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

C. Related Sections: The following Sections contain requirements related to this Section:

1. All sections in Division 1 - General Requirements

1.3 INTERPRETATION OF DRAWINGS AND SPECIFICATIONS

A. Direct questions relating to the intent of the Specifications or Drawings quality of work required thereby to the Architect in the event of disagreement the Architect's interpretations becomes final conclusive and binding on all parties.

1.4 DEFINITIONS

A. Quality-Assurance Services: Activities actions and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.

B. Quality-Control Services: Tests inspections procedures and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Architect or Owner.

C. Mockups: Full-size physical assemblies that are constructed on-site. Mockups are constructed to verify selections made under Sample submittals; to demonstrate aesthetic effects and where indicated qualities of materials and execution; to review coordination testing or operation; to show interface between dissimilar materials; and to demonstrate compliance with specified installation tolerances. Mockups are not Samples. Unless otherwise indicated approved mockups establish the standard by which the Work will be judged.

1. Integrated Mockups: Mockups of the on project site consisting of multiple products assemblies and subassemblies.

D. Preconstruction Testing: Tests and inspections performed specifically for Project before products and materials are incorporated into the Work to verify performance or compliance with specified criteria.

E. Product Testing: Tests and inspections that are performed by an NRTL an NVLAP or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction to establish product performance and compliance with specified requirements.

F. Source Quality-Control Testing: Tests and inspections that are performed at the source e.g. plant mill factory or shop.

G. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.

H. Testing Agency: An entity engaged to perform specific tests inspections or both. Testing laboratory shall mean the same as testing agency.

I. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee Subcontractor or Sub-subcontractor to perform a particular construction operation including installation erection application and similar operations.

1. Use of trade-specific terminology in referring to a trade or entity if it does not require that certain construction activities be performed by accredited or unionized individuals or that requirements specified apply exclusively to specific trade(s).

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

1.5 CONFLICTING REQUIREMENTS

A. Referenced Standards: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels comply with the most stringent requirement. Refer conflicting requirements that are different but apparently equal to Architect for a decision before proceeding.

B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified or it may exceed the minimum within reasonable limits. To comply with these requirements indicated numeric values are minimum or maximum as appropriate for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

1.6 INFORMATIONAL SUBMITTALS

A. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.

B. Schedule of Tests and Inspections: Prepare in tabular form and include the following:

1. Specification Section number and title.
2. Entity responsible for performing tests and inspections.
3. Description of test and inspection.
4. Identification of applicable standards.
5. Identification of test and inspection methods.
6. Number of tests and inspections required.
7. Time schedule or time span for tests and inspections.
8. Requirements for obtaining samples.
9. Unique characteristics of each quality-control service.

1.7 CONTRACTOR'S QUALITY-CONTROL PLAN

A. Quality-Control Plan General: Submit quality-control plan within 10 days of Notice of Award and not less than five days prior to preconstruction conference. Submit in format acceptable to Architect. Identify personnel procedures controls instructions tests records and forms to be used to carry out Contractor's quality-assurance and quality-control responsibilities. Coordinate with Contractor's construction schedule.

B. Quality-Control Personnel Qualifications: Engage qualified full-time personnel trained and experienced in managing and executing quality-assurance and quality-control procedures similar in nature and extent to those required for project.

1. Project quality-control manager may also serve as Project superintendent.

C. Submittal Procedure: Describe procedures for ensuring compliance with requirements through review and management of submittal process. Indicate qualifications of personnel responsible for submittal review.

D. Testing and Inspection: In quality-control plan include a comprehensive schedule of Work requiring testing or inspection including the following:

1. Contractor-performed tests and inspections including subcontractor-performed tests and inspections. Include required tests and inspections and Contractor-elected tests and inspections.
2. Special inspections required by authorities having jurisdiction and indicated on the "Statement of Special Inspections."
3. Owner-performed tests and inspections indicated in the Contract Documents.

E. Continuous Inspection of Workmanship: Describe process for continuous inspection during construction to identify and correct deficiencies in workmanship in addition to testing and inspection specified. Indicate types of corrective actions to be required to bring work into compliance with standards of workmanship established by Contract requirements and approved mockups.

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

1.8 REPORTS AND DOCUMENTS

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

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

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

1. Name address and telephone number of technical representative making report.
2. Statement on condition of substrates and their acceptability for installation of product.
3. Statement that products at Project site comply with requirements.
4. Summary of installation procedures being followed whether they comply with requirements and if not what corrective action was taken.
5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
6. Statement whether conditions products and installation will affect warranty.
7. Other required items indicated in individual Specification Sections.

C. Factory-Authorized Service Representative's Reports: Prepare written information documenting manufacturer's factory-authorized service representative's tests and inspections specified in other Sections. Include the following:

1. Name address and telephone number of factory-authorized service representative making report.
2. Statement that equipment complies with requirements.
3. Results of operational and other tests and a statement of whether observed performance complies with requirements.
4. Statement whether conditions products and installation will affect warranty.
5. Other required items indicated in individual Specification Sections.

D. Permits Licenses and Certificates: For Owner's records submit copies of permits licenses certifications inspection reports releases jurisdictional settlements notices receipts for fee payments judgments correspondence records and similar documents established for compliance with standards and regulations bearing on performance of the Work.

1.9 QUALITY ASSURANCE

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

B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance as well as sufficient production capacity to produce required units.

C. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance as well as sufficient production capacity to produce required units.

D. Installer Qualifications: A firm or individual experienced in installing erecting or assembling work similar in material design and extent to that indicated for this Project whose work has resulted in construction with a record of successful in-service performance.

E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system assembly or product that are similar in material design and extent to those indicated for this Project.

F. Specialists: Certain Specification Sections require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.

1. Requirements of authorities having jurisdiction shall supersede requirements for specialists.

G. Testing Agency Qualifications: An NRTL an NVLAP or an independent agency with the experience and capability to conduct testing and inspecting indicated as documented according to ASTM E 329; and with additional qualifications specified in individual Sections; and where required by authorities having jurisdiction that is acceptable to authorities.

1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
2. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.

H. Manufacturer's Technical Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material design and extent to those indicated for this Project.

I. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material design and extent to those indicated for this Project.

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

1. Contractor responsibilities include the following:

a. Provide test specimens representative of proposed products and construction.
b. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
c. Provide sizes and configurations of test assemblies mockups and laboratory mockups to adequately demonstrate capability of products to comply with performance requirements.

2. Testing Agency Responsibilities: Submit a certified written report of each test inspection and similar quality-assurance service to Architect through University Representative with copy to Contractor. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.

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

1. Build mockups in location and of size indicated or if not indicated as directed by Architect . Manager.
2. Notify Architect seven days in advance of dates and times when mockups will be constructed.
3. Employ supervisory personnel who will oversee mockup construction. Employ workers that will be employed during the construction at project.
4. Demonstrate the proposed range of aesthetic effects and workmanship.
5. Obtain Architect's and University Representative approval of mockups before starting work fabrication or construction.

    a. Allow seven days for initial review and each re-review of each mockup.

6. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
7. Demolish and remove mockups when directed unless otherwise indicated.

1.10 QUALITY CONTROL

A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility Owner will engage a qualified testing agency to perform these services.

1. Owner will furnish Contractor with names addresses and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform.
2. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor.

B. Contractor Responsibilities: Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Perform additional quality-control activities required to verify that the Work complies with requirements whether specified or not.

1. Unless otherwise indicated provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction whether specified or not.
2. Where services are indicated as Contractor's responsibility engage a qualified testing agency to perform these quality-control services.

    a. Contractor shall not employ same entity engaged by Owner unless agreed to in writing by Owner.

3. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
4. Where quality-control services are indicated as Contractor's responsibility submit a certified written report in duplicate of each quality-control service.
5. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
6. Submit additional copies of each written report directly to authorities having jurisdiction when they so direct.

C. Manufacturer's Field Services: Where indicated engage a factory-authorized service representative to inspect field-assembled components and equipment installation including service connections. Report results in writing.

D. Manufacturer's Technical Services: Where indicated engage a manufacturer's technical representative to observe and inspect the Work. Manufacturer's technical representative's services include participation in preinstallation conferences examination of substrates and conditions verification of materials observation of Installer activities inspection of completed portions of the Work and submittal of written reports.

E. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility provide quality-control services including retesting and reinspecting for construction that replaced Work that failed to comply with the Contract Documents. Cost of retesting and reinspection shall be paid by the Contractor whose work is being retested or reinspected.

F. Testing Agency Responsibilities: Cooperate with Architect and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.

1. Notify Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
2. Determine the location from which test samples will be taken and in which in-situ tests are conducted.
3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
4. Submit a certified written report in duplicate of each test inspection and similar quality-control service through Contractor.
5. Do not release revoke alter or increase the Contract Document requirements or approve or accept any portion of the Work.
6. Do not perform any duties of Contractor.

G. Associated Services: Cooperate with agencies performing required tests inspections and similar quality-control services and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:

1. Access to the Work.
2. Incidental labor and facilities necessary to facilitate tests and inspections.
3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
4. Facilities for storage and field curing of test samples.
5. Delivery of samples to testing agencies.
6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
7. Security and protection for samples and for testing and inspecting equipment at Project site.

H. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and - control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.

1. Schedule times for tests inspections obtaining samples and similar activities.

I. Schedule of Tests and Inspections: Prepare a schedule of tests inspections and similar quality-control services required by the Contract Documents. Coordinate and submit concurrently with Contractor's construction schedule. Update as the Work progresses.

1. Distribution: Distribute schedule to Owner Architect University Represenataive testing agencies and each party involved in performance of portions of the Work where tests and inspections are required.

1.11 SPECIAL TESTS AND INSPECTIONS

A. Special Tests and Inspections: Conducted by a qualified testing agency as required by authorities having jurisdiction as indicated in individual Specification Sections and as follows:

1. Verifying that manufacturer maintains detailed fabrication and quality-control procedures and reviews the completeness and adequacy of those procedures to perform the Work.
2. Notifying Architect University Representative and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
3. Submitting a certified written report of each test inspection and similar quality-control service to Architect through University Representative with copy to Contractor and to authorities having jurisdiction.
4. Submitting a final report of special tests and inspections at Substantial Completion which includes a list of unresolved deficiencies.
5. Interpreting tests and inspections and stating in each report whether tested and inspected work complies with or deviates from the Contract Documents.
6. Retesting and reinspecting corrected work.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 TEST AND INSPECTION LOG

A. Test and Inspection Log: Prepare a record of tests and inspections. Include the following:

1. Date test or inspection was conducted.
2. Description of the Work tested or inspected.
3. Date test or inspection results were transmitted to Architect.
4. Identification of testing agency or special inspector conducting test or inspection.

B. Maintain log at Project site. Post changes and revisions as they occur. Provide access to test and inspection log for Architect's and University Representative 's reference during normal working hours.

3.2 REPAIR AND PROTECTION

A. General: On completion of testing inspecting sample taking and similar services repair damaged construction and restore substrates and finishes.

1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Section 017300 "Execution."

B. Protect construction exposed by or for quality-control service activities.

C. Repair and protection are Contractor's responsibility regardless of the assignment of responsibility for quality-control services.

END OF SECTION 014000

SECTION 014200 - REFERENCES

PART 1 - GENERAL

1.1 DEFINITIONS

A. General: Basic Contract definitions are included in the Conditions of the Contract.

B. "Approved": When used to convey Architect's action on Contractor's submittals applications and requests "approved" is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.

C. "Directed": A command or instruction by Architect. Other terms including "requested" "authorized" "selected" "required" and "permitted" have the same meaning as "directed."

D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings in Specifications and in other Contract Documents. Other terms including "shown" "noted" "scheduled" and "specified" have the same meaning as "indicated."

E. "Regulations": Laws ordinances statutes and lawful orders issued by authorities having jurisdiction and rules conventions and agreements within the construction industry that control performance of the Work.

F. "Furnish": Supply and deliver to Project site ready for unloading unpacking assembly installation and similar operations.

G. "Install": Unload temporarily store unpack assemble erect place anchor apply work to dimension finish cure protect clean and similar operations at Project site.

H. "Provide": Furnish and install complete and ready for the intended use.

I. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

J. “General and Supplementary Conditions”: When used in the Specifications shall mean the Construction Agreement.

1.2 INDUSTRY STANDARDS

A. Applicability of Standards: Unless the Contract Documents include more stringent requirements applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.

B. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.

C. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.

1. Where copies of standards are needed to perform a required construction activity obtain copies directly from publication source.

1.3 ABBREVIATIONS AND ACRONYMS

A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents they shall mean the recognized name of the entities indicated in Gale's "Encyclopedia of Associations: National Organizations of the U.S." or in Columbia Books' "National Trade & Professional Associations of the United States."

B. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents they shall mean the recognized name of the entities in the following list. This information is believed to be accurate as of the date of the Contract Documents.

1. NYBC – New York City Building Code.
2. ADA
3. State University

C. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents they shall mean the recognized name of the entities in the following list. Information is subject to change and is up-to-date as of the date of the Contract Documents.

1. EPA - Environmental Protection Agency; www.epa.gov.
2. OSHA - Occupational Safety & Health Administration; www.osha.gov.

PART 2 - PRODUCTS (Not Used)
PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 016000 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

A. Perform the work of this Section in accordance with the requirements of the Contract Documents.

1 Reference men's locker room – showers & restroom upgrades bidding documents and FIT guidelines for additional requirements.
2 Contractor shall comply with contract and University and State requirements for work on the project site.

1.2 SUMMARY

A. Section includes:

1. Administrative and procedural requirements for selection of products for use in Project; product delivery storage and handling; manufacturers' standard warranties on products; special warranties; product substitutions; and comparable products.
2. Compatibility of options between products proposed and specified.
3. Reliability of date calculations by Date Sensitive Equipment.
4. Selection of products for use in Project.
5. Product delivery storage and handling.
6. Manufacturers' standard warranties on products.
7. Special warranties.
8. Product substitutions.
9. Comparable products.

1.3 INTERPRETATION OF DRAWINGS AND SPECIFICATIONS

A. Direct questions relating to the intent of the Specifications or Drawings quality of work required thereby to the Architect. In the event of disagreement the Architect's interpretations becomes final conclusive and binding on all parties.

1.4 DEFINITIONS

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

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

B. Substitutions: Changes in products materials equipment and methods of construction from those required by the Contract Documents and proposed by Contractor.

C. Basis- of- Design Product Specification: Where a specific manufacturer's product is named and accompanied by the words "basis of design" including make or model number or other designation to establish the significant qualities related to type function dimension in-service performance physical properties appearance and other characteristics for purposes of evaluating comparable products of other named manufacturers.

1.5 SUBMITTALS

A. Product List: Submit a list in tabular from showing specified products. Include generic names of products required. Include manufacturer's name and proprietary product names for each product.

1. Coordinate product list with Contractor's Construction Schedule and the Submittals Schedule.
2. Form: Tabulate information for each product under the following column headings:

a. Specification Section number and title.
b. Generic name used in the Contract Documents.
c. Proprietary name model number and similar designations.
d. Manufacturer's name and address.
e. Supplier's name and address.
f. Installer's name and address.
g. Projected delivery date or time span of delivery period.
h. Identification of items that require early submittal approval for scheduled delivery date.

3. Completed List: Within 15 days after date of commencement of the Work submit an electronic copy of completed product list. Include a written explanation for omissions of data and for variations from Contract requirements.
4. Architect's Action: Architect will respond in writing to Contractor within 10 days of receipt of completed product list. Architect's response will include a list of unacceptable product selections and a brief explanation of reasons for this action. Architect's response or lack of response does not constitute a waiver of requirement to comply with the Contract Documents.

B. Substitution Requests: Submit an electronic copy and hard copy if requested of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Form: Use format as approved by the Architect.
2. Documentation: Show compliance with requirements for substitutions and the following as applicable:

a. Statement indicating why specified material or product cannot be provided.
b. Coordination information including a list of changes or modifications needed to other parts of the Work and to construction performed by Owner and separate contractors that will be necessary to accommodate proposed substitution.
c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Significant qualities may include attributes such as performance weight size durability visual effect and specific features and requirements indicated.
d. Product Data including drawings and descriptions of products and fabrication and installation procedures.
e. Samples where applicable or requested.
f. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
g. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
h. Research/evaluation reports evidencing compliance with building code in effect for Project from a model code organization acceptable to authorities having jurisdiction.

i. Detailed comparison of Contractor's Construction Schedule using proposed substitution with products specified for the Work including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time include letter from manufacturer on manufacturer's letterhead stating lack of availability or delays in delivery.
j. Cost information including a proposal of change if any in the Contract Sum.
k. Contractor's certification that proposed substitution complies with requirements in the Contract Documents and is appropriate for applications indicated.
l. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.

3. Architect's Action: If necessary Architect will request additional information or documentation for evaluation within 10 days of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within 15 days of receipt of request or 10 days of receipt of additional information or documentation whichever is later.

a. Form of Acceptance: Change Order.
b. Use product specified if Architect cannot make a decision on use of a proposed substitution within time allocated.

C. Comparable Product Requests: Submit electronic copy and hard copy if requested of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Architect's Action: If necessary Architect will request additional information or documentation for evaluation within one week of receipt of a comparable product request. Architect will notify Contractor of approval or rejection of proposed comparable product request within 7 days of receipt of request or 7 days of receipt of additional information or documentation whichever is later.

a. Form of Approval: As specified in Division 01 Section "Submittal Procedures."
b. Use product specified if Architect cannot make a decision on use of a comparable product request within time allocated.

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

1.6 QUALITY ASSURANCE

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

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

1.7 PRODUCT DELIVERY STORAGE AND HANDLING

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

B. Delivery and Handling:

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

C. Storage:

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

1.8 PRODUCT WARRANTIES

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

1. Manufacturer's Warranty: Preprinted written warranty published by individual manufacturer for a particular product and specifically endorsed by manufacturer to University.
2. Special Warranty: Written warranty required by or incorporated into the Contract Documents either to extend time limit provided by manufacturer's warranty or to provide more rights for Owner.

B. Special Warranties: Prepare a written document that contains appropriate terms and identification ready for execution. Submit a draft for approval before final execution.

1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
2. Specified Form: When specified forms are included with the Specifications prepare a written document using appropriate form properly executed.
3. Refer to Divisions 02 through 16 Sections for specific content requirements and particular requirements for submitting special warranties.

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

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

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

1. Provide products complete with accessories trim finish fasteners and other items needed for a complete installation and indicated use and effect.
2. Standard Products: If available and unless custom products or nonstandard options are specified provide standard products of types that have been produced and used successfully in similar situations on other projects.
3. Architect reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
4. Where products are accompanied by the term "as selected" Architect will make selection.
5. Where products are accompanied by the term "match sample" sample to be matched is Architect's.
6. Descriptive performance and reference standard requirements in the Specifications establish "salient characteristics" of products.
7. Or Equal: Where products are specified by name and accompanied by the term "or equal" or "or approved equal" or "or approved" comply with provisions in Part 2 "Comparable Products" Article to obtain approval for use of an unnamed product.

B. Product Selection Procedures:

1. Product: Where Specifications name a single product and manufacturer provide the named product that complies with requirements.
2. Manufacturer/Source: Where Specifications name a single manufacturer or source provide a product by the named manufacturer or source that complies with requirements.
3. Products: Where Specifications include a list of names of both products and manufacturers provide one of the products listed that complies with requirements.
4. Manufacturers: Where Specifications include a list of manufacturers' names provide a product by one of the manufacturers listed that complies with requirements.
5. Available Products: Where Specifications include a list of names of both products and manufacturers provide one of the products listed or an unnamed product that complies with requirements. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product.
6. Available Manufacturers: Where Specifications include a list of manufacturers provide a product by one of the manufacturers listed or an unnamed manufacturer that complies with requirements. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product.
7. Product Options: Where Specifications indicate that sizes profiles and dimensional requirements on Drawings are based on a specific product or system provide the specified product or system. Comply with provisions in Part 2 "Product Substitutions" Article for consideration of an unnamed product or system.
8. Basis-of-Design Product: Where Specifications name a product and include a list of manufacturers provide the specified product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes profiles dimensions and other characteristics that are based on the product named. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product by the other named manufacturers.
9. Visual Matching Specification: Where Specifications require matching an established Sample select a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.

a. If no product available within specified category matches and complies with other specified requirements comply with provisions in Part 2 "Product Substitutions" Article for proposal of product.

10. Visual Selection Specification: Where Specifications include the phrase "as selected from manufacturer's colors patterns textures" or a similar phrase select a product that complies with other specified requirements.

a. Standard Range: Where Specifications include the phrase "standard range of colors patterns textures" or similar phrase Architect will select color pattern density or texture from manufacturer's product line that does not include premium items.
b. Full Range: Where Specifications include the phrase "full range of colors patterns textures" or similar phrase Architect will select color pattern density or texture from manufacturer's product line that includes both standard and premium items.

2.2 PRODUCT SUBSTITUTIONS

A. Timing: Architect will not consider requests for substitution received after the Notice to Proceed is issued. Requests received after that time may be considered or rejected at discretion of Architect.

B. Conditions: Architect may consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied Architect will return requests without action except to record noncompliance with these requirements:

1. Requested substitution offers Owner a substantial advantage in cost time energy conservation or other considerations after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services increased cost of other construction by Owner and similar considerations.
2. Requested substitution does not require extensive revisions to the Contract Documents.
3. Requested substitution is consistent with the Contract Documents and will produce indicated results.
4. Substitution request is fully documented and properly submitted.
5. Requested substitution will not adversely affect Contractor's Construction Schedule.
6. Requested substitution has received necessary approvals of authorities having jurisdiction.
7. Requested substitution is compatible with other portions of the Work.
8. Requested substitution has been coordinated with other portions of the Work.
9. Requested substitution provides specified warranty.
10. If requested substitution involves more than one contractor requested substitution has been coordinated with other portions of the Work is uniform and consistent is compatible with other products and is acceptable to all contractors involved.

2.3 COMPARABLE PRODUCTS

A. Conditions: Architect will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied Architect will return requests without action except to record noncompliance with these requirements:

1. Evidence that the proposed product does not require extensive revisions to the Contract Documents that it is consistent with the Contract Documents and will produce the indicated results and that it is compatible with other portions of the Work.
2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance weight size durability visual effect and specific features and requirements indicated.
3. Evidence that proposed product provides specified warranty.

4. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners if requested.
5. Samples if requested.

PART 3 - EXECUTION (Not Used)

END OF SECTION 016000

SECTION 017300 - EXECUTION

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

A. Perform the work of this Section in accordance with the requirements of the Contract Documents.

1 Reference men's locker room – showers & restroom upgrades bidding documents and FIT guidelines for additional requirements.
2 Contractor shall comply with contract and University and State requirements for work on the project site.

1.2 SUMMARY

A. Section includes.

1. General administrative and procedural requirements governing execution of the Work including but not limited to the following:

a. Construction layout.
b. Field engineering and surveying.
c. Cutting and patching.
d. Temporary facilities and protections

B. Related Sections: The following Sections contain requirements related to this Section:

1. All sections in Division 1 - General Requirements

1.3 INTERPRETATION OF DRAWINGS AND SPECIFICATIONS

A. Direct questions relating to the intent of the Specifications or Drawings quality of work required there by to the Architect in the event of disagreement the Architect's interpretations becomes final conclusive and binding on all parties.

1.4 DEFINITIONS

A. Cutting: Removal of in-place construction necessary to permit installation or performance of other work.

B. Patching: Fitting and repair work required to restore construction to original condition after installation of other work.

1.5 QUALITY ASSURANCE

A. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.

1. Structural Elements: When cutting and patching structural elements notify Architect of locations and details of cutting and await directions from Architect before proceeding. Shore brace and support structural elements during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection.
2. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety.

3. Other Construction Elements: Do not cut and patch other construction elements or components in a manner that could change their load-carrying capacity that results in reducing their capacity to perform as intendedor that results in increased maintenance or decreased operational life or safety.
4. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would in Architect's opinion reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

B. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products and equipment.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Comply with requirements specified in other Sections.

B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces use materials that visually match in-place adjacent surfaces to the fullest extent possible.

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

PART 3 - EXECUTION

3.1 EXAMINATION

A. Existing Conditions: The existence and location of concealed and other utilities and construction indicated as existing are not guaranteed. Before beginning site work investigate and verify the existence and location of utilities and other construction affecting the Work.

1. Before construction verify the location and invert elevation at points of connection of sanitary sewer and water-service piping electrical services and other utilities.
2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.

B. Examination and Acceptance of Conditions: Before proceeding with each component of the Work examine substrates areas and conditions with Installer or Applicator present where indicated for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.

1. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
2. Examine walls floors for suitable conditions where products and systems are to be installed.
3. Verify compatibility with and suitability of substrates including compatibility with existing and new finishes or primers.

C. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections include the following:

1. Description of the Work.
2. List of detrimental conditions including substrates.

3. List of unacceptable installation tolerances.
4. Recommended corrections.

D. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

B. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

C. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of Contractor submit a request for information to Architect according to requirements in Section 013100 "Project Management and Coordination."

3.3 CONSTRUCTION LAYOUT

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

B. General:

1. Establish benchmarks and control points to set lines and levels as needed to locate each element of Project.
2. Establish limits on use of Project site.
3. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
4. Inform installers of lines and levels to which they must comply.
5. Check the location level and plumb of every major element as the Work progresses.
6. Notify Architect and University Representative when deviations from required lines and levels exceed allowable tolerances.

3.4 FIELD ENGINEERING

A. Reference Points: Locate existing permanent bench marks control points and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.

1. Do not change or relocate existing benchmarks or control points without prior written approval of Architect or University Representative. Report lost or destroyed permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to Architect and University Representative before proceeding.
2. Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.

3.5 CUTTING AND PATCHING

A. Cutting and Patching General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible timeand complete without delay.

1. Cut in-place construction to provide for installation of other components or performance of other construction and subsequently patch as required to restore surfaces to their original condition.

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

C. Temporary Support: Provide temporary support of work to be cut.

D. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection conditions for portions of Project that might be exposed during cutting and patching operations. Provide dust control and safety controls as required.

E. Cutting: Cut in-place construction by sawing drilling breaking chipping grinding and similar operations including methods least likely to damage elements retained or adjoining construction. If possible review proposed procedures with original Installer comply with original Installer's written recommendations.

1. In general use hand or small power tools designed for sawing and grinding not hammering and chopping. Cut holes and slots neatly to minimum size required and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
2. Concrete and Masonry: Cut using a cutting/Grinding machine such as an abrasive saw or a diamond-core drill.
3. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap valve or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
4. Proceed with patching after construction operations requiring cutting are complete.

F. Patching: Patch construction by filling repairing refinishing closing up and similar operations following performance of other work. Patch with durable seams that are as invisible as practicable. Provide materials and comply with installation requirements specified in other Sections where applicable.

1. Inspection: Where feasible test and inspect patched areas after completion to demonstrate physical integrity of installation.
2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will minimize evidence of patching and refinishing.

    a. Clean piping conduit and similar features before applying paint or other finishing materials.
    b. Restore damaged pipe covering to its original condition.

G. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint mortar oils putty and similar materials from adjacent finished surfaces.

END OF SECTION 017300

SECTION 017700 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

A. Perform the work of this Section in accordance with the requirements of the Contract Documents.

1 Reference men's locker room – showers & restroom upgrades bidding documents and FIT guidelines for additional requirements.
2 Contractor shall comply with contract and University and State requirements for work on the project site.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for each Contractor for each contract closeout including but not limited to the following:

1. Substantial Completion procedures
2. Final completion procedures.
3. Warranties.
4. Final cleaning.
5. Repair of the Work.

1.3 SUBMITTALS

A. Product Data: For cleaning agents.

B. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.

C. Certified List of Incomplete Items: Final submittal at Final Completion.

1.4 CLOSEOUT SUBMITTALS

A. Certificates of Release: From authorities having jurisdiction.

B. Certificate of Insurance: For continuing coverage.

C. Field Report: For pest control inspection.

1.5 MAINTENANCE MATERIAL SUBMITTALS

A. Schedule of Maintenance Material Items: For maintenance material submittal items specified in other Sections.

1.6 SUBSTANTIAL COMPLETION PROCEDURES

A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's punch list) indicating the value of each item on the list and reasons why the Work is incomplete.

B. Submittals Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.

1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits operating certificates and similar releases.
2. Submit closeout submittals including project record documents, operation and maintenance manuals, final completion construction photographic documentation and similar final record information.
3. Submit closeout submittals specified in individual Sections including specific warranties workmanship bonds maintenance service agreements final certifications and similar documents.
4. Submit maintenance material submittals specified in individual Sections including tools spare parts extra materials and similar items and deliver to location designated by University Representative. Label with manufacturer's name and model number where applicable.

    a. Schedule of Maintenance Material Items: Prepare and submit schedule of maintenance material submittal items including name and quantity of each item and name and number of related Specification Section. Obtain Architect's and signature for receipt of submittals.

5. Submit test/adjust/balance records.

C. Procedures Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.

1. Advise Owner of pending insurance changeover requirements.
2. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
3. Complete startup and testing of systems and equipment.
4. Perform preventive maintenance on equipment used prior to Substantial Completion.
5. Instruct Owner's personnel in operation adjustment and maintenance of products equipment and systems
6. Advise Owner of changeover in heat and other utilities.
7. Participate with Owner in conducting inspection and walkthrough with local emergency responders if required.
8. Terminate and remove temporary facilities from Project site along with mockups construction tools and similar elements.
9. Complete final cleaning requirements including touchup painting.
10. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request Architect and University representative will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items either on Contractor's list or additional items identified by Architect that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

2. Results of completed inspection will form the basis of requirements for final completion.

1.7 FINAL COMPLETION PROCEDURES

A. Submittals Prior to Final Completion: Before requesting final inspection for determining final completion complete the following:

1. Submit a final Application for payment according approved Contract procedures.
2. Certified List of Incomplete Items: Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list) endorsed and dated by Architect. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
3. Certificate of Insurance: Submit evidence of final continuing insurance coverage complying with insurance requirements.
4. Submit pest-control final inspection report.

B. Inspection: Submit a written request for final inspection to determine acceptance a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request Architect and University representative will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.8 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including areas disturbed by Contractor that are outside the limits of construction. Use CSI Form 14.1A.

1. Organize list of spaces in sequential order starting with exterior areas first and proceeding from lowest floor to highest floor.
2. Organize items applying to each space by major element including categories for ceiling individual walls floors equipment and building systems.
3. Include the following information at the top of each page:

a. Project name.
b. Date.
c. Name of Architect and University Representative.
d. Name of Contractor.
e. Page number.

4. Submit list of incomplete items in the following format:

a. MS Excel electronic file. Architect through University Representative will return annotated file.
b. PDF electronic file. Architect through University Representative will return annotated file.

1.9 SUBMITTAL OF PROJECT WARRANTIES

A. Time of Submittal: Submit written warranties on request of Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated or when delay in submittal of warranties might limit Owner's rights under warranty.

B. Partial Occupancy: Submit properly executed warranties within 15 days of completion of designated portions of the Work that are completed and occupied or used by Owner during construction period by separate agreement with Contractor.

C. Organize warranty documents into an orderly sequence based on the table of contents of Project Manual.

1. Bind warranties and bonds in heavy-duty three-ring vinyl-covered loose-leaf binders. thickness as necessary to accommodate contents and sized to receive 8-1/2”-by-11”-inch paper.
2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation including the name of the product and the name address and telephone number of Installer.
3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES" Project name and name of Contractor.
4. Warranty Electronic File: Scan warranties and bonds and assemble complete warranty and bond submittal package into a single indexed electronic PDF file with links enabling navigation to each item. Provide bookmarked table of contents at beginning of document.

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

PART 2 - PRODUCTS

2.1 MATERIALS

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

1. Use cleaning products that comply with Green Seal's or VOC Code maximum allowable VOC levels.

PART 3 - EXECUTION

3.1 FINAL CLEANING

A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.

1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a designated portion of Project by the respective designated Contractors determined by University Representative.

a. Clean Project site disturbed by construction activities including areas of rubbish waste material litter and other foreign substances.
b. Sweep areas broom clean. Remove petrochemical spills stains and other foreign deposits.
c. Remove tools construction equipment machinery and surplus material from Project site.
d. Remove debris and surface dust from limited access spaces including plenums shafts and similar spaces.
e. Clean transparent materials including mirrors and glass. Remove glazing compounds and other noticeable vision-obscuring materials. Polish mirrors and glass taking care not to scratch surfaces.
f. Remove labels that are not permanent.
g. Wipe surfaces of mechanical electrical equipment and similar equipment. Remove excess lubrication paint and mortar droppings and other foreign substances.
h. Clean plumbing fixtures to a sanitary condition free of stains including stains resulting from water exposure.
i. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers registers and grills.
j. Clean ducts blowers and coils if units were operated without filters during construction or that display contamination with particulate matter on inspection.

1) Clean HVAC system in compliance with NADCA Standard 1992-01. Provide written report on completion of cleaning.

k. Clean light fixtures lamps globes and reflectors to function with full efficiency.
l. Leave Project clean and ready for occupancy.

C. Pest Control: Comply with pest control requirements Prepare written report.

D. Construction Waste Disposal: Comply with waste disposal requirements.

3.2 REPAIR OF THE WORK

A. Complete repair and restoration operations before requesting inspection for determination of Substantial Completion.

B. Repair or remove and replace defective construction. Repairing includes replacing defective parts refinishing damaged surfaces touching up with matching materials and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.

1. Remove and replace chipped scratched and broken surfaces and other damaged materials.
2. Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that that already show evidence of repair or restoration.

a. Do not paint over "UL" and other required labels and identification including mechanical and electrical nameplates. Remove paint applied to required labels and identification.

3. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.

4. Replace burned-out bulbs noticeably dimmed by hours of use and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.

END OF SECTION 017700

SECTION 024119 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

A. Work Included: The Work of this Section shall include but not be limited to the following:

1. Selective interior demolition and removals as indicated and as required for new construction.
2. Restoration and repair of building elements as required.
3. Salvage of existing items to be returned to Owner.
4. Disconnecting relocation or removal of pipes conduits ducts and other mechanical and electrical work (including equipment) as required.
5. Temporary protections structures enclosures and similar protections for utilities structures and persons.

1.2 DEFINITIONS

A. Remove: Detach items from existing construction and dispose of them off-site unless indicated to be salvaged or reinstalled.

B. Remove and Salvage: Detach items from existing construction in a manner to prevent damage and deliver to Owner ready for reuse or store.

C. Remove and Reinstall: Detach items from existing construction in a manner to prevent damage prepare for reuse and reinstall where indicated.

D. Existing to Remain: Leave existing items that are not to be removed and that are not otherwise indicated to be salvaged or reinstalled.

E. Dismantle: To remove by disassembling or detaching an item from a surface using gentle methods and equipment to prevent damage to the item and surfaces; disposing of items unless indicated to be salvaged or reinstalled.

1.3 MATERIALS OWNERSHIP

A. Except for items or materials indicated to be reused salvaged reinstalled or otherwise indicated to remain the Owner's property demolished materials shall become Contractor's property and shall be removed and legally disposed from the site.

1.4 SUBMITTALS

A. Qualification Data: For demolition firm and professional engineer if required.

B. Schedule of Selective Demolition Activities: Indicate the following:

1. Detailed sequence of selective demolition and removal work with starting and ending dates for each activity. Ensure Owner's on-site operations are uninterrupted and protected.
2. Interruption of utility services. Indicate how long utility services will be interrupted.
3. Coordination for shutoff capping and continuation of utility services.
4. Use of elevator and stairs or egress paths as directed.
5. Locations of proposed dust- and noise-control temporary partitions and means of egress.

6. Means of protection for items to remain and items in path of work or waste removal from building.

C. Pre-demolition Photographs: Show existing conditions of adjoining construction and site improvements including finish surfaces that might be misconstrued as damage caused by selective demolition operations.

1.5 QUALITY ASSURANCE

A. Demolition Firm Qualifications: An experienced firm that has specialized in demolition work similar in material and extent to that indicated for this Project.

B. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

C. Standards: Comply with ANSI A10.6 and NFPA 241.

D. Pre-demolition Conference: Conduct conference at Project site. Review methods and procedures related to selective demolition including but not limited to the following:

1. Inspect and discuss condition of construction to be selectively demolished.
2. Review and finalize selective demolition schedule and verify availability of materials demolition personnel equipment and facilities needed to make progress and avoid delays.
3. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.
4. Review areas where existing construction is to remain and require protection.

1.6 PROJECT CONDITIONS

A. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.

B. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.

C. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.

1. Hazardous materials will be removed by building Owner before start of the Work.
2. If materials suspected of containing hazardous materials are encountered do not disturb; immediately notify Architect and Owner. Owner will remove hazardous materials under a separate contract if required.
3. Any asbestos contaminated material will be removed by FIT's certified asbestos abatement contractor prior to the work of this contract.

D. Maintain access as directed to existing entrances walkways corridors and other adjacent occupied or used facilities as directed.

E. Protections: Provide temporary barricades and other forms of protection as required to protect personnel and general - public from injury due to selective demolition work.

1. Provide shoring bracing or support to prevent movement settlement or collapse of structure or element to be demolished and adjacent facilities or work to remain.
2. Provide dust Control and area separations as required.

F. Promptly repair damage caused to adjacent facilities and construction by selective demolition work at no cost to Owner.

G. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.

H. Conduct selective demolition operations and debris removal in a manner to ensure minimum interference with adjacent facilities.

I. Use of explosives will not be permitted.

J. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.

K. Maintain fire-protection facilities in service during selective demolition operations.

L. The sale of removed items or materials on-site will not be permitted.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

B. Standards: Comply with ASSE A10.6 and NFPA 241.

2.2 REPAIR MATERIAL

A. General: Use repair materials identical to existing materials.

1. Where identical materials are unavailable or cannot be used for exposed surfaces use materials that match existing adjacent surfaces to the extent possible. Repair materials and workmanship are subject to the Architects acceptance/approval.

B. Use materials whose installed performance equals or surpasses that of existing materials.

C. Comply with material and installation requirements specified in individual Specification Sections.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that utilities have been disconnected and capped.

B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.

C. Inventory and record the condition of items to be removed and reinstalled and items to be removed and salvaged or reinstalled.

D. When unanticipated mechanical electrical or structural elements that conflict with intended function or design are encountered investigate and measure the nature and extent of conflict. Promptly submit a written report

E. (As required) Contractor shall Engage a New York State licensed professional engineer to survey condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during selective demolition operations if required.

F. Survey of Existing Conditions: Record existing conditions by use of measured drawings preconstruction photographs preconstruction videotapes and templates.

G. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.

3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

A. Existing Services/Systems: Maintain services/systems indicated to remain and protect them against damage during selective demolition operations.

B. Service/System Requirements: Locate identify disconnect and seal or cap off indicated utility services and mechanical/electrical systems serving areas to be selectively demolished.

1. Owner will arrange to shut off indicated services/systems when requested by Contractor.
2. Arrange to shut off indicated utilities with utility companies.
3. If services/systems are required to be removed relocated or abandoned before proceeding with selective demolition provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
4. Cut off pipe or conduit in walls or partitions to be removed. Cap valve or plug and seal remaining portion of pipe or conduit after bypassing.

    a. Where entire wall is to be removed existing services/systems may be removed with removal of the wall.

3.3 PREPARATION

A. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads streets walks walkways and other adjacent occupied and used facilities.

B. Temporary Facilities: Provide temporary barricades/dust barriers and other protection required to prevent injury to people and damage to adjacent occupied facilities to remain.

1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
2. Maintain required egress routes site safety to building occupants and maintain building security.
3. Provide temporary duct protection for adjacent occupied space during interval between selective demolition of existing construction and new interior areas.
4. Protect walls, ceiling floors and other existing finish work that are to remain or that are exposed during selective demolition operations.
5. Cover and protect equipment that has not been removed.
6. Comply with requirements for temporary enclosures dust control heating and cooling specified in Division 1 Section "Temporary Facilities."

3.4 SELECTIVE DEMOLITION GENERAL

A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:

1. Proceed with selective demolition systematically from higher to lower level.
2. Neatly cut openings and holes plumb square and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding not hammering and chopping to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
3. Remove existing floor coverings and prepare surface as required to install new finish materials meeting finish manufacturers requirements.
4. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
5. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces such as duct and pipe interiors verify condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations.
6. Maintain adequate ventilation.
7. Remove decayed vermin-infested or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
8. Remove structural framing members by method suitable to avoid free fall and to prevent impact or dust generation.
9. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls floors or framing.
10. Dispose of demolished items and materials promptly.

B. Removed and Reinstalled Items: (As required)

1. Clean and repair items to functional condition adequate for intended reuse. Paint/finish equipment to match new equipment.
2. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections supports and miscellaneous materials necessary to make item functional for use indicated.
3. Salvaged items shall be turned over to Owner’s representative as directed.

C. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect items may be removed to a suitable protected storage location during selective demolition and reinstalled in their original locations after selective demolition operations are complete.

3.5 PATCHING AND REPAIRS

A. Repair demolition performed in excess of that required. Return structures and surfaces to remain to condition existing prior to commencement of selective demolition work. Repair adjacent construction or surfaces soiled or damaged by selective demolition work.

B. Promptly patch and repair holes and damaged surfaces caused to adjacent construction by selective demolition operations.

C. Repairs: Where repairs to existing surfaces are required patch to produce surfaces suitable for new materials.

1. Completely fill holes depressions and make repairs to existing construction and finishes damaged by selective demolition operations with materials systems and workmanship recognized in the respective industry as the standard of excellence for the type of damage and repair required.
2. Repaired and restored systems shall be executed in a manner resulting that eliminates evidence of the patching or repair as judged by the Architect.

D. Closely match texture and finish of existing adjacent surface.

E. Where patching smooth painted surfaces extend final paint coat over entire unbroken surface containing the patch after the surface has received primer and second coat.

3.6 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS

A. Flooring and finish materials: Demolish in sections clean and or level concrete subfloor as required for new finish materials and manufacturers requirements.

3.7 DISPOSAL OF DEMOLISHED MATERIALS

A. General: Except for items or materials indicated to be reused salvaged reinstalled or otherwise indicated to remain Owner's property remove demolished materials from Project site and legally dispose of them in an EPA- approved landfill.

1. Do not allow demolished materials to accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
3. Remove debris from elevated portions of building by chute hoist or other device that will convey debris to grade level in a controlled descent.
4. Provide waste disposal compliance receipts if requested.

B. Burning: Do not burn demolished materials.

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

3.8 CLEANING

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

END OF SECTION 024119

SECTION 035300 – CONCRETE TOPPINGS

PART 1 - GENERAL

1.1 SUMMARY

A. Work Included: The Work of this Section includes but is not limited to the following:

1. Self-Leveling Underlayment Concrete.
2. Self-Leveling Flooring Underlayment.
3. Concrete Underlayment Patch.

1.2 SUBMITTALS

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

B. Shop Drawings: Plans indicating substrates locations and average depths of cement-based underlayment based on survey of substrate conditions.

1. Contractor shall coordinate and provide all required topping and leveling/sloping of slabs for installation of all floor finishes. Contractor shall coordinate with manufacturer and installer requirements for all floor finishes and provide removal of existing finish and provide grinding fill topping and other work to provide for all flooring installations - no exceptions. Contractor shall maintain a Min. of 1/8” inch tolerances over entire areas.
2. Reference drawing for drainage requirements.
3. Coordinate with new concrete curbs and drainage assemblies.

C. Manufacturer Certificates: Signed by manufacturers of both underlayment and Tile/floor covering system certifying that products are compatible.

D. Qualification Data: For Installer.

1.3 QUALITY ASSURANCE

A. Installer Qualifications: Installer who is approved by manufacturer for application of underlayment products required for this Project.

B. Product Compatibility: Manufacturers of both underlayment/bonding of floor and wall covering system certify in writing that products are compatible.

C. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination."

1.4 DELIVERY STORAGE AND HANDLING

A. Deliver materials in original packages and containers with seals unbroken bearing manufacturer's labels indicating brand name and directions for storage mixing with other components and application.

B. Store materials to comply with manufacturer's written instructions to prevent deterioration from moisture or other detrimental effects.

1.5 PROJECT CONDITIONS

A. Environmental Limitations: Comply with manufacturer's written recommendations for substrate temperature and moisture content ambient temperature and humidity ventilation and other conditions affecting underlayment performance.

B. Close areas to traffic during underlayment application and for time period after application recommended in writing by manufacturer.

1.6 COORDINATION

A. Coordinate cement-based underlayment with requirements of finish flooring products including adhesives specified in Division 9 Sections.

1. Before installing surface finish verify compatibility with finish installation adhesive materials.
2. Coordinate with Structural requirements if Standard concrete is required for sloped installations.

PART 2 - PRODUCTS

2.1 SELF-LEVELING UNDERLAYMENT CONCRETE

A. Thick Concrete Underlayment (1 inch or more in thickness): Hydronic-cement-based polymer-modified self-leveling product that can be applied in minimum uniform thicknesses that can be feathered at edges to match adjacent floor elevations.

1. Products: Subject to compliance with requirements provide one of the following:

a. Ardex: K-15 Self-Leveling Underlayment Concrete.
b. BSAF Chem Rex; Thoro Underlayment Self-Leveling.
c. Con spec a Dayton Superior Company: Conflow.
d. Dayton Superior Corporation: LeveLayer .
e. L&M Construction Chemicals Inc: Duracrete
f. As approved

2. Cement Binder: ASTM C 150 portland cement or hydraulic or blended hydraulic cement as defined by ASTM C 219.
3. Compressive Strength: Not less than 4100 psi at 28 days when tested according to ASTM C 109/C 109M.
4. Underlayment Additive: Resilient-emulsion product of underlayment manufacturer formulated for use with underlayment when applied to substrate and conditions indicated.
5. Provide type as required for sloped applications as per manufacturer,

B. Aggregate: Well-graded washed gravel 1/8” to ¼” inch or coarse sand as recommended by underlayment manufacturer.

1. Provide aggregate when recommended in writing by underlayment manufacturer for underlayment thickness required.

C. Water: Potable and at a temperature of not more than 70 deg F.

D. Reinforcement: For underlayment applied to wood substrates provide galvanized metal lath or other corrosion-resistant reinforcement recommended in writing by underlayment manufacturer.

E. Primer: Product of underlayment manufacturer recommended in writing for substrate conditions and application indicated.

2.2 SELF- LEVELING FLOORING UNDERLAYMENT

A. Thin Self-Leveling Underlayment: Cement-based polymer-modified self-leveling product including primer recommended by mixture manufacturer that can be applied in uniform thicknesses from 1/8" to 3/8" in one pour and up to ½" inch with the addition of aggregate and that can be feathered at edges to match adjacent floor elevations.

1. Products: Subject to compliance with requirements provide the following or approved equal:

a. Ardex Inc: Ardex K-40

2. Compressive Strength: Not less than 3600 psi at 28 days when tested according to ASTM C 109/C 109M.

B. Primer: Product of underlayment manufacturer recommended in writing for substrate conditions and application indicated.

C. Aggregate shall be well-graded washed gravel for use when installing at ½" inch thick.

D. Water shall be clean potable and sufficiently cool (not warmer than 70°F).

2.3 CONCRETE UNDERLAYMENT PATCH

A. Flush Patching Cement: For floor repairs requiring spot flush patching use portland cement-based self-drying fast-setting trowelable underlayment that can be applied in uniform thicknesses from a true featheredge to ½" thick over large areas and to any thickness in well-defined areas such as filling holes or gouges.

1. Products: Subject to compliance with requirements provide the following or approved equal:

a. Ardex Inc: Ardex XF Feather Finish.

2. Compressive Strength: Not less than 4200 psi at 28 days when tested according to ASTM C 109/C 109M.

B. Primer: Product of underlayment manufacturer recommended in writing for substrate conditions and application indicated.

C. Water shall be clean potable and sufficiently cool (not warmer than 70°F).

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates with Installer present for conditions affecting performance of underlayment including substrate moisture content. Begin underlayment application only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. General: Prepare and clean substrate according to manufacturer's written instructions for substrate indicated. Provide clean dry neutral-pH substrate for underlayment application.

1. Treat nonmoving substrate cracks to prevent cracks from telegraphing (reflecting) through underlayment according to manufacturer's written recommendations.
2. Fill substrate voids to prevent underlayment from leaking.

B. Concrete Substrates: Mechanically remove laitance glaze efflorescence curing compounds adhesives form-release agents dust dirt grease oil and other contaminants that might impair underlayment bond.

1. Moisture Testing: Perform anhydrous calcium chloride test ASTM F 1869. Proceed with installation only after substrates do not exceed a maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. in 24 hours.

C. Metal Substrates: Mechanically remove rust foreign matter and other contaminants that might impair underlayment bond according to manufacturer's written instructions. Apply corrosion-resistant coating compatible with underlayment if recommended in writing by underlayment manufacturer.

D. Nonporous Substrates: For ceramic tile substrates remove waxes sealants and other contaminants that might impair underlayment bond according to manufacturer's written instructions. Reference TCNA requirements.

E. Adhesion Tests: After substrate preparation test substrate for adhesion with underlayment according to manufacturer's written instructions.

3.3 APPLICATION

A. General: Mix and apply underlayment components according to manufacturer's written instructions.

1. Coordinate application of components to provide optimum underlayment-to-substrate and adhesion.
2. At substrate expansion isolation and other moving joints allow joint of same width to continue through underlayment.

B. Apply primer over prepared substrate at manufacturer's recommended spreading rate.

C. Apply underlayment to produce uniform level surface.

1. Apply a final layer without aggregate if required to produce smooth surface.
2. Feather edges to match adjacent floor elevations.

D. Cure underlayment according to manufacturer's written instructions. Prevent contamination during application and curing processes.

E. Do not install finish flooring over underlayment until after time period recommended by underlayment manufacturer.

F. Remove and replace underlayment areas that evidence lack of bond with substrate including areas that emit a "hollow" sound when tapped.

3.4 FIELD QUALITY CONTROL

A. Field Samples: Take at least three molded-cube samples from each underlayment batch. Test samples according to ASTM C 109/C 109M for compliance with compressive-strength requirements. When requested provide test results to Architect.

3.5 PROTECTION

A. Protect underlayment from concentrated and rolling loads for remainder of construction period.

END OF SECTION 035300

SECTION 039000 – PENETRATING CONCRETE SEALER

PART 1 - GENERAL

1.1 SUMMARY

A. The Work of this Section shall include but is not limited to the following:

1. Sealing of interior concrete as indicated or required.

1.2 SUBMITTALS

A. Product Data: Submit the following information:

1. Sufficient technical data to prove compliance with the specified requirements.
2. Evidence that the proposed applicator is currently approved by the manufacturer of the specified product.

1.3 INFORMATIONAL SUBMITTALS

A. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency for concrete floor topping.

1.4 QUALITY ASSURANCE

A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

B. Use an applicator currently approved in writing by the manufacturer of the specified product.

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

1.5 DELIVERY STORAGE AND HANDLING

A. Deliver materials in original packages and containers with seals unbroken bearing manufacturer's labels indicating brand name and directions for storage mixing with other components and application.

B. Store materials to comply with manufacturer's written instructions to prevent deterioration from moisture or other detrimental effects.

1.6 PROJECT CONDITIONS

A. Environmental Limitations: Comply with manufacturer's written instructions for substrate temperature and moisture content ambient temperature and humidity ventilation and other conditions affecting concrete floor topping performance.

1. Place concrete floor topping only when ambient temperature and temperature of base slabs are between 50 and 86 deg F.

B. Close areas to traffic during topping application and after application for time period recommended in writing by manufacturer.

1.7 WARRANTY

A. Upon completion of the work of this Section and as a condition of its acceptance the Contractor together with the manufacturer of the penetrating concrete sealer shall provide a warranty against water penetration chloride salt damage or scaling of sealed areas. If the treated surfaces show water penetration of structurally sound areas or if spalling of the concrete occurs from chloride salt damage within the warranty period the manufacturer shall supply labor and materials to repair spalled surfaces and to re-treat such problem areas at no cost to the Owner.

1. Warranty Period: Ten (10) years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

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

1. Hydrozo Coatings
2. IPA SystemsInc.
3. Prosoco (Basis of Design)

B. Selected Product: Provide “Consolideck” impregnating liquified sealer solution as manufactured by Prosoco or approved equal.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates with Installer present for conditions affecting performance of concrete floor topping.

B. Proceed with application only after unsatisfactory conditions have been corrected.

3.2 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.3 APPLICATION

A. Preparation: The concrete deck shall be clean and free of debris oils or particles which would prevent proper penetration of the sealer.

B. Installation: The sealant shall be applied at the rate of 350 square feet per gallon of material. Water curing and vinyl protection of the concrete is required with this system. If results appear to be spotty apply additional coat at 50 sq. ft. per gallon to needed areas. Follow manufacturers recommended practices.

END OF SECTION 039000

SECTION 042000 - UNIT MASONRY

PART 1 – GENERAL

1.1 SUMMARY

A. Work Included: The Work of this Section shall include but not be limited to the following:

1. Patching of existing masonry units.
2. Masonry units as required to match existing
5. Mortar grout fasteners anchors reinforcement and additional masonry accessories as required for installation.

1.2 SUBMITTALS

A. Product Data: Submit manufacturer's product data for each type of masonry unit accessory and other manufactured products including certifications that each type complies with specified requirements.

B. Samples:

1. Submit samples of each type of exposed masonry unit. Include in each set of samples the full range of textures to be expected in completed work.
2. Submit 12" long samples of each type of joint reinforcement and samples of each type of anchor and tie.
3 Match existing unless otherwise indicated.

1.3 QUALITY ASSURANCE

A. Fire Performance Characteristics: Where indicated provide materials and construction which are identical to those of assemblies whose fire endurance has been determined by testing in compliance with ASTM E 119 by a recognized testing and inspecting organization or by another means as acceptable to authority having jurisdiction.

B. Single Source Responsibility for Masonry Units: Obtain masonry units of uniform texture and color or a uniform blend within the ranges accepted for these characteristics from one manufacturer for each different product required for each continuous surface or visually related surfaces.

C. Single Source Responsibility for Mortar Materials: Obtain mortar ingredients of uniform quality including color for exposed masonry from one manufacturer for each cementitious component and from one source and producer for each aggregate.

1.4 DELIVERY STORAGE AND HANDLING

A. Deliver masonry materials to project in undamaged condition.

B. Store and handle masonry units to prevent their deterioration or damage due to moisture temperature changes contaminants corrosion or other causes.

C. Store cementitious materials off the ground under cover and in dry location.

D. Store aggregates where grading and other required characteristics can be maintained.

E. Store masonry accessories including metal items to prevent deterioration by corrosion and accumulation of dirt.

1.5 PROJECT CONDITIONS

A. Staining: Prevent grout or mortar or soil from staining the face of masonry to be left exposed or painted. Remove immediately grout or mortar in contact with such masonry.

B. Protect base of walls from mortar splatter by means of coverings spread on ground and over wall surface.

C. Protect sills ledges and projections from droppings of mortar.

PART 2 - PRODUCTS

2.1 CONCRETE MASONRY UNITS

A. General: Comply with referenced standards and other requirements indicated below applicable to each form of concrete masonry unit required.

1. Provide special shapes where required for special conditions.

B. Concrete Block: Provide units complying with characteristics indicated below for Grade Type size exposed face and under each form of block included for weight classification.

1. Grade: to match existing.
2. Provide glazed units to match existing as required.
2. Size: Manufacturer's standard units with nominal face dimensions of 16" long x 8" high (15-5/8" x 7-5/8" actual) x thicknesses indicated and to match existing.
3. Hollow and Solid Load-Bearing Block: ASTM C 90 and as follows:

a. Weight Classification: Lightweight or match existing

2.2 MORTAR AND GROUT MATERIALS

A. Portland Cement: ASTM C 150 Type I except Type III may be used for cold weather construction. Provide white cement as required to produce required mortar color.

B. Hydrated Lime: ASTM C 207 Type S.

C. Aggregate for Mortar: ASTM C 144 except for joints less than 1/4" use aggregate graded with 100% passing the No. 16 sieve.

D. Aggregate for Grout: ASTM C 404.

E. Water: Clean and potable.

2.3 JOINT REINFORCEMENT

A. Materials: Comply with requirements indicated below for basic materials and with requirements indicated under each form of joint reinforcement tie and anchor for size and other characteristics:

1. Zinc-Coated (galvanized) Steel Wire: ASTM A 82 for uncoated wire and with ASTM A 641 for zinc coating of class indicated below:

    a. Class 3 (0.80 oz. per sq. ft. of wire surface).
    b. Application: Use for masonry not exposed to exterior.

B. Joint Reinforcement: Provide welded-wire units prefabricated with deformed continuous side rods and plain cross rods into straight lengths of not less than 10' with prefabricated corner and tee units and complying with requirements indicated below:

1. For patching match existing for type and configuration

C. Bent-Wire Ties: Provide individual prefabricated bent-wire units complying with requirements indicated below:

1. Wire Size: 0.1875" diameter.
2. Length: Provide units of length indicated but not less than that required for embedment into each wythe of 1.5" for solid units and for embedment of tie end into face shells of hollow units with not less than 1/2" mortar cover on face joints.

D. Rigid Anchors: Provide straps of form and length indicated fabricated from sheet metal strips of following width and thickness unless otherwise indicated.

1. Width: 1-l/2".
2. Thickness: 1/4".

E. Unit Type Masonry Inserts in Concrete: Furnish cast iron or malleable iron inserts of type and size indicated.

F. Anchor Bolts: Provide steel bolts with hex nuts and flat washers complying with ASTM A 307 Grade A hot-dip galvanized to comply with ASTM C 153 Class C in sizes and configurations indicated.

G. Available Manufacturers: Subject to compliance with requirements manufacturers offering products which may be incorporated in the work include but are not limited to the following:

1. AA Wire Products Co.
2. Dur-0-Wal Inc.
3. Hohmann & Barnard Inc.
4. National Wire Products Corp.

2.4 MISCELLANEOUS MASONRY ACCESSORIES

A. Non- Metallic Expansion Joint Strips: Pre-molded flexible cellular neoprene rubber filler strips complying with ASTM D 1056 Grade RE4lEl capable of compression up to 35% of width and thickness indicated.

B. Pre-molded Control Joint Strips: Material as indicated below designed to fit standard sash block and to maintain lateral stability in masonry wall; size and configuration as indicated.

1. Polyvinyl chloride complying with ASTM D 2287 General Purpose Grade Designation PVC-63506.

C Bond Breaker Strips: Asphalt saturated organic felt complying with ASTM D 226 Type I (No. 15 asphalt felt)

2.5 MORTAR AND GROUT MIXES

A. General: Do not add admixtures including coloring pigments air entraining agents accelerators retarder water repellent agents anti-freeze compounds or other admixtures unless otherwise indicated.

1. Do not use calcium chloride in mortar or grout.

B. Mixing: Combine and thoroughly mix cementitious materials water and aggregates in a mechanical batch mixer; comply with referenced ASTM standards for mixing time and water content.

C. Mortar for Unit Masonry: Comply with ASTM C 270 Proportion Specification for types of mortar required unless otherwise indicated.

1. Limit cementitious materials in mortar to portland cement-lime.
2. Use Type S mortar for reinforced masonry and where indicated.
3. Provide mortar of same design and strength of existing mortar.

D Grout for Unit Masonry: Comply with ASTM C 476 for grout for use in construction of reinforced and non-reinforced unit masonry. Use grout of consistency indicated or if not otherwise indicated of consistency (fine or coarse) at time of placement which will completely fill all spaces intended to receive grout.

1. Use fine grout in grout spaces less than 2" in horizontal direction unless otherwise indicated.
2. Use coarse grout in grout spaces 2" or more in least horizontal dimension unless otherwise indicated.

PART 3 - EXECUTION

3.1 INSTALLATION GENERAL

A. Do not wet concrete masonry units.

B. Cleaning Reinforcing: Before placing remove loose rust and other coatings from reinforcing.

C. Thickness: Build composite walls floors and other masonry construction to the full thickness shown. Build single-wythe walls (if any) to the actual thickness of the masonry units using-units of nominal thickness indicated.

D. Build chases and recesses as shown and as required for the work of other trades. Provide not less than 8" of masonry between chase or recess and jamb of openings and between adjacent chases and recesses.

E. Leave openings for equipment to be installed before completion of masonry work. After installation of equipment complete masonry work to match existing work immediately adjacent to the opening.

F. Cut masonry units with motor-driven saws to provide clean sharp unchipped edges. Cut units as required to provide continuous pattern and to fit adjoining work Use full-size units without cutting where possible.
1. Use dry cutting saws to cut concrete masonry units.

G. Matching Existing Masonry Work: Match coursing bonding and texture of new masonry work with existing work.

3.2 CONSTRUCTION TOLERANCES

A. General: Construction tolerances shall comply with ACI 530.1. and shall not exceed specified tolerances.

1. Variation from Plumb: 1/4" in 10' or 3/8" in 20'.
2. Variation from Level: 1/4" in 20'.
3. Variation from Location: 1/2" in 20'.
4. Variation in Width: 1/4" or plus 1/2".
5. Variation in Joint Size: Plus or minus 1/8" 1/2" maximum joint.

3.3 MASONRY

A. Layout work for accurate spacing of surface bond patterns with uniform joint widths and to accurately locate openings movement-type joints returns and offsets. Avoid the use of less-than-half size units at corners jambs and wherever possible at other locations.

B. Built-In Work: As the work progresses build in items specified under this and other sections of these specifications. Fill in solidly with masonry around built-in items.

1. Fill space between frames and masonry solidly with mortar.
2. Where built-in items are to be embedded in cores of hollow masonry units place a layer of metal lath in the joint below and rod mortar or grout into core. Fill cores in hollow concrete masonry units with grout 3 courses (24") under bearing plates beams lintels posts and similar items unless otherwise indicated.

3.4 MORTAR BEDDING AND JOINTING

A. Maintain joint widths shown except for minor variations required to maintain bond alignment. If not shown lay walls with 3/8" joints.

B. Cut joints flush for masonry walls which are to be concealed or to be covered by other materials unless otherwise indicated.

C. Remove masonry units disturbed after laying; clean and reset in fresh mortar. Do not pound corners of jambs to shift adjacent stretcher units which have been set in position. If adjustments are required remove units clean off mortar and reset in fresh mortar.

3.5 HORIZONTAL JOINT REINFORCING

A. General: Provide continuous horizontal joint reinforcement as indicated. Install longitudinal side rods in mortar for their entire length with a minimum cover of 5/8" on exterior side of walls 1/2" elsewhere; rap reinforcement a minimum of 6".

B. Cut or interrupt joint reinforcement at control and expansion joints unless otherwise indicated.

C Reinforce hollow concrete masonry walls with continuous horizontal joint reinforcement.

3.6 ANCHORING MASONRY WORK

A. General: Provide anchor devices of the type required.

B. Anchor masonry to structural members where masonry abuts or faces structural members to comply with the following:

1. Provide an open space not less than 1" in width between masonry and structural member unless otherwise indicated. Keep open space free of mortar or other rigid materials.
2. Anchor masonry to structural members with flexible anchors embedded in masonry joints and attached to structure.
3. Space anchors as indicated but not more than 24" O.C. vertically and 36" O.C. horizontally.

3.7 CONTROL JOINTS

A. General: Provide vertical and horizontal expansion control and isolation joints in masonry where shown. Build-in related items as the masonry work progresses.

3.8 REPAIRING POINTING AND CLEANING

A. Remove and replace masonry units that are loose chipped broken stained or otherwise damaged or that do not match adjoining units. Install new units to match adjoining units; install in fresh mortar pointed to eliminate evidence of replacement.

B. Pointing: During the tooling of joints enlarge voids and holes except weep holes and completely fill with mortar. Point up joints including corners openings and adjacent construction to provide a neat uniform appearance. Prepare joints for sealant application.

C. In-Progress Cleaning: Clean unit masonry as work progresses by dry brushing to remove mortar fins and smears before tooling joints.

END OF SECTION 042000

SECTION 055000 - METAL FABRICATIONS

PART 1 - GENERAL

1.1 SUMMARY

A. The Work of this Section includes but not necessarily limited to the following.

1. Miscellaneous framing and supports.
2. Rough hardware.
3. Loose bearing and leveling plates.
4. Concealed supports for countertops shelves doors walls and mounted assemblies
5. Provide all structural suspension and bracing systems as indicated or required.

a. Contractor shall provide all supplemental suspension bracing and backing plates for assemblies including but not limited to fixtures partitions wall assemblies door assemblies or other items as required no exceptions. if assemblies are not indicated Contractor shall provide structural data and shop drawings as required to complete assemblies.

1.2 SUBMITTALS

A. Product Data: Submit product data for products used in miscellaneous metal fabrications including paint products and grout.

B. Shop Drawings: Submit shop drawings for fabrication and erection of metal fabrications. Include plans elevations and details of sections and connections. Show anchorage and accessory items. Provide templates for anchors and bolts installed by others. Show new and each type of repair details proposed for the repair/replacement of the steel assemblies.

1. Where fabrications are indicated to comply with design loadings include structural computations material properties and other information needed for structural analysis.
2. Structural data shall be signed and sealed by the qualified professional engineer who was responsible for their preparation.

C. Structural Requirements: Portions of the work are supported on existing building elements. Portions of the work will be supported on secondary structural members that shall be provided and designed by the Contractor. Contractor shall provide all secondary steel to anchor and support assemblies to the structure as required by code and provide acceptable requirements for each assembly.

1. Provide anchoring/Bracing systems and assemblies which result in attachments developing the capability to sustain the following forces generated by the supported element (individual member or assembly) acting separately based on the yield strength of the material:

a. A total force of 4 times the dead weight of the element supported applied vertically downward through the element's center of gravity combined with loads caused by thermal movements.
b. A total force of 2 times the dead weight of the element applied horizontally outward through the center of gravity of the element combined with loads caused by thermal movements.

D. Samples: Submit samples representative of materials and finished products as may be requested by Architect.

E. Certifications: Submit welding certificates certifying that welders comply with requirements of "Quality Assurance" article.

1.2 QUALITY ASSURANCE

A. Fabricator: Firm experienced in successfully producing metal fabrications similar to those required for this Project.

B. Installer: Arrange for installation of metal fabrications by same firm that fabricated them.

C. Welding: Qualify welding processes and operators in accordance with AWS D1.1 "Structural Welding Code - Steel" D1.3 "Structural Welding Code - Sheet Steel.@

D. Engineer Qualifications: Professional engineer licensed to practice in the State of New York and experienced in structural engineering of metal fabrications similar to those indicated for this Project.

1.3 PROJECT CONDITIONS

A. Field Measurements: Where metal fabrications are indicated to fit walls and other construction verify dimensions by field measurements before fabrication and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

1.4 COORDINATION

A. Coordinate installation of anchorages for metal fabrications. Furnish setting drawings templates and directions for installing anchorages including sleeves inserts anchor bolts and items with integral anchors that are to be embedded in substrate. Deliver such items to Project site in time for installation.

PART 2 - PRODUCTS

2.1 FERROUS METALS

A. Metal Surfaces General: For exposed metal fabrications provide materials selected for their surface flatness smoothness and freedom from surface blemishes.

1. Do not use materials whose exposed surfaces exhibit pitting seam marks roller marks rolled trade names roughness and for steel sheet variations in flatness exceeding those permitted by reference standards for stretcher leveled sheet.
2. Metals exposed to exterior or wet areas and shall be galvanized.

B. Steel Plates Shapes and Bars: ASTM A 36. metal fabrications shall be galvanized in wet or exterior assemblies.

C. Structural Steel Sheet: Cold-rolled ASTM A 611; or hot-rolled ASTM A 570 grade as required by design loading.

D. Galvanized Steel Sheet: ASTM A 446; Grade A and G90 coating designation unless otherwise indicated.

E. Gray Iron Castings: ASTM A 48 Class 30.

F. Malleable Iron Castings: ASTM A 47 Grade 32510.

G. Brackets Flanges and Anchors: Cast or formed metal of the same type material and finish as supported rails unless otherwise indicated.

H. Welding Rods and Bare Electrodes: Select in accordance with AWS specifications for the metal alloy to be welded.

2.2 GROUT AND ANCHORING CEMENT

A. Non-shrink Nonmetallic Grout: Premixed factory-packaged non-staining noncorrosive nongaseous grout complying with CE CRD- C 621 and recommended by manufacturer for interior and exterior use.

2.3 FASTENERS

A. General: Provide zinc-coated fasteners where exposed to moisture. Select fasteners for the type grade and class required.

B. Bolts and Nuts: Regular hexagon head type ASTM A 307 Grade A.

C. Lag Bolts: Square head type FS FF-B-561.

D. Machine Screws: Cadmium plated steel FS FF-S-92.

E. Plain Washers: Round carbon steel FS FF-W-92.

F. Expansion Anchors: FS FF-S-325 Group VIII Type I; and machine bolts complying with FS FF-B-575 Grade 5.

G. Toggle Bolts: Tumble-wing type FS FF-B-588 type class and style as required.

H. Lock Washers: Helical spring type carbon steel FS FF-W-84.

2.4 ROUGH HARDWARE

A. Furnish bent or otherwise custom fabricated bolts plates anchors hangers dowels and other miscellaneous steel and iron shapes as required for framing and supporting woodwork and for anchoring or work to concrete or other structures. Straight bolts and other stock rough hardware items are specified in Section 061000 -Rough Carpentry.

B. Fabricate items to sizes shapes and dimensions required. Furnish malleable-iron washers for heads and nuts which bear on wood structural connections; elsewhere furnish steel washers.

2.5 MISCELLANEOUS FRAMING AND SUPPORTS

A. General: Provide steel framing and support which are not a part of structural work as required to complete work.

1. Provide all supplementary concealed support framing and bracing for all installed assemblies to include but not be limited to wall assemblies glazed/Special wall and door assemblies and other construction as required for secure and complete installations.

B. Fabricate units to sizes shapes and profiles required to support other construction. Fabricate from structural steel of welded construction using mitered joints for field connection. Cut drill and tap units to receive other work.

1. Equip units with integrally welded anchors for embedment. Furnish inserts if units must be installed after work is placed.
2. Except as otherwise indicated space anchors 24” inches O.C. Provide anchors 1-1/4” inches wide x ¼” inch x 8” inches long.

2.6 LOOSE BEARING AND LEVELING PLATES

A. Provide loose bearing and leveling plates for steel items bearing on masonry or concrete construction. Drill plates to receive anchor bolts and for grouting.

1. Galvanize plates after fabrication.

2.7 PAINT

B. Shop Primer for Ferrous Metal: Fabricator's standard fast-curing lead-free alkyd primer selected for compatibility with finish paint; complying with performance requirements of FS TT-P-645.

C. Galvanizing Repair Paint: Paint with dry film containing not less than 94 percent zinc dust by weight and complying with SSPC-Paint-20.

D. Bituminous Paint: Cold-applied asphalt mastic complying with SSPC-Paint 12 except containing no asbestos fibers.

2.7 FABRICATION GENERAL

A. Form metal fabrications of size thickness and shapes indicated but not less than needed to comply with performance requirements. Work to dimensions on shop drawings using proven details of fabrication and support.

B. Form exposed work true to line and level with accurate angles and surfaces and straight sharp edges. Ease exposed edges slightly.

1. Remove sharp edges on exposed surfaces.

C. Allow for thermal movement resulting from 100 deg. F change (range) in air temperature in the design fabrication and installation of installed metal assemblies to prevent buckling opening up of joints and overstressing of welds and fasteners.

D. Shear and punch metals cleanly and accurately. Remove burrs. Remove sharp or rough areas on exposed traffic surfaces.

E. Ease exposed edges to a radius of approximately 1/32” inch. Form bent-metal corners to smallest radius possible without impairing work.

F. Weld corners and seams continuously to comply with AWS recommendations and the following:

1. Minimize distortion and develop strength of base metals.
2. Obtain fusion without under cut or overlap.
3. Remove welding flux immediately.
4. Finish exposed welds smooth and flush with adjacent surfaces.

G. Form exposed connections with hairline joints flush and smooth using concealed fasteners where possible. Use Phillips flat-head fasteners where exposed. Locate joints where least conspicuous.

H. Provide for anchorage of type indicated. Fabricate and space anchoring devices to provide adequate support for intended use.

I. Preassemble items in shop where possible. Disassemble units only as necessary for shipping and handling. Use connections that maintain structural value of joined pieces.

J. Cut reinforce drill and tap miscellaneous metal work as required to receive finish hardware screws and similar items.

K. Fabricate joints that will be exposed to weather in a manner to exclude water or provide weep holes where water may accumulate.

2.8 FINISHES GENERAL

A. Comply with NAAMM "Metal Finishes Manual" for recommendations relative to application and designations of finishes.

B. Finish metal fabrications after assembly.

2.9 STEEL AND IRON FINISHES

A. Galvanizing: For galvanized items apply zinc-coating by the hot-dip process in compliance with the following requirements:

1. ASTM A 153 for galvanizing iron and steel hardware.
2. ASTM A 123 for galvanizing iron and steel shapes plates bars and strip 0.0299” inch thick and heavier.

B. Preparation for Shop Priming: Prepare uncoated ferrous metal surfaces to comply with minimum requirements indicated below:

1. Interiors (SSPC Zone 1A): SSPC-SP3 "Power Tool Cleaning."

C. Apply shop primer to uncoated metal except surfaces with galvanized finish or to be embedded in concrete sprayed-on fireproofing or masonry. Comply with SSPC-PA1 "Paint Application Specification No. 1" for shop painting.

1. Finish Paint: To match Approved sample.

PART 3 - EXECUTION

3.1 PREPARATION

A Coordinate and furnish anchorages setting drawings diagrams and directions for installation of anchorages that are to be embedded in concrete or masonry. Coordinate delivery of such items.

3.2 INSTALLATION GENERAL

A. Anchors: Provide anchors and fasteners where necessary for securing metal fabrications to in-place construction.

B. Cutting Fitting and Placement: Perform cutting drilling and fitting required for installation of metal fabrications. Set metal fabrications accurately in location alignment and elevation; with edges and surfaces level plumb true and free of rack; and measured from established lines and levels.

C. Provide temporary bracing or anchors in formwork for items that are to be built into concrete masonry or similar construction.

D. Fit exposed connections accurately to form hairline joints. Weld connections that cannot be shop welded. Do not weld cut or abrade units which have been hot-dip galvanized after fabrication.

E. Field Welding: Comply with AWS Code for welding appearance and quality of welds made methods used in correcting welding work and as required for shop welding.

F. Corrosion Protection: Coat concealed surfaces of aluminum that will come into contact with dissimilar materials with a heavy coat of bituminous paint or zinc chromate primer.

G. Manufactured Items: Install manufactured products to comply with manufacturer's instructions unless otherwise shown.

3.3 INSTALLING MISCELLANEOUS FRAMING AND SUPPORTS

A. General: Install framing and support to comply with requirements of items being supported including manufacturers' written instructions and requirements indicated on Shop Drawings.

B. Support steel members on solid grouted masonry or concrete. Secure members with anchor bolts embedded in grouted masonry or concrete.

C. Where grout space under bearing and plates is indicated at members supported on concrete or masonry install as specified above for setting and grouting bearing and leveling plates.

3.4 ADJUSTING AND CLEANING

A. Immediately after erection clean field welds bolted connections and abraded areas of shop paint and paint exposed areas with same material as used for shop painting. Comply with SSPC-PA 1 to provide a minimum dry film thickness of 2.0 mils.

B. For galvanized surfaces clean welds bolted connections and abraded areas and apply galvanizing repair paint to comply with ASTM A 780.

END OF SECTION 055000

SECTION 055313 - DRAIN AND GRATING ASSEMBLIES

PART 1 - GENERAL

1.1 SUMMARY

A. Work Included: The Work of this Section includes but is not limited to the following:

1. Metal bar gratings with metal frames and supports.
2. Metal frames and supports for gratings.
3. Custom trench Drain assemblies.

1.2 PERFORMANCE REQUIREMENTS

A. Structural Performance: Gratings shall withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated.

1. Uniform load of 250 lbf/sq. ft.or concentrated load of 300 lbf Min whichever produces the greater stress. Provide vehicle rated loading as approved by Engineer.
2. Limit deflection to L/360 or ¼” inch whichever is less.

1.3 SUBMITTALS

A. Product Data: Submit manufacturer's specifications and installation instructions details of construction relative to materials dimensions of individual components profiles and finishes.

1. Clips and anchorage devices for gratings.
2. Coordinate waterproofing tile and drain connections.

B. Shop Drawings: Submit shop drawings showing layout and types of gratings and frames full-scale sections of typical installations details of patterns or designs anchors and accessories.

1. Coordinate shop drawing submittal with concrete/tile work showing recess for installation of frames.
2. Indicate removable lockdowns where required.

C. Delegated-Design Submittal: For gratings including manufacturers' published load tables.

D. Welding certificates.

1.4 QUALITY ASSURANCE

A. Single-Source Responsibility: Obtain grates and frames from one source from a single manufacturer.

B. Comply with New York State and Local Building Codes ADA requirements and other authorities having jurisdiction.

1.5 COORDINATION

A. Coordinate installation of anchorages for gratings grating frames and supports. Furnish setting drawings templates and directions for installing anchorages including sleeves inserts anchor bolts and items with integral anchors that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

1.6 FIELD CONDITIONS

A. Field Measurements: Verify actual locations of walls. drains flashings and other construction contiguous with gratings by field measurements before fabrication.

PART 2 - PRODUCTS

2.1 PRODUCTS

A. Products General: Subject to compliance with requirements provide the following products in dimensions indicated or if not indicated as selected by the Architect.:

1. Product: Architectural grill: AG10 Stainless steel

2.2 MATERIALS

A. General: Provide patterns and profiles of materials including tread surface materials and finishes as indicated or specified. Where not indicated provide finish patterns and profiles selected by Architect from manufacturer's full range of products.

1. Stainless-Steel Sheet Strip Plate and Flat Bars: ASTM A 666 Type 304.

2.3 METAL BAR GRATINGS

A. Metal Bar Grating Standards: Comply with NAAMM MBG 531 "Metal Bar Grating Manual."

B. Rectangular Welded Steel Grating:

1. Bearing Bar Spacing: ¼” inches O.C.
2. Bearing Bar Depth: ½” inch unless otherwise required to comply with structural performance requirements.
3. Bearing Bar Thickness: 1/8” inch unless otherwise required to comply with structural performance requirements.
4. Crossbar Spacing: as required to meet performance requirements.
5. Traffic Surface: Plain.
6. Steel Finish: Stainless steel Satin polish.

2.4 FASTENERS

A. General: Unless otherwise indicated provide Type 316 stainless-steel fasteners. Select fasteners for type grade and class required.

B. Stainless-Steel Bolts and Nuts: Regular hexagon-head annealed stainless-steel bolts nuts and where indicated flat washers; ASTM F 593for bolts and ASTM F 594for nuts Alloy Group 1 or Group 2.

C. Plain Washers: Round ASME B18.22.1.

D. Lock Washers: Helical spring type ASME B18.21.1.

2.5 MISCELLANEOUS MATERIALS

A. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187/D 1187M.

2.6 FABRICATION

A. Shop Assembly: Fabricate grating sections in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.

B. Fabricate frame members in single lengths or where frame dimensions exceed maximum available lengths provide minimum number of pieces possible with hairline joints equally spaced and pieces spliced together by means of straight connecting pins.

C. Cut drill and punch material cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32” inch unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.

D. Form from materials of size thickness and shapes indicated but not less than that needed to support indicated loads.

E. Fit exposed connections accurately together to form hairline joints.

F. Provide for anchorage of type indicated coordinate with supporting structure. Fabricate and space the anchoring devices to secure gratings frames and supports rigidly in place and to support indicated loads.

G. Fabricate cutouts in grating sections for penetrations indicated. Arrange cutouts to permit grating removal without disturbing items penetrating gratings.

1. Edge-band openings in grating that interrupt four or more bearing bars with bars of same size and material as bearing bars.

H. Do not notch bearing bars at supports to maintain elevation.

2.7 GRATING FRAMES AND SUPPORTS

A. Fabricate from metal shapes plates and bars of welded construction to sizes shapes and profiles indicated and as necessary to receive gratings. Miter and weld connections for perimeter angle frames. Cut drill and tap units to receive hardware and similar items.

1. Unless otherwise indicated fabricate from same metal as gratings.
2. Equip units indicated to be cast into concrete or built into masonry with integrally welded anchors. Unless otherwise indicated space anchors 24” inches O.C.

B. Hidden locking devices shall be used to prevent warping and rattling. The number of lockdowns to be used shall be in accordance with manufacturer recommendations.

C. Finish: Match gratings

PART 3 - EXECUTION

3.1 INSTALLATION GENERAL

A. Fastening to In-Place Construction: Provide anchorage devices and fasteners where necessary for securing gratings to in-place construction. Include threaded fasteners for concrete and masonry inserts through-bolts lag bolts and other connectors.

B. Cutting Fitting and Placement: Perform cutting drilling and fitting required for installing gratings. Set units accurately in location alignment and elevation; measured from established lines and levels and free of rack.

C. Provide temporary bracing or anchors in formwork for items that are to be built into concrete or masonry.

D. Fit exposed connections accurately together to form hairline joints.

3.2 INSTALLING METAL BAR GRATINGS

A. General: Install gratings to comply with recommendations of referenced metal bar grating standards that apply to grating types and bar sizes indicated including installation clearances and standard anchoring details.

B. Attach removable units to supporting members with type and size of clips and fasteners indicated or if not indicated as recommended by grating manufacturer for type of installation conditions shown.

C. Attach nonremovable units to supporting members by welding where both materials are same; otherwise fasten by bolting as indicated above.

1. Provide necessary shims spacers and anchorages for proper location and secure attachment of recessed frames to concrete.

3.3 ADJUSTING AND CLEANING

A. Clean connections and abraded areas and repair if required.

END OF SECTION 055313

SECTION 055750 - METAL REPAIR AND REFINISHING

PART 1 - GENERAL

1.1 SUMMARY

A. Work Included: The Work of this Section shall include but not be limited to the following:

1. Repair and refinish surrounds convector covers and doors as directed.
2. Finish and/or reinstall elements as required.
3. Installation of new fabrications as required or indicated.
4. Metal finishing Priming and painting finish systems
5. Perform all necessary work and provide all material considered necessary for the successful completion of the work.

1.2 SUBMITTALS

A. Product Data: Submit manufacturer's product specifications and installation instructions for each type of product specified including data showing compliance with Specification requirements.

B. Submit for approval manufacturer's technical information for each product used in Work including Material Safety Data Sheets (MSD's) and certification that each product complies with specified requirements. Include instructions for handling storage application installation and protection of each product used in Work of this Section.

C. Samples: Submit samples for verification of materials dimensions profiles and application including the following:

1. Each type of repair or cleaning material for each element.
2. Abrasive cleaning medium.
3 Chemical cleaning materials.
4 Epoxy filler.
5 Fasteners.

D. The Contractor shall be responsible for the fabrication finishing and installation of each different type of assembly as well as for the performances for each type of finish. Contractor shall submit a schedule of procedures for each type of work and finish operation.

1.3 QUALITY ASSURANCE

A. Intent of the Work:

1. This work shall consist of the cleaning and preparation of portions of existing metal assemblies and new structures indicated. the furnishing and application of the coatings.

a. Repair and Clean and Refinish Existing Metal Elements. Replicate and Install New Elements as Directed to Replace Damaged Components or New as required. Modify All Elements to Insure proper expansion and contraction Capabilities When Reinstalled. Replace All Fasteners as required.

B Fabricator Qualifications: Firm experienced in successfully producing metalwork similar to that indicated for this Project with sufficient production capacity to produce required units without causing delay in the Work.

C. Installer Qualifications: Arrange for installation of ornamental metalwork specified in this section by same firm which fabricated them.

PART 2 - PRODUCTS

2.1 MATERIALS

A. All materials shall be new of good quality and without defects that would lessen the quality of the product.

1. All materials shall conform to the specifications and standard practices of the latest editions of the AISC Manual of Metal Construction AISI Specifications for the Design of Cold Formed Members ASTM A6 Standard Specifications for General Requirements for Rolled Metal Plates Shapes Sheets and Bars for Structural Use and AWS D1.1 for welded connections.

B. The paint materials shall meet the requirements of the following articles of the Standard Specification:

1. Organic Zinc Rich Primer

C. Miscellaneous Materials:

1. Filler: Two- part epoxy filler such as Super Metal by Belzona or Plastic Metal by Devcon.
2. Coating Removal Pretreatment Material: Pre-Tox 2000 manufactured by Nex-Tec USA Dubuque IA (800) 338-8296. Or as approved

2.2 CLEANING AND PAINTING OF METAL

A. Description. This work shall consist of the surface scraping preparation and painting of existing Metal. The existing metal shall be prepared and primed. The existing metal shall be prepared and if bare metal is exposed primed.

B. Surface Preparation: After inspection clean metalwork to be painted. Remove loose rust loose mill scale and spatter slag or flux deposits. Clean metal in accordance with Metal Structures Painting Council (SSPC) as follows and as directed.

1. SP-1 "Solvent Cleaning.
2. SP-2 "Hand-Tool Cleaning."
3. SP-3 "Power-Tool Cleaning."

C. Painting: Immediately after surface preparation apply metal primer paint in accordance with manufacturer's instructions and at a rate to provide dry film thickness that result in full coverage of joints corners edges and exposed surfaces.

2.3 METAL FINISHES

A. Preparation for Priming: Prepare uncoated ferrous metal surfaces to comply with requirements indicated

B. Apply shop primer to uncoated metal except surfaces. Comply with SSPC-PA1 "Paint Application Specification No. 1" for shop painting.

1. Primer Paint colors and gloss to match Architect's sample.

C. Existing structures shall be cleaned and painted in accordance with requirements of approved Paint System

1. All exposed areas of the existing metal and any other previously painted metal surfaces of the existing structure shall receive one (1) primer coat and 5 mils minimum dry film thickness one (1) intermediate coat 5 mils minimum dry film thickness and one (1) finish coat 3.5 mils minimum dry film thickness
2. The color of the finish coat shall be to match Architects samples.
3. Reference Section 099000 for paint types and 099110 Electrostatic Painting.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Following removal or cleaning of each element perform an inspection accompanied by the Owner's Representative to determine the condition of the element.

3.2 CLEANING STRIPPING PREPARATION

A. Examination:

1. Examine each element prior to scraping of finish. Inform the Architect if any element has been damaged and to what extent.

B. Cleaning General

1. Surface Preparation: Prior to painting all loose abrasives paint and residue shall be contained collected removed from the surface area and properly disposed of as specified later in this specification. Painted surfaces of metal damaged by abrasive cleaning or by the Contractor's operations shall be repainted.
2. Perform each cleaning and coating method indicated in a manner which results in uniform coverage of all surfaces including corners moldings and interstices and which produces an even effect without streaking or damage to adjacent surfaces.
3. Apply cleaners and finishes to metal surfaces to comply with manufacturer's recommendations.
4. Upon completion of coating work remove all protective coverings and coatings and clean other coating-spattered surfaces. Remove spattered coatings by proper methods as recommended by coating manufacturer using care not to damage adjacent surfaces.

C. Cleaning/ Stripping: Use methods approved by Architect.

1. Before power tool clean and remove visible oil grease soluble welding residues and salts by the methods outlined in SSPC-SP 1.
2. The surfaces of existing metal in all areas shall be prepared according to SSPC-SP3 Power Tool Cleaning using vacuum-shrouded power tools equipped with HEPA filtration. The surface preparation shall remove all loose rust loose mill scale and loose checked alligatored and peeling paint from the contact surface or SSPC-SP15 Commercial Grade Power Tool Cleaning may be substituted for SSPC-SP3 at no additional cost to the Owner.

Chemical Cleaning Preparation

1. Comply with recommendations of manufacturers of cleaner strippers and coatings for protecting building surfaces against damage from exposure to their products.
2. Protect adjacent surfaces from contact with chemicals and finishes by covering them with liquid strippable masking agent or polyethylene film and waterproof masking tape. Apply masking agent to comply with manufacturer's recommendations. Do not apply liquid masking agent to porous surfaces.

3.3 PAINTING

A. The manufacturer's written instructions shall be followed for paint storage mixing thinning application ambient conditions and drying times between coats. The surface shall befree of dirt dust and debris prior to the application of any coat. The coatings shall be applied as a continuous film of uniform thickness free of defects including but not limited to runs sags overspray dry spray pinholes voids skips misses and shadow-through. Defects such as runs and sags shall be brushed out immediately during application.

B. The Architect will approve surface preparation prior to priming.

1. For Primary connections the surface of the prepared metal shall be primed with an organic zinc rich primer as selected.

C. The primer shall cure according to the manufacturer’s instructions.

3.4 REPAIRS

A. Provide repairs as indicated elements which require cosmetic repairs only. No weld plated and filler repairs are to be performed where structural durability is necessary.

B. Provide new malleable filler to be welded where original material is missing. Prepare properly and weld new material in place or weld existing fractures in conformance with applicable AWS reference standards for welding. Fill irregularities in exposed face with filler. Sand filler flush with face of element.

3.5 PROTECTION

A. Protect all elements during repair or reinstallation from damage or deterioration.

B. Protect finish of elements from damage during the construction period by se of approved temporary coverings. Remove covering at time of substantial completion.

C. Restore all finishes damaged by installation and construction to insure that no evidence of corrective work is visible.

3.6 COLLECTION TEMPORARY STORAGE TRANSPORTATION AND DISPOSAL OF WASTE.

A. The Contractor is responsible for all aspects of waste collection testing and identification handling storage transportation and disposal according to these specifications and all applicable Federal State and Local regulations.

END OF SECTION 055750

SECTION 061000 - ROUGH CARPENTRY

PART 1 - GENERAL

1.1 SUMMARY

A. The Work of this Section shall include but is not limited to the following:

1. Wood grounds, blocking and furring and other carpentry work which is generally not exposed.
2. Plywood backing panels for equipment and mirrors.

1.2 SUBMITTALS

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

1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used and net amount of preservative retained.
2. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Include physical properties of treated materials based on testing by a qualified independent testing agency.
3. For products receiving a water-borne treatment include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.
4. Include copies of warranties from chemical treatment manufacturers for each type of treatment.

B. Material Certificates: Submit listing of species and grade selected for framing lumber and a signed copy of grading rules showing design values for selected lumber. Design values shall comply with specified requirements and approved by the ALSC Board of Review.

C. Research/Evaluation Reports: For the following showing compliance with building code in effect for Project:

1. Wood-preservative-treated wood.
2. Fire-retardant-treated wood.
3. Power-driven fasteners.
4. Powder-actuated fasteners.
5. Research or evaluation reports of the model code organization acceptable to authorities having jurisdiction that evidence compliance of fire-retardant-treated wood with building code in effect for project.

1.3 QUALITY ASSURANCE

A. Testing Agency Qualifications: For testing agency providing classification marking for fire-retardant treated material an inspection agency acceptable to authorities having jurisdiction that periodically performs inspections to verify that the material bearing the classification marking is representative of the material tested.

1.4 DELIVERY STORAGE AND HANDLING

A. Delivery and Storage: Keep materials under cover and dry. Stack wood to provide air circulation within and around stacks.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS GENERAL

A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.

B. Factory mark each piece of lumber with grade stamp of grading agency.

2.2 WOOD-PRESERVATIVE-TREATED LUMBER

A. Preservative Treatment by Pressure Process: AWPA C2.

1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.

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

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

D. Application: Treat all rough carpentry unless otherwise indicated.

2.3 FIRE-RETARDANT-TREATED MATERIALS

A. General: Comply with performance requirements in AWPA C20 (lumber) and AWPA C27 (plywood).

1. Use Interior Type A for typical locations unless otherwise indicated.

B. Identify fire-retardant-treated wood with appropriate classification marking of testing and inspecting agency acceptable to authorities having jurisdiction.

2.4 MISCELLANEOUS LUMBER

A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction including the following:

1. Blocking.
2. Nailers.
3. Cants.
4. Furring.
5. Grounds.

B. For items of dimension lumber size provide Construction or No. 2 grade lumber with 19 percent maximum moisture content of any species.

C. For concealed boards provide lumber with 19 percent maximum moisture content and any of the following species and grades:

1. Mixed southern pine No. 2 grade; SPIB.
2. Eastern softwoods No. 2 Common grade; NeLMA.
3. Northern species No. 2 Common grade; NLGA.

4. Western woods Construction or No. 2 Common grade; WCLIB or WWPA.

D. For blocking not used for attachment of other construction Utility Stud or No. 3 grade lumber of any species may be used provided that it is cut and selected to eliminate defects that will interfere with its attachment and purpose.

E. For blocking and nailers used for attachment of other construction select and cut lumber to eliminate knots and other defects that will interfere with attachment of other work.

F. For furring strips for installing plywood or hardboard paneling select boards with no knots capable of producing bent-over nails and damage to paneling.

2.5 PLYWOOD BACKING PANELS

A. Telephone and Electrical Equipment Backing Panels: DOC PS 1 Exposure 1 C-D Plugged fire-retardant treated in thickness indicated or if not indicated not less than 1/2-inch nominal thickness.

B. Mirror Backing Panels: Marine grade plywood Grade AA.

C. Concealed APA Performance Rated Panels: Where construction panels will be used for the following concealed types of applications provide APA Performance Rated Panels of thickness shown and complying with requirements indicated for grade designation span rating exposure durability classification and edge detail where applicable.

2.6 FASTENERS

A. General: Provide fasteners of size and type indicated that comply with requirements specified in this Article for material and manufacture.

1. Where rough carpentry is exposed to weather in ground contact pressure-preservative treated or in area of high relative humidity provide fasteners of Type 304 stainless steel.

B. Nails Brads and Staples: ASTM F 1667.

C. Power-Driven Fasteners: NES NER-272.

D. Wood Screws: ASME B18.6.1.

E. Lag Bolts: ASME B18.2.1.

F. Bolts: Steel bolts complying with ASTM A 307 Grade A; with ASTM A 563 hex nuts and where indicated flat washers.

PART 3 - EXECUTION

3.1 INSTALLATION GENERAL

A. Set rough carpentry to required levels and lines with members plumb true to line cut and fitted. Fit rough carpentry to other construction; scribe and cope as needed for accurate fit. Locate furring nailers blocking grounds and similar supports to comply with requirements for attaching other construction.

B. Set rough carpentry to required levels and lines with members plumb true to line cut and fitted. Fit rough carpentry to other construction; scribe and cope as needed for accurate fit. Locate

furring nailers blocking grounds and similar supports to comply with requirements for attaching other construction.

C. Do not splice structural members between supports unless otherwise indicated.

D. Provide blocking and framing as indicated and as required to support facing materials fixtures specialty items and trim.

1. Provide metal clips for fastening gypsum board or lath at corners and intersections where framing or blocking does not provide a surface for fastening edges of panels. Space clips not more than 16” inches O.C.

E. Comply with AWPA M4 for applying field treatment to cut surfaces of preservative-treated lumber.

F. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated complying with the following:

1. NES NER-272 for power-driven fasteners.
2. Table 2304.9.1 "Fastening Schedule" in ICC's International Building Code.

3.2 WOOD GROUNDS NAILERS AND BLOCKING

A. Provide where shown for screeding or attachment of other work. Shape as shown and locate for true line and level of work to be attached.

B. Attach to support applied loading. Countersink exposed bolts and nuts flush with surfaces. Where possible anchor to concrete and masonry during their installation.

C. Provide permanent grounds of dressed preservative treated key-bevelled lumber not less than 1-1/2” inch wide and of thickness to match finish material. Remove temporary grounds when no longer required.

3.3 WOOD FURRING

A. Install plumb and level with closure strips at edges and openings. Shim with wood as required for tolerance of finished work.

B. Provide furring of sizes and spacing as shown on the Drawings.

3.4 INSTALLATION OF CONSTRUCTION PANELS

A. General: Comply with applicable recommendations in APA Form No. E30 "Engineered Wood Construction Guide" for types of structural-use panels and applications indicated.

B. Fastening Methods: Fasten panels as indicated below:

C. Plywood Construction Panels: Screw or nail to supports or substrate.

3.5 PROTECTION

A. Protect rough carpentry from weather. If despite protection rough carpentry becomes wet apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

END OF SECTION 061000

SECTION 062000- FINISH CARPENTRY

PART 1 - GENERAL

1.1 SUMMARY

A. Work Includes: The Work of this Section shall include but not be limited to the following:

1. Interior sub paneling and framing for counter/sink assemblies
2. Frames and casings as required.
3 Provide ADA under sink hot piping shield as indicated.
4 Removable Panels as required.
5. Metal base and trim

1.2 SUBMITTALS

A. Product Data: Submit product data for each type of product and process specified in this section and incorporated into items of architectural woodwork.

B. Material Certificates: Submit listing of species and grade selected for framing lumber and a signed copy of grading rules showing design values for selected lumber. Design values shall comply with specified requirements and American Lumber Standards Committee and FSC Certified wood certification.

C. Fire-Retardant Data: Submit fire-retardant treatment data for material impregnated by pressure process to reduce combustibility. Include certification by treating plant that treated materials comply with requirements.

D. Shop Drawings: Submit shop drawings showing location of each woodwork item specified within this section dimensioned plans and elevations large-scale details attachment devices and other components.

1. Include full scale drawings of all exposed-to-view edge conditions.
2. Submit coordination drawings indicating locations of concealed grounds plates and other required fabrications.
3 Include fully dimensioned typical and special unit plans and elevations include the following information:

a Tolerances.
b Profiles of members.
c Anchorage system.
d Connections and fasteners.
f Provisions for expansion and contraction.
g Finishes.
h. Interface with building construction. And other assemblies

E. Selection Samples: Submit samples for initial selection purposes of actual units or sections of units showing full range of colors textures and patterns available for each type of material indicated.

1. Metal Base
2 Laminate Panels.
3 Counter materials
2 Applied finish as scheduled.

F. Verification Samples: Submit samples for verification purposes of the following:

1. Laminate clad panel products 8-1/2” inches by 11” inches for each type color pattern and surface finish including edge conditions with separate samples of unfaced panel product used for core.
2. Hardware one unit of each type and finish.
3. Metal Base Trim: 3”x3” Base /Trim molding as specified.
4. Exposed Fasteners: Sets of three of each different exposed fastener proposed for the finish carpentry work.
5. Miscellaneous Fasteners: Provide full size samples of each type size and finish of fastening devices which will be incorporated into construction.
6. Provide assembled units as directed complete with fasteners.

G. Wood Treatment Data: Submit chemical treatment manufacturer's instructions for handling storing installation and finish of treated material.

1. Fire-Retardant Treatment: Include certification by treating plant that treated materials comply with requirements.

H. Quality Certification: Submit woodwork Manufacturer's (Fabricator's) certification stating that fabricated woodwork complies with quality grades and other requirements indicated

1.3 QUALITY ASSURANCE

A Testing Agency Qualifications: For testing agency providing classification marking for fire-retardant treated material an inspection agency acceptable to authorities having jurisdiction that periodically performs inspections to verify that the material bearing the classification marking is representative of the material tested.

B. Manufacturer Qualifications: Firm experienced in successfully producing architectural woodwork similar to that indicated for this Project with sufficient production capacity to produce required units without causing delay in the Work.

C. Single-Source Manufacturing and Installation Responsibility: Engage a qualified Manufacturer to assume undivided responsibility for woodwork specified in this section including fabrication finishing and installation

D. AWI Quality Standard: Comply with applicable requirements of "Architectural Woodwork Quality Standards" published by the Architectural Woodwork Institute (AWI) except as otherwise indicated
.

E. Fire-Test-Response Characteristics: Where fire-retardant materials or products are indicated provide materials and products with specified fire-test-response characteristics as determined by testing identical products per test method indicated by UL ITS or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify with appropriate markings of applicable testing and inspecting agency in the form of separable paper label or where required by authorities having jurisdiction imprint on surfaces of materials that will be concealed from view after installation.

1.4 DELIVERY STORAGE AND HANDLING

A. Protect woodwork during transit delivery storage and handling to prevent damage soilage and deterioration.

B. Do not deliver woodwork until staining wet work grinding and similar operations that could damage soil or deteriorate woodwork have been completed in installation areas. If woodwork must be stored in other than installation areas store only in areas whose environmental conditions meet requirements specified in "Project Conditions.

1.5 PROJECT CONDITIONS

A. Environmental Conditions: Woodwork Manufacturer and Installer shall advise Contractor of temperature and humidity requirements for woodwork installation and storage areas. Do not install woodwork until required temperature and humidity have been stabilized and will be maintained in installation and storage areas.

B. Field Measurements: Where woodwork is indicated to be fitted to other construction check actual dimensions of other construction by accurate field measurements before manufacturing woodwork; show recorded measurements on final shop drawings. Coordinate manufacturing schedule with construction progress to avoid delay of Work.

1.6 COORDINATION

A. Coordinate sizes and locations of framing blocking reinforcements and other related units of Work specified in other Sections to ensure that architectural woodwork can be supported and installed as indicated.

1. Verify all dimensions in the field prior to fabrication of all architectural woodwork to assure proper fit.

PART 2 – PRODUCTS

2.1 BASIC MATERIALS

A. General: Provide materials that comply with requirements of the AWI woodworking standard for each type of woodwork and quality grade indicated and where the following products are part of woodwork with requirements of the referenced product standards that apply to product characteristics indicated:

1. Hardboard: AHA A135.4
2. Hardwood Plywood: HPMA FE.

B. Plywood: Veneer faced board core minimum thickness as indicated exterior marine grade using exterior type waterproof glue. At locations where moisture is evident (bathrooms sinks etc.)

D. Plastic Laminate: NEMA Standard LD3 matte finish unless noted otherwise 0.05 in. thick for all exposed surfaces; backing grade and cabinet liner grade where appropriate. Plastic laminate by manufacturer and in colors and textures as selected by the Architect.

1. Colors and Patterns: Provide plastic laminate matching approved samples unless otherwise indicated.
2. Product: As scheduled

E. Metal Base and panels: Stainless Steel base and panels as scheduled.

F. Miscellaneous Products:

1. Fasteners: All fasteners to be concealed unless otherwise indicated where indicated to be exposed provide material driver type and head profile as approved by Architect.

a. Wood Screws: FS FF-S-111 type size material and finish as required for the condition of use.
b. Nails: FS FF-N-105 type size material and finish as required for the condition of use.
c. Anchors: Type size material and finish as required for the condition of use.

2. Adhesives:

a. For Laminating Plastic Laminate Surfaces: Melamine phenol-resin or resorcinol-resin complying with FS MMM-A-181; type grade and class best suited for the purpose.
b. For All Other Uses: Moisture resistant complying with FS MMM-A-125 Type II or MMM-A-188 Type I II or III; type best suited for the purpose.

F. Inspection Agencies: Inspection agencies and the abbreviations used to reference them with lumber grades and species include the following:

1. SPIB - Southern Pine Inspection Bureau.
2. WCLIB - West Coast Lumber Inspection Bureau.
3. WWPA - Western Wood Products Association.

G. Grade Stamps: Provide lumber with each piece factory-marked with grade stamp of inspection agency evidencing compliance with grading rule requirements and identifying grading agency grade species moisture content at time of surfacing and mill.

2.2 FABRICATION GENERAL

A. Wood Moisture Content: Comply with requirements of referenced quality standard for moisture content of lumber in relation to relative humidity conditions existing during time of fabrication and in installation areas.

B. Fabricate woodwork to dimensions profiles and details indicated.

C. Complete fabrication including assembly finishing and hardware application before shipment to project site to maximum extent possible. Disassemble components only as necessary for shipment and installation. Where necessary provide ample allowance for scribing trimming and fitting at site.

D. Provide factory-cut openings to maximum extent possible for receiving hardware appliances plumbing fixtures electrical work and similar items. Locate openings accurately smooth edges of cutouts and where located in countertops seal edges of cutouts with a water-resistant coating.

E. Factory seal all cut surfaces. Field cuts shall be sealed prior to installation.

2.10 COUNTERS AND CLADDING

A. Fabricate solid surface material countertops and shelves according to solid surface material manufacturer's written instructions and to the AWI/AWMAC/WI's "Architectural Woodwork Standards."

B. Plywood subframe and support assemblies: As approved

1. Grade: Premium.
2. Reference 064150 Countertops for additional requirements.

C. Additional Fabrication Requirements:

1. Trim: For trim in form of boards and worked products provide lumber complying with the following requirements
2. Fixed Frames/panels: Coordinate mounting of fixed panels with concealed framing and other required supports; Secure members to supports isolate installed work from structural building members prevent transferring of loads to finish surfaces or members not designed to support installed work. Construction shall be installed level plumb straight and even as indicated coordinate installation with related trades and adjacent work to ensure proper fit of units and cut outs are located properly.

2.11 LAMINATE PANEL ASSEMBLIES

A. Quality Standard: Comply with AWI Section 400 requirements for laminate cabinets.

B. Grade: Custom.

C. AWI Type of Cabinet Construction: As indicated.

1. Laminate Cladding for Exposed Surfaces: High-pressure decorative laminate complying with the following requirements:
2. General Applications: Provide high pressure decorative laminate, NEMA LD 3, grades as indicated, or if not indicated, as required by woodwork quality standard.
3. High Abuse Applications: Provide high pressure decorative, "color core" with minimum 0.051" thickness laminate complying with NEMA LD 3, for high abuse applications and as indicated.
4. Edge Treatment: Same as laminate cladding on horizontal surfaces, unless otherwise indicated.
5. Provide laminates as indicated.
6 Provide hardware for removeable applications as approved.

D. Colors, Patterns, and Finishes: Provide materials and products that result in colors and textures of exposed laminate surfaces complying with the following requirements:

1. Provide Architect's selections from laminate manufacturer's full range of colors and finishes, matching approved samples.

2.12 METAL BASE WITH FASTENERS AND ANCHORS

A STAINLESS STEEL

1 Sheet, Strip, Plate, and Flat Bar: ASTM A 666, Type 304 .
2 Bars and Shapes: ASTM A 276, Type 304 .
3 Custom Finish to match samples.

2.13 FASTENERS AND ANCHORS

A. Screws: Select material type size and finish required for each use. Comply with FS FF-S-111 for applicable requirements.

B. Nails: Select material type size and finish required for each use. Comply with FS FF-N-105 for applicable requirements.

C. Anchors: Select material type size and finish required by each substrate for secure anchorage. Provide nonferrous metal or hot-dip galvanized anchors and inserts as required for corrosion resistance. Provide toothed steel or lead expansion bolt devices for drilled-in-place anchors.

D. Adhesives: Where adhesives are required use epoxy resin type materials only. Comply with manufacturer's recommendations for each application.

1. For adhering panels to substrate indicated provide one of the following:

a. Gorilla Brand Premier Glue manufactured by the Gorilla Group.
b. Franklin Polyurethane no VOC glue.

PART 3 - EXECUTION

3.1 PREPARATION

A. Condition woodwork to average prevailing humidity conditions in installation areas prior to installing.

B. Before installing architectural woodwork examine shop-fabricated work for completion and complete work as required including back priming and removal of packing.

C. Provide all grounds and other required fabrications which are to be built into other work when required.

3.2 INSTALLATION GENERAL

A. Quality Standard: Install woodwork to comply with AWI Section 1700 for the same grade specified in Part 2 of this Section for type of woodwork involved.

B. Install the work plumb level true and straight with no distortions. Shim as required using concealed shims. Install to a tolerance of 1/8" inch in 8" feet-0 inch for plumb and level; with no offset in flush adjoining surface 1/16" inch maximum offsets in revealed adjoining surfaces.

C. Scribe and cut work to fit adjoining work and refinish cut surfaces or repair damaged finish at cuts.

D. Fire-Retardant-Treated Wood: Handle store and install fire- retardant-treated wood to comply with recommendations of chemical treatment manufacturer including those for adhesives where used to install woodwork.

E. Anchor woodwork to anchors or blocking built in or directly attached to substrates. Secure to grounds stripping and blocking with countersunk concealed fasteners and blind nailing as required for a complete installation. Except where prefinished matching fastener heads are required use fine finishing nails for exposed nailing countersunk and filled flush with woodwork and matching final finish where transparent finish is indicated.

F. Trim/Base: Install with minimum number of joints possible using full-length pieces (from maximum length of lumber available) to the greatest extent possible. Stagger joints in adjacent and related members. Cope at returns and miter at corners.

3.4 ADJUSTMENT CLEANING FINISHING AND PROTECTION

A. Complete the finishing work specified in this Section to extent not completed at shop or before installation of woodwork. Fill nail holes with matching filler where exposed. Apply specified finish coats including stains and paste fillers if any to exposed surfaces where only sealer/prime coats were applied in shop.

B. Repair damaged and defective woodwork to eliminate defects where not possible to repair properly replace woodwork. Adjust joinery for uniform appearance.

C. Clean hardware lubricate and make final adjustments for proper operation.

D. Clean woodwork on exposed and semi-exposed surfaces. Touch-up shop-applied finishes to restore damaged or soiled areas.

E. Protect woodwork during remainder of construction period to ensure that work will be without damage or deterioration at time of acceptance.

END OF SECTION 062000

SECTION 064150 - COUNTERTOPS

PART 1 - GENERAL

1.1 SUMMARY

A. The Work of this Section includes but not necessarily limited to the following:

1. Countertops and mounting hardware

1.2 SUBMITTALS

A. Product Data: For the following:

1. For each type of countertop. Include data on physical properties required by referenced ASTM standards.
2. Accessories and other manufactured products.

B. Shop Drawings: Include plans sections details and attachments to other work.

1. Indicate provisions for under counter mounted sinks hardware and accessory items.
2. Provide for ADA requirements.
3. Provide ADA under sink hot piping shield as indicated.

C. Qualification Data: For Installer.

D. Sealant Compatibility Test Report: From sealant manufacturer complying with requirements in Division 7 Section "Joint Sealants" and indicating that sealants will not stain or damage counter material.

E. Maintenance Data: For countertops to include in maintenance manuals. Include Product Data for products used or recommended by Installer and names addresses and telephone numbers of local sources for products.

1.3 QUALITY ASSURANCE

A. Fabricator Qualifications: Shop that employs skilled workers who custom fabricate countertops similar to that indicated for this Project and whose products have a record of successful in-service performance.

B. Installer Qualifications: Fabricator of products.

C. Source Limitations: Obtain each variety of material with resources to provide materials of consistent quality in appearance and physical properties.

1.4 DELIVERY STORAGE AND HANDLING

A. Store counter material on wood A-frames or pallets with non-staining separators and non-staining waterproof covers. Ventilate under covers to prevent condensation.

1.5 PROJECT CONDITIONS

A. Field Measurements: Verify dimensions of construction to receive material countertops by field measurements before fabrication and indicate measurements on Shop Drawings.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements manufacturers offering products which may be incorporated in the work include but are not limited to the following:

1. Caesarstone (Basis of Design)
2. As approved

B. As scheduled

1. Coordinate with Architectural Finish Specifications for all current products and modifications and for additional requirement

2.2 COUNTERTOPS

A. Selected Products and Manufacturers: Refer to Architectural Material and Finish Specifications" for all products and manufacturers.

2.3 ADHESIVES GROUT SEALANTS AND MATERIAL ACCESSORIES

A. General: Use only adhesives formulated and recommended by their manufacturer for the application indicated.

B. Water-Cleanable Epoxy Grout: ANSI A118.3 chemical-resistant water-cleanable setting and -grouting epoxy.

C. Adhesive: 2-part epoxy or polyester adhesive formulated specifically for material with an initial set time of not more than 2 hours at 70 deg F.

1. Color: Match adjacent material.
2. Available Products: Subject to compliance with requirements products that may be incorporated into the Work include but are not limited to the following:

a. Epoxy Adhesive: Akemi North America; Akepox.
b. Epoxy Adhesive: Axson North America Inc. Wood & Material Company; Akabond Epoxy.

D. Sealant for Countertops: Manufacturer's standard sealant of characteristics indicated below that comply with applicable requirements in Division 7- "Joint Sealants" and will not stain the material.

1. Single-component non staining neutral-curing silicone sealant.
2. Color: As selected by Architect from manufacturer's full range.

E. Cleaner: Cleaner specifically formulated for types finishes and applications indicated as recommended by producer and if a sealer is specified by sealer manufacturer. Do not use cleaning compounds containing acids caustics harsh fillers or abrasives.

F. Sealer: Colorless stain-resistant sealer that does not affect color or physical properties of material surfaces as recommended by material producer for application indicated.

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

    a. Bostik Findley Inc.
    b. Custom Building Products.
    c. Hillyard Inc.

2.4 FABRICATION GENERAL

A. Select material for intended use to prevent fabricated units from containing cracks seams and starts that could impair structural integrity or function.

1. Repairs that are characteristic of the varieties specified are acceptable provided they do not impair structural integrity or function and are not aesthetically unpleasing as judged by Architect.

B. Fabricate countertops in sizes and shapes required to comply with requirements indicated including details on Drawings and Shop Drawings.

1. Dress joints straight and at right angle to face unless otherwise indicated.
2. Cut and drill sinkages and holes in material for anchors supports and attachments.
3. Provide openings reveals and similar features as needed to accommodate adjacent work.
4. Fabricate molded edges with machines having abrasive shaping wheels made to reverse contour of edge profile to produce uniform shape throughout entire length of edge and with precisely formed arris slightly eased to prevent snipping and matched at joints between units. Form corners of molded edges as indicated with outside corners slightly eased unless otherwise indicated.
5. Finish exposed faces to comply with requirements indicated for finish to match approved Samples and mockups. Provide matching finish on exposed edges of countertops splashes and cutouts.

C. Carefully inspect finished units at fabrication plant for compliance with requirements for appearance material and fabrication. Replace defective units.

2.5 COUNTERTOPS

A. Nominal Thickness: Provide thickness indicated but not less than 7/8 inch. Gage backs to provide units of identical thickness.

B. Edge Detail: As indicated and approved.

C. Provide undermount hardware where indicated.

D. Splashes: Type as indicated.

1. Height: As indicated.
2. Top-Edge Detail: As indicated.

E. Joints: Fabricate countertops in sections for joining in field with joints at locations indicated and as follows:

1. Bonded Joints: 1/32” inch or less in width.
2. Grouted Joints: 1/16” inch in width.
3. Sealant-Filled Joints: 1/16” inch in width.

F. Cutouts and Holes:

1. Fittings: Drill countertops in shop for plumbing fittings dispensers and similar items.
2. Mounting hardware of each type required.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates indicated to receive countertops and conditions which countertops will be installed with Installer present for compliance with requirements for installation tolerances and other conditions affecting performance.

1. For the record prepare written report endorsed by Installer listing conditions detrimental to performance of countertops.
2. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Advise installers of other work about specific requirements for placement of inserts and similar items to be used by countertop Installer for anchoring countertops. Furnish installers of other work with Drawings or templates showing locations of these items.

B. Clean dirty or stained material surfaces by removing soil stains and foreign materials before setting. Clean units by thoroughly scrubbing and then drenching with clear water. Use only mild cleaning compounds that contain no caustic or harsh materials or abrasives. Allow to dry before installing.

3.3 CONSTRUCTION TOLERANCES

A. Variation from Plumb: For vertical lines and surfaces do not exceed 1/16” inch in 48” inches .

B. Variation from Level: Do not exceed 1/8” inch in 96” inches ¼” inch maximum.

C. Variation in Joint Width: Do not vary joint thickness more than 1/4 of nominal joint width.

D. Variation in Plane at Joints (Lipping): Do not exceed 1/64”-inch difference between planes of adjacent units.

E. Variation in Line of Edge at Joints (Lipping): Do not exceed 1/64”-inch difference between edges of adjacent units where edge line continues across joint.

3.4 INSTALLATION OF COUNTERTOPS

A. General: Install countertops over plywood sub-tops if indicated with full spread of water-cleanable epoxy adhesive.

B. General: Install countertops by adhering to supports with water-cleanable epoxy adhesive.

C. Do not cut material in field unless otherwise indicated. If countertops or splashes require additional fabrication not specified to be performed at Project site return to fabrication shop for adjustment.

D. Use power saws with diamond blades to cut counters. Cut lines straight true and at right angles to finished surfaces unless beveling is required for clearance. Ease edges slightly to prevent snipping.

E. Set counters to comply with requirements indicated on Drawings and Shop Drawings. Shim and adjust to locations indicated with uniform joints of widths indicated and with edges and faces aligned according to established relationships and indicated tolerances. Install anchors and other attachments indicated or necessary to secure material countertops in place.

F. Bond joints with adhesive and draw tight as countertops are set. Mask areas of countertops adjacent to joints to prevent adhesive smears.

G. Space joints with 1/16”-inch gap for filling with grout. Use temporary shims to ensure uniform spacing.

1. Clamp units to temporary bracing supports or each other to ensure that countertops are properly aligned and joints are of specified width.

H. Complete cutouts not finished in shop. Mask areas of countertops adjacent to cutouts to prevent damage while cutting. Use power saws with diamond blades to cut material. Make cutouts to accurately fit items to be installed and at right angles to finished surfaces unless beveling is required for clearance. Ease edges slightly to prevent snipping.

I. Install backsplash and end splash by adhering to countertops with material adhesive. Mask areas of countertops and splashes adjacent to joints to prevent adhesive smears. Leave 1/16”-inch gap between splash and wall for filling with sealant. Use temporary shims to ensure uniform spacing.

J. Grout joints to comply with ANSI A108.10. Remove temporary shims before grouting. Tool grout uniformly and smoothly with plastic tool.

K. Apply sealant to joints and gaps specified for filling with sealant; comply with Division 7 Section "Joint Sealants." Remove temporary shims before applying sealant.

3.5 ADJUSTING AND CLEANING

A. In-Progress Cleaning: Clean countertops as work progresses. Remove adhesive grout mortar and sealant smears immediately.

B. Remove and replace countertops of the following description:

1. Broken chipped stained or otherwise damaged counters. Material may be repaired if methods and results are approved.
2. Defective countertops.
3. Defective joints including misaligned joints.
4. Interior countertops and joints not matching approved Samples and mockups.
5. Interior countertops not complying with other requirements indicated.

C. Replace in a manner that results in countertops matching approved Samples and mockups complying with other requirements and showing no evidence of replacement.

D. Clean countertops not less than six days after completion of sealant installation using clean water and soft rags. Do not use wire brushes acid-type cleaning agents cleaning compounds with caustic or harsh fillers or other materials or methods that could damage material.

E. Sealer Application: Apply sealer to comply with producer's and sealer manufacturer's written instructions.

END OF SECTION 064150

SECTION 072550 - FIREPROOFING

PART 1 - GENERAL

1.1 SUMMARY

A. The Work of this Section includes but not necessarily limited to the following:

1. New work repairs and patching of existing fireproofing where damaged by new construction work and as required for new work.
2. Accessories and related items as required for complete installation and required fire resistance performance.

1.2 SUBMITTALS

A. Product Data: Submit manufacturer's product data for fireproofing product indicated.

1. Submit manufacturer's product specifications and installation instructions for material required.

B. Shop Drawings: Submit structural framing plans and other views to show the extent of various types thicknesses fire- resistance ratings locations damaged by new construction Work and any surface preparation of fireproofing systems to be installed

C. Certificates: Submit the following certificates:

1. Fireproofing manufacturers' certification that their proposed products comply with specification requirements are suitable for the use indicated and will comply with building code requirements in effect for the Project.
2. Certified approvals of the material and approved tested assemblies of testing agencies.

D. Compatibility and Adhesion Test Reports: From sprayed fire-resistive material manufacturer indicating the following:

1. Materials have been tested for bond with substrates.
2. Materials have been verified by sprayed fire-resistive material manufacturer to be compatible with substrate primers and coatings.
3. Interpretation of test results and written recommendations for primers and substrate preparation needed for adhesion.

1.3 QUALITY ASSURANCE

A. Single Source Responsibility: Obtain fireproofing materials from a single manufacturer for each different product.

B. Applicator/Installer Qualifications: Fireproofing shall be applied by a Contractor approved by the fireproofing manufacturer and having the proper equipment in accordance with manufacturer's recommendations.

C. Fire Performance Characteristics: Provide materials and construction which are identical to those tested for the following fire performance characteristics according to test method indicated by UL or other testing and inspecting agency acceptable to authorities having jurisdiction.

1. Fire Resistance Ratings: As indicated by reference to design designation in UL "Fire Resistance Directory" for fire-rated assemblies in which fireproofing serves as direct-applied protection tested per ASTM E 119.
2. Surface Burning Characteristics: As indicated for each fireproofing product required tested per ASTM E 84 and listed in UL "Building Materials Directory"
3. Fire Resistance Rating: Minimum fire resistance rating shall be 2 hours unless indicated on the drawings otherwise.

D. Testing Agency Qualifications: To qualify for acceptance an independent testing agency hired by the Owner to test sprayed-on fireproofing products must demonstrate to Owners satisfaction based on evaluation of agency-submitted criteria conforming to ASTM E 699 that it has the experience and capability to conduct satisfactorily the testing indicated.

1. Field Inspections: An independent testing laboratory will be employed by the Owner to test random samples as applied to verify thickness fireproofing in accordance with SSPC-PA2 Steel Structures Painting CouncilPaint Application Specification No. 2 - Measurement of Dry Paint Thickness with Magnetic Gages@ and to test cementitious fireproofing. Inspection shall be executed prior to application of the decorative top coat.

E. Compatibility and Adhesion Testing: Engage a qualified testing and inspecting agency to test for compliance with requirements for specified performance and test methods.

1. Test for bond per ASTM E 736 and requirements in UL's "Fire Resistance Directory" for coating materials. Provide bond strength indicated in referenced fire-resistance design but not less than minimum specified within this Section.
2. Verify that manufacturer through its own laboratory testing or field experience has not found primers or coatings to be incompatible with sprayed fire-resistive material.

1.4 DELIVERY STORAGE AND HANDLING

A. Deliver products to project site in original unopened packages. Include labels with names of products and manufacturers date of manufacture shelf life and UL labels for fire-resistance ratings.

1. Do not use materials whose shelf life has expired.

B. Store materials inside under cover and in a manner to keep them dry until ready to use. Remove from project site and discard any materials that have been exposed to moisture or have otherwise deteriorated.

1.5 PROJECT CONDITIONS

A. Ventilate fireproofing by means of natural or where this is inadequate of forced air circulation during and after application until it dries thoroughly. Follow the manufacturers instructions.

1.6 SEQUENCING

A. Sequence and coordinate application of fireproofing to avoid unnecessary exposure of fireproofing to abrasion and other damage likely to occur during construction operations.

1. Ensure that fireproofing is installed prior to installation of enclosing or concealing Work with sufficient time allowed for inspection testing and correction of defective fireproofing.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements provide fireproofing products as manufactured by one of the following or equal acceptable to the Architect:

1. Carboline Co.; Fireproofing Products Division.
2. Isolatek International; Cafco Products.
3. W.R. Grace & Co.
4. Match existing as approved.

2.2 SPRAYED-ON FIREPROOFING PATCHING MATERIALS

A. General: For concealed and exposed areas of sprayed-on fireproofing to be patched and/or repaired; provide manufacturer's standard products complying with requirements indicated for material composition and for minimum physical properties representative each product listed measured by standard test methods referenced with each property.

B. Sprayed-on Fireproofing Material Composition: Factory-mixed cementitious dry formulation of inorganic binders and lightweight mineral aggregates mixed with water at project site to form a slurry for pumping and for dispersal by compressed air introduced at spray nozzle. Products containing mineral wool fibers will not be considered for use on this project.

C. Physical Properties: Provide sprayed-on fireproof patching materials with the following performance characteristics unless otherwise indicated:

1. Dry Density: 15 lb/cu. ft. for average and individual densities regardless of density indicated in referenced fire-resistance design or greater if required to attain fire-resistance ratings indicated per ASTM E 605 or AWCI Technical Manual 12-A Section 5.4.5 "Displacement Method."
2. Bond Strength: 200 lbf/sq. ft. per ASTM E 736.
3. Compressive Strength: 8.25 lbf/sq. in. or 1200 psf; per ASTM E 761.
4. Corrosion Resistance: No evidence of corrosion per ASTM E 937.
5. Deflection: No cracking spalling delamination or the like per ASTM E 759.
6. Effect of Impact on Bonding: No cracking spalling delamination or the like per ASTM E 760.
7. Air Erosion: Maximum weight loss of 0.005 g/sq. ft. in 24 hours per ASTM E 859. For laboratory tests minimum thickness of sprayed fire-resistive material is 0.75” inch maximum dry density is 15 lb/cu. ft. test specimens are not pre-purged by mechanically induced air velocities and tests are terminated after 24 hours.
8. Resistance to Mold: Tested per ASTM G21 and show resistance to mold growth for a period of 60 days.
9. Provide coatings and sealers as per manufacturer.

D. Color: Material as supplied to the jobsite shall have been formulated by the manufacturer at the factory with a signal colorant. Fireproofing shall dry to a blue color which can be identified through the product matrix to identify specific areas of patched fireproofing.

E. Selected Products: Provide Retro-Guard as manufactured by W.R. Grace & Co. or one of the following as acceptable to the Architect:

1. Cafco 300 SB@ as manufactured by Isolatek International Cafco Products.
2. Pyrolite 15 Blue@ as manufactured by Carboline Co. Fireproofing Products Division.
3. Match existing or as approved.

2.3 AUXILIARY FIREPROOFING MATERIALS

A. General: Provide auxiliary fire-resistive materials that are compatible with sprayed fire-resistive materials and substrates and are approved by UL or another testing and inspecting agency acceptable to authorities having jurisdiction for use in fire-resistance designs indicated.

B. Substrate Primers: For use on each substrate and with each sprayed fire-resistive product provide primer that complies with one or more of the following requirements:

1. Primer's bond strength complies with requirements specified in UL's Fire Resistance Directory for coating materials based on a series of bond tests per ASTM E 736.
2. Primer is identical to those used in assemblies tested for fire-test-response characteristics of sprayed fire-resistive material per ASTM E 119 by UL or another testing and inspecting agency acceptable to authorities having jurisdiction.
3. Sealers: Coat with sealer to prevent airborne matter.

C. Adhesive for Bonding Fireproofing: Type recommended by fireproofing manufacturer to achieve the specified bond and deflection requirements.

D. Metal Lath: Provide 3.4 lb. per sq. yd. expanded galvanized diamond steel lath with reinforcing and anchorage devices where required for substrate and complying with applicable fire-endurance tests. Provide corner beads and other lathing accessories of standard design and weight.

E. Accessories: As required to meet the requirements of U.L. designs having the required fire resistance ratings; and as recommended by the system manufacturer.

F. Temporary Protections: Provide pressure sensitive tapes tarps sheeting and other such devices required to ensure that adjacent materials and finishes not scheduled to receive sprayed-on fireproofing patching/repairs materials are free from overspray contamination and fall-out resulting from application of specified materials/ systems.

PART 3 - EXECUTION

3.1 INSPECTION

A. Require Installer to examine substrates to determine if they are in satisfactory condition to receive fireproofing.

B. Rating Requirements:

1. Provide thicknesses as required for compliance with indicated fire-endurance ratings. Extend fireproofing full thickness over entire area of each substrate to be protected. Except as otherwise recommended by manufacturer install body of fireproof covering material in a single course and as follows.
2. Unless otherwise indicated apply sprayed fire-resistive materials in thicknesses and densities required to achieve the fire resistance ratings matching those of the existing adjacent fireproofing as required by Code.

3.2 PREPARATION

A. Provide ventilation in areas to receive fire resistive coating.

B. Clean substrates of oil grease rolling compounds incompatible primers and loose mill scale which could impair bond of fireproofing.

C. Prime substrates where recommended by fireproofing manufacturer.

D. Cover other Work and existing improvements which might be damaged by fall-out or spatter of fireproofing materials during patching/repair application. Provide temporary enclosure as required to confine fireproofing operations protect the environment and to ensure adequate ambient conditions for temperature and ventilation.

3.3 INSTALLATION GENERAL

A. Comply with fire-resistive material manufacturer's written instructions for mixing materials application procedures and types of equipment used to mix convey and spray on fire-resistive material as applicable to particular condition of installation and as required to achieve fire-resistance ratings indicated.

B. Apply sprayed fire-resistive material that meets requirements indicated within this Section and substantiated by test reports with respect to rate of application accelerator use sealers topcoats tamping troweling water overspray or other materials and procedures affecting test results.

C. Install metal lath as required to comply with fire-resistance ratings and fire-resistive material manufacturer's written recommendations for conditions of exposure and intended use. Securely attach lath to substrate in position required for support and reinforcement of fire-resistive material. Use anchorage devices of type recommended in writing by sprayed fire-resistive material manufacturer. Attach lathing accessories where indicated or required for secure attachment to substrate.

D. Coat substrates with adhesive before applying fire-resistive material where required to achieve fire-resistance rating or as recommended in writing by sprayed fire-resistive material manufacturer for material and application indicated.

E. Extend fire-resistive material in full thickness over entire area of each substrate to be protected. Unless otherwise recommended in writing by sprayed fire-resistive material manufacturer install body of fire-resistive covering in a single course.

F. Spray apply fire-resistive materials to maximum extent possible. Following the spraying operation in each area complete the coverage by trowel application or other placement method recommended in writing by sprayed fire-resistive material manufacturer.

G. Maintain ambient conditions during installation and for cure period following installation as recommended by manufacturer. Provide ventilation and avoid excessive rate of drying. Protect from exposure to sun.

3.4 INSTALLING CONCEALED SPRAYED FIRE-RESISTIVE MATERIALS

A. Apply concealed fire-resistive material in thicknesses and densities matching the existing but not less than those required to achieve fire-resistance ratings designated for each condition and comply with requirements for thickness specified or stated.

B. Apply concealed sprayed-on fire-resistive material in thicknesses required to obtain designated fire-resistance rating in accordance with the NYC Code.

3.5 FIELD QUALITY CONTROL

A. Repair or replace fireproofing within areas where test results indicate fireproofing does not comply with code or performance requirements. Repair and retest until passing. Repair damage due to testing.

B. Testing: The Owner will engage a Testing Laboratory or Inspection Agency upon approval by the Architect to inspect and perform the required tests.

1. The testing laboratory will verify thickness and dry density of in-place material in accordance with ASTM E 605 and verify bond strength in accordance with ASTM E 736.

a. Test Results: Results of above tests will be made available to all parties at the completion of each floor.
b. When test results indicate fireproofing does not comply with the Contract requirements additional random testing will be done within the testing area to determine the extent of noncompliance. This additional testing as well as remedial Work necessary to comply with specified requirements shall be paid for by the Contractor.

3.6 PATCHING AND REPAIRS

A. Inspect after mechanical electrical and other trades have completed Work in contact with fireproofing material but before sprayed material is covered by subsequent construction.

B. Perform corrective measures in accordance with fireproofing material Manufacturer's recommendations.

1. Re-spray areas requiring additional fireproofing material to provide the required thickness and replace dislodged or removed material.
2. Spray material for patching by machine directly on point to be patched or into a container and then hand apply. Hand mixing of material is not permitted.

C. Repair:

1. Re-spray all test and rejected areas.
2. Patch fireproofing material which is removed or disturbed after approval.

D. Perform final inspection of sprayed areas after patching and repair.

3.7 CLEANING AND PROTECTION

A. Immediately upon completion of troweled-on operations in each containable area of project remove spatter and fall-out of materials from surfaces of other Work and clean exposed surfaces to remove evidence of soiling.

B. Cure exposed fireproofing materials in compliance with fireproofing manufacturer’s recommendations.

C. Protect fireproofing in accordance with the manufacturer's recommendations from damage resulting from construction operations so that fireproofing will be without damage or deterioration at time of substantial completion.

D. Coordinate installation of fireproofing patching/repairs with other Work in order to minimize the need for other trades to cut or remove fireproofing. As other trades successively complete installation of their Work maintain protection of structure afforded by fireproofing by patching any areas which have been removed or damaged prior to concealment of fireproofing by other Work.

END OF SECTION 072550

SECTION 078413 - PENETRATION FIRESTOPPING

PART 1 - GENERAL

1.1 SUMMARY

A. The Work of this Section includes but not necessarily limited to the following:

1. Through-penetration fire-stopping systems for penetrations through fire-resistance-rated constructions including both empty openings and openings containing penetrating items
2. Penetrations through fire-resistance-rated construction including both empty openings and openings containing cables pipes ducts conduits and other penetrating items.
3. Penetrations through smoke barriers and construction enclosing compartmentalized areas involving both empty openings and openings containing penetrating items.
4. Sealant joints in fire-resistance-rated construction.
5. Furnishing of dams clips and closures for support and containment of fire-safing materials and installation of dams clips and closures where possible to install after completion of floors walls or other construction.

1.2 PERFORMANCE REQUIREMENTS

A. General: For penetrations through the following fire-resistance-rated constructions including both empty openings and openings containing penetrating items provide through-penetration fire-stopping systems that are produced and installed to resist spread of fire according to requirements indicated resist passage of smoke and other gases and maintain original fire-resistance rating of construction penetrated.

1. Fire-resistance-rated walls including fire wall fire partitions fire barriers and smoke barriers.
2. Fire-resistance-rated horizontal assemblies including floors floor/ceiling assemblies and ceiling membranes of roof/ceiling assemblies.

B. Rated Systems: Provide through-penetration fire-stopping systems with the following ratings determined per ASTM E 814 or UL 1479:

1. F-Rated Systems: Provide through-penetration fire-stopping systems with F-ratings indicated but not less than that equaling or exceeding fire-resistance rating of constructions penetrated.
2. T-Rated Systems: For the following conditions provide through-penetration fire-stopping systems with T-ratings indicated as well as F-ratings where systems protect penetrating items exposed to potential contact with adjacent materials in occupied floor areas:

a. Penetrations located outside wall cavities.
b. Penetrations located outside fire-resistance-rated shaft enclosures.

3. L-Rated Systems: Where through-penetration fire-stopping systems are indicated in smoke barriers provide through-penetration fire-stopping systems with L-ratings indicated at both ambient temperatures and 400 deg F

C. For through-penetration fires-topping systems exposed to view traffic moisture and physical damage provide products that after curing do not deteriorate when exposed to these conditions both during and after construction.

1. For piping penetrations for plumbing and wet-pipe sprinkler systems provide moisture-resistant through-penetration fire-stopping systems.

2. For floor penetrations with annular spaces exceeding 4 inches in width and exposed to possible loading and traffic. Provide fire-stopping systems capable of supporting floor loads involved either by installing floor plates or by other means.
3. For penetrations involving insulated piping provide through-penetration fire-stopping systems not requiring removal of insulation.

D. For through-penetration fire-stopping systems exposed to view provide products with flame-spread and smoke-developed indexes of less than 25 and 450 respectively as determined per ASTM E 84.

1.3 SUBMITTALS

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

B. Shop Drawings: For each through-penetration fire-stopping system show each type of construction condition penetrated relationships to adjoining construction and type of penetrating item. Include fire-stopping design designation of qualified testing and inspecting agency that evidences compliance with requirements for each condition indicated.

1. Submit documentation including illustrations from a qualified testing and inspecting agency that is applicable to each through-penetration fire-stopping system configuration for construction and penetrating items.
2. Where Project conditions require modification to a qualified testing and inspecting agency's illustration for a particular through-penetration fire-stopping condition submit illustration with modifications marked approved by through-penetration fire-stopping system manufacturer's fire-protection engineer as an engineering judgment or equivalent fire-resistance-rated assembly.

C. Through-Penetration Fire-stopping System Schedule: Indicate locations of each through-penetration fire-stopping system along with the following information:

1. Types of penetrating items.
2. Types of constructions penetrated including fire-resistance ratings and where applicable thicknesses of construction penetrated.
3. Through-penetration fire-stopping systems for each location identified by fire-stopping design designation of qualified testing UL assembly and inspecting agency.

D. Qualification Data: For Installer.

E. Product Certificates: For through-penetration fire-stopping system products signed by product manufacturer.

F. Product Test Reports: From a qualified testing agency indicating through-penetration fire-stopping system complies with requirements based on comprehensive testing of current products.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: A firm that has been approved by FMG according to FMG 4991 "Approval of Fire-stopping Contractors."

B. Installer Qualifications: A firm experienced in installing through-penetration fire-stopping systems similar in material design and extent to that indicated for this Project whose work has resulted in construction with a record of successful performance.

C. Installation Responsibility: Assign installation of through-penetration fire-stopping systems and fire-resistive joint systems in Project to a single qualified installer.

D. Source Limitations: Obtain through-penetration fire-stopping systems for each kind of penetration and construction condition indicated through one source from a single manufacturer.

E. Fire-Test-Response Characteristics: Provide through-penetration fire-stopping systems that comply with the following requirements and those specified in Part 1 "Performance Requirements" Article:

1. Fire-stopping tests are performed by a qualified testing and inspecting agency. A qualified testing and inspecting agency is UL or another agency performing testing and follow-up inspection services for fire-stopping systems acceptable to authorities having jurisdiction.
2. Through-penetration fire-stopping systems are identical to those tested per testing standard referenced in "Part 1 Performance Requirements" Article. Provide rated systems complying with the following requirements:

    a. Through-penetration fire-stopping system products bear classification marking of qualified testing and inspecting agency.
    b. Through-penetration fire-stopping systems correspond to those indicated by reference to through-penetration fire-stopping system designations listed by the following:

        1) UL in its "Fire Resistance Directory."
        2) OPL in its "Directory of Listed Building Products Materials & Assemblies."
        3) ITS in its "Directory of Listed Products."
        4) code requirements

F. Pre-installation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section - "Project Coordination."

1.5 DELIVERY STORAGE AND HANDLING

A. Deliver through-penetration fire-stopping system products to Project site in original unopened containers or packages with intact and legible manufacturers' labels identifying product and manufacturer date of manufacture lot number shelf life if applicable qualified testing and inspecting agency's classification marking applicable to Project curing time and mixing instructions for multicomponent materials.

1.6 PROJECT CONDITIONS

A. Environmental Limitations: Do not install through-penetration fire-stopping systems when ambient or substrate temperatures are outside limits permitted by through-penetration fire-stopping system manufacturers or when substrates are wet due to rain frost condensation or other causes.

B. Ventilate through-penetration fire-stopping systems per manufacturer's written instructions by natural means or where this is inadequate forced-air circulation.

1.7 COORDINATION

A. Coordinate construction of openings and penetrating items to ensure that through-penetration fire-stopping systems are installed according to specified requirements.

B. Coordinate sizing of sleeves openings core-drilled holes or cut openings to accommodate through-penetration fire-stopping systems.

C. Notify Owner's inspecting agency at least seven days in advance of through-penetration fire-stopping system installations; confirm dates and times on days preceding each series of installations.

D. Do not cover up through-penetration fire-stopping system installations that will become concealed behind other construction until each installation has been examined by Owner's inspecting agency and building inspector if required by authorities having jurisdiction.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Products: Subject to compliance with requirements provide through-penetration fire-stopping systems approved for each application that are produced by one of the following manufacturers:

1. Grace W. R. & Co.
2. Hilti Inc.
3. Johns Manville.
4. 3M; Fire Protection Products Division.
5. Tremco; Sealant/Weatherproofing Division.
6. USG Corporation.

2.2 FIRE-STOPPINGPING GENERAL

A. Compatibility: Provide through-penetration fire-stopping systems that are compatible with one another; with the substrates forming openings; and with the items if any penetrating through-penetration fire-stopping systems under conditions of service and application as demonstrated by through-penetration fire-stopping system manufacturer based on testing and field experience.

B. Accessories: Provide components for each through-penetration fire-stopping system that are needed to install fill materials and to comply with Part 1 "Performance Requirements" Article. Use only components specified by through-penetration fire-stopping system manufacturer and approved by qualified testing and inspecting agency for fire-stopping systems indicated. Accessories include but are not limited to the following items:

1. Permanent forming/damming/backing materials including the following:

    a. Slag-/rock-wool-fiber insulation.
    b. Sealants used in combination with other forming/damming/backing materials to prevent leakage of fill materials in liquid state.
    c. Fire-rated form board.
    d. Fillers for sealants.

2. Collars.
3. Impailing clips.
4. Support angles and thread rods.

2.3 FILL MATERIALS

A. General: Provide through-penetration fire-stopping systems containing the types of fill materials indicated in the Through-Penetration Fire-stopping System Schedule at the end of Part 3 by

referencing the types of materials described in this Article. Fill materials are those referred to in directories of referenced testing and inspecting agencies as "fill" "void" or "cavity" materials.

B. Cast-in-Place Fire-stopping Devices: Factory-assembled devices for use in cast-in-place concrete floors and consisting of an outer metallic sleeve lined with an intumescent strip a radial extended flange attached to one end of the sleeve for fastening to concrete formwork and a neoprene gasket.

C. Latex Sealants: Single-component latex formulations that after cure do not re-emulsify during exposure to moisture.

D. Fire-stopping Devices: Factory-assembled collars formed from galvanized steel and lined with intumescent material sized to fit specific diameter of penetrant.

E. Intumescent Composite Sheets: Rigid panels consisting of aluminum-foil-faced elastomeric sheet bonded to galvanized steel sheet.

F. Intumescent Putties: Non-hardening dielectric water-resistant putties containing no solvents inorganic fibers or silicone compounds.

G. Intumescent Wrap Strips: Single-component intumescent elastomeric sheets with aluminum foil on one side.

H. Mortars: Prepackaged dry mixes consisting of a blend of inorganic binders hydraulic cement fillers and lightweight aggregate formulated for mixing with water at Project site to form a non-shrinking homogeneous mortar.

I. Pillows/Bags: Reusable heat-expanding pillows/bags consisting of glass-fiber cloth cases filled with a combination of mineral-fiber water-insoluble expansion agents and fire-retardant additives.

J. Silicone Foams: Multi-component silicone-based liquid elastomers that when mixed expand and cure in place to produce a flexible non-shrinking foam.

K. Silicone Sealants: Single-component silicone-based neutral-curing elastomeric sealants of grade indicated below:

1. Grade: Pourable (self-leveling) formulation for openings in floors and other horizontal surfaces and non-sag formulation for openings in vertical and other surfaces requiring a non-slumping gunnable sealant unless indicated fire-stopping system limits use to non-sag grade for both opening conditions.
2. Grade for Horizontal Surfaces: Pourable (self-leveling) formulation for openings in floors and other horizontal surfaces.
3. Grade for Vertical Surfaces: Non-sag formulation for openings in vertical and other surfaces.

L. For those products requiring mixing before application comply with through-penetration fire-stopping system manufacturer's written instructions for accurate proportioning of materials water (if required) type of mixing equipment selection of mixer speeds mixing containers mixing time and other items or procedures needed to produce products of uniform quality with optimum performance characteristics for application indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions with Installer present for compliance with requirements for opening configurations penetrating items substrates and other conditions affecting performance of work.

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

3.2 PREPARATION

A. Surface Cleaning: Clean out openings immediately before installing through-penetration fire-stopping systems to comply with fire-stopping system manufacturer's written instructions and with the following requirements:

1. Remove from surfaces of opening substrates and from penetrating items foreign materials that could interfere with adhesion of through-penetration fire-stopping systems.
2. Clean opening substrates and penetrating items to produce clean sound surfaces capable of developing optimum bond with through-penetration fire-stopping systems. Remove loose particles remaining from cleaning operation.
3. Remove laitance and form-release agents from concrete.

B. Priming: Prime substrates where recommended in writing by through-penetration fire-stopping system manufacturer using that manufacturer's recommended products and methods. Confine primers to areas of bond; do not allow spillage and migration onto exposed surfaces.

C. Masking Tape: Use masking tape to prevent through-penetration fire-stopping systems from contacting adjoining surfaces that will remain exposed on completion of Work and that would otherwise be permanently stained or damaged by such contact or by cleaning methods used to remove smears from fire-stopping system materials. Remove tape as soon as possible without disturbing fire-stopping system's seal with substrates.

3.3 THROUGH-PENETRATION FIRESTOPPING SYSTEM INSTALLATION

A. General: Install through-penetration fire-stopping systems to comply with Part 1 "Performance Requirements" Article and with fire-stopping system manufacturer's written installation instructions and published drawings for products and applications indicated.

B. Install forming/damming/backing materials and other accessories of types required to support fill materials during their application and in the position needed to produce cross-sectional shapes and depths required to achieve fire ratings indicated.

1. After installing fill materials and allowing them to fully cure remove combustible forming materials and other accessories not indicated as permanent components of fire-stopping systems.

C. Install fill materials for fire-stopping systems by proven techniques to produce the following results:

1. Fill voids and cavities formed by openings forming materials accessories and penetrating items as required to achieve fire-resistance ratings indicated.
2. Apply materials so they contact and adhere to substrates formed by openings and penetrating items.
3. For fill materials that will remain exposed after completing Work finish to produce smooth uniform surfaces that are flush with adjoining finishes.

3.4 IDENTIFICATION

A. Identify fire-stopping with preprinted metal or plastic labels. Attach labels permanently to surfaces adjacent to and within 6 inches of fire-stopping edge so labels will be visible to anyone seeking to remove penetrating items or fire-stopping. Use mechanical fasteners or self-adhering-type labels with adhesives capable of permanently bonding labels to surfaces on which labels are placed. Include the following information on labels:

B. The words "Warning – Fire-stopping - Do Not Disturb. Notify Building Management of Any Damage."

1. Contractor's name address and phone number.
2. Designation of applicable testing and inspecting agency.
3. Date of installation.
4. Manufacturer's name.
5. Installer's name.

3.5 FIELD QUALITY CONTROL

A. Inspecting Agency: Owner will engage a qualified independent inspecting agency to inspect through-penetration fire-stoppings. Independent inspecting agency shall comply with ASTM E 2174 requirements including those related to qualifications conducting controlled inspections and preparing test reports.

1. Fire-stopping is subject to special inspection in accordance with the Building Code.

B. Where deficiencies are found repair or replace through-penetration fire-stopping systems so they comply with requirements.

C. Proceed with enclosing through-penetration fire-stopping systems with other construction only after inspection reports are issued and fire-stopping installations comply with requirements.

3.6 CLEANING AND PROTECTING

A. Clean off excess fill materials adjacent to openings as Work progresses by methods and with cleaning materials that are approved in writing by through-penetration fire-stopping system manufacturers and that do not damage materials in which openings occur.

B. Provide final protection and maintain conditions during and after installation that ensure that through-penetration fire-stopping systems are without damage or deterioration at time of Substantial Completion. If despite such protection damage or deterioration occurs cut out and remove damaged or deteriorated through-penetration fire-stopping systems immediately and install new materials to produce systems complying with specified requirements.

END OF SECTION 078413

SECTION 079210 – JOINT SEALANTS

PART 1 - GENERAL

1.1 SUMMARY

A. Work Included: The Work of this Section shall include but not be limited to the following:

1. Joints in vertical surfaces.
2. Joints in horizontal surfaces.
3. Primers bond breakers backer rods and other accessory materials for interior joints.

1.2 DEFINITIONS

A. Joint: The reference to the term “joint” as indicated on the Contract Documents shall be defined as the space between similar and dissimilar building components systems and similar construction elements; joints shall include but not be limited to the connection points of materials to form and unite surfaces. Joints may be structural acoustical or required to meet other performances specified.

1. The term joint shall include surface preparation priming/conditioning accessory materials sealants and tooling of the specified materials resulting in a completed system.

1.3 SYSTEM PERFORMANCE REQUIREMENTS

A. Provide joint sealers that have been produced and installed to establish and maintain watertight or airtight continuous seals.

B. Sealants shall not experience adhesive or cohesive failure. Sealants shall withstand movements up to the limits prescribed by the manufacturer. Exposed sealant surface shall not crack or bubble or craze. Sealants and primers shall not stain adjacent materials. Sealants shall not be adhered to or placed against the edge of a laminated glass unit interlayer.

1.4 SUBMITTALS

A. Material Safety Data Sheets (MSDS) for all applicable products. Applicable products include but are not limited to adhesives sealant carpets paints and coatings applied on the interior of the building. MSDS shall indicate the Volatile Organic Compound (VOC) limits of products submitted (If an MSDS does not include a product’s VOC content then product data sheets manufacturer literature or a letter of certification from the manufacturer can be submitted in addition to the MSDS to indicate the VOC content).

B. Product Data: Submit manufacturer's technical data for each product required including instructions for preparation and application.

C. Samples: Submit manufacturer's standard bead samples consisting of strips of actual products showing full range of colors available.

D. Product Test Reports: Based on comprehensive testing of product formulations performed by a qualified testing agency indicating that sealants comply with requirements.

E. Certificates: Submit certificates from manufacturers that their products comply with specifications and are suitable for the use indicated.

F. Warranties: Special warranties specified in this Section.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Engage an experienced Installer who has completed 2 joint sealant applications similar in scope material and design to this Project within the last 5 years.

B. Source for Materials: Obtain joint sealer materials from a single manufacturer for each different product.

C. Periodically test sealants in place for adhesion using methods recommended by sealant manufacturer. Promptly replace any sealant which does not adhere or fails to cure.

D. Sealant manufacturers shall review Shop Drawings to verify acceptability of sealant application with proper testing for adhesion and compatibility.

1.6 DELIVERY STORAGE AND HANDLING

A. Deliver materials in original unopened containers with labels indicating manufacturer expiration date and other pertinent data.

B. Store and handle materials to prevent their deterioration or damage due to moisture temperature changes contaminants or other causes.

1.7 PROJECT CONDITIONS

A. Environmental Conditions: Do not install joint sealers when air and surface temperatures are outside the limits permitted by joint sealer manufacturer or when joint substrates are wet or dirty.

B. Joint Widths: Do not proceed with installation of joint sealers when joint widths are less than allowed by joint sealer manufacturer.

1.8 WARRANTY

A. Submit a written warranty agreeing to repair or replace defective joint sealer materials or workmanship including staining loss of adhesion loss of cohesion cracking or discoloration for a period of 10 years from the date of Substantial Completion.

B. The warranty should include a provision that the period of such warranty shall commence with the Owners final acceptance of all work covered under the Contract or at such other date or dates as the Owner may specify in writing prior to that time.

C. The following types of failure will be adjudged as defective work:

1. Abnormal deterioration aging or weathering of the Work.
2. Sealant loss of adhesion loss of cohesion cracking or discoloration.
3. Staining of sealed substrates by sealant or primer

.

PART 2 - PRODUCTS

2.1 MATERIALS GENERAL

A. Compatibility: Provide joint sealer joint fillers and related materials that are compatible with one another and with joint substrates as demonstrated by testing and field experience.

B. Colors: Provide colors of joint sealers as approved by the Architect.

C. Stain-Test-Response Characteristics: Where elastomeric sealants are specified they are to be non-staining to porous substrates provide products that have undergone testing according to ASTM C 1248 and have not stained porous joint substrates indicated for Project.

2.2 ELASTOMERIC JOINT SEALANTS

A. Elastomeric Sealant Standard: Comply with ASTM C 920.

B. One-Part Non-Acid-Curing Silicone Sealant: Type S; Grade NS; Class 25; non-staining medium modulus and complying with the following requirements:

1. Uses: Non-traffic (NT) masonry (M) glass (G) aluminum (A) and as applicable to substrates indicated other materials (O).
2. Additional Capability: When tested per ASTM C 719 to withstand 50 percent increase and decrease of joint width.

C. One-Part Mildew-Resistant Silicone Sealant: Type S; Grade NS; Class 25:

1. Interior Uses: Non-traffic (NT) glass (G) aluminum (A) and nonporous joint substrates indicated; formulated with fungicide for sealing interior joints with nonporous substrates at plumbing fixtures

2. One-Part Mildew-Resistant Silicone Sealant:

a. "Dow Corning 786"; Dow Corning Corp.
b. "SCS 2000"; General Electric Co.
c. "863 #345 White"; Pecora Corp.
d. "Pro-glaze White"; Tremco Corp.

D. One-Part Pourable Urethane Sealant: Type S; Grade P (self-leveling); Class 25:

1. Exterior Use: Traffic (T) for pavements.
2. Products: Subject to compliance with requirements provide one of the following or approved equal:

a. "Chem-Calk 950": Bostik Construction Product Div.
b. "Vulkem 45": Mameco International Inc.
c. "NR-201 Urexpan": Pecora Corp.
d. "THC-900": Tremco Corp.

2.3 LATEX JOINT SEALANTS

A. Acrylic-Emulsion Sealant: One-part non-sag sealant complying with ASTM C 834 paintable and recommended for interior applications with joint movement of not more than plus or minus 5 percent.

B. Products: Subject to compliance with requirements provide one of the following:

1. Acrylic-Emulsion Sealant:

a. "Chem-Calk 600"; Bostik Construction Products Div.
b. "AC-20"; Pecora Corp.
c. "Tremco Acrylic Latex 834": Tremco Inc.

2.4 IMMERSIBLE JOINT SEALERS

A. Liquid Applied Joint Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid applied joint sealant specified including those referencing ASTM C 920 classifications for type grade class and uses related to exposure and joint substrates.

1. Suitability for Immersion in Liquids. Where sealants are indicated for Use I for joints that will be continuously immersed in liquids provide products that have undergone testing according to ASTM C 1247. Liquid used for testing sealants is deionized water unless otherwise indicated.

B. Immersible Single Component Non-sag Traffic Grade Urethane Joint Sealant: ASTM C 920 Type S Grade NS Class 25 for Uses T and I.

1. Products: Subject to compliance with requirements [provide one of the following]:

a. BASF Building Systems: Sonolastic NP1.
b. Sika Corporation Construction Products Division: Sikaflex 1a.
c. Tremco Incorporated: Vulkem 116.

2.5 MISCELLANEOUS JOINT SEALANTS

A. Acoustical Sealant for Concealed Joints: Manufacturer's standard nondrying nonhardening non-skinning non-staining gunnable synthetic rubber sealant recommended for sealing interior concealed joints to reduce transmission of airborne sound.

B. Structural Sealant: ASTM C 1184 chemically curing silicone formulation that is compatible with system components with which it comes in contact specifically formulated and tested for use as structural sealant and approved by structural-sealant manufacturer for use in assemblies indicated.

C. Butyl-Polyisobutylene Sealant: Manufacturer's standard solvent- release-curing butyl-polyisobutylene sealant complying with AAMA 809.1 recommended for concealed joints.

D. Butyl-Polyisobutylene Tape Sealant: Manufacturer's standard solvent-free butyl-polyisobutylene tape sealant with a solids content of 100%; complying with AAMA 804.1; non-staining paintable and non-migrating; packaged on rolls with a release paper on one side; with reinforcement thread to prevent stretch.

E. Products: Subject to compliance with requirements provide one of the following:

1. Acoustical Sealants for Concealed Joints:

a. "BA-98"; Pecora Corp.
b. "Tremco Acoustical Sealant"; Tremco Inc.

2. Butyl-Polyisobutylene Sealant:

a. "PTI 404"; Protective Treatment Inc.

3. Butyl-Polyisobutylene Tape Sealant:

a. "Extru-Seal Tape"; Pecora Corp.
b. "PTI 606"; Protective Treatments Inc.
c. "Tremco 440 Tape"; Tremco Inc.

2.6 JOINT SEALANT BACKING

A. General: Provide backings which are non-staining; are compatible with joint substrates sealants primers and other joint fillers; and are approved for applications indicated by sealant manufacturer.

B. Plastic Foam Joint-Fillers: Preformed compressible resilient non-waxing non-extruding strips of plastic foam of material indicated below and of size shape and density to control sealant depth and completely fill indicated joint widths without failure.

1. Either flexible open cell polyurethane foam or non-gassing closed-cell polyethylene foam unless otherwise indicated or as recommended by the sealant manufacturer.

C. Tubing Joint-Fillers: Neoprene EPDM or silicone tubing complying with ASTM D 1056 non-absorbent to water and gas resilient at temperatures down to -26 deg F. of size and shape to provide a secondary seal.

D. Bond-Breaker Tape: Polyethylene tape or other plastic tape to prevent bond between sealant and materials at back of joint. Provide self-adhesive tape where applicable.

2.7 MISCELLANEOUS MATERIALS

A. Primer: Provide type recommended by joint sealer manufacturer; required for adhesion of sealant to joint substrates as determined from preconstruction joint sealer-substrate and field tests.

B. Cleaners: Provide non-staining cleaner of type acceptable to manufacturer of sealant and sealant backing materials.

C. Masking Tape: Provide non-staining non-absorbent type compatible with joint sealants and to surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Inspect joints to receive joint sealers for compliance with requirements. Report conditions detrimental to joint sealer work. Proceed after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealers to comply with recommendations of joint sealer manufacturers and the following requirements:

1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant including dust paints (except for permanent protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer) oil grease waterproofing water repellents water surface dirt frost and other contaminants.
2. Clean porous joint substrate surfaces by brushing grinding blast cleaning mechanical abrading or a combination of these methods to produce a clean sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining from above cleaning operations by vacuuming or blowing out joints with oil-free compressed air.
3. Remove laitance and form-release agents from concrete.
4. Clean nonporous surfaces with chemical cleaners or other means that do not stain harm substrates or leave residues capable of interfering with adhesion of joint sealants.

B. Joint Priming: Prime joint substrates to comply with joint sealer manufacturer's recommendations. Confine primers to areas of joint sealer bond; not on adjoining surfaces.

C. Masking Tape: Mask adjoining surfaces which might be stained or damaged by sealant or by cleaning required to remove sealant. Remove tape immediately after tooling without disturbing joint.

3.3 INSTALLATION OF JOINT SEALERS

A. General: Comply with joint sealer manufacturers' printed installation instructions except where more stringent requirements apply.

B. Elastomeric Sealant Installation Standard: Comply with ASTM C 962 for use of joint sealants as applicable to conditions indicated.

C. Latex Sealant Installation Standard: Comply with ASTM C 790 for use of latex sealants.

D. Acoustical Sealant Application Standard: Comply with ASTM C 919 for use of joint sealants in acoustical applications.

E. Install sealant backings of type indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.

1. Do not leave gaps between ends of sealant backings.
2. Do not stretch twist puncture or tear sealant backings.
3. Do not use absorbent joint-filler materials.
4. Install bond breaker tape where required to prevent third-side adhesion of sealant to back of joint.

F. Installation of Sealants: Install sealants by proven techniques that result in sealants directly contacting joint substrates completely filling joints and providing uniform cross-sectional shapes and depths for optimum sealant movement. Mask adjacent surfaces if necessary to protect them from sealants.

G. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins tool sealants according to requirements specified below to form smooth uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.

H. Remove excess sealants from surfaces adjacent to joint.

1. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
2. Provide concave joint configuration per Figure 5A in ASTM C 1193 unless otherwise indicated.

3.4 CLEANING

A. Clean off excess sealants or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.5 PROTECTION

A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If despite such protection damage or deterioration occurs cut out and remove damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from the original work.

END OF SECTION 079210

081113 - HOLLOW METAL FRAMES AND SURROUNDS

PART 1 - GENERAL

1.1 SUMMARY

A. The Work of this Section includes but not necessarily limited to the following.

1. Standard and custom hollow metal frames wall caps and surrounds

1.2 SUBMITTALS

A. Product Data: For each type of product indicated. Include construction details material descriptions core descriptions hardware reinforcements profiles anchors and finishes.

B. Furnish templates to the steel frame supplier in order to prepare frames.

C Shop Drawings: Include the following:

1. Elevations of each design.
2. Details including vertical and horizontal edge details and metal thicknesses.
3. Frame details for each frame type including dimensioned profiles and metal thicknesses.
4. Locations of reinforcement.
5 Details of anchorages joints field splices and connections.
5. Details of accessories.

1.3 QUALITY ASSURANCE

A. Source Limitations: Obtain hollow metal frames through one source from a single manufacturer wherever possible.

1.4 DELIVERY STORAGE AND HANDLING

A. Deliver hollow metal work palletized wrapped or crated to provide protection during transit and Project site storage. Do not use non-vented plastic.

1.5 PROJECT CONDITIONS

A. Field Measurements: Verify actual dimensions of openings by field measurements before fabrication.

1.6 COORDINATION

A. Coordinate installation of anchorages for hollow metal frames. Furnish setting drawings templates and directions for installing anchorages including sleeves inserts anchor bolts and items with integral anchors. Deliver such items to Project site in time for installation.

1.7 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace frames that fail in materials or workmanship within specified (1) year warranty period.

B. Warranty includes installation and finishing that may be required due to repair or replacement of defective frames.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements provide steel frames from one of the following manufacturers:

1. Assa Abloy
2. Or Approved Equal.

B. Curries frames with custom color as scheduled

2.2 MATERIALS

A. Metallic-Coated Steel Sheet: ASTM A 653/A 653M Commercial Steel (CS) Type B; with minimum G60 metallic coating.

B. Frame Anchors: ASTM A 653/A 653M Commercial Steel (CS) Commercial Steel (CS) Type B; with minimum G60 metallic coating.

2.3 HOLLOW METAL FRAMES

A. Interior Frames: Fabricated from galvanized cold-rolled steel sheet

1. Fabricate frames with mitered or coped corners. Profile as indicated on drawings.
2. Frames: Minimum 16 gauge thick steel sheet.

B. Reinforcement: Fabricate with reinforcement plates from same material as frames.

2.4 FRAME ANCHORS

A. Jamb Anchors:

1. Masonry Type: Adjustable strap-and-stirrup or T-shaped anchors to suit frame size formed from A60 metallic coated material not less than 0.042” inch thick with corrugated or perforated straps not less than 2” inches wide by 10” inches long; or wire anchors not less than 0.177” inch thick.
2. Stud Wall Type: Designed to engage stud and not less than 0.042” inch thick.

B. Floor Anchors: Floor anchors to be provided at each jamb formed from A60 metallic coated material not less than 0.042” inches thick.

C. Mortar Guards: Formed from same material as frames not less than 0.016” inches thick.

2.5 FABRICATION

A. Fabricate hollow metal work to be rigid and free of defects warp or buckle. Accurately form metal to required sizes and profiles with minimum radius for thickness of metal. Where practical fit and assemble units in manufacturer's plant. When shipping limitations so dictate frames for large openings are to be fabricated in sections for splicing or splining in the field by others.

B. Tolerances: Fabricate hollow metal work to tolerances indicated in ANSI/SDI A250.8.

C. Hollow Metal Frames:

1. Knocked Down Frames: Provide frames with locking corner tabs which permit field assembly. Factory install compression type anchors and countersunk screw holes to secure the bottom of the jambs.
2. Provide countersunk flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated for removable stops provide security screws at exterior locations.
3. Floor Anchors: Weld anchors to bottom of jambs and mullions with at least four spot welds per anchor.
4. Jamb Anchors: Provide number and spacing of anchors as follows:

a. Stud Wall Type: Locate anchors not more than 18” inches from top and bottom of frame. Space anchors not more than 32” inches OC. and as follows:

2.6 STEEL FINISHES

A. Prime Finishes: Frames to be cleaned and chemically treated to insure maximum finish paint adhesion. Surfaces of the frame exposed to view to receive a factory applied coat of rust inhibiting shop primer.

1. Shop Primer: Manufacturer's standard fast-curing lead and chromate free primer complying with ANSI/SDI A250.10 acceptance criteria; recommended by primer manufacturer for substrate; and compatible with substrate and field-applied coatings.

A. Field Finish: Galvanized Metal:

1. High Performance Polyurethane Finish System: Provide the following, or approved equal system from one of the above manufacturers:

a. Primer Coat: One coat of polyamide epoxy coating.
b. Intermediate and Finish Coats: One coats aliphatic acrylic polyurethane; Series 1075 Endura-Shield, by Tnemec
c. Custom color

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates areas and conditions with Installer present for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. General Contractor to verify the accuracy of dimensions given to the steel frame manufacturer for existing openings or existing frames.

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

3.2 PREPARATION

A. Remove welded in shipping spreaders installed at factory. Restore exposed finish by grinding filling and dressing as required to make repaired area smooth flush and invisible on exposed faces.

B. Prior to installation adjust and securely brace metal frames for square level twist and plumb condition.

3.3 INSTALLATION

A. General: Install hollow metal work plumb rigid properly aligned and securely fastened in place; comply with Drawings and manufacturer's written instructions.

1. Set frames accurately in position plumbed leveled aligned and braced securely until permanent anchors are set. After wall construction is complete and frames properly set and secured remove temporary braces leaving surfaces smooth and undamaged. Shim as necessary to comply with installation tolerances.
2. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor and secure with post-installed expansion anchors.
3. Masonry Walls: Coordinate installation of frames to allow for solidly filling space between frames and masonry with mortar.
4. Grout Requirements: Do not grout head of frames unless reinforcing has been installed in head of frame. Do not grout vertical or horizontal closed mullion members.

3.4 ADJUSTING AND CLEANING

A. Final Adjustments: Check and readjust operating hardware items immediately before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work including hollow metal work that is warped bowed or otherwise unacceptable.

B. Remove grout and other bonding material from hollow metal work immediately after installation.

C. Prime-Coat and Painted Finish Touchup: Immediately after erection sand smooth rusted or damaged areas of prime coat or painted finishes and apply touchup of compatible air drying rust-inhibitive primer zinc rich primer (exterior and galvanized openings) or finish paint.

END OF SECTION 081113

SECTION 083114 - ACCESS DOORS AND FRAMES

PART 1 - GENERAL

A. Work Included: The Work of this Section shall include but not be limited to the following:

1. Access doors and frames for walls and ceilings.

1.2 SUBMITTALS

A. Product Data: For each type of access door and frame indicated include construction details materials individual components and profiles and finishes.

B. Shop Drawings: Submit detailed shop drawings showing fabrication and installation details of access doors and frames for each type of substrate. Include plans elevations sections details and attachments to other work.

1. Contractor shall coordinate and schedule access panels for all trades.

C. Samples: For each door face material at least 3” by 5” inches in size in specified finish.

D. Coordination Drawings: Provide plans including all required access doors and frames and coordinated with requirements for each required type and location.

1.3 QUALITY ASSURANCE

A. Source Limitations: Obtain each type of access door(s) and frame(s) through one source from a single manufacturer.

B. Size Variations: Obtain Architect’s acceptance of manufacturer standard-size units which may vary slightly from sizes indicated.

C. Fire-Rated Access Doors and Frames: (as required) Assemblies complying with NFPA 80 that are listed and labeled by a qualified testing agency for fire-protection and temperature-rise limit ratings indicated according to NFPA 252 or UL 10B.

1.4 COORDINATION

A. Verification: Determine specific locations and sizes for access doors needed to gain access to concealed plumbing mechanical or other concealed work and indicate in the schedule specified in "Submittals" Article.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements provide manufacturers materials and applications as scheduled and as approved for use.

1. Karp (Basis of Design)
2. Coordinate for each size type and location

2.2 STEEL MATERIALS

A. Steel Plates Shapes and Bars: ASTM A 36.

1. ASTM A 123 for galvanizing steel and iron products.
2. ASTM A 153 for galvanizing steel and iron hardware.

B. Steel Sheet: Uncoated or electrolytic zinc coated ASTM A 879 with cold-rolled steel sheet substrate complying with ASTM A 1008 Commercial Steel (CS) exposed.

C. Steel Finishes: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

1. Surface Preparation for Steel Sheet: Clean surfaces to comply with SSPC-SP 1 "Solvent Cleaning" to remove dirt oil grease or other contaminants that could impair paint bond. Remove mill scale and rust if present from uncoated steel complying with SSPC-SP 5/NACE No. 1 "White Metal Blast Cleaning" or SSPC-SP 8 "Pickling."
2. Powder-Coat Finish: Immediately after cleaning and pretreating apply manufacturer's standard thermosetting polyester or acrylic urethane powder coating with cured-film thickness not less than 1.5 mils. Prepare treat and coat metal to comply with resin manufacturer's written instructions.4

2.3 STAINLESS-STEEL MATERIALS

A. Stainless-Steel Sheet Strip Plate and Flat Bars: ASTM A 666 Type 316. Remove tool and die marks and stretch lines or blend into finish.

1. Finish: Directional Satin No. 4.
2. Provide stainless steel access doors or all toilet and shower area locations.

B. Drywall Beads: Edge trim formed from 0.0299”-inch zinc-coated steel sheet formed to receive joint compound and in size to suit thickness of gypsum board.

2.4 ACCESS DOORS AND FRAMES FOR WALLS AND CEILINGS

A. Flush Access Doors and Trim-less Frames: Fabricated from steel sheet in typical areas.

1. Locations: Wall and ceiling surfaces.
2. Door: Minimum 0.060” inch thick sheet metal set flush with surrounding finish surfaces.
3. Frame: Same material and thickness as door; with drywall bead flange.
4. Hinges: Continuous piano.
5. Lock: Latch or Lock as per building standards.

B. Recessed Access Doors: (as scheduled)

1. Assembly Description: Fabricate door in the form of a pan recessed ½” inch 5/8” inch 1” inch for gypsum board plaster or acoustical tile infill. Provide frame with gypsum board bead for concealed flange plaster bead for concealed flange no bead for acoustical tile installation.
2. Locations: Wall and ceiling as required.
3. Door Size: As per approved schedule
4. Uncoated Steel Sheet for Door: Nominal 0.060” inch 16 gage.

   a. Finish: Factory prime.

5. Metallic-Coated Steel Sheet for Door: Nominal 0.064” inch 16 gage.

   a. Finish: Factory prime or as approved.

6. Frame Material: Same material and thickness as door.

7. Hinges: Manufacturer's standard.
8. Hardware: Latch or Lock as per building standard.

2.5 FABRICATION

A. General: Provide access door and frame assemblies manufactured as integral units ready for installation.

B. Metal Surfaces: For metal surfaces exposed to view in the completed Work provide materials with smooth flat surfaces without blemishes. Do not use materials with exposed pitting seam marks roller marks rolled trade names or roughness.

C. Doors and Frames: Grind exposed welds smooth and flush with adjacent surfaces. Furnish attachment devices and fasteners of type required to secure access panels to types of supports indicated.

1. For trim-less frames with drywall bead provide edge trim for gypsum board securely attached to perimeter of frames.
2. Provide mounting holes in frame for attachment of masonry anchors.

D. Latching Mechanisms: Furnish number required to hold doors in flush smooth plane when closed.

1. For cylinder lock furnish two keys per lock and key all locks alike. Key locks to building keying system. (if required)
2. Cam Locks where approved

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

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

3.2 INSTALLATION

A. Comply with manufacturer's written instructions for installing access doors and frames.

B. Set frames accurately in position and attach securely to supports with plane of face panels aligned with adjacent finish surfaces.

C. Install doors flush with adjacent finish surfaces or recessed to receive finish material.

3.3 ADJUSTING AND CLEANING

A. Adjust doors and hardware after installation for proper operation.

B. Remove and replace doors and frames that are warped bowed or otherwise damaged.

END OF SECTION 083114

SECTION 088310 - MIRRORS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Work of this Section includes but is not limited to the following:

1. Monolithic Low Iron glass mirrors.
2. Tempered glass mirrors qualifying as safety glazing.
3. Wall mounted mirror assemblies.

1.2 SUBMITTALS

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

1. Mirrors. Include description of materials and process used to produce each type of silvered flat glass mirror specified that indicates sources of glass coating components edge sealer and quality-control provisions.
2. Reference 061000 for plywood backing panels.

B. Shop Drawings: Include mirror elevations edge details mirror hardware and attachments to other work.

C. Qualification Data: For qualified Installer.

D. Product Certificates: For each type of mirror and mirror mastic from manufacturer.

E. Preconstruction Test Reports: From mirror manufacturer indicating that mirror mastic was tested for compatibility and adhesion with mirror backing paint film and substrates on which mirrors are installed.

F. Warranty: Sample of warranty.

G. Maintenance Data: For mirrors to include in maintenance manuals.

1.3 QUALITY ASSURANCE

A. Installer Qualifications: A qualified installer who employs glass installers for this Project who are certified under the National Glass Association's Certified Glass Installer Program.

B. Source Limitations for Mirrors: Obtain mirrors from single source from single manufacturer.

C. Source Limitations for Mirror Accessories: Obtain mirror glazing accessories from single source.

D. Glazing Publications: Comply with the following published recommendations:

1. GANA's "Glazing Manual" unless more stringent requirements are indicated. Refer to this publication for definitions of glass and glazing terms not otherwise defined in this Section or in referenced standards.
2. GANA Mirror Division's "Mirrors Handle with Extreme Care: Tips for the Professional on the Care and Handling of Mirrors."

E. Build mock-ups in the location as directed by Architect as per finish schedule.

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

F. Safety Glazing Products: For film-backed tempered mirrors provide products complying with testing requirements in 16 CFR 1201 for Category II materials.

G. Preconstruction Mirror Mastic Compatibility Test: Submit mirror mastic products to mirror manufacturer for testing to determine compatibility of mastic with mirror backing paint film and substrates on which mirrors are installed.

1.4 DELIVERY STORAGE AND HANDLING

A. Protect mirrors according to mirror manufacturer's written instructions and as needed to prevent damage to mirrors from moisture condensation temperature changes direct exposure to sun or other causes.

B. Comply with mirror manufacturer's written instructions for shipping storing and handling mirrors as needed to prevent deterioration of silvering damage to edges and abrasion of glass surfaces and applied coatings. Store indoors.

1.5 PROJECT CONDITIONS

A. Environmental Limitations: Do not install mirrors until ambient temperature and humidity conditions are maintained at levels indicated for final occupancy.

1.6 WARRANTY

A. Warranty: Manufacturer's standard form in which mirror manufacturer agrees to replace mirrors that deteriorate within specified warranty period. Deterioration of mirrors is defined as defects developed from normal use that are not attributed to mirror breakage or to maintaining and cleaning mirrors contrary to manufacturer's written instructions. Defects include discoloration black spots and clouding of the silver film.

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

PART 2 - PRODUCTS

2.1 SILVERED FLAT GLASS MIRRORS

A. Glass Mirrors: General: ASTM C 1503; manufactured using copper-free low-lead mirror coating process.

1. Manufacturers: Subject to compliance with requirements provide products by one of the following McGory or Bendheim or approved from the following

a. Arch Aluminum & Glass Co. Inc.
b. Avalon Glass and Mirror Company.
c. Binswanger Mirror; a division of Vitro America Inc.
d. As scheduled selected or approved by Architect.

2. Products: As scheduled

B. Clear Glass: Mirror Glazing Quality Tempered ultra-clear (low-iron) float glass with a minimum 91 percent visible light transmission.

C. Tempered Clear Glass: Mirror Glazing Quality for blemish requirements; and comply with ASTM C 1048 for Kind FT Condition A tempered float glass before silver coating is applied.

1. Nominal Thickness: As indicated.

D. Wall Mirror: Match samples

2.2 MISCELLANEOUS MATERIALS

A. Setting Blocks: Elastomeric material with a Shore Type A durometer hardness of 85 plus or minus 5.

B. Edge Sealer: Coating compatible with glass coating and approved by mirror manufacturer for use in protecting against silver deterioration at mirrored glass edges.

C. Mirror Mastic: An adhesive setting compound asbestos-free produced specifically for setting mirrors and certified by both mirror manufacturer and mastic manufacturer as compatible with glass coating and substrates on which mirrors will be installed.

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

a. Franklin International: Titebond Division.
b. Laurence C. R. Co. Inc.
c. Macco Adhesives: Liquid Nails Division.
d. OSI Sealants Inc.
e. Palmer Products Corporation.

D. Film Backing for Safety Mirrors: Film backing and pressure-sensitive adhesive both compatible with mirror backing paint as certified by mirror manufacturer.

2.3 MIRROR HARDWARE

A. Top and Bottom Aluminum J-Channels: Aluminum extrusions with a return deep enough to produce a glazing channel to accommodate mirrors of thickness indicated and in lengths required to cover bottom and top edges of each mirror in a single piece.

1. Bottom Trim: Angles formed with front leg and back leg not less than 3/8 and 7/8 inch in height respectively and a thickness of not less than 0.04 inch.

a. Products: Subject to compliance with requirements provide one of the following:

1) Laurence C. R. Co. Inc: CRL
2) Sommer & Maca Industries Inc. Aluminum Moulding Lower Bar.
3) Sommer & Maca Industries Inc: Heavy Gauge Aluminum.
4) Or approved equal.

2. Top Trim: Angles formed with front leg and back leg not less than 5/8” and 1” inch in height respectively and a thickness of not less than 0.04” inch.

3. Finish: Clear bright anodized or as selected by Architect

B. Plated Steel Hardware: Formed-steel shapes with plated finish indicated.

1. Profile: As indicated.
2. Finish: as approved
3. As indicated as recommended by fabricator.

C. Fasteners: Fabricated of same basic metal and alloy as fastened metal and matching it in finished color and texture where fasteners are exposed.

D. Anchors and Inserts: Provide devices as required for mirror hardware installation. Provide toothed or lead-shield expansion-bolt devices for drilled-in-place anchors. Provide galvanized anchors and inserts for applications on inside face of exterior walls and where indicated.

2.4 FABRICATION

A. Mirror Sizes: To suit Project conditions and before tempering cut mirrors to final sizes and shapes.

B. Cutouts: Fabricate cutouts before tempering for notches and holes in mirrors without marring visible surfaces. Locate and size cutouts so they fit closely around penetrations in mirrors.

C. Mirror Edge Treatment: Flat polished edge of width shown.

1. Seal edges of mirrors with edge sealer after edge treatment to prevent chemical or atmospheric penetration of glass coating.
2. Require mirror manufacturer to perform edge treatment and sealing in factory immediately after cutting to final sizes.

D. Film-Backed Safety Mirrors: Apply film backing with adhesive coating over mirror backing paint as recommended in writing by film-backing manufacturer to produce a surface free of bubbles blisters and other imperfections.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates over which mirrors are to be mounted with Installer present for compliance with installation tolerances substrate preparation and other conditions affecting performance of the Work.

B. Verify compatibility with and suitability of substrates including compatibility of mirror mastic with existing finishes or primers.

C. Proceed with installation only after unsatisfactory conditions have been corrected and surfaces are dry.

3.2 PREPARATION

A. Comply with mastic manufacturer's written installation instructions for preparation of substrates including coating substrates with mastic manufacturer's special bond coating where applicable.

3.3 INSTALLATION

A. General: Install mirrors to comply with mirror manufacturer's written instructions and with referenced GANA publications. Mount mirrors accurately in place in a manner that avoids distorting reflected images.

B. Provide a minimum air space of 1/8” inch between back of mirrors and mounting surface for air circulation between back of mirrors and face of mounting surface.

C. Wall-Mounted Mirrors: Install mirrors with mastic and mirror hardware. Attach mirror hardware securely to mounting surfaces with mechanical fasteners installed with anchors or inserts as applicable. Install fasteners so heads do not impose point loads on backs of mirrors.

1. Top and Bottom Aluminum Angles: Provide setting blocks 1/8” inch thick by 4” inches long at quarter points. To prevent trapping water provide between setting blocks two slotted weeps not less than ¼” inch wide by 3/8” inch long at bottom channel.

2. Install mastic as follows:

a. Apply mastic to comply with mastic manufacturer's written instructions for coverage and to allow air circulation between back of mirrors and face of mounting surface.

3.4 CLEANING AND PROTECTION

A. Protect mirrors from breakage and contaminating substances resulting from construction operations.

B. Do not permit edges of mirrors to be exposed to standing water.

C. Maintain environmental conditions that will prevent mirrors from being exposed to moisture from condensation or other sources for continuous periods of time.

D. Wash exposed surface of mirrors not more than four days before date scheduled for inspections that establish date of Substantial Completion. Wash mirrors as recommended in writing by mirror manufacturer.

END OF SECTION 088310

SECTION 092100 – PATCHING AND FINISH SYSTEM

PART 1 - GENERAL

1.1 SUMMARY

A. Work Included: The Work of this Section shall include but not be limited to the following:

1. Finish and patching coatings over concrete/Masonry substrates and ceilings as indicated.
2. Preparation for painting and finish of walls and ceilings.

1.2 SUBMITTALS

A. Product Data: Submit manufacturer's product specifications and installation instructions for material required.

B. Samples: Submit 12" sq. sample of smooth finish coating showing coating thickness and final color. Acceptance shall be for color and finish only.

C. Certified Tests: With product data submit certified test reports on performances including burning characteristics density compressive strength bond strength hardness water absorption and corrosion resistance.

D. Schedule: Submit schedule and schematics of areas to receive treatment items to be left untreated and timing of applications.

1.3 QUALITY ASSURANCE

A. References: Applicable trade association names and titles of general standards are referred to by accepted abbreviations.

B. Installer: A firm approved by manufacturer of primary cementitious coating materials including qualified factory training where recommended by manufacturer.

C. Fire-Spread Ratings: Provide products which have been tested and listed by UL for required surface burning characteristics (fuel contributed smoke contributed) in accordance with ASTM E 84. Provide completed installations including coatings rated at a maximum flame-spread of 0 and smoke developed of 0.

1.4 SUBMITTALS

A. Product Data: Submit manufacturer's product specifications and installation instructions for material required.

B. Samples: Submit 12" sq. sample of smooth finish coating showing coating thickness and final color. Acceptance shall be for color and finish only.

C. Certified Tests: With product data submit certified test reports on performances including burning characteristics density compressive strength bond strength hardness water absorption and corrosion resistance.

D. Schedule: Submit schedule and schematics of areas to receive treatment items to be left untreated and timing of applications.

1.5 PRODUCT HANDLING

A. Protect materials from deterioration. Do not allow materials to become wet or soiled. Comply with manufacturer's recommendations for handling and protection during installation.

1.6 WARRANTY

A. The Subcontractor hereby warranties that all work specified in this Section will be free from defects of materials and workmanship for a period of five (5) years.

B. The following types of failure will be adjudged as defective work:

1. Deterioration in the form of cracking peeling or flaking.
2. Delamination from substrate.

PART 2 - PRODUCTS

2.1 MANUFACTURER

A. Manufacturers: Subject to compliance with requirements provide materials and applications as scheduled or as acceptable to the Architect

B. Patching and coatings:

1. G-P Gypsum.
2. National Gypsum Company.
3. USG Corporation. (Basis of Bid)
4. As approved

C. Selected Products: Refer to the Drawings and Finish Schedules for products and manufacturers

1. Coordinate with Architectural Finish Specifications for all currant products and modifications and for additional requirements:

D. Selected Product: Subject to compliance with requirements provide Cover Coat Brand Compound as manufactured by USG Corporation or approved equal.

2.2 MATERIALS

A. Coating: Proprietary acrylic co-polymer mixture; formulated without asbestos mineral fibers or other harmful corrodible or deleterious materials. Materials shall be mixed and conveyed to the surfaces in a series of layers as recommended by the manufacturer.

B. Provide mix for applications indicated. Mix and density of between as recommended by the manufacturer. Applied to properly prepared solid concrete and gypsum board substrates with no air gap.

C. Mix shall be integrally colored; Color: White matching approved samples.

2.3 AUXILIARY MATERIALS

A. Substrate Primers: Provide type which is compatible with condition of each substrate to be coated which is recommended by smooth finish coating materials manufacturer for compatibility with bonding adhesives and cementitious materials.

PART 3 - EXECUTION

3.1 INSPECTION AND PREPARATION

A. Examine the substrates and conditions that may affect work. Proceed with work after unsatisfactory conditions have been corrected. Commencement of the work affirms the Contractor's acceptance of the substrates and conditions.

B. Clean substrates of substances which might be incompatible with or interfere with bond of cementitious coating including but not limited to oil dirt scale and rust. Remove ill-timed work which might interfere with installation of cementitious coating.

C. Cover other work which might be damaged by fall-out of finish system materials. Protect the environment and ensure adequate ambient conditions including temperature minimum of 55 deg. F. Maintain substrate temperatures of at least 40 deg. F.

3.2 INSTALLATION GENERAL

A. Comply with manufacturer's instructions and recommendations. Consult with manufacturer's technical representative for conditions not covered by printed instructions.

B. Prime substrate with primer as recommended by coating material manufacturer.

C. Provide (3) three coat application method and minimum thickness not less than those recommended by the manufacturer.

D. Maintain ambient conditions during installation and for cure period following installation as recommended by manufacturer. Provide ventilation and avoid excessive rate of drying. Protect from exposure to sun.

3.3 INSTALLATION OF COATING

A. Provide smooth finish and color matching the Architect's sample and approved mock-ups.

3.4 CLEANING PATCHING PROTECTION

A. Cleaning: Immediately upon completion of application in each area of project remove fall-out of materials and clean surfaces to remove evidence of soiling. Repair or replace damaged work to restore surfaces to acceptable condition.

B. Coordination: Coordinate installation of coating system to minimize the need for other trades to cut or remove cementitious coating. Patch cementitious coating which has been cut to maintain complete coverages of full thickness on substrates to be protected. Trowel-applied coating is acceptable for patching. Do not allow work requiring patching to be concealed before patching is completed.

C. Protection: Installer shall meet protection requirements for cementitious coating work which will ensure that cementitious coating will be substantially without damage or deterioration at time of substantial completion of project. Provide protection from reasonably predictable harmful exposures. Repair or replace work which has not been successfully protected.

END OF SECTION 092100

SECTION 092111 - DIRECT APPLIED CEILING FINISH SYSTEM

PART 1 - GENERAL

1.1 SUMMARY

A. Work Included: The Work of this Section includes but is not limited to the following:

1. Polymer modified cementitious finish system.
2. Vapor retarding membranes
3. Related accessories.

1.2 REFERENCES

A. ASTM Standards

1. C920 Standard Specification for Elastomeric Joint Sealants
2. E84 Standard Test Method for Surface Burning Characteristics of Building Materials

B. South Coast Air Quality Management District (South Coast AQMD)

1. Rule 1113 Architectural Coatings

1.3 SYSTEM PERFORMANCE REQUIREMENTS

A. Provide systems complying with manufacturer's written instructions recommendations and the following performance requirements:

1. Bond Integrity: Free from bond failure within system components or between system and supporting construction resulting from exposure to in-service conditions.
2. Adhesion ASTM C-297 Minimum 10 psi.
3. Mildew Resistance ASTM D-3273 No growth supported during 28- day exposure period.
4. Surface Burning.

a. Waterproofing primers and applicable finish components: ASTM E84 flame Spread less than 25 smoke developed less than 75 Class A building material

5. No deleterious effects: no cracking checking crazing erosion rusting blistering peeling or delamination.
6. Waterproofing primers and applicable finish components: South Coast AQMD Rule 1113 Volatile Organic Content (VOC) comply with applicable requirement of coating category

1.4 SUBMITTALS

A. Product Data: Submit product data for each component of exterior finish systems.

B. Shop Drawings: Submit shop drawings showing fabrication and installation of system including plans elevations sections details of suspension components, joint locations and configurations within system and between system and construction penetrating it and attachments to construction behind system.

C. Samples: Submit samples in the form of 1x1-foot-square panels for each finish color and texture specified. Prepare samples using same tools and techniques intended for actual Work.

D. Qualifications: Qualification data for firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include list of completed projects with project names addresses names of Architects and Owners plus other information specified.

E. Installer certificates signed by manufacturer certifying that Installers comply with requirements under "Quality Assurance" Article.

F. Sealant compatibility and test report from sealant manufacturer certifying that materials forming joint substrates of system have been tested for compatibility and adhesion with joint sealants; include sealant manufacturer's interpretation of results relative to sealant performance and recommendations for primers and substrate preparation needed to obtain adhesion.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: Engage a firm experienced in manufacturing systems that are similar to those indicated for this Project and that have a record of successful in-service performance.

B. Installer Qualifications: Engage an experienced Installer who has completed systems similar in material design and extent to that indicated for Project that have resulted in construction with a record of successful in-service performance.

C. Single-Source Responsibility: Obtain materials for system from either a single manufacturer or manufacturers approved by the system manufacturer as compatible with other system components.

D. Field-Constructed Mock-Up: Prior to installation of system erect mock-up for each form of construction and finish required to verify selections made under sample submittals and to demonstrate esthetic effects including those related to execution. Build mock-up to comply with the following requirements using materials and substrates indicated for final Work:

1. Mock-up is combined with the ceiling system mock-up. Locate mock-up on site in location and of size indicated or if not indicated as directed by Architect.
2. Demonstrate the proposed range of color texture and workmanship to be expected in completed Work.
3. Obtain Architect's acceptance of mock-up before start of final work.
4. Retain and maintain mock-up during construction for judging completed Work.

    a. Accepted mock-up in undisturbed condition at time of Substantial Completion may become part of completed work.

1.6 PROJECT CONDITIONS

A. Environmental Conditions: Install system when ambient temperatures above 50/80 deg F during installation of wet materials and for 24 hours after installation or longer to allow them to become thoroughly dry.

1.7 WARRANTY

A. Warranty: Submit a written Warranty executed by the Manufacturer agreeing to repair or replace panel and finish systems that fail in materials or workmanship within the specified warranty period. Failures include but are not necessarily limited to:

1. Structural failures including excessive deflection excessive vapor infiltration.
2. Delamination blistering cracking and related deterioration of coatings and substrates.

3. Warranty shall cover finish against color fade pitting chalking chipping film integrity beyond normal weathering.
4. Warranty Period: As er manufacturer.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements provide the following finish system.:

1. STO Industries Inc.
2. Product: Sto-Quik finish system.

2.2 MATERIALS

A. Finishes primers adhesives stains and any other associated materials used with the finish shall be Class A building materials based on testing in accordance with ASTM E84. VOC (Volatile Organic Content) shall be less than 50g/L and shall comply with South Coast AQMD Rule 1113 requirements.

B. Interior wallboard (as approved)

1. PermaBase® Brand cement board as manufactured by National Gypsum
2. DensShield® Tile Backer as manufactured by Georgia-Pacific.
3. Diamondback® Tile Backer as manufactured by CertainTeed.
4. Durock® Brand cement board as manufactured by USG.

C. Surface Reinforcement

1. Sto Mesh – nominal 4.5 oz/sq.yd. glass fiber reinforcing mesh treated for compatibility with Sto materials.

D. Waterproof Base Coat

1. Sto Flexyl – two component: acrylic additive combined with portland cement in the field
2. Sto Watertight Coat – two component: acrylic additive with pre-proportioned portland cement

E. Primer

1. StoPrime® Sand – acrylic-based sanded primer for use with Sto Textured Finishes

F. Textured Finishes

1. Stolit⁻Freeform - factory blended decorative and protective hydrophobic acrylic textured finish with integral color.
2. Colors and Textures of Protective Coating: As selected by Architect.

G. Water: Clean and potable.

H. Sealant Products: Provide manufacturer's standard chemically curing elastomeric sealant that is compatible with joint fillers joint substrates finish system and other related materials and complies with requirements of Division 7 Section "Joint Sealers" for products corresponding to description indicated below.

1. StoSeal STPE Sealant - high-movement low modulus non-sag one-component silyl-terminated polyether joint sealant in compliance with ASTM C920
2. Sealant Color: Match finish coat color of system as approved by Architect.

I. Sealer: Sto Clear Coat sealer

J. Accessories: Provide all required accessories trim and jointing materials and assemblies for complete installation.

1. Reference 092600 Gypsum Board Assemblies for suspension assemblies

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates with Installer present to determine if they are in satisfactory condition for installation of system. Do not proceed with installation of system until unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. General Surface Preparation: Ceiling substrates must be clean dry and free of surface contamination. Wall board and ceiling substrates must be installed in conformance with wall board manufacturer's written installation instructions except joint taping and spotting of fasteners with joint compound are not required. Accessories such as corner beads must be corrosion proof and with perforated flanges for keying of the base coat.

B. Mixing

1. Mix Sto products in accordance with published literature. Refer to applicable Product Bulletins for specific information on use handling application precautions and limitations of specific products.

C. Application

1. Install corrosion resistant termination accessories at junctures with penetrations such as pipes electrical fixtures and window and door openings. Refer to Sto Guide details.
2. Install nominal 1/8" inch base coat by trowel to the wall board surface. Work horizontally or vertically in strips of 40" inches and immediately embed the mesh into the wet base coat by troweling from the center to the edge of the mesh. Overlap mesh not less than 2-½" inches at mesh seams and feather at seams. Double wrap all inside and outside corners with minimum 6"-inch overlap in each direction (if accessories are NOT used at these locations). Avoid wrinkles in the mesh. The mesh must be fully embedded so that no mesh color shows through the base coat when it is dry. Re-skim with additional base coat if mesh color is visible. Where accessories are used overlap perforated flanges of accessories with the base coat/reinforcing mesh application. Do not install base coat and mesh onto solid (unperforated) portions of accessories.
3. When the base coat application is dry apply the primer by brush or roller to the entire base coat surface.
4. When the primer application is dry apply the Sto finish.

a. Sto Textured Finish Installation: Refer to applicable Product Bulletin

3.3 INSTALLATION OF JOINT SEALANTS

A. Prepare joints and apply sealants of type and at locations indicated to comply with applicable requirements of "EIMA Joint Sealant Specifications for Exterior Insulation and Finish Systems.

B. Protection

1. Provide protection of installed materials from water infiltration into or behind them.
2. Provide protection of installed materials from dust dirt precipitation freezing and continuous high humidity until they are fully dry.
3. Seal penetrations seams gaps cracks and other discontinuities in the finished wall and ceiling surfaces to prevent air leakage towards the exterior or adjacent spaces.

3.4 CLEANING

A. Remove temporary covering and protection of other work. Promptly remove protective coatings from window and door frames and any other surfaces outside areas indicated to receive protective coating.

B. Provide final protection and maintain conditions in a manner acceptable to Installer and system manufacturer that ensures system's being without damage or deterioration at time of Substantial Completion.

END OF SECTION 092111

SECTION 092600 - GYPSUM BOARD ASSEMBLIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Work Included: The Work of this Section includes but is not limited to the following:

1. Steel framing systems for interior gypsum board assemblies.
2. Replacement/repair of existing framing systems
3. Gypsum board applications.
4. Tile Sheathing
5. Suspension systems for interior ceilings and soffits.
6. Drywall finishing with joint tape- and- compound.
7. Acoustical insulation and sealant for gypsum board products.
8. Metal reveals trims and backing plates.
9. Patching and repairs to existing drywall.

1.3 SYSTEM DESCRIPTION

A. Performance Requirements General: Provide gypsum board wall systems complying with performance requirements specified as demonstrated by pre-tested manufacturer's corresponding stock systems.

B. Structural Requirements: Provide gypsum board and wall assemblies (partitions furring and other assemblies indicated) capable of withstanding following lateral design loadings for maximum heights of partitions without failing. Evidence of failure includes deflections exceeding limits indicated bending stresses causing studs to break or to distort and end-reaction shear causing track (runners) to bend or to shear and studs to become crippled. Comply with requirements of the Building Code and SA923 United States Gypsum Company for loading performance criteria.

1. Structural Criteria: Limiting heights of partitions are based on L/240 at 10 psf. Increase gage of steel framing to maintain above criteria while not increasing the thickness of partition.
2. Seismic Characteristics: Fabricate all assemblies to comply with seismic load criteria as required by local codes of governing authority having jurisdiction.
3. Lateral Loading Partition Furring and Other Assemblies: 5.0 psf. unless otherwise indicated.
4. Deflection Limits Painted Assemblies: 1/240 of partition height.
5. Deflection Limits; Tile and Other Hard Finish Surfaces: 1/360 of partition height.

C. Fire-Resistance Ratings: Where indicated provide materials and construction which are identical to those of assemblies including those incorporating elevator door and other framing whose fire resistance has been determined per ASTM E 119 by a testing and inspecting organization acceptable to authorities having jurisdiction.

1. Provide fire- resistance rated assemblies identical to those indicated by reference to GA File Numbers in GA 600 AFire Resistance Design Manual or to design designations in UL AFire Resistance Directory or in listings of other testing and inspecting agencies acceptable to authorities having jurisdiction.

D. Sound Attenuation Performance: Provide gypsum board wall systems designed and pretested to achieve the minimum ratings indicated for sound transmission class (STC)/NIC per ASTM E 90. Reference acoustic report as required for all sound required assembly performance.

1 Demising partition shall be constructed with 2 layers of drywall on both sides of metal studs with sound attenuation blankets within the stud cavity. Partition construction should achieve a rating of NIC-40/5050 +/- Min. assuming 3-5/8” studs. Demising partitions should be constructed full height from slab to slab.

2 Electrical receptacles and data junction boxes should not be located back-to-back. locate in separate stud cavities and provide with a putty pad backing as or equivalent to Kinetics Iso-Backer.

1.4 SUBMITTALS

A. Product Data: Submit manufacturer's specifications and installation instructions for materials for gypsum drywall and backer board. Submit other data as required to show compliance with project requirements.

B. Shop Drawings: Show locations fabrication and installation of control and expansion joints including plans elevations sections details of components and attachments to other units of Work. Indicate locations for backing plates.

1 Coordination of grounds and concealed supports.

C. Engineering data from gypsum board assembly manufacturer certifying and substantiating compliance of gypsum board wall assemblies with structural performance requirements for all site assemblies.

D. Assembly test reports from a qualified independent testing agency certifying and substantiating compliance of gypsum board shaft-wall assemblies with structural and sound-attenuation performance requirements based on tests performed on manufacturers standard assemblies representing those indicated.

E. Fire-test-response reports from testing and inspecting agency substantiating compliance of gypsum board shaft-wall assemblies with fire-resistivity performance requirements.

1. Include data substantiating that items indicated as penetrating gypsum board shaft-wall assemblies do not negate fire resistance rating.

F. Samples: Submit 12” inch long samples of each type of trim accessory.

1.5 QUALITY ASSURANCE

A. Fire-Resistance Rating: Where ratings are indicated match applicable assemblies tested per ASTM E 119 by fire testing laboratories or to design designations in UL "Fire Resistance Directory" or in listing of other testing agencies acceptable to authorities having jurisdiction.

B. Calculations: Submit calculations for the design of the system including deflections in place stresses negative pull-off loads and capacity of fasteners. Calculations shall be signed and sealed by a Professional Engineer registered in the State of New York

C. Gypsum Board Terminology Standard: GA-505 by Gypsum Association.

D. Installer: Firm with not less than 5 years of successful experience in the installation of specified materials.

1.6 DELIVERY STORAGE AND HANDLING

A. Deliver materials in original packaging bearing brand name and identification of manufacturer or supplier.

B. Store materials to keep them dry and protected from soiling dirt or damage. Neatly stack gypsum boards flat to prevent sagging.

C. Handle gypsum boards to prevent damage to edges ends or surfaces. Protect trim accessories from being bent or damaged.

1.7 PROJECT CONDITIONS

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

B. Do not install interior products until installation areas are enclosed and conditioned.

C. Do not install panels that are wet those that are moisture damaged and those that are mold damaged.

1. Indications that panels are wet or moisture damaged include but are not limited to discoloration sagging or irregular shape.
2. Indications that panels are mold damaged include but are not limited to fuzzy or splotchy surface contamination and discoloration.

PART 2 - PRODUCTS

2.1 FRAMING SYSTEMS

A. Manufacturers: Subject to compliance with requirements manufacturers offering gypsum board systems which may be incorporated in the Work include but are not limited to the following:

1. Galvanized Steel Framing and Furring:

a. Bostwick Steel Framing Co.
b. Gold Bond Building Products Division.
c. Marino Industries Corp.

B. Framing Members: Comply with ASTM C 754 for conditions indicated.

C. Steel Sheet Components: Comply with ASTM C 645 requirements for metal unless otherwise indicated.

D. Protective Coating: (Typical) ASTM A 653/A 653M G60 hot-dip galvanized unless otherwise indicated.

E. Studs and Runners: ASTM C 645; spacing as noted. (All studs shall be galvanized type – No exceptions)

1. Base- Metal Thickness: Minimum 22 gage except provide material with thickness required to accommodate deflection performance requirements without increasing overall wall thickness indicated.
2. Depth of Section: As indicated on the Drawings.
3. Runners: Match studs; type recommended by stud manufacturer for floor and ceiling support of studs and for vertical abutment of drywall work at other work.

F. Fasteners for Furring Members: Type and size recommended by furring manufacturer for the substrate and application as required. (All studs shall be galvanized type – No exceptions)

G. Deflection Tracks: Steel sheet top runner manufactured to prevent cracking of finishes applied to interior partition framing resulting from deflection of structure above in thickness not less than indicated for studs and in width to accommodate depth of studs.

H. Firestop Tracks: Top runner manufactured to allow partition heads to expand and contract with movement of the structure while maintaining continuity of fire-resistance-rated assembly indicated; in thickness not less than indicated for studs and in width to accommodate depth of studs.

1. Products: Subject to compliance with requirements products that may be incorporated into the Work include but are not limited to the following:

a. Fire Trak Corp: Fire Trak attached to studs with Fire Trak Slip Clip unless otherwise indicated.
b. Metal- Lite Inc; The System.

I. Flat Strap and Backing Plate: Steel sheet for blocking and bracing in length and width to accommodate item being supported.

1. Minimum Base-Metal Thickness: 0.033” inch.

J. Cold-Rolled Channel Bridging: Steel 0.053”-inch minimum base-metal thickness with minimum 1/2-inch- wide flanges.

1. Depth: As indicated on Drawings.
2. Clip Angle: Not less than 1-1/2” by 1-1/2” inches 0.068”-inch- thick galvanized steel.

K. Hat-Shaped Rigid Furring Channels: ASTM C 645.

1. Minimum Base-Metal Thickness: 0.018” inch.
2. Depth: As indicated on Drawings.

2.2 PANELS GENERAL

A. Size: Provide in maximum lengths and widths available that will minimize joints in each area and that correspond with support system indicated.

2.3 INTERIOR GYPSUM BOARD

A. General: Complying with ASTM C 36/C 36M or ASTM C 1396/C 1396M as applicable to type of gypsum board indicated and whichever is more stringent.

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

a. American Gypsum Co.
b. BPB America Inc.
c. G-P Gypsum.
d. Lafarge North America Inc.
e. National Gypsum Company.
f. USG Corporation.

B. Moisture- and Mold-Resistant Type: With moisture- and mold-resistant core and surfaces. Location (All walls and types no exceptions)

1. Core: 5/8” inch Type X.
2. Long Edges: Tapered.

2.4 TILE BACKING PANELS

A. Glass Mat Water Resistant Backing Board: ASTM C 1178/C 1178M with manufacturer's standard edges.

1. Products: Subject to compliance with requirements [provide one of the following or approved equal:

a. USG Durock
b. CertainTeed Corp.; Glass Roc Tile Backer.
c. Georgia Pacific Gypsum LLC; Dens-Shield Tile Backer.
d. Or equal

2. Core: 5/8” inch Type X. Min
3. Mold Resistance: ASTM D 3273 score of 10.

2.5 SUSPENSION SYSTEMS (all systems shall be galvanized no exceptions)

A. Hanger Attachments to Concrete:

1. Anchors: Fabricated from corrosion-resistant materials with holes or loops for attaching wire hangers and capable of sustaining without failure a load equal to 5 times that imposed by construction as determined by testing according to ASTM E 488 by an independent testing agency.

a. Type: Post-installed chemical anchor or expansion anchor to suit application.

2. Powder-Actuated Fasteners: Suitable for application indicated fabricated from corrosion-resistant materials with clips or other devices for attaching hangers of type indicated and capable of sustaining without failure a load equal to 10 times that imposed by construction as determined by testing according to ASTM E 1190 by an independent testing agency.

B. Flat Hangers or Rods: Steel sheet 1” by 3/16” inch or 0.25” inch diameter steel rod by length to suit application.

C. Carrying Channels: Galvanized Cold-rolled commercial-steel sheet with a base-metal thickness of 0.053” inch and minimum ½”-inch- wide flanges.

1. Depth: As Required for Loading

D. Hat-Shaped Rigid Furring Channels: ASTM C 645.

1. Minimum Base-Metal Thickness: 0.018” inch.
2. Depth: As indicated on Drawings.

E. Grid Suspension System for Gypsum Board Ceilings: ASTM C 645 indirect-hung system composed of main beams and cross-furring members that interlock.

1. Products: Subject to compliance with requirements products that may be incorporated into the Work include but are not limited to the following:

a. Armstrong World Industries Inc.: Drywall Grid Systems.
b. Chicago Metallic Corporation: Drywall Grid System.
c. USG Corporation: Drywall Suspension System.
d. Custom perimeter trim

2.6 AUXILIARY MATERIALS

A. General: Provide auxiliary materials that comply with referenced installation standards.

1. Fasteners for Metal Framing: Of type material size corrosion resistance holding power and other properties required to fasten steel members to substrates.

B. Isolation Strip at Exterior Walls: Provide one of the following:

1. Foam Gasket: Adhesive-backed closed-cell vinyl foam strips that allow fastener penetration without foam displacement 1/8" inch thick in width to suit steel stud size.

C. Steel Drill Screws: ASTM C 1002 unless otherwise indicated.

D. Track Fasteners: Power-driven fasteners of size and material required to withstand loading conditions imposed on shaft-wall assemblies without exceeding allowable design stress of track fasteners or structural substrates in which anchors are embedded.

1. Expansion Anchors: Fabricated from corrosion-resistant materials with capability to sustain without failure a load equal to 5 times design load as determined by testing per ASTM E 488 conducted by a qualified testing agency.
2. Power-Actuated Anchors: Fastener system of type suitable for application indicated fabricated from corrosion-resistant materials with capability to sustain without failure a load equal to 10 times design load as determined by testing per ASTM E 1190 conducted by a qualified testing agency.

2.7 JOINT TREATMENT MATERIALS

A. General: Comply with ASTM C 475/C 475M.

B. Joint Tape:

1. Interior Gypsum Wallboard: Water/mold resistant "FibraTape" or equal
2. Tile Backing Panels: Adfors Tape" or equal.

C. Joint Compound for Interior Gypsum Wallboard: For each coat use formulation that is compatible with other compounds applied on previous or for successive coats.

1. Pre-filling: At open joints rounded or beveled panel edges and damaged surface areas use setting-type taping compound.
2. Embedding and First Coat: For embedding tape and first coat on joints fasteners and trim flanges use setting-type taping compound.

a. Use setting-type compound for installing paper-faced metal trim accessories.

3. Fill Coat: For second coat use setting-type sandable topping compound.
4. Finish Coat: For third coat use setting-type sandable topping compound.
5. Skim Coat: For final coat of Level 5 finish (or as approved) use high-build interior coating product designed for application by airless sprayer and to be used instead of skim coat to produce Level 5 finish.

2.8 TRIM ACCESSORIES

A. General: Except where shown otherwise provide manufacturer's custom and standard trim accessories for drywall work formed of either galvanized steel with either knurled and perforated or expanded flanges for nailing or stapling and/or extruded aluminum members; and beaded for concealment of flanges in joint compound.

B. Steel Edge Trims: ASTM C 1047; standard trim accessories of types required for drywall work formed of galvanized steel and beaded for concealment of flanges in joint compound.

1. Provide corner beads at external corners L-type edge trim-beads and one-piece control joint beads. Provide U-type edge trim beads where indicated.
2. Where indicated on the Drawings or as directed by the Architect provide custom formed bent steel shapes for wall and ceiling conditions as manufactured by Fry Reglet or approved equal.

C. Aluminum Reveal/Corner Trim: Provide extruded aluminum reveal trims fabricated from 6063-T5 alloy aluminum. Provide reveal trims with the manufacturer's standard clear anodized finish matching the Architect's samples. Trims and accessories shall be of the sizes profiles shapes and configurations as indicated on the Drawings.

1. Product: Type profile and color as approved
2 As manufactured by Fry Reglet as scheduled.
3 Other profiles indicated.

D. End caps and partition seals: (if required)

1. Emseal quite joint and end cap
2. Neoprene closure

2.9 MISCELLANEOUS MATERIALS

A. General: Provide auxiliary materials for gypsum drywall work of the type and grade recommended by the manufacturer of the gypsum board.

B. Gypsum Board Screws: Comply with ASTM C 1002 for fastening gypsum board to type of framing or substrate material indicated.

C. Acoustical Sealant: Non- drying non-hardening non-staining non-bleeding sealant for concealed applications and non-oxidizing skinnable paintable gunnable sealant for exposed applications per ASTM C 919. Product effectively reduces airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90

1. Products: Subject to compliance with requirements products that may be incorporated into the Work include but are not limited to the following:

a. Accumetric LLC; BOSS 824 Acoustical Sound Sealant.
b. Grabber Construction Products; Acoustical Sealant GSC.
c. Pecora Corporation; AC-20 FTR or AIS-919 to suit application.
d. Specified Technologies Inc.; Smoke N Sound Acoustical Sealant.
e. USG Corporation; SHEETROCK Acoustical Sealant.

2. Acoustical joint sealant shall have a VOC content of 250 g/L or less when calculated according to 40 CFR 59 Subpart D (EPA Method 24).

D. Sound Attenuation Blankets: ASTM C 665 Type I (blankets without membrane facing) produced by combining thermosetting resins with mineral fibers manufactured from slag wool or rock wool.

1. Fire-Resistance-Rated Assemblies: Comply with mineral-fiber requirements of assembly.
2. Reference Section Division 7 Insulation for installation and additional requirements.

E. Laminating Adhesive: Water-resistant adhesive as recommended by gypsum board manufacturer for laminating gypsum boards.

F. Expansion Joints: Types as approved.

G. Leveling and Patching Compound: Latex cement as recommended by gypsum board manufacturer.

H. Water: Clean and free of deleterious material.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas and substrates with Installer present and including welded hollow-metal frames and framing for compliance with requirements and other conditions affecting performance.

B. Examine panels before installation. Reject panels that are wet moisture damaged and mold damaged.

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

3.2 PREPARATION

A. Where required attach offset anchor plates to surfaces indicated. Provide continuous units fastened to building structure not more than 24” inches O.C. and to ceiling runners.

3.3 INSTALLING FRAMED ASSEMBLIES

A. Install studs at spacing indicated so flanges within framing system point in same direction.

B. Install tracks (runners) at floors and overhead supports. Extend framing full height to structural supports or substrates above suspended ceilings except where partitions are indicated to terminate at suspended ceilings. Continue framing around ducts penetrating partitions above ceiling.

1. Slip-Type Head Joints: Where framing extends to overhead structural supports install to produce joints at tops of framing systems that prevent axial loading of finished assemblies.
2. Door Openings: Screw vertical studs at jambs to jamb anchor clips on door frames; install runner track section (for cripple studs) at head and secure to jamb studs.

    a. Install two studs at each jamb unless otherwise indicated.
    b. Install cripple studs at head adjacent to each jamb stud with a minimum ½”-inch clearance from jamb stud to allow for installation of control joint in finished assembly.
    c. Extend jamb studs through suspended ceilings and attach to underside of overhead structure.

3. Other Framed Openings: Frame openings other than door openings the same as required for door openings unless otherwise indicated. Install framing below sills of openings to match framing required above door heads.

4. Fire-Resistance-Rated Partitions: Install framing to comply with fire-resistance-rated assembly indicated and support closures and to make partitions continuous from floor to underside of solid structure.

    a. Firestop Track: Where indicated install to maintain continuity of fire-resistance-rated assembly indicated.

5. Sound-Rated Partitions: Install framing to comply with sound-rated assembly indicated.

C. Installation Tolerance: Install each framing member so fastening surfaces vary not more than 1/8” inch from the plane formed by faces of adjacent framing.

3.4 INSTALLING SUSPENSION SYSTEMS

A. Install suspension system components in sizes and spacings indicated on Drawings but not less than those required by referenced installation standards for assembly types and other assembly components indicated.

B. Isolate suspension systems from building structure where they abut or are penetrated by building structure to prevent transfer of loading imposed by structural movement.

C. Suspend hangers from building structure as follows:

1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structural or suspension system.

    a. Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing countersplaying or other equally effective means.

2. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with locations of hangers required to support standard suspension system members install supplemental suspension members and hangers in the form of trapezes or equivalent devices.

    a. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced installation standards.

3. Flat Hangers: Secure to structure including intermediate framing members by attaching to inserts eye screws or other devices and fasteners that are secure and appropriate for structure and hanger and in a manner that will not cause hangers to deteriorate or otherwise fail.
4. Do not connect or suspend steel framing from ducts pipes or conduit.

D. Seismic Bracing: Sway-brace suspension systems with hangers used for support.

E. Grid Suspension Systems: Attach perimeter wall track or angle where grid suspension systems meet vertical surfaces. Mechanically join main beam and cross-furring members to each other and butt-cut to fit into wall track.

F. Installation Tolerances: Install suspension systems that are level to within 1/8” inch in 12 feet measured lengthwise on each member that will receive finishes and transversely between parallel members that will receive finishes.

3.5 APPLYING AND FINISHING PANELS GENERAL

A. Comply with ASTM C 840.

B. Install ceiling panels across framing to minimize the number of abutting end joints and to avoid abutting end joints in central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.

C. Install panels with face side out. Butt panels together for a light contact at edges and ends with not more than 1/16” inch of open space between panels. Do not force into place.

D. Locate edge and end joints over supports except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions. Do not make joints other than control joints at corners of framed openings.

E. Form control and expansion joints with space between edges of adjoining gypsum panels. Locate where indicated and if not indicated space at 30 feet on center in locations as approved by the Architect.

F. Cover both faces of support framing with gypsum panels in concealed spaces (above ceilings etc.) except in chases braced internally.

1. Unless concealed application is indicated or required for sound fire air or smoke ratings coverage may be accomplished with scraps of not less than 8 sq. ft. in area.
2. Fit gypsum panels around ducts pipes and conduits.
3. Where partitions intersect structural members projecting below underside of floor/roof slabs and decks cut gypsum panels to fit profile formed by structural members; allow ¼”- to 3/8”-inch- wide joints to install sealant.

G. Isolate perimeter of gypsum board applied to non-load-bearing partitions at structural abutments except floors. Provide ¼”- to ½”-inch- wide spaces at these locations and trim edges with edge trim where edges of panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.

H. Attachment to Steel Framing: Attach panels so leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.

I. STC-Rated Assemblies: Seal construction at perimeters behind control joints and at openings and penetrations with a continuous bead of acoustical sealant. Install acoustical sealant at both faces of partitions at perimeters and through penetrations. Comply with ASTM C 919 and with manufacturer's written recommendations for locating edge trim and closing off sound-flanking paths around or through assemblies including sealing partitions above acoustical ceilings.

J. Install sound attenuation blankets before installing gypsum panels unless blankets are readily installed after panels have been installed on one side.

3.6 APPLYING INTERIOR GYPSUM BOARD

A. Single-Layer Application:

1. On ceilings apply gypsum panels before wall/partition board application to greatest extent possible and at right angles to framing unless otherwise indicated.
2. On partitions/ walls apply gypsum panels horizontally perpendicular to framing unless otherwise indicated or required by fire-resistance-rated assembly and minimize end joints.

    a. Stagger abutting end joints not less than one framing member in alternate courses of panels.

3. Fastening Methods: Apply gypsum panels to supports with steel drill screws.

B. Multilayer Application:

1. On partitions/walls apply gypsum board indicated for base layers and face layers vertically (parallel to framing) with joints of base layers located over stud or furring member and face-layer joints offset at least one stud or furring member with base-layer joints unless otherwise indicated or required by fire-resistance-rated assembly. Stagger joints on opposite sides of partitions.
2. Fastening Methods: Fasten base layers with screws fasten face layers with adhesive and supplementary fasteners.

3.7 APPLYING GYPSUM PANELS FOR CEILINGS AND SOFFITS

A. Apply panels perpendicular to supports with end joints staggered and located over supports.

1. Install with ¼”-inch open space where panels abut other construction or structural penetrations.
2. Fasten with corrosion-resistant screws.

3.8 TRIM ACCESSORIES

A. General: For trim with back flanges intended for fasteners attach to framing with same fasteners used for panels. Otherwise attach trim according to manufacturer's written instructions.

B. Interior Trim: Install in the following locations:

1. Cornerbead: Use at outside corners unless otherwise indicated.
2. LC-Bead: Use where indicated.

3.9 FINISHING GYPSUM BOARD

A. General: Treat gypsum board joints interior angles edge trim control joints penetrations fastener heads surface defects and elsewhere as required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.

B. Gypsum Board Finish Levels: Finish panels to levels indicated below and according to ASTM C 840:

1. Level 1: Ceiling plenum areas concealed areas and where indicated.
2. Level 2: Panels that are substrate for tile and where indicated.
3. Level 3: Where indicated on Drawings.
4. Level 4: (Provide level floor typ.) At panel surfaces that will be exposed to view unless otherwise indicated.
5. Primer and its application to surfaces are specified in other Division 09 Sections.
6. Level 5: At panel surfaces where special paint applied finishes and assemblies are scheduled and where indicated on drawings.

    a. Primer and its application to surfaces are specified in other Division 09 Sections.
    b. Coordinate all levels for special materials and wall covering requirements. Reference manufacturers requirements

C. Cementitious Backer Units: Finish according to manufacturer's written instructions.

D. Water-Resistant and Tile Backer Board: Treat joints and fasteners to comply with directions of backer board and water-resistant joint compound manufacturer using water-resistant joint compound. Do not crown the joints. Embed tape in joints and form true angles.

E. Partial Finishing: Omit third coat and sanding on concealed drywall work which requires finishing to achieve fire-resistance rating sound rating or to act as an air or smoke barrier.

3.10 GYPSUM BOARD REPAIRS

A. General: Prior to construction, verify site conditions and document locations where existing gypsum board assemblies need to be patched, replaced or repaired. Perform repair work in accordance with the requirements specified within this Section for new work, as well as United States Gypsum Co.'s "Gypsum Construction Handbook".

3.11 PROTECTION

A. Protect installed products from damage from weather condensation direct sunlight construction and other causes during remainder of the construction period.

B. Remove and replace panels that are wet moisture damaged and mold damaged.

1. Indications that panels are wet or moisture damaged include but are not limited to discoloration sagging or irregular shape.
2. Indications that panels are mold damaged include but are not limited to fuzzy or splotchy surface contamination and discoloration.

END OF SECTION 092600

SECTION 093000 – TILE

PART 1 - GENERAL

1.1 SUMMARY

A. The Work of this Section shall include but is not limited to the following:

1. Ceramic tile as scheduled.
2. Tile over glazed masonry installations.
3. Shower assemblies
4. Trench drain fabrications
5. Stone Thresholds
6. Shower curb
7. Waterproofing/Crack isolation Membrane
8. Trim units matching field tile.
9. Mortars, grouts and similar setting accessories.
10. Metal edge strips installed as part of tile installations.

1.2 DEFINITIONS

A. General: Definitions in the ANSI A108 series of tile installation standards and in ANSI A137.1 apply to Work of this Section unless otherwise specified.

1. Coordinate TCNA- installations for tile installation requirements.

B. Module Size: Actual tile size (minor facial dimension as measured per ASTM C 499) plus joint width indicated.

C. Facial Dimension: Actual tile size (minor facial dimension as measured per ASTM C 499).

D. Facial Dimension: Nominal tile size as defined in ANSI A137.1.

E. Coordinate TCNA- installations for Large format tile installation requirements

1.3 PERFORMANCE REQUIREMENTS

A. Static Coefficient of Friction: For tile installed on walkway surfaces, provide products with the following values as determined by testing identical products per ASTM C 1028:

1. Level Surfaces: Minimum 0.06.

B. ADA/ABA Accessibility Guidelines: U.S. Architectural & Transportation Barriers Compliance Board's "Americans with Disability Act (ADA) and Architectural Barriers Act (ABA) Accessibility Guidelines for Buildings and Facilities.

1.4 SUBMITTALS

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

B. Shop Drawings: Show locations of each type of tile and tile pattern. Show widths details and locations of expansion contraction control and isolation joints in tile substrates and finished tile surfaces.

1. Shop drawings shall clearly show tile pattern, the identity and finish of tile, large size details and sections where tile abut other materials dimensions, thicknesses, and special details.
2. Show locations and details of joints both within tile and between adjacent construction.
3. Include details of mortar joints.
4. Show locations and details of anchors and backup.
5. Provide Custom pattern drawings where required
6. Coordinate tile install in other assemblies.

C. Samples for Verification:

1. Full-size units of each type and composition of tile and for each color and finish required.
2. Assembled samples with grouted joints for each type and composition of tile and for each color and finish required at least 12” inches square and mounted on rigid panel. Use grout of type and in color or colors approved for completed work.
3. Full-size units of each type of trim and accessory.
4. Stone thresholds in 6”-inch lengths.
5. Metal edge strips in 6”-inch lengths.

D. Installation Program: (TCNA-TR712/TR713) detail tile over tile installation process plan, including bonding agents, protection of surrounding materials and project site. Provisions for health safety and for dust control during operations. Describe in detail the materials, methods and equipment to be used.

1. Describe proposed as a written description including evidence of successful use on other comparable projects and a testing program to demonstrate their effectiveness for this Project.
2. Provide for mock up and bonding test prior to start of work.

E. Master Grade Certificates: For each shipment type and composition of tile signed by tile manufacturer and Installer.

F. Product Certificates: For each type of product signed by product manufacturer.

G. Qualification Data: For Installer.

H. Material Test Reports: For each tile-setting and -grouting product.

1.5 QUALITY ASSURANCE

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

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

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

C. Source Limitations for Other Products: Obtain each of the following products specified in this Section through one source from a single manufacturer for each product:

1. Stone thresholds and saddles:
2. Waterproofing/crack isolation membrane.
3. Joint sealants.
4. Cementitious backer units.
5. Metal edge strips
6. Special adhesives and bonding mortar.

D. Mockups: Build mockups to verify selections made under sample Submittals and to demonstrate aesthetic effects and qualities of materials and execution.

1. Build mockup of each type of floor and wall installation.
2. For each installation, Contractor shall build a dry mock-up to show varieties in color and pattern of tile, for the Architect and Owners Representative to approve. Rearrange units as necessary to provide even distribution and range of color or pattern.

E. Pre-installation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination."

1.6 DELIVERY STORAGE AND HANDLING

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

B. Store tile and cementitious materials on elevated platforms under cover and in a dry location.

C. Store aggregates where grading and other required characteristics can be maintained and contamination avoided.

D. Store liquid latexes and emulsion adhesives in unopened containers and protected from freezing.

E. Handle tile that has temporary protective coating on exposed surfaces to prevent coated surfaces from contacting backs or edges of other units. If coating does contact bonding surfaces of tile remove coating from bonding surfaces before setting tile.

1.7 PROJECT CONDITIONS

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

1.8 EXTRA MATERIALS

A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Tile and Trim Units: Furnish quantity of full-size units equal to 3 percent of amount installed for each type composition color pattern and size indicated.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

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

B. Tile:

1. Daltile
2. (Basis of Design) As scheduled

C. Setting and Grout Manufacturers:

1. Bostik Inc.
2. Laticrete International Inc.
3. MAPEI Corporation.
4. Litokol
5. Ardex
6. As scheduled.

D. Selected Products: Refer to the Drawings and Finish Schedules for products and manufacturers.

1. Coordinate with Architectural Finish Specifications for all currant products and modifications and for additional requirements

2.2 PRODUCTS GENERAL

A. ANSI Ceramic Tile Standard: Provide tile that complies with ANSI A137.1 "Specifications for Ceramic Tile" for types compositions and other characteristics indicated.

1. Provide tile complying with Standard grade requirements unless otherwise indicated.
2. For facial dimensions of tile comply with requirements relating to tile sizes specified in Part 1 "Definitions" Article.

B. ANSI Standards for Tile Installation Materials: Provide materials complying with ANSI standards referenced in "Setting and Grouting Materials" Article.

C. Colors Textures and Patterns: Where manufacturer's standard products are indicated for tile grout and other products requiring selection of colors surface textures patterns and other appearance characteristics provide specific products or materials complying with the following requirements:

1. As selected by Architect from manufacturer's full range.

D. Factory Blending: For tile exhibiting color variations within ranges selected during Sample submittals blend tile in factory and package so tile units taken from one package show same range in colors as those taken from other packages and match approved Samples.

E. Mounting: For factory-mounted tile provide back- or edge-mounted tile assemblies as standard with manufacturer unless otherwise indicated.

1. Where tile is indicated for installation in wet areas do not use back- or edge-mounted tile assemblies unless tile manufacturer specifies in writing that this type of mounting is suitable for installation indicated and has a record of successful in-service performance.

F. Factory-Applied Temporary Protective Coating: Where indicated under tile type protect exposed surfaces of tile against adherence of mortar and grout by precoating with continuous film of petroleum paraffin wax applied hot. Do not coat unexposed tile surfaces.

2.3 PRODUCTS

A. Available Varieties and Sources: Subject to compliance with requirements stone varieties that may be incorporated into the Work include but are not limited to those indicated.

B. Abrasion Resistance: Provide stone with a value of not less than 10 as determined per ASTM C 1353 or ASTM C 241.

2.4 THRESHOLDS/CURBS

A. General: Fabricate to sizes and profiles indicated or required to provide transition between adjacent floor finishes.

1. Bevel edges at 1:2 slope aligning lower edge of bevel with adjacent floor finish. Limit height of bevel to ½" inch or less and finish bevel to match face of threshold.

B. Thresholds: ASTM C 503 with a minimum abrasion resistance of 10 per ASTM C 1353 or ASTM C 241.

1. Description: Stone or building standard to Match Architect's sample and as scheduled

C. Shower Curb: As schedules match approved samples

2.5 WATERPROOFING MEMBRANES FOR THIN-SET TILE INSTALLATIONS

A. General: Manufacturer's standard product that complies with ANSI A118.10.

B. Latex Rubber Waterproofing: Manufacturer's standard factory- prepackaged job-mixed proprietary two-part formulation consisting of liquid latex rubber and powder for trowel application and glass fiber fabric reinforcing.

1. Products: Subject to compliance with requirements provide "Laticrete 9235 Waterproof Membrane" as manufactured by Laticrete International Inc or as approved.

2.6 CRACK ISOLATION MEMBRANE

A. General: Manufacturer's standard product that complies with ANSI A118.10.

1. Fabric Reinforced Fluid Applied Product: System consisting of liquid latex rubber with a VOC content of 65 g/L or less when calculated according to 40 CFR 59 Subpart D (EPA Method 24) and fabric reinforcement. Provide manufacturer's standard factory - prepackaged job mixed proprietary two-part formulation consisting

of liquid latex rubber and powder for trowel/roller application and glass fiber fabric reinforcing.

2. Selected Product: Subject to compliance with requirements provide "Laticrete Blue 92 Anti Fracture Membrane" and fabric reinforcement as manufactured by Laticrete International Inc. or approved equal.
3. For drainage fabrications provide Hydro Ban reinforced sheet membranes.

2.7 SETTING AND GROUTING MATERIALS

A. General: Manufacturer's standard product that complies with ANSI A118.10 and is recommended by the manufacturer for the application indicated. Include reinforcement and accessories recommended by manufacturer.

2.8 SETTING MATERIALS

A. Portland cement Mortar (Thickset) Sloped Installation Materials: ANSI A108.02.

1. Reinforcing Wire Fabric: Galvanized welded wire fabric 2” by 2” inches by 0.062”-inch diameter; comply with ASTM A 185 and ASTM A 82 except for minimum wire size.
2. Latex Additive: Manufacturer's standard water emulsion serving as replacement for part or all of gaging water of type specifically recommended by latex-additive manufacturer for use with field-mixed portland cement and aggregate mortar bed.

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

1. Provide prepackaged dry-mortar mix containing dry redispersible vinyl acetate or acrylic additive to which only water must be added at Project site.
2. For wall applications provide mortar that complies with requirements for non-sagging mortar in addition to the other requirements in ANSI A118.4.
3. For wet areas provide Epoxy Grout as directed.

2.9 GROUT MATERIALS

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

1. Polymer Type: Ethylene vinyl acetate or acrylic additive in dry redispersible form prepackaged with other dry ingredients.
2. (As approved) Epoxy grout for wet areas and special applications: epoxy grout comply with ANSI A108.6

B. General: Provide manufacturer's standard chemically curing elastomeric sealants of base polymer and characteristics indicated that comply with applicable requirements in Division 7 Section "Joint Sealants."

C. Colors: Provide colors of exposed sealants to match colors of grout in tile adjoining sealed joints unless otherwise indicated.

D. One-Part Mildew-Resistant Silicone Sealant: ASTM C 920; Type S; Grade NS; Class 25; Uses NT G A and as applicable to nonporous joint substrates indicated O; formulated with fungicide intended for sealing interior ceramic tile joints and other nonporous substrates that are subject to in-service exposures of high humidity and extreme temperatures.

2.10 TILE OVER TILE PRIMER MATERIAL

A. Bond Promoting Primer:

1. Sika® Latex R or as approved.
2. Mapei: ECO Prim Grip

2.11 MISCELLANEOUS MATERIALS

A. Trowelable Underlayments and Patching Compounds: Latex-modified portland cement-based formulation provided or approved by manufacturer of tile-setting materials for installations indicated.

B. Metal Edge Strips: Angle or L-shape height to match tile and setting-bed thickness metallic or combination of metal and PVC or neoprene base designed specifically for flooring applications white zinc alloy exposed-edge material.

1. As scheduled.

a. Schluter Deco
b. Schluter Quadec
c. Schluter Indec

C. Temporary Protective Coating: Either product indicated below that is formulated to protect exposed surfaces of tile against adherence of mortar and grout; compatible with tile mortar and grout products; and easily removable after grouting is completed without damaging grout or tile.

D. Tile Cleaner: A neutral cleaner capable of removing soil and residue without harming tile and grout surfaces specifically approved for materials and installations indicated by tile and grout manufacturers.

E. Grout Sealer: Manufacturer's silicone product for sealing grout joints that does not change color or appearance of grout.

2.12 MIXING MORTARS AND GROUT

A. Mix mortars and grouts to comply with referenced standards and mortar and grout manufacturers' written instructions.

B. Add materials water and additives in accurate proportions.

C. Obtain and use type of mixing equipment mixer speeds mixing containers mixing time and other procedures to produce mortars and grouts of uniform quality with optimum performance characteristics for installations indicated.

2.13 FABRICATION

A. Facial Dimensions of Tiles: Do not vary facial dimensions from specified dimensions by more than plus or minus 1/64 inch.

B. Joint Surfaces: Except for specified beveled or eased edges if any dress joint surfaces square for full depth of tile.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates areas and conditions where tile will be installed with Installer present for compliance with requirements for installation tolerances and other conditions affecting performance of installed tile.

1. Verify that substrates for setting tile are firm; dry; clean; free of oil waxy films and curing compounds; and within flatness tolerances required by referenced ANSI A108 Series of tile installation standards for installations indicated.
2. Verify that installation of ground anchors recessed frames electrical and mechanical units of work and similar items located in or behind tile has been completed before installing tile.
3. Verify that joints and cracks in tile substrates are coordinated with tile joint locations; if not coordinated adjust joint locations in consultation with Architect.

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

3.2 PREPARATION

A. Remove coatings including curing compounds and other substances that contain soap wax oil or silicone that are incompatible with tile-setting materials.

B. Provide concrete substrates for tile floors installed with adhesives or thin-set mortar that comply with flatness tolerances specified in referenced ANSI A108 Series of tile installation standards.

1. Fill cracks holes and depressions with trowelable leveling and patching compound according to tile-setting material manufacturer's written instructions. Use product specifically recommended by tile-setting material manufacturer.
2. Remove protrusions bumps and ridges by sanding or grinding.

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

3.3 INSTALLATION GENERAL

A. ANSI Tile Installation Standards: Comply with parts of ANSI A108 Series "Specifications for Installation of Ceramic Tile" that apply to types of setting and grouting materials and to methods indicated in ceramic tile installation schedules.

B. TCNA Installation Guidelines: TCNA's "Handbook for Ceramic Tile Installation." Comply with TCNA installation methods indicated in ceramic tile installation schedules.

C. Extend tile work into recesses and under or behind equipment and fixtures to form complete covering without interruptions unless otherwise indicated. Terminate work neatly at obstructions edges and corners without disrupting pattern or joint alignments.

D. Accurately form intersections and returns. Perform cutting and drilling of tile without marring visible surfaces. Carefully grind cut edges of tile abutting trim finish or built-in items for straight aligned joints. Fit tile closely to electrical outlets piping fixtures and other penetrations so plates collars or covers overlap tile.

E. Jointing Pattern: Lay tile in grid pattern unless otherwise indicated. Align joints when adjoining tiles on floor base walls and trim are same size. Lay out tile work and center tile fields in both directions in each space or on each wall area. Adjust to minimize tile cutting. Provide uniform joint widths unless otherwise indicated.

1. For tile mounted in sheets make joints between tile sheets same width as joints within tile sheets so joints between sheets are not apparent in finished work.

F. Expansion Joints: Locate expansion joints and other sealant-filled joints including control contraction and isolation joints where indicated during installation of setting materials mortar beds and tile. Do not saw-cut joints after installing tiles.

1. Locate joints in tile surfaces directly above joints in concrete substrates.
2. Prepare joints and apply sealants to comply with requirements in Division 7 Section "Joint Sealants."

G. Grout tile to comply with requirements of the following tile installation standards:

1. For ceramic tile grouts (sand-portland cement; dry-set commercial portland cement; and latex-portland cement grouts) comply with ANSI A108.10.
2. For chemical-resistant epoxy grouts comply with ANSI A108.6.
3. For chemical-resistant furan grouts comply with ANSI A108.8.

3.4 WATERPROOFING MEMBRANE INSTALLATION

A. Install waterproofing to comply with ANSI A108.13 and waterproofing manufacturer's written instructions to produce waterproof membrane of uniform thickness bonded securely to substrate.

B. Install crack-suppression membrane to comply with manufacturer's written instructions to produce membrane of uniform thickness bonded securely to substrate.

C. Do not install tile over waterproofing until waterproofing has cured and been tested to determine that it is watertight.

3.5 WALL TILE INSTALLATION METHODS

A. Install types of wall tile designated to comply with requirements indicated below for setting bed methods and TCNA installation methods related to subsurface and grout.

1. Latex Portland Cement Mortar: ANSI A108.5.
2. Water Resistant Backer Board: TCA B413.
3. Grout: Latex portland cement.
4. Provide cement backer for full wall installations if required
5. Coordinate special TCNA requirements for large tile over tile installations.

3.6 TILE OVER TILE INSTALLATION

A. Reference TR”/Renovation methods in the TCNA Handbook for Ceramic, Glass and Stone Tile Installation and NTCA Reference Manual section “Tile Over Other Surfaces”

B. TCNA - TR712 and TR713

C. Methods General

1. Ensure that the structure will be able to support the added weight of the new tile and bond coat over the existing installation.
2. Provide Mechanical or chemical abrasion to existing tile.
3. Provide bond coating.
4. Test bonding sample

3.7 FLOOR INSTALLATION METHODS

A. Ceramic Floor Tile: Install tile to comply with requirements indicated below for setting bed methods TCNA installation methods related to types of subfloor construction and grout types:

B. Coordinate for concrete curbs and sloped assemblies

C. Coordinate trench drain fabrications and waterproofing.

D. Latex Portland Cement Mortar: ANSI A108.5; for ceramic tile floors unless otherwise indicated.

E. Latex Portland Cement (Thin Set) Interior: TCNA F122 03; with waterproof/crack isolation membrane at locations indicated on the Drawings or as directed by the Architect.

F. Grout: Latex portland cement grout for ceramic tile installations.

G. Stone Thresholds: TCNA TR611 03; Install stone thresholds at locations indicated; set in same type of setting bed as abutting field tile.

1. Set thresholds in latex portland cement mortar where mortar bed would otherwise be exposed above adjacent floor finish.

3.8 FLOOR TILE INSTALLATION

A. General: Install tile to comply with requirements in the Floor Tile Installation Schedule including those referencing TCNA installation methods and ANSI A108 Series of tile installation standards.

1. Latex Portland Cement Mortar: ANSI A108.5; for tile floors unless otherwise indicated.
2. Concrete Subfloors Interior: TCNA F113; latex-portland cement mortar.
3. Waterproof Membrane Interior: TCNA F122; thin- set with waterproof membrane.
4. Waterproof Membrane Interior: TCNA F 121; (sloped) cement mortar bed with waterproof membrane.
5. Grout: Sanded and unsanded latex-portland cement grout as specified.
6. Floor Tile: Install tile to comply with requirements indicated below for setting bed methods TCNA installation methods related to types of subfloor construction and grout types:
7. Meet the specifications for large format tiles - maximum substrate variation is not more than 1/8” in 10” and 1/16” in 24” **-** when measured from surface high points with a straightedge. Any substrate that exceeds the ANSI standards must be fixed with self-leveling underlayment to meet the flatness requirements before installing the tiles.

8. Coordinate special TCNA requirements for large format tile.

B. Metal Edge Strips: Install metal edge strips at locations indicated; set according to manufacturer recommendations.

C. Grout Sealer: Apply grout sealer to grout joints according to grout-sealer manufacturer's written instructions. As soon as grout sealer has penetrated grout joints remove excess sealer and sealer that has gotten on tile faces by wiping with soft cloth.

3.9 CLEANING AND PROTECTING

A. Cleaning: On completion of placement and grouting clean all ceramic tile surfaces so they are free of foreign matter.

1. Remove latex-portland cement grout residue from tile as soon as possible.
2. Clean grout smears and haze from tile according to tile and grout manufacturer's written instructions but no sooner than 10 days after installation. Use only cleaners recommended by tile and grout manufacturers and only after determining that cleaners are safe to use by testing on samples of tile and other surfaces to be cleaned. Protect metal surfaces and plumbing fixtures from effects of cleaning. Flush surfaces with clean water before and after cleaning.
3. Remove temporary protective coating by method recommended by coating manufacturer that is acceptable to tile and grout manufacturer. Trap and remove coating to prevent it from clogging drains.

B. When recommended by tile manufacturer apply coat of neutral protective cleaner to completed tile walls and floors. Protect installed tile work with kraft paper or other heavy covering during construction period to prevent staining damage and wear.

C. Prohibit foot and wheel traffic from tiled floors for at least seven days after grouting is completed.

D. Before final inspection remove protective coverings and rinse neutral cleaner from tile surfaces.

END OF SECTION 093000

SECTION 099100- PAINTING

PART 1 - GENERAL

1.1 SUMMARY

A. Work Included: The Work of this Section shall include but not be limited to the following:

1. Painting of interior surfaces as indicated and where required.
2. Metal assembly finish painting as indicated.

B. Work Not Included:

1. Pre-Finished Items: Do not include painting when shop or factory finishing is specified for such items as elevator and mechanical and electrical equipment.
2. Concealed Surfaces: Painting is not required on surfaces in concealed and generally inaccessible areas such as pipe spaces duct shafts.
3. Finished Metal Surfaces: Anodized aluminum factory-finished aluminum bronze stainless steel and similar finished metals will not require painting. Exposed no-hub piping will not require painting.
4. Operating Parts: Moving parts of mechanical and electrical devices motor and fan shafts will not require painting.

C. Labels: Do not paint over any code-required labels such as Underwriters' Laboratories and Factory Mutual or any equipment identification performance rating name or nomenclature plates.

1.2 SUBMITTALS

A. Product Data: Submit manufacturer's technical information including paint label analysis and application instructions for each material proposed.

1. Material List: Provide an inclusive list of required coating materials. Indicate each material and cross-reference specific coating finish system and application. Identify each material by manufacturer's catalog number and general classification.

B. Samples: Prior to painting submit samples for Architect's review of each required color and texture. Identify materials used on samples. Samples shall have each coat of paint exposed the same amount and tinted slightly different than other coats.

1. On 12" by 12" hardboard submit three samples of each color material and texture until sheen color and texture are acceptable.
2. Field Samples: On wall surfaces and other component surfaces duplicate finishes of prepared samples. Provide full-coat finish samples on at least 100 sq. ft. of surface until required sheen color and texture are obtained; simulate finished lighting conditions for review of in-place work.

a. Modify each color of the field samples a maximum of one (1) time and install a new field sample panel when directed by the Architect.

C. Certification by the manufacturer that products supplied comply with local regulations controlling use of volatile organic compounds (VOCs).

1.4 QUALITY ASSURANCE

A. Single Source Responsibility: Provide primers fillers and undercoats produced by same manufacturer as finish coats. Use only thinners approved by paint manufacturer and use only within recommended limits.

B. Coordination of Work: Review other sections of these specifications for shop primers to ensure compatibility of total coatings system. Upon request from other trades furnish information on finish materials to ensure that compatible prime coats are used.

C. Applicator Qualifications: Engage an experienced applicator who has completed painting/coating system applications similar in materials and scope to that indicated for this Project with a record of successful in-service performance.

1. In addition the applicator shall have not less than 5 consecutive years of professional paint experience; and be acceptable to the paint manufacturer for the application of the specified systems.

1.5 DELIVERY AND STORAGE

A. Deliver materials in original new and unopened packages and containers bearing manufacturer's name and label and following information:

1. Name or title of material.
2. Fed. Spec. number if applicable.
3. Manufacturer's name stock number and date of manufacture.
4. Contents by volume for major pigment and vehicle constituents.
5. Thinning and application instructions.
6. Color name and number.

B. Store materials not in actual use in tightly covered containers. Maintain containers used in storage of paint in a clean condition free of foreign materials and residue.

1. Protect materials from freezing where necessary. Keep storage area neat and orderly. Remove oily rags and waste daily. Ensure that workmen and work areas are adequately protected from fire hazards and health hazards resulting from use of paints.

1.6 PROJECT CONDITIONS

A. Apply water-base paints only when temperature of surfaces to be painted and surrounding air temperatures are between 50 deg. F and 90 deg. F unless otherwise permitted by paint manufacturer's instructions.

B. Apply solvent-thinned paints only when temperature of surfaces to be painted and surrounding air temperatures are between 45 deg. F and 95 deg. F unless otherwise permitted by paint manufacturer's instructions.

C. Do not apply paint when relative humidity exceeds 85%; or to damp or wet surfaces; unless otherwise permitted by paint manufacturer.

D. Cover other work which might be damaged by surface preparation. Provide temporary enclosures as required to confine surface preparation to protect the environment persons and property.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements provide paint products as manufactured by one of the following or equal acceptable to the Architect:

1. Benjamin Moore and Company.

2. Sherman Williams
2. Approved equal

B Selected Products: Refer to the Drawings and Finish Schedules for products and manufacturers.

1. Coordinate with Architectural Finish Specifications for all currant products and modifications and for additional requirements
2. Coordinate with types building standard paints and applications.

2.2 MATERIALS

A. Material Quality: Provide best quality grade of various types of coatings as regularly manufactured by acceptable paint materials manufacturers. Materials not displaying manufacturer's identification as a standard best-grade product will not be acceptable.

B. Volatile Organic Materials: Provide paint and coating products to comply with applicable environmental regulations and local authorities. Federal numbers where specified or referred to are for guidelines only.

C. Primers and Under coaters: Provide primers and under coaters recommended by the finish coating manufacturer for suitability with the substrate and compatibility with finish coats.

D. Color Pigments: Pure non-fading to suit substrates and service.

1. Lead content in pigment if any is limited to contain not more than 0.5% lead as lead metal based on the total non-volatile (dry-film) of paint by weight.

PART 3 - EXECUTION

3.1 INSPECTION

A. Applicator must examine areas and conditions under which painting work is to be applied and notify Contractor in writing of conditions detrimental to proper and timely completion of work. Do not proceed with work until unsatisfactory conditions have been corrected in a manner acceptable to Applicator.

1. Starting of painting work will be construed as Applicator's acceptance of surfaces and conditions within any area.

B. Do not paint over dirt rust scale grease moisture scuffed surfaces or conditions otherwise detrimental to formation of a durable paint film.

C. It shall be the responsibility of the Contractor to see that all mixed colors match the color selections made by the Architect prior to application of paint or finish.

3.2 SURFACE PREPARATION

A. General: Perform preparation and cleaning in accordance with paint manufacturer's instructions and as herein specified.

1. Provide barrier coats over incompatible primers or remove and reprime as required. Notify Architect in writing of any anticipated problems with substrates primed by others.
2. Remove hardware accessories, lighting fixtures and similar items not to be field-painted or provide suitable protection. Remove items if necessary for painting of items or adjacent surfaces. Reinstall removed items on completion of painting.

3. Clean surfaces to be painted. Remove oil and grease prior to other cleaning. Be sure that cleaning materials do not fall onto newly-painted surfaces.

B. Surface Preparation: Clean and prepare surfaces to be painted in accordance with the manufacturer's instructions for each particular substrate condition and as specified.

1. Ferrous Metals: Clean non-galvanized ferrous-metal surfaces that have not been shop coated; remove oil grease dirt loose mill scale and other foreign substances. Use solvent or mechanical cleaning methods that comply with recommendations of the Steel Structures Painting Council.

a. Blast steel surfaces clean as recommended by the paint system manufacturer and in accordance with requirements of SSPC specification SSPC-SP 10 for interior surfaces and SSPC-SP 6 for exterior surfaces.
b. Treat bare and sandblasted or pickled clean metal with a metal treatment wash coat before priming.
c. Touch up bare areas and shop-applied prime coats that have been damaged. Wire-brush clean with solvents recommended by the paint manufacturer and touch up with the same primer as the shop coat.

2. Galvanized Surfaces: Clean galvanized surfaces that have not been shop primed and/or intermediate coated with nonpetroleum-based solvents so surface is free of oil and surface contaminants. Remove pretreatment from galvanized sheet metal fabricated from coil stock by mechanical methods.

a. Touch-up bare and damaged areas of the shop-applied prime coat that have been damaged; wire brush mechanically clean and/or solvent clean such areas in compliance with the manufacturer recommendations.
b. Use the coating materials identical to those applied in the shop. Refer to other Sections of these specifications for materials and other requirements.

3. Cementitious Materials: Prepare concrete concrete masonry block and cement plaster surfaces to be painted. Remove efflorescence chalk dust dirt grease oils and release agents. Roughen as required to remove glaze. If hardeners or sealers have been used to improve curing use mechanical methods of surface preparation.

a. For painting of interior concrete surfaces at location indicated on the drawings fill voids cracks or other defects and grind down to provide smooth surface.
b. Use abrasive blast-cleaning methods if recommended by the paint manufacturer.

4. Wood: Clean wood surfaces to be painted of dirt oil or other foreign substances with scrapers mineral spirits and sandpaper as required. Sandpaper smooth those finished surfaces exposed to view and dust off. Scrape and clean small dry seasoned knots and apply a thin coat of white shellac or other recommended knot sealer before application of priming coat. After priming fill holes and imperfections in finish surfaces with putty or plastic wood-filler. Sandpaper smooth when dried.

1. Prime stain or seal wood required to be field-painted immediately upon delivery to job. Prime edges end faces undersides and backsides of such wood.

3.3 MATERIALS PREPARATION

A. Mix and prepare painting materials in accordance with manufacturer's directions.

B. Maintain containers used in mixing and application of paint in a clean condition free of foreign materials and residue.

C. Stir materials before application to produce a mixture of uniform density and stir as required during application. Remove surface film and if necessary strain material before using.

3.4 APPLICATION

A. General: Apply paint in accordance with manufacturer's directions. Use techniques best suited for substrate and type of material being applied.

1. Apply additional coats when undercoats show through final coat of paint until paint film is of uniform finish color and appearance including edges corners crevices welds and fasteners.
2. Sand lightly between each succeeding enamel coat.
3. Omit first coat (primer) on metal surfaces which have been shop-primed and touch-up painted.

B. Scheduling Painting: Apply first-coat material to surfaces that have been prepared for painting as soon as practicable after preparation. Allow sufficient time for proper drying. Do not recoat until paint feels dry and firm.

C. Minimum Coating Thickness: Apply materials to establish a total dry film thickness (DFT) as indicated or if not indicated as recommended by coating manufacturer.

D. Mechanical and Electrical Work: Painting of mechanical and electrical work is limited to those items exposed in mechanical equipment rooms and in occupied spaces.

E. Prime Coats: Apply prime coat on surface which is required to be painted or finished and which has not been prime coated by others. Recoat primed and sealed surfaces where there is evidence of defects in first coat to assure a finish coat without defects.

F. Pigmented (Opaque) Finishes: Completely cover to provide an opaque smooth surface of uniform finish color appearance and coverage. Cloudiness spotting holidays laps brush marks runs sags or other surface imperfections will not be acceptable.

G. Completed Work: Match approved samples for color and texture. Repaint work not in compliance with specified requirements.

H. At mechanical equipment indicated to be painted verify that air intake systems have not been clogged due to application of paint system specified.

3.5 CLEAN-UP AND PROTECTION

A. Clean-Up: During progress of work remove from site discarded paint materials rubbish cans and rags at end of each workday.

1. Upon completion of painting work clean paint-spattered surfaces. Remove spattered paint by proper methods with care not to scratch or otherwise damage finished surfaces.

B. Protection: Protect work of other trades against damage by painting and finishing work. Correct any damage by cleaning repairing or replacing and repainting as acceptable to Architect.

1. Provide "Wet Paint" signs to protect newly-painted finishes. Remove temporary protective wrappings provided by others for protection of their work after completion of painting operations.

2. At completion of work of other trades touch-up and restore all damaged or defaced surfaces.

3.6 INTERIOR PAINT SCHEDULE

A. General: Provide the following interior paint systems by Benjamin Moore (Ultra-Spec) and Sherman Williams of colors as selected by the Architect.

1. Refer to Finish Schedule on Contract Drawings for locations of types colors and sheen.

B. Gypsum Drywall Ceilings:

1. Flat Finish Vinyl Acrylic Latex

a. Primer Coat: Latex primer sealer.
b. Two Coats: Vinyl latex paint flat finish.

C. Gypsum Drywall Walls:

1. Semi-Gloss Alkyd Eggshell Enamel

a. Primer Coat: Prime Seal.
b. Two Coats: Alkyd enamel.

D. Acrylic Latex Eggshell Enamel Finish:

1. Primer Coat: Latex primer Sealer.
2. Two Coats: Vinyl latex paint Eggshell Enamel

E. Acrylic Latex Semi-Gloss Enamel Finish:

1. Primer Coat: Latex primer Sealer.
2. Two Coats: Vinyl latex paint Semi-Gloss Enamel.

F Ceiling Finish:

1. Primer Coat: primer Sealer.
2. Two Coats: Super White (Ultra-Spec 500)

G. Metal doors and convectors:

1 Water based polyurethane (Scuffmaster)
2 Metallic series or as scheduled.
3 Provide type approved for electrostatic application.

H. Electrical and telephone back panels interior of ductwork behind grilles and registers and where indicated:

1. 2 Coats: Suitable flat black paint.

I. Ferrous Metal (as scheduled):

1. Semi-Gloss Alkyd

a. Prime Coat: Iron Clad Retardo Rust Inhibitive Paint
b. Two Coats: Moore's Alkyd Dulamel.

J. Ferrous Metal Conduits and Mechanical Piping:

1. Satin Finish Polyamide Epoxy

a. Surface Preparation: SSPC-SP 6
b. Primer Coat: Tnemec 90-97; 2.5 to 4.0 mils d.f.t.

c. Intermediate Coat: Tnemec Series 66 Epoxoline - 3.0 to 5.0 mils d.f.t.
d. Finish Coat: Tnemec Series 66 Epoxoline - 2.0 to 3.0 mils d.f.t.

K. Wood: Acrylic Latex Semi-Gloss Enamel Finish:

1. Primer Coat: Latex primer Sealer.
2. Two Coats: Vinyl latex paint Semi-Gloss Enamel.

END OF SECTION 099100

SECTION 099110 - ELECTROSTATIC PAINTING

PART 1 - GENERAL

1.1 SUMMARY

A. Work Included: The Work of this Section shall include but not be limited to the following:

1. Electro-static painting and finishing of the existing metal assemblies as indicated.

B. Items Not to Be Painted:

1. Concealed Surfaces: Unless otherwise indicated painting is not required on concealed surfaces.
2. Adjacent Surfaces: Do not paint adjacent wall and ceiling surface.

1.2 SUBMITTALS

A. Product Data: Submit manufacturer's technical information including paint label analysis and application instructions for each material proposed for use. Include gloss ratings for each color and finish required.

B. Samples: Submit samples for Architect's review of color and texture only. Provide a listing of material and application for each coat of each finish sample.

1. On 12" x 12" sheet metal provide samples of each color gloss and material with texture to simulate actual conditions. Resubmit samples as requested by Architect until acceptable sheen color and texture is achieved.

1.3 QUALITY ASSURANCE

A. Installer Qualifications: Installer shall be a firm with not less than 5 years successful experience in applying coatings and finishes of the type required on projects of similar type and quality level as this Project.

B Source Quality Control: The manufacturer providing paints shall record the formula for each color of paint prepared. Colors shall be labeled and keyed to the paints provided. Manufacturer shall keep formulas on file and accessible for a minimum of 5 years.

1.4 MOCK-UPS

A. On actual surfaces duplicate painted finishes of prepared samples. On at least 100 sq. ft. of surfaces as indicated on the Drawings or as directed provide full-coat finish samples until required sheen color and texture is obtained; simulate finished lighting conditions for review of in-place work.

1.5 PRODUCT HANDLING

A. Deliver paint materials to the job site in original containers and packages bearing the manufacturer's labels indicating name type and brand. Unless otherwise directed by the Architect deliver paints ready-mixed. Order in advance in large enough quantities and in ample time to facilitate the Work.

B. Store materials and equipment in a designated storage space on the site.Keep storage space neat clean and accessible at all times. Protect floors from paint spillage.

1.6 ENVIRONMENTAL CONDITIONS

A. Do not paint when the air is dust-laden nor when temperature conditions are unsuitable. Comply with manufacturer's recommendations when they are more stringent with respect to application temperatures.

1.7 PROTECTION

A. Place paint or solvent soaked rags waste or other materials which might constitute a fire hazard in metal containers and remove from premises at the close of each day's work. Take every precaution to avoid damage by fire.

B. Provide suitable coverings to protect surfaces not requiring painting.

C. Remove or protect items such as hardware hardware accessories plates lighting fixtures and similar items placed prior to painting. Reposition or remove protection upon completion of each space.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Provide paint products by the manufacturers recommended by the electrostatic paint system Applicator/Installer.

B. As scheduled: As scheduled or approved for type and color.

2.2 COLORS AND FINISHES

A. General: On Drawings and similar designations indicate different custom colors and their respective glosses to be selected by the Architect.

1. Proprietary names used to designate colors are not intended to imply that products of the named manufacturers are required.

B. Color Pigments: Pure non-fading applicable types to suit substrates and service indicated.

1. Lead content in pigment if any is limited to contain not more than 0.5% lead as lead metal based on the total non-volatile (dry-film) of paint by weight.
2. Colors shall be factory premixed. No job site tinting is permitted for finish coats.

C. Gloss Ratings: Specular gloss of finished surfaces shall be within the following ranges when measured at 60 deg. in accordance with ASTM D 523.

Degree of Gloss	Gloss Units
Semi-Gloss	30 to 60

2.3 MATERIAL QUALITY

A. Provide best quality grade of various types of coatings as regularly manufactured by acceptable paint materials manufacturers.

1. Materials not displaying manufacturer's identification as a standard best-grade product will not be acceptable.

B. Provide dust-coat paint produced by same manufacturer as finish coats. Use only thinners approved by paint manufacturer and use only within recommended limits.

C. Where indicated and in locations where ambient temperature-humidity conditions encourage the ready formation of mildew use paints with additional mildew inhibitive agent incorporated during the manufacturing process of type and in concentration recommended by the paint manufacturer to withstand such mildew formation.

2.4 PAINT SYSTEMS

A. General: Provide the following paint systems for substrates as indicated.

1. Ferrous Metal Semi-Gloss Finish: Provide the following electro-statically applied paint systems unless otherwise indicated.

a. 1st Coat: Dust Coat - Compatible with finish coat
b. 2nd Coat: Silicone enamel; color matching the Architect=s sample.

PART 3 - EXECUTION

3.1 INSPECTION

A. Examine areas and conditions under which painting work is to be applied for conditions detrimental to proper and timely completion of work. Do not proceed with work until unsatisfactory conditions have been corrected.

B. Starting of painting work will be construed as acceptance of surfaces and conditions within any particular area.

C. Do not paint over dirt rust scale grease moisture scuffed surfaces or conditions otherwise detrimental to formation of a durable paint film.

3.2 SURFACE PREPARATION

A. General: Perform preparation and cleaning procedures in accordance with paint manufacturer's instructions and as herein specified for each particular substrate condition.

B. Remove hardware hardware accessories and similar items in place and not to be finish-painted or provide surface-applied protection prior to surface preparation and painting operations. Following completion of painting of each space or area reinstall removed items.

C. Sand and wash surfaces to be painted before applying paint or surface treatments. Remove oil and grease prior to cleaning. Program cleaning and painting so that contaminants from cleaning process will not fall onto wet newly-painted surfaces.

3.3 MATERIALS PREPARATION

A. Mix and prepare painting materials in accordance with manufacturer's directions.

B. Store materials not in actual use in tightly covered containers. Maintain containers used in storage mixing and application of paint in a clean condition free of foreign materials and residue.

C. Stir materials before application to produce a mixture of uniform density and stir as required during application. Do not stir surface film into material. Remove film and if necessary strain material before using.

3.4 APPLICATION

A. General: Apply paint in accordance with manufacturer's directions. Use applicators and techniques best suited for substrate and type of material being applied.

B. Scheduling Painting:

1. Apply dust-coat material to surfaces that have been cleaned and otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.
2. Allow sufficient time between successive coatings to permit proper drying. Do not recoat until paint has dried to where it feels firm does not deform or feel sticky under moderate thumb pressure and application of another coat of paint does not cause lifting or loss of adhesion of the undercoat.

C. Minimum Coating Thickness: Apply materials at not less than manufacturer's recommended spreading rate to establish a total dry film thickness as indicated or if not indicated as recommended by coating manufacturer.

D. Pigmented (Opaque) Finishes: Completely cover to provide an opaque smooth surface of uniform finish color appearance and coverage. Cloudiness spotting holidays laps runs sags ropiness or other surface imperfections will not be acceptable.

E. Completed Work: Match approved samples for color texture and coverage. Remove refinish or repaint work not in compliance with specified requirements.

3.5 CLEAN-UP AND PROTECTION

A. Clean-Up: During progress of work remove from site discarded paint materials rubbish cans and rags at end of each work day.

1. Upon completion of painting work clean paint-spattered surfaces. Remove spattered paint by proper methods of washing and scraping using care not to scratch or otherwise damage finished surfaces. Protect work of other trades whether to be painted or not against damage by painting and finishing work. Correct any damage by cleaning repairing or replacing and repainting as acceptable to Architect.
2. Provide "Wet Paint" signs as required to indicate newly-painted finishes. Remove temporary protective wrappings provided by others for protection of their work after completion of painting operations.
3. At the completion of work of other trades touch-up and restore all damaged or defaced painted surfaces.

END OF SECTION 099110

SECTION 101400 – IDENTIFYING/GRAPHIC DEVICES

PART 1 - GENERAL

1.1 SUMMARY

A. The Work of this Section includes but not necessarily limited to the following:

1. Panel signs and frames, including Code required signs and room identification signs.
2. ADA required signage.
3. Reinstallation of salvaged items where applicable
4. Custom mounted signage

1.2 DEFINITIONS

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

1.3 SUBMITTALS

A. Product Data: Submit manufacturer's product data for mounting material supporting and anchorage devices and accessories. Product data shall consist of manufacturer's product specifications and installation instructions.

B. Shop Drawings: Provide shop drawings for fabrication and erection of signs and art fabrications. Include plans, elevations, and large-scale sections of typical members and other components. Show anchors, grounds, reinforcement, accessories, layout, and installation details.

1. Provide message list for each sign required, including full-size details of wording, font and layout of lettering.
2. For signs supported by or anchored to permanent construction, provide setting drawings, templates, and directions for installation and other anchors to be installed as a unit of work in other Sections.
3. Furnish full-size spacing templates for individually mounted dimensional numbers.
4. Reference Part 2 for decorative plaques

C. Samples: Submit samples of each sign component for initial selection of color, pattern and surface texture as required and for verification of compliance with requirements indicated.

D. Qualification Data: For fabricator.

E. Maintenance Data: For signs to include in maintenance manuals.

F. Warranty: Special warranty specified in this Section.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: Fabricator of products.

B. Fabricator Qualifications: Shop that employs skilled workers who custom-fabricate products similar to those required for this Project and whose products have a record of successful in-service performance.

C. Source Limitations for Signs: Obtain each sign type indicated from one source from a single manufacturer.

D. Regulatory Requirements: Comply with applicable provisions in ADA-ABA Accessibility Guidelines.

1.5 PROJECT CONDITIONS

A. Field Measurements: Verify recess openings by field measurements before fabrication and indicate measurements on Shop Drawings.

1.6 COORDINATION

A. Coordinate placement of anchorage devices with templates for installing signs.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, provide identification device products as manufactured by one of the following or an equal acceptable to the Architect:

1. Panel Signs:

a. American Graphics Inc.
b. ASI Sign Systems, Inc.(specified)
c. Best Manufacturing Co.
d. Innerface Sign Systems, Inc.
e. Mills Manufacturing, Inc.
f. Signature Signs, Inc.

2. Art Work fabrications: 3Form
3. Coordinate with Owner requirements.

2.2 MATERIALS

A. Aluminum Sheet and Plate: ASTM B 209, alloy and temper recommended by aluminum producer and finisher for type of use and finish indicated, and with at least the strength and durability properties of Alloy 5005-H32.

B. Bronze/Brass- Bar, Plate, Sheet, Strip and Bars: Provide alloy UNS No. C28000 (muntz metal, 60 percent copper) conforming to CDA and ASTM B 36 or other alloy to match approved samples.

C. Steel:

1. Galvanized Steel Sheet: ASTM A 653/A 653M, G90 coating, either commercial or forming steel.
2. Stainless-Steel Sheet: ASTM A 240/A 240M or ASTM A 666, Type [**304**] [**316**], stretcher-leveled standard of flatness.
3. Steel Members Fabricated from Plate or Bar Stock: ASTM A 529/A 529M or ASTM A 572/A 572M, 42,000-psi minimum yield strength.
4. For steel exposed to view on completion, provide materials having flat, smooth surfaces without blemishes. Do not use materials whose surfaces exhibit pitting, seam marks, roller marks, rolled trade names, or roughness.

D. Fiberglass Sheet: Molded, seamless, thermosetting, glass-fiber-reinforced polyester panels with a minimum tensile strength of 15,000 psi when tested according to ASTM D 638 and with a minimum flexural strength of 30,000 psi when tested according to ASTM D 790.

E. Acrylic Sheet: ASTM D 4802, Category A-1 (cell-cast sheet), Type UVA (UV absorbing).

F. Polycarbonate Sheet: Of thickness indicated, manufactured by extrusion process, coated on both surfaces with abrasion-resistant coating:

2.3 Applied Vinyl: Die-cut characters from vinyl film of nominal thickness of 3 mils with pressure-sensitive adhesive backing, suitable for exterior applications.

2.4 DECORATIVE APPLIED PLAQUES

A. The intent of the work of this Section is to provide all labor, supervision, materials equipment and services necessary to complete and install decorative applies artwork as shown on the drawings or as specified herein. It is the intent of this Section to provide for preparation of these surfaces to receive work.

1. Prepare surfaces using approved fasteners and finishes including colored art -work fabrications and specified materials as indicated on drawings.
2. Manufacturer: 3 Form
3. Resin Material as approved

B. The Architect shall review and approve all required submittals, including but not limited to Art layouts shop drawings product data and samples for the limited purpose of checking for conformance with the design concept and the information expressed in the Contract Documents.

C. Colors: Paint colors, glazes and finishes, Schedules and Drawings will be approved by Architect. All finish paints shall be custom made to match approved colors.

2.5 PANEL SIGNS

A. Panel Signs: Comply with requirements indicated for materials, thicknesses, finishes, colors, designs, shapes, sizes, and details of construction.

1. Produce smooth, even, level sign panel surfaces, constructed to remain flat under installed conditions within a tolerance of plus or minus 1/16” inch measured diagonally.

B. Graphic Content and Style: Provide sign copy that complies with the requirements indicated for size, style, spacing, content, position, material, finishes, and colors of letters, numbers, ADA compliant Braille, and other additional graphic devices.

C. Products: Provide "Emboss" acrylic plaques with molded plastic frames "Series SPF with Series 390 Frames" as manufactured by ASI Sign Systems Inc. or an equal acceptable to the Architect.

1. Type style (Font): As selected by Architect.
2. Colors: As selected by the Architect

2.6 ACCESSORIES

A. Mounting Methods: Use concealed fasteners or adhesive fabricated from materials that are not corrosive to sign material and mounting surface, unless otherwise recommended by the manufacturer.

B. Anchors and Inserts: Provide nonferrous-metal or hot-dip galvanized anchors and inserts for installations and elsewhere as required for corrosion resistance. Use toothed steel or lead expansion-bolt devices for drilled-in-place anchors. Furnish inserts, as required, to be set into concrete or masonry work.

2.7 FABRICATION

A. General: Provide manufacturer's standard signs of configurations indicated.

1. Mill joints to tight, hairline fit. Form joints exposed to weather to exclude water penetration.
2. Preassemble signs in the shop to greatest extent possible. Disassemble signs only as necessary for shipping and handling limitations. Clearly mark units for reassembly and installation, in location not exposed to view after final assembly.
3. Conceal fasteners if possible; otherwise, locate fasteners where they will be inconspicuous.

2.8 FINISHES, GENERAL

A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

B. Protect mechanical finishes on exposed surfaces from damage by applying strippable, temporary protective covering before shipping.

C. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of range of approved Samples. Noticeable variations in same piece are not acceptable. Variations in appearance of other components are acceptable if they are within range of approved Samples and are assembled or installed to minimize contrast.

2.9 FINISHES

A. Clear Anodic Finish: Manufacturer's standard clear anodic coating, 0.018 mm or thicker, over a satin (directionally textured) mechanical finish.

B. Color anodized (AA-C22A42), color as selected by Architect.

C. Plaque Finishes: As approved.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of work.

B. Verify that items provided under other sections of Work are sized and located to accommodate signs.

C. Examine supporting members to ensure that surfaces are at elevations indicated or required to comply with authorities having jurisdiction and are free from dirt and other deleterious matter.

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

3.2 INSTALLATION

A. General: Locate sign units and accessories where indicated, using mounting methods of the type described and in compliance with the manufacturer's instructions.

1. Install signs level, plumb, and at the height indicated, with sign surfaces free from distortion or other defects in appearance.

B. Wall Mounted Panels: Attach panel signs to wall surfaces using the methods indicated below:

1. Mechanical Fastening: Mount signs using concealed fastening methods as recommended by the manufacturer. Provide heavy paper template to locate holes for fasteners.

C. Mounting Locations: Mount signs as directed by the Architect to comply with the Americans with Disabilities Act (ADA) and with code provisions as adopted by authorities having jurisdiction.

1. Typical Locations: Mount signs not more than 60” inches above finished floor and not more than 12” inches adjacent to latch side of door. Where doors have sidelights, center sign on doors. Center elevator signs between elevator jambs.
2. Comply with code requirements.

3.3 CLEANING AND PROTECTION

A. At completion of the installation, clean soiled sign surfaces in accordance with the manufacturer's instructions. Protect units from damage until acceptance by the Owner.

END OF SECTION 101400

SECTION 101550 – TOILET/SHOWER COMPARTMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Work Included: The Work of this Section includes but is not limited to the following:

1. Toilet compartments enclosures and urinal screens.
2. Shower and dressing compartments
3. Custom artwork plaques.

1.2 COORDINATION

A. Coordinate accessory locations with other work to prevent interference with clearances required for proper installation adjustment operation cleaning and servicing of accessories.

B. Coordinate custom signage with Section 101400

C. Inserts and Anchorages: Furnish inserts and anchoring devices which are be set concrete or built into masonry coordinate delivery with other work to avoid delay.

1. Provide backing plates and reinforcement in walls.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated. Include construction detail material descriptions dimensions of individual components and profiles and finishes.

1. Construction details and dimensions.
2. Anchoring and mounting requirements including requirements for cutouts in other work and substrate preparation.
3. Material series and finish descriptions.
4. Features that will be included for Project.
5. Manufacturer's warranty.

B. Shop Drawings: For toilet compartments. Include plans elevations sections details and attachments to other work.

1. Show locations of cutouts for compartment-mounted toilet accessories.
2. Show locations of reinforcements for compartment-mounted grab bars.
3. Show locations of centerlines of toilet fixtures.
4. Show ceiling grid and overhead support or bracing locations. Provide all additional bracing and support as required.

C. Samples for Verification: For the following products in manufacturer's standard sizes unless otherwise indicated:

1. Each type of material color and finish required for units prepared on 6”-inch- square Samples of same thickness and material indicated for Work.
2. Each type of hardware and accessory.

D. Setting Drawings: For cutouts required in other work include templates substrate preparation instructions and directions for preparing cutouts and installing anchoring devices.

E. Product Schedule: Indicating types quantities sizes and installation locations by room of each accessory required. Use designations indicated in the Toilet and Bath Accessory Schedule and room designations indicated on Drawings in product schedule.

F. Product Certificates: For each type of compartment from manufacturer.

G. Maintenance Data: For compartments to include in maintenance manuals.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: An authorized representative of manufacturer for installation and maintenance of units required for this project.

B. Grab Bars: Install to withstand a downward load of at least 250 lbf when tested according to method in ASTM F 446.

A. Surface-Burning Characteristics: As determined by testing identical products according to ASTM E 84 or another standard acceptable to authorities having jurisdiction by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

1. Flame-Spread Index: 25 or less.
2. Smoke-Developed Index: 450 or less.

C. Regulatory Requirements: Comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's "Americans with Disabilities Act (ADA) and Architectural Barriers Act (ABA) Accessibility Guidelines for Buildings and Facilities" for toilet compartments designated as accessible.

D. Accessory Locations: Coordinate accessory locations with other work to avoid interference and to assure proper operation and servicing.

E. Mockups: Build mockups to verify selections made under sample Submittals and to demonstrate aesthetic effects and qualities of materials and execution.

1. Build mockup of each type of installation.
2. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.
3. Include custom art plaque (Reference Section 101400)

1.5 DELIVERY STORAGE AND HANDLING

A. Delivery: Deliver materials in manufacturer's original unopened and undamaged packages. Clearly identify manufacturer brand name contents color stock number and order number on each package.

B. Storage: Store in original packaging under protective cover and protect from damage. Stack containers in accordance with manufacturer's recommendations.

C. Handling: Handle materials in accordance with manufacturer's instructions to prevent damage to products and finishes.

1.6 PROJECT CONDITIONS

A. Field Measurements: Verify dimensions in areas of installation by field measurements before fabrication and indicate measurements on shop drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

1. Established Dimensions: Where field measurements cannot be made without delaying the Work establish dimensions and proceed with fabricating units without field measurements. Coordinate supports adjacent construction and fixture locations to ensure actual dimensions correspond to established dimensions.

1.7 WARRANTY

A. Special Warranty: Provide written warranties executed by manufacturer of each item specified agreeing to repair or replace accessories or components that fail in materials or workmanship.

B. Manufacturer's Warranty: Manufacturer's limited warranty for panels doors and stiles against breakage corrosion delamination and defects in factory workmanship Including guarantee against defects and corrosion in material and workmanship for door hardware and mounting brackets.

PART 2 - PRODUCTS

2.1 MANUFACTURERS:

A. Manufacturers: Subject to compliance with requirements provide manufacturers materials and applications as scheduled and as approved for use

1. Bobrick
2. As approved meeting requirements

B. Product: As scheduled or as selected for type material and finish

1. Series: 2088.67P Ceiling Hung - DuraLine Series Compact Grade Laminate
2. Series: 2082.67P Overhead Braced - DuraLine Series Compact Grade Laminate
3. Finish and color to match samples.

C. Hardware: Stainless steel

2.2 MATERIALS

A. Aluminum Castings: ASTM B 26/B 26M.

B. Aluminum Extrusions: ASTM B 221.

C. Stainless-Steel Sheet: ASTM A 666 Type 304 stretcher-leveled standard of flatness.

D. Fasteners: Screws bolts and other devices of same material as accessory unit tamper and theft resistant when exposed and of galvanized steel when concealed.

2.3 COMPACT LAMINATE (SOLID PHENOLIC) MOISTURE RESISTANT SUBSTRATE

A. Toilet-Enclosure Style: As per Manufacturer Floor mounted overhead braced and ceiling hung as scheduled.

B. Urinal-Screen Style: Wall hung flat panel match partitions.

C. Door Panel and Pilaster Construction: Seamless facing sheets pressure laminated to core material; with continuous interlocking molding strip or lapped-and-formed edge closures; corners secured by welding or clips and exposed welds ground smooth. Exposed surfaces shall be free of pitting seam marks roller marks stains discolorations telegraphing of core material or other imperfections.

D. Materials: Solidly fused plastic laminate with matte-finish melamine surfaces; integrally bonded colored face sheets and black phenolic-resin core.

1. Grab-Bar Reinforcement: Provide concealed internal reinforcement for grab bars mounted on units.
2. Tapping Reinforcement: Provide concealed reinforcement for tapping (threading) at locations where machine screws are used for attaching items to units.

E. Urinal-Screen Construction:

1. Flat-Panel Urinal Screen: Matching panel construction.

F. Facing Sheets and Closures: sheet of nominal thicknesses as follows:

1. Pilasters Unbraced at One End: Manufacturer's standard thickness but not less than 0.050” inch.
2. Panels: Manufacturer's standard thickness but not less than 0.031” inch.
3. Doors: Manufacturer's standard thickness but not less than 0.031” inch.
4. Flat-Panel Urinal Screens: Thickness matching the panels.

G. Brackets (Fittings):

1. Full-Height (Continuous) Type: Manufacturer's standard design; aluminum.

H. Finish: To match samples. Protect exposed surfaces from damage by application of strippable temporary protective covering before shipment.

1. Finish: type as selected to match approved samples

2.4 ACCESSORIES

A. Hardware and Accessories: Manufacturer's heavy-duty operating hardware and accessories.

1. Compliance: Operating force of less than 5 lb (2.25 kg).
2. Emergency Access: Hinges latch allow door to be lifted over keeper from outside compartment on inswing doors.
3. Materials: Type 304 heavy-gauge stainless steel with satin finish.
4. Doorstops: Prevents in swinging doors from swinging out beyond stile on outswing doors doorstop prevents door from swinging in beyond stile.
5. Fastening: Hardware is secured to door and stile with pin-in-head Torx stainless steel machine screws. Hinges latch and optional door stops secured to door with pin-in-head Torx stainless steel machine screws into factory-installed threaded brass inserts. Fasteners for hinges latch and optional door stops secured directly into core not acceptable.

    a. Threaded Brass Inserts: Factory-installed; withstand direct pull force exceeding 1500 lb (680 kg) per insert.

6. Clothes Hooks: Projecting no more than 1-1/8” inch from face of door.
7. Door Latch: Track of door latch prevents inswing doors from swinging out beyond stile; on outswing doors door keeper prevents door from swinging in beyond stile; 16 gage sliding door latch 14 gage keeper.
8. Locking: Door locked from inside by sliding door latch into keeper.
9. Hinge Type:

    a. Standard. Stainless steel

1) Balanced with field-adjustable cam to permit door to be fully closed or partially open when compartment is unoccupied.

b. Full-Height Institutional Hinge.

1) Hinges: 16 gage stainless steel self-closing 3 section hinges.

10. Mounting Brackets:

a. Concealed.

1) Mounting Brackets: Mounted inside compartment; exposed brackets on exterior of compartment not acceptable with the exception of outswing doors.

b. Full-Height.

1) Mounting Brackets: 18 gage stainless steel and extend full height of panel.
2) U-Channels: Secure panels to stiles.
3) Angle Brackets: Secure stiles-to-walls and panels to walls.

11. Anchorages and Fasteners: Manufacturer's exposed fasteners of stainless steel steel finished to match the items they are securing with theft-resistant-type heads. Provide sex-type bolts for through-bolt applications. For concealed anchors use stainless steel hot-dip galvanized steel or other rust-resistant protective-coated steel.

2.5 FABRICATION

A. Provide manufacturer's corrosion-resistant anchoring assemblies with leveling adjustment nuts at pilasters for connection to structural support above finished ceiling. Provide assemblies that support pilasters from structure without transmitting load to finished ceiling. Provide sleeves (caps) at tops of pilasters to conceal anchorage.

B. Door Size and Swings: Unless otherwise indicated provide 24”-inch- wide in-swinging doors for standard toilet compartments and 36”-inch- wide out-swinging doors with a minimum 32”-inch-wide clear opening for compartments designated as accessible.

C. Wall-Hung Screens: Provide units in size indicated of same construction and finish as compartment panels unless otherwise indicated.

B. General: One maximum 1 - ½” inch diameter unobtrusive stamped manufacturer logo as approved by Architect is permitted on exposed face of accessories. On interior surface not exposed to view or back surface of each accessory provide printed waterproof label or stamped nameplate indicating manufacturer's name and product model number.

C. Surface Mounted Accessories: Unless otherwise indicated fabricate units with tight seams and joints and exposed edges rolled. Hang doors and access panels with continuous stainless steel hinge. Provide concealed anchorage where possible.

D. Recessed Accessories: Unless otherwise indicated fabricate units of all welded construction without mitered corners. Hang doors and access panels with full length stainless steel hinge. Provide anchorage that is fully concealed when unit is closed.

E. Hangers: Provide mounting system that permits rigid tamper and theft resistant installation as follows:

1. Heavy duty wall brackets of galvanized steel.

D. Anchors: Expansion shields and threaded rods at floor connections as applicable. Threaded rods secured to supports above ceiling as applicable. Supports above ceiling furnished and installed as Work of Section 055000 - Metal Fabrications.

PART 3 - EXECUTION

3.1 PREPARATION

A. Prepare substrates including but not limited to blocking and supports in walls and ceilings at points of attachment using methods recommended by the manufacturer for achieving the best result for the substrates under the project conditions.

1. Inspect areas scheduled to receive compartments for correct dimensions plumbness of walls and soundness of surfaces that would affect installation of mounting brackets.
2. Verify spacing of plumbing fixtures to assure compatibility with installation of compartments.

B. If preparation is the responsibility of another installer notify Architect in writing of deviations from manufacturer's recommended installation tolerances and conditions.

C. Do not proceed with installation until substrates have been properly prepared with blocking and supports in walls and ceilings at points of attachment and deviations from manufacturer's recommended tolerances are corrected. Commencement of installation constitutes acceptance of conditions.

3.2 INSTALLATION

A. Install products in strict compliance with manufacturer's written instructions and recommendations including the following:

1. Verify blocking and supports in walls and ceilings has been installed properly at points of attachment.
2. Verify location does not interfere with door swings or use of fixtures.
3. Use fasteners and anchors suitable for substrate and project conditions
4. Install units rigid straight plumb and level.
5. Conceal evidence of drilling cutting and fitting to room finish.
6. Test for proper operation.

B. Floor Mounted Overhead Braced Units: Secure pilasters to supporting structure and level plumb and tighten. Hang doors and adjust so bottoms of doors are level with bottoms of pilasters when doors are in closed position.

C. Urinal Screens: Attach with anchoring devices to suit supporting structure. Set units level and plumb rigid and secured to resist lateral impact.

3.3 ADJUSTING

A. Hardware Adjustment: Adjust and lubricate hardware according to hardware manufacturer's written instructions for proper operation. Set hinges on in-swinging doors to hold doors open approximately 30 degrees from closed position when unlatched. Set hinges on out-swinging doors to return doors to fully closed position.

B. Touch-up repair or replace damaged products.

C. Clean exposed surfaces of compartments hardware and fittings.

END OF SECTION

SECTION 102800 – TOILET/SHOWER ACCESSORIES

PART 1 - GENERAL

1.1 SUMMARY

A. Work Included: The Work of this Section shall include but not be limited to the following:

1. Toilet accessories.
2. Shower Benches
3. Shower Curtains
4. Other hardware items.
5. Installation accessories.

1.2 COORDINATION

A. Coordinate accessory locations with other work to prevent interference with clearances required for proper installation adjustment operation cleaning and servicing of accessories.

B. Inserts and Anchorages: Furnish inserts and anchoring devices which are be set in concrete or built into masonry; coordinate delivery with other work to avoid delay.

1. Provide backing plates and reinforcement in walls.

1.3 SUBMITTALS

A. Product Data: Include construction details material descriptions and thicknesses dimensions profiles fastening and mounting methods specified options and finishes for each type of accessory specified.

1. Shop Drawings: Shop drawings shall indicate field-measured dimensions, materials, sizes, gauges, finishes, layout, accessories, fasteners, and installation details.
2. Provide full size details of connections. Provide templates required for installation.
3. Samples: Submit full size samples of each accessory if directed by the Architect.

B. Setting Drawings: For cutouts required in other work; include templates substrate preparation instructions and directions for preparing cutouts and installing anchoring devices.

C. Product Schedule: Indicating types quantities sizes and installation locations by room of each accessory required. Use designations indicated in the Schedule and room designations indicated on drawings in product schedule.

D. Maintenance Data: For accessories to include in maintenance manuals or data.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: An authorized representative of toilet accessory manufacturer for installation and maintenance of units required for this Project.

B. Grab Bars: Install to withstand a downward load of at least 250 lbf when tested according to method in ASTM F 446.

C. Accessory Locations: Coordinate accessory locations with other work to avoid interference and to assure proper operation and servicing.

1.5 WARRANTY

A. Special Warranty: Provide written warranties executed by manufacturer of each item specified agreeing to repair or replace accessories or components that fail in materials or workmanship.

1. Warranty Period: As standard with each selected manufacturer.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Source Limitations: Obtain each type of toilet accessory through one source from a single manufacturer or as scheduled.

1. Bobrick
2. Hillyard
3. Georgia Pacific
4. Richelieu Hardware
5. Grab Bar Specialists
6. Ponte Giulio
7. Recreonics
8. Inpro

B. Products: Subject to compliance with requirements provide products as indicated in Architectural Finish Specification and drawing schedules or equal as approved by the Architect.

1. Toilet accessories as scheduled.
2. Shower benches as scheduled.
3. Shower Curtains and hardware

2.2 PERFORMANCE REQUIREMENTS

A. Regulatory Requirements: Where metal lockers are indicated to comply with accessibility requirements comply with the U.S. Architectural & Transportation Barriers Compliance Board's "Americans with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities (ADAAG)."

2.3 MATERIALS

A. Stainless Steel: ASTM A 666 Type 304 with No. 4 finish (satin) in 0.0312” inch minimum nominal thickness unless otherwise indicated.

B. Sheet Steel: ASTM A 366 cold rolled commercial quality 0.0359” inch minimum nominal thickness; surface preparation and metal pretreatment as required for applied finish.

C. Galvanized Steel Sheet: ASTM A 653 G60.

D. Chromium Plating: ASTM B 456 Service Condition Number SC 2 (moderate service) nickel plus chromium electrodeposited on base metal.

E. Galvanized Steel Mounting Devices: ASTM A 153 hot dip galvanized after fabrication.

F. Fasteners: Screws bolts and other devices of same material as accessory unit tamper and theft resistant when exposed and of galvanized steel when concealed.

2.4 BENCH FABRICATIONS

A. Basis-of-Design Products: “Recreonics” cantilevered, aluminum wall mounted bench with powder-coated non-skid aluminum plank and corrosion resistant aluminum under structure supports. Stainless steel hardware for mounting bench supports to seat blank included. Wall mounting hardware not included.

B. Finish: Powder-coat finish in color selected by Architect from manufacturer’s standard color range.

C. Fasteners: Type 316 stainless-steel fasteners.

D. Anchors capable of sustaining, without failure a load equal to six times the load imposed when installed as determined by testing according to ASTM E 488/E 488M.

2.5 FABRICATION

A. General: One maximum 1 - ½” inch diameter unobtrusive stamped manufacturer logo as approved by Architect is permitted on exposed face of accessories. On interior surface not exposed to view or back surface of each accessory provide printed waterproof label or stamped nameplate indicating manufacturer's name and product model number.

B. Surface Mounted Toilet Accessories: Unless otherwise indicated fabricate units with tight seams and joints and exposed edges rolled. Hang doors and access panels with continuous stainless steel hinge. Provide concealed anchorage where possible.

C. Recessed Toilet Accessories: Unless otherwise indicated fabricate units of all welded construction without mitered corners. Hang doors and access panels with full length stainless steel hinge. Provide anchorage that is fully concealed when unit is closed.

D. Hangers: Provide mounting system that permits rigid tamper and theft resistant installation as follows:

1. Heavy duty wall brackets of galvanized steel.

E. Keys: Provide universal keys for internal access to accessories for servicing and resupplying. Provide minimum of six keys to Owner’s representative.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install accessories in accordance with manufacturers' written instructions using fasteners appropriate to substrate indicated and recommended by unit manufacturer.

B. Install units plumb and level firmly anchored in locations and heights indicated.

3.2 ADJUSTING AND CLEANING

A. Remove temporary labels and protective coatings.

B. Clean and polish all exposed surfaces after removing protective coatings.

END OF SECTION 102800

END OF SPECIFICATIONS

ISSUE FOR BID 11.08.23