HCA – LEE'S SUMMIT MEDICAL CENTER

INPATIENT BED EXPANSION

LEE'S SUMMIT, MISSOURI

CITY– 2nd REVIEW and
DESIGN COORDINATION ITEMS

FEBRUARY 6, 2025

Prepared by

Devenney
GROUP

Architect's Project No. 6406.24.0001
HCA Project No. 0972400009

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SECTION 000001

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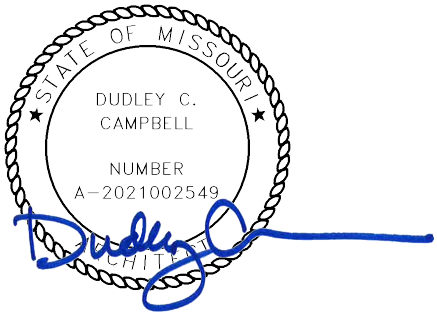

DATE SIGNED: 02.06.25

SECTION 011000

SUMMARY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes:

1. Project information.
2. Work covered by Contract Documents.
3. Phased construction.
4. Work by Owner.
5. Owner-furnished products.
6. Access to site.
7. Coordination with occupants.
8. Work restrictions.
9. Specification and drawing conventions.

1.3 PROJECT INFORMATION

A. Project Identification: Lee's Summit Medical Center
B. Med Surg Expansion

C. Owner: HCA.

D. Architect: Devenney Group.

1.4 WORK COVERED BY CONTRACT DOCUMENTS

A. Type of Contract

1. Project will be constructed under a single prime contract.
2. Scope of Work: Project will include renovation of approximately 15,017 s.f. of existing space and an addition of approximately 21,893 s.f. to accommodate the Dietary & Med Surg expansions. Work includes ground up construction with selective demolition and new architectural, structural, civil, mechanical, plumbing, electrical in the Design Package.
3. Work must occur in phases in the servery and dining area. General contractor to provide phasing plan and coordination interim / temporary measures for hospital to maintain operational during construction.

1.5 WORK BY OWNER

A. General: Cooperate fully with Owner so work may be carried out smoothly, without interfering with or delaying work under this Contract or work by Owner. Coordinate the Work of this

Contract with work performed by Owner.

1.6 ACCESS TO SITE

A. General: Contractor shall have limited use of Project site for construction operations as indicated on Drawings by the Contract limits and as indicated by requirements of this Section.

B. Use of Site: Limit use of Project site to work in areas indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.

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

1.7 COORDINATION WITH OCCUPANTS

A. Full Owner Occupancy: Owner will occupy site and existing adjacent buildings during entire construction period. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's day-to-day operations. Maintain existing exits unless otherwise indicated.

1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and approval of authorities having jurisdiction.
2. Notify the Owner not less than 72 hours in advance of activities that will affect Owner's operations.

1.8 WORK RESTRICTIONS

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

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

B. On-Site Work Hours: Limit work in the existing building to normal business working hours of 7:00a.m. to 5:00p.m., Monday through Friday, except as otherwise indicated.

C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated:

1. Notify Owner not less than two days in advance of proposed utility interruptions.
2. Obtain Owner's written permission before proceeding with utility interruptions.

D. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise and vibration, odors, or other disruption to Owner occupancy with Owner.

1. Notify Owner not less than two days in advance of proposed disruptive operations.
2. Obtain Owner's written permission before proceeding with disruptive operations.

E. Nonsmoking Facility: Smoking is not permitted within the building or anywhere on the hospital campus.

1.9 SPECIFICATION AND DRAWING CONVENTIONS

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

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

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

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

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

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 011000

SECTION 013200

CONSTRUCTION PROGRESS DOCUMENTATION

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 SUBMITTALS

A. Within 10 days after date of Agreement, submit preliminary schedule defining planned operations for the first 60 days of Work, with a general outline for remainder of Work.

B. Within 10 days after joint review, submit complete schedule.

C. Submit updated schedule with each Application for Payment.

D. Submit the number of opaque reproductions that Contractor requires, plus two copies which will be retained by Architect.

1.3 QUALITY ASSURANCE

A. Scheduler: Contractor's personnel or specialist Consultant specializing in CPM scheduling with one year minimum experience in scheduling construction work of a complexity comparable to this Project, and having use of computer facilities capable of delivering a detailed graphic printout within 48 hours of request.

1.4 SCHEDULE FORMAT

A. Listings: In chronological order according to the start date for each activity. Identify each activity with the applicable specification section number.

B. Diagram Sheet Size: Maximum 22 x 17 inches or width required.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 PRELIMINARY SCHEDULE

A. Prepare preliminary schedule in the form of a horizontal bar charts

3.2 CONTENT

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

B. Identify each item by specification section number.

C. Identify work of separate stages and other logically grouped activities.

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

E. Provide separate schedule of submittal dates for shop drawings, product data, and samples, owner-furnished products, Products identified under Allowances, and dates reviewed submittals will be required from Architect. Indicate decision dates for selection of finishes.

F. Indicate delivery dates for owner-furnished products.

G. Coordinate content with schedule of values specified in Section 012900.

H. Provide legend for symbols and abbreviations used.

3.3 BAR CHARTS

A. Include a separate bar for each major portion of Work or operation.

B. Identify the first workday of each week.

3.4 REVIEW AND EVALUATION OF SCHEDULE

A. Participate in joint review and evaluation of schedule with Architect at each submittal.

B. Evaluate project status to determine work behind schedule and work ahead of schedule.

C. After review, revise as necessary as result of review, and resubmit within 10 days.

3.5 UPDATING SCHEDULE

A. Maintain schedules to record actual start and finish dates of completed activities.

B. Indicate progress of each activity to date of revision, with projected completion date of each activity.

C. Annotate diagrams to graphically depict current status of Work.

D. Identify activities modified since previous submittal, major changes in Work, and other identifiable changes.

E. Indicate changes required to maintain Date of Substantial Completion.

F. Submit reports required to support recommended changes.

3.6 DISTRIBUTION OF SCHEDULE

A. Distribute copies of updated schedules to Contractor's project site file, to Subcontractors, suppliers, Architect, Owner, and other concerned parties.

B. Instruct recipients to promptly report, in writing, problems anticipated by projections shown in schedules.

END OF SECTION 013200

SECTION 013233

PHOTOGRAPHIC DOCUMENTATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes administrative and procedural requirements for the following:

1. Preconstruction photographs.
2. Periodic construction photographs.
3. Final completion construction photographs.

1.3 INFORMATIONAL SUBMITTALS

A. Digital Photographs: Submit image files within three days of taking photographs.

1. Digital Camera: Minimum sensor resolution of 8 megapixels.
2. Format: Minimum 1600 by 1200 pixels, 400 dpi minimum, in unaltered original files, with same aspect ratio as the sensor, uncropped, date-and time-stamped, in folder named by date of photograph, accompanied by key plan file.
3. Identification: Provide the following information with each image description in file metadata tag:
    a. Name of Project.
    b. Name of Architect.
    c. Name of Contractor.
    d. Date photograph was taken.
    e. Description of location, direction (by compass point), and elevation or story of construction.

1.4 COORDINATION

A. Auxiliary Services: Cooperate with photographer and provide auxiliary services requested, including access to Project site and use of temporary facilities, including temporary lighting required to produce clear, well-lit photographs.

1.5 USAGE RIGHTS

A. Obtain and transfer copyright usage rights from photographer to Owner for unlimited reproduction of photographic documentation.

PART 2 - PRODUCTS

2.1 PHOTOGRAPHIC MEDIA

A. Digital Images: Provide images in JPG format, produced by a digital camera with minimum sensor size of 8 megapixels, and at an image resolution of not less than 1600 by 1200 pixels and 400 dpi.

PART 3 - EXECUTION

3.1 CONSTRUCTION PHOTOGRAPHS

A. General: Take photographs using the maximum range of depth of field, and that are in focus, to clearly show the Work. Photographs with blurry or out-of-focus areas will not be accepted.

1. Maintain key plan with each set of construction photographs that identifies each photographic location.

B. Digital Images: Submit digital images exactly as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.

1. Date and Time: Include date and time in file name for each image.
2. Field Office Images: Maintain one set of images accessible in the field office at Project site, available at all times for reference. Identify images in the same manner as those submitted to Architect.

C. Preconstruction Photographs: Before commencement of excavation, take photographs of Project site and surrounding properties, including existing items to remain during construction, from different vantage points, as directed by Architect.

1. Flag construction limits before taking construction photographs.
2. Take 20 photographs to show existing conditions adjacent to property before starting the Work.
3. Take additional photographs as required to record settlement or cracking of adjacent structures, pavements, and improvements.

D. Periodic Construction Photographs: Take 20 photographs monthly (or mutually agreed number), coinciding with the cutoff date associated with each Application for Payment. Select vantage points to show status of construction and progress since last photographs were taken.

END OF SECTION 013233

SECTION 013300

SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

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

1.3 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.

1.4 ACTION SUBMITTALS

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

1. Coordinate submittal schedule with list of subcontracts, the schedule of values, and Contractor's construction schedule.

2. Initial Submittal: Submit concurrently with start-up construction schedule. Include submittals required during the first 60 days of construction. List those submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
3. Final Submittal: Submit concurrently with the first complete submittal of Contractor's construction schedule.
    a. Submit revised submittal schedule to reflect changes in current status and timing for submittals.
4. Format: Arrange the following information in a tabular format:
    a. Scheduled date for first submittal.
    b. Specification Section number and title.
    c. Submittal category: Action, informational.
    d. Name of subcontractor.
    e. Description of the Work covered.
    f. Scheduled date for Architect's final release or approval.
    g. Scheduled dates for purchasing.
    h. Scheduled dates for installation.
    i. Activity or event number.

1.5 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

A. Architect's Digital Data Files: Electronic copies of CAD Drawings will be provided by Architect for Contractor's use in preparing coordination submittals.

1. Architect will furnish Contractor one set of drawing files for use in preparing Shop Drawings and Project record drawings.
    a. Architect makes no representations as to the accuracy or completeness of digital data drawing files as they relate to the Contract Drawings.
    b. Digital Drawing Software Program: The Contract Drawings are available in Revit.
    c. Contractor shall execute a data licensing agreement in the form of Agreement included in Project Manual.
    d. The following CAD files will be furnished for each appropriate discipline: AE floor, finish, reflected ceiling and site plans.

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 approved by Architect.
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. Add 1:00 time frame like RFIs

1. Allow 10 business days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination. Allow 4 week review time for large or complex submittals will require additional review time. The following are examples but not limited to such submittals, Millwork, Curtain wall, Structural Steel, Doors Frames Hardware (total opening).
2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
3. Resubmittal Review: Allow 10 business 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 business days for initial review of each submittal.

D. Identification and Information: Place a permanent label or title block on each copy submittal item for identification.

1. On large format Shop Drawings, Contractor shall stamp each individual page as well as the reviewer's stamp.
2. Indicate name of firm or entity that prepared each submittal on label or title block.
3. Provide a space approximately 6 by 8 inches on label or beside title block to record Contractor's review and approval markings and action taken by Architect.
4. Include the following information for processing and recording action taken:
    a. Project name.
    b. Date.
    c. Name of Architect.
    d. Name of Contractor.
    e. Name of subcontractor.
    f. Name of supplier.
    g. Name of manufacturer.
    h. Submittal number or other unique identifier, including revision identifier.
        1) Submittal number shall use Specification Section number followed by a decimal point and then a sequential number (e.g., 061000.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., 061000.01.A).
    i. Number and title of appropriate Specification Section.
    j. Drawing number and detail references, as appropriate.
    k. Location(s) where product is to be installed, as appropriate.
    l. Other necessary identification.

E. Identification and Information: Identify and incorporate information in each electronic submittal file as follows:

1. Assemble complete submittal package into a single indexed file with links enabling navigation to each item.
2. Name file with submittal number or other unique identifier, including revision identifier.

a. For typical projects that do not require separate submittals for different buildings or sub the submittal file name shall use Specification Section number followed by a decimal point and then a sequential number. Resubmittals shall include an alphabetic suffix after another decimal point. Include brief description of submittal after sequential number or resubmittal suffix. (e.g., 061000.01.A Rough Carpentry).

b. For complex projects that require project identifier for separate buildings within a project or require individual submittals to be submitted by multiple subcontractors, the submittal file name shall follow the following. Specification Section number followed by a decimal point and then a sequential number. Resubmittals shall include an alphabetic suffix after another decimal point. Project Identifier should follow in parentheses (e.g., 061000.01.A (LNHS) Rough Carpentry).

3. Provide means for insertion to permanently record Contractor's review and approval markings and action taken by Architect.

4. Include the following information on an inserted cover sheet:
   a. Project name.
   b. Date.
   c. Name and address of Architect.
   d. Name of Contractor.
   e. Name of firm or entity that prepared submittal.
   f. Name of subcontractor.
   g. Name of supplier.
   h. Name of manufacturer.
   i. Number and title of appropriate Specification Section.
   j. Drawing number and detail references, as appropriate.
   k. Location(s) where product is to be installed, as appropriate.
   l. Related physical samples submitted directly.
   m. Other necessary identification.

5. Include the following information as keywords in the electronic file metadata:
   a. Project name.
   b. Number and title of appropriate Specification Section.
   c. Manufacturer name.
   d. Product name.

F. Options: Identify options requiring selection by the Architect.

G. Deviations: Identify deviations from the Contract Documents on submittals.

H. Additional Paper Copies: Unless additional copies are required for final submittal, and unless Architect observes noncompliance with provisions in the Contract Documents, initial submittal may serve as final submittal.

1. Submit one copy of submittal to concurrent reviewer in addition to specified number of copies to Architect.

I. Transmittal: Assemble each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Architect will return submittals, without review, received from sources other than Contractor.

1. Transmittal Form: Use standard contractor form as approved by Architect Owner.

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

J. 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. Include all submitted information from previous submittal in resubmittal, to form a comprehensive document for Architect's review.
4. Resubmit submittals until they are marked with 'Reviewed' , 'Furnish as Corrected' notation from Architect's action stamp, or with approval notation from alternate reviewer

K. 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.

L. Use for Construction: Use only final submittals that are marked with 'Reviewed' , 'Furnish as Corrected' notation from Architect's action stamp. , or with approval notation from alternate reviewer.

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. Upload electronic submittals as PDF electronic files directly to Tonic (Architect's Info Exchange Folder specifically established for Project).
   a. Architect will return annotated file. Annotate and retain one copy of file as an electronic Project record document file.
2. Action Submittals: Provide only PDF files. Architect will return the marked-up PDF.
3. Informational Submittals: Provide only PDF files noted for reference only. Architect will not return copies.
4. Closeout Submittals and Maintenance Material Submittals: Comply with requirements specified in Division 01 Section "Closeout Procedures."
5. 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.

6. Test and Inspection Reports Submittals: Comply with requirements specified in Division 01 Section "Quality Requirements."

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

1. If information must be specially prepared for submittal because standard published data are not suitable for use, submit as Shop Drawings, not as Product Data.
2. Mark each copy of each submittal to show which products and options are applicable.
3. Include the following information, as applicable:
    a. Manufacturer's catalog cuts.
    b. Manufacturer's product specifications.
    c. Standard color charts.
    d. Statement of compliance with specified referenced standards.
    e. Testing by recognized testing agency.
    f. Application of testing agency labels and seals.
    g. Notation of coordination requirements.
    h. Availability and delivery time information.
4. For equipment, include the following in addition to the above, as applicable:
    a. Wiring diagrams showing factory-installed wiring.
    b. Printed performance curves.
    c. Operational range diagrams.
    d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.
5. Submit Product Data before or concurrent with Samples.
6. Submit Product Data in the following format:
    a. PDF electronic file.

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

1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
    a. Identification of products.
    b. Schedules.
    c. Compliance with specified standards.
    d. Notation of coordination requirements.
    e. Notation of dimensions established by field measurement.
    f. Relationship and attachment to adjoining construction clearly indicated.
    g. Seal and signature of professional engineer if specified.
2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches but no larger than 30 by 42 inches.
3. Submit Shop Drawings in the following format:
4. For large format drawings and submittals (larger than 11 x 17), submit PDF file plus 2 hard copies. For smaller format drawings and submittals (11x17 or less), provide only PDF file. Architect will return only the marked-up PDF.

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.
3. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
    a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
    b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.
4. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
    a. Number of Samples: Submit three full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.
5. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
    a. Number of Samples: Submit sets of Samples. Architect will retain two Sample sets; remainder will be returned. Mark up and retain one returned Sample set as a Project record sample.
        1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
        2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three sets of paired units that show approximate limits of variations.

E. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:

1. Type of product. Include unique identifier for each product indicated in the Contract Documents.
2. Manufacturer and product name, and model number if applicable.
3. Number and name of room or space.
4. Location within room or space.
5. Submit product schedule in the following format:
    a. PDF electronic file.

F. Contractor's Construction Schedule: Comply with requirements specified in Division 01 Section "Construction Progress Documentation."

G. Application for Payment: Comply with requirements specified in Division 01 Section "Payment Procedures."

H. Schedule of Values: Comply with requirements specified in Division 01 Section "Payment Procedures."

I. 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. Use CSI Form 1.5A. Include the following information in tabular form:

1. Name, address, and telephone number of entity performing subcontract or supplying products.
2. Number and title of related Specification Section(s) covered by subcontract.
3. Drawing number and detail references, as appropriate, covered by subcontract.
4. Submit subcontract list in the following format:
    a. PDF electronic file.

J. Coordination Drawings: Comply with requirements specified in Division 01 Section "Project Management and Coordination."

K. 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.

L. 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 American Welding Society (AWS) forms. Include names of firms and personnel certified.

M. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.

N. 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.

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

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

Q. 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.

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

S. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:

1. Name of evaluation organization.
2. Date of evaluation.
3. Time period when report is in effect.
4. Product and manufacturers' names.
5. Description of product.
6. Test procedures and results.
7. Limitations of use.

T. Schedule of Tests and Inspections: Comply with requirements specified in Division 01 Section "Quality Requirements."

U. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.

V. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.

W. Field Test Reports: Submit 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.

X. Maintenance Data: Comply with requirements specified in Division 01 Section "Operation and Maintenance Data."

Y. Design Data: Prepare and submit written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

2.2 DELEGATED-DESIGN SERVICES

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

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

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

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

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

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

B. Project Closeout and Maintenance/Material Submittals: Refer to requirements in Division 01 Section "Closeout Procedures."

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

3.2 ARCHITECT'S ACTION

A. General: Architect will not review submittals that do not bear Contractor's approval stamp and will return them without action.

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

1. Reviewed
2. Revise and Resubmit
3. Rejected
4. Furnish As Corrected
5. No Action Taken.

C. 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.

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

E. Incomplete submittals are not acceptable, will be considered nonresponsive, and will be returned without review.

F. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

END OF SECTION 013300

SECTION 055213

PIPE AND TUBE RAILINGS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Steel pipe and tube railings at stairs.

B. Related Requirements:

1. Section 055113 "Metal Pan Stairs" for steel tube railings associated with metal pan stairs.

1.2 ACTION SUBMITTALS

A. Product Data: For the following:

1. Manufacturer's product lines of mechanically connected railings.
2. Railing brackets.
3. Grout, anchoring cement, and paint products.

B. Sustainable Design Submittals:

C. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.

D. Samples: For each type of exposed finish required.

E. Delegated-Design Submittal: For railings, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.3 INFORMATIONAL SUBMITTALS

A. Product Test Reports: For pipe and tube railings, for tests performed by a qualified testing agency, according to ASTM E 894 and ASTM E 935.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Steel Pipe and Tube Railings:

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

   a. VIVA Railings, LLC.
   b. Wagner, R & B, Inc.

2.2 PERFORMANCE REQUIREMENTS

A. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design railings, including attachment to building construction.

B. Structural Performance: Railings, including attachment to building construction, shall withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated:

1. Handrails and Top Rails of Guards:

   a. Uniform load of 50 lbf/ ft. applied in any direction.
   b. Concentrated load of 200 lbf applied in any direction.
   c. Uniform and concentrated loads need not be assumed to act concurrently.

2. Infill of Guards:

   a. Concentrated load of 50 lbf applied horizontally on an area of 1 sq. ft..
   b. Infill load and other loads need not be assumed to act concurrently.

2.3 METALS, GENERAL

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

1. Provide type of bracket with flange tapped for concealed anchorage to threaded hanger bolt and that provides 1-1/2-inch clearance from inside face of handrail to finished wall surface.

2.4 STEEL AND IRON

A. Tubing: ASTM A 500 (cold formed).

B. Pipe: ASTM A 53/A 53M, Type F or Type S, Grade A, Standard Weight (Schedule 40), unless another grade and weight are required by structural loads.

C. Plates, Shapes, and Bars: ASTM A 36/A 36M.

2.5 FASTENERS

A. General: Provide the following:

1. Ungalvanized-Steel Railings: Plated steel fasteners complying with ASTM B 633 or ASTM F 1941, Class Fe/Zn 5 for zinc coating.
2. Hot-Dip Galvanized Railings: Type 304 stainless-steel or hot-dip zinc-coated steel fasteners complying with ASTM A 153/A 153M or ASTM F 2329 for zinc coating.

B. Post-Installed Anchors: Torque-controlled expansion anchors or chemical anchors capable of sustaining, without failure, a load equal to 6 times the load imposed when installed in unit masonry and 4 times the load imposed when installed in concrete, as determined by testing according to ASTM E 488/E 488M, conducted by a qualified independent testing agency.

1. Material for Interior Locations: Carbon-steel components zinc-plated to comply with ASTM B 633 or ASTM F 1941, Class Fe/Zn 5, unless otherwise indicated.

2.6 MISCELLANEOUS MATERIALS

A. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.

B. Etching Cleaner for Galvanized Metal: Complying with MPI#25.

C. Galvanizing Repair Paint: High-zinc-dust-content paint complying with SSPC-Paint 20 and compatible with paints specified to be used over it.

D. Shop Primers: Provide primers that comply with Section 099123 "Interior Painting."

E. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107/C 1107M. Provide grout specifically recommended by manufacturer for interior and exterior applications.

2.7 FABRICATION

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

B. Form work true to line and level with accurate angles and surfaces.

C. Welded Connections: Cope components at connections to provide close fit, or use fittings designed for this purpose. Weld all around at connections, including at fittings.

1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
2. Obtain fusion without undercut or overlap.
3. Remove flux immediately.
4. At exposed connections, finish exposed surfaces smooth and blended so no roughness shows after finishing and welded surface matches contours of adjoining surfaces.

D. Welded Connections for Aluminum Pipe: Fabricate railings to interconnect members with concealed internal welds that eliminate surface grinding, using manufacturer's standard system of sleeve and socket fittings.

E. Nonwelded Connections: Connect members with concealed mechanical fasteners and fittings. Fabricate members and fittings to produce flush, smooth, rigid, hairline joints.

F. Form changes in direction by inserting prefabricated elbow fittings.

G. For changes in direction made by bending, use jigs to produce uniform curvature for each repetitive configuration required. Maintain cross section of member throughout entire bend without buckling, twisting, cracking, or otherwise deforming exposed surfaces of components.

H. Close exposed ends of railing members with prefabricated end fittings.

I. Provide wall returns at ends of wall-mounted handrails unless otherwise indicated.

J. Brackets, Flanges, Fittings, and Anchors: Provide wall brackets, flanges, miscellaneous fittings, and anchors to interconnect railing members to other work unless otherwise indicated.

1. At brackets and fittings fastened to plaster or gypsum board partitions, provide crush-resistant fillers or other means to transfer loads through wall finishes to structural supports and prevent bracket or fitting rotation and crushing of substrate.

2.8 STEEL AND IRON FINISHES

A. Preparation for Shop Priming: Prepare uncoated ferrous-metal surfaces to comply with SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."

B. Primer Application: Apply shop primer to prepared surfaces of railings unless otherwise indicated. Comply with requirements in SSPC-PA 1, "Shop, Field, and Maintenance Painting of Steel," for shop painting. Primer need not be applied to surfaces to be embedded in concrete or masonry.

1. Do not apply primer to galvanized surfaces.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Set railings accurately in location, alignment, and elevation; measured from established lines and levels and free of rack.

1. Do not weld, cut, or abrade surfaces of railing components that are coated or finished after fabrication and that are intended for field connection by mechanical or other means without further cutting or fitting.
2. Set posts plumb within a tolerance of 1/16 inch in 3 feet.
3. Align rails so variations from level for horizontal members and variations from parallel with rake of steps and ramps for sloping members do not exceed 1/4 inch in 12 feet.

B. Control of Corrosion: Prevent galvanic action and other forms of corrosion by insulating metals and other materials from direct contact with incompatible materials.

1. Coat, with a heavy coat of bituminous paint, concealed surfaces of aluminum that are in contact with grout, concrete, masonry, wood, or dissimilar metals.

3.2 ANCHORING POSTS

A. Use metal sleeves preset and anchored into concrete for installing posts. After posts are inserted into sleeves, fill annular space between post and sleeve with nonshrink, nonmetallic grout, mixed and placed to comply with anchoring material manufacturer's written instructions.

B. Form or core-drill holes not less than 5 inches deep and 3/4 inch larger than OD of post for installing posts in concrete. Clean holes of loose material, insert posts, and fill annular space between post and concrete with nonshrink, nonmetallic grout, mixed and placed to comply with anchoring material manufacturer's written instructions.

C. Anchor posts to metal surfaces with oval flanges, angle type, or floor type as required by conditions, connected to posts and to metal supporting members.

3.3 ATTACHING RAILINGS

A. Attach railings to wall with wall brackets. Locate brackets as indicated or, if not indicated, at spacing required to support structural loads.

B. Secure wall brackets and railing end flanges to building construction as follows:

1. For concrete and solid masonry anchorage, use drilled-in expansion shields and hanger or lag bolts.
2. For hollow masonry anchorage, use toggle bolts.
3. For wood stud partitions, use hanger or lag bolts set into studs or wood backing between studs. Coordinate with carpentry work to locate backing members.
4. For steel-framed partitions, use self-tapping screws fastened to steel framing or to concealed steel reinforcements.

3.4 ADJUSTING AND CLEANING

A. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with the same material as used for shop painting to comply with SSPC-PA 1 requirements for touching up shop-painted surfaces.

B. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas, and repair galvanizing to comply with ASTM A 780/A 780M.

END OF SECTION

SECTION 061643

GYPSUM SHEATHING (DENSGLASS) [HCA]

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

1.2 SUMMARY

A. This Section includes the following:

1. Glass-mat gypsum wall sheathing.
2. Sealing joints and penetrations in and associated with gypsum sheathing.

B. Related Requirements:

~~1. Section 061636 "Plywood Sheathing for backside of parapets.~~

~~2.~~1. Section 07272~~6~~7.01 "Fluid-Applied Membrane Air Barrier" for air barrier applied over wall sheathing.

1.3 DEFINITIONS

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

1.4 ACTION SUBMITTALS

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

B. Shop Drawings: Comply with provisions of Division 05 Section “Structural Metal Stud Framing.” On Shop Drawings required by that Section, indicate exterior sheathing screw fastener spacing to be utilized at field, perimeter, and corners to comply with design wind loads.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Store materials protected against damage from weather, direct sunlight, surface contamination, corrosion, construction traffic, or other causes. Stack sheathing flat on leveled supports off the ground, under cover, and fully protected from weather.

1.6 COORDINATION

A. Glass-Mat Gypsum Sheathing Board:

1. Do not leave exposed to weather for more than 180 days unless otherwise approved in writing by manufacturer.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Fire-Test-Response Characteristics: For assemblies with fire-resistance ratings, provide materials and construction identical to those of assemblies tested for fire resistance per ASTM E 119 by a testing and inspecting agency acceptable to authorities having jurisdiction.

1. Fire-Resistance Ratings: Indicated by design designations from UL's "Fire Resistance Directory." GA-600, "Fire Resistance Design Manual.".

2.2 GYPSUM SHEATHING

A. Regional Materials: Gypsum panel products shall be manufactured within 500 miles of Project site from materials that have been extracted, harvested, or recovered, as well as manufactured, within 500 miles of Project site.

B. Glass-Mat Gypsum Wall Sheathing: ASTM C 1177/C 1177M with acrylic coating on exterior side.

C. Manufacturers: Subject to compliance with requirements, provide products by manufacturers listed in Document 002150 - Owner's Preferred Vendor List. No substitutions permitted.

1. Products: Subject to compliance with requirements, provide the following:
   a. United States Gypsum Co.; Securock.
      To be purchased from:
      Deb Sottile
      L&W Supply, National Accounts Manager
      DSottile@LWSupply.com
      Phone: 773-704-7157
2. Type and Thickness: Type X, 5/8 inch (15.9 mm) thick.
3. Permeance: Not less that 26 perms per ASTM E 96.
4. Size: 48 inches by 120 inches.
5. Mold Growth: 10, per ASTM D 3273.

2.3 FASTENERS

A. Fasteners: Steel drill screws, in length recommended by sheathing manufacturer for thickness of sheathing board to be attached, with organic-polymer or other corrosion-protective coating having a salt-spray resistance of more than 800 hours according to ASTM B 117.

1. For steel framing from 0.033 to 0.112 inch thick, attach sheathing with drill screws complying with ASTM C 954.

2.4 SHEATHING JOINT AND PENETRATION SEALANT

A. Sheathing Sealant: Refer to Section 072726 "Fluid-Applied Membrane Air Barrier". Sealant must be approved by Air-Barrier manufacturer.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Do not use materials with defects that impair quality of sheathing or pieces that are too small to use with minimum number of joints or optimum joint arrangement. Arrange joints so that pieces do not span between fewer than three support members.

B. Coordinate sheathing installation with installation of materials installed over sheathing so sheathing is not exposed to precipitation or left exposed at end of the workday when rain is forecast.

3.2 GYPSUM SHEATHING INSTALLATION

A. Comply with GA-253 and manufacturer's written instructions.

B. Cut panels at penetrations, edges, and other obstructions of work; fit tightly against abutting construction unless otherwise indicated.

1. Install boards with a 3/8-inch gap where non-load-bearing construction abuts structural elements.
2. Install boards with a 1/4-inch gap where they abut concrete, masonry, or similar materials that might retain moisture, to prevent wicking.

C. Coordinate sheathing installation with flashing and joint-sealant installation so these materials are installed in sequence and manner that prevent exterior moisture from passing through completed exterior wall assembly.

D. Apply fasteners so screw heads bear tightly against face of sheathing boards but do not cut into facing.

E. Do not bridge building expansion joints with sheathing; cut and space edges to match spacing of structural support elements.

F. Horizontal Installation: Install sheathing with ends of boards over centers of stud flanges, and stagger end joints of adjacent boards not less than one stud spacing. Screw-attach boards at perimeter and within field of board to each steel stud.

1. Space fasteners approximately 8 inches on center and set back a minimum of 3/8 inch from edges and ends of boards.
    a. Decrease spacing between fasteners where required to comply with design wind loads, and as indicated in shop drawings submitted under Division 05 Section “Cold-Formed Metal Framing.”
2. For sheathing under stucco cladding, boards may be initially tacked in place with screws if overlying self-furring metal lath is screw-attached through sheathing to studs immediately after sheathing is installed.

G. Vertical Installation: Install board with vertical edges centered over flanges of steel studs. Abut ends and edges of each board with those of adjacent boards. Screw-attach boards at perimeter and within field of board to each steel stud.

1. Space fasteners approximately 8 inches on center and set back a minimum of 3/8 inch from edges and ends of boards.

a. Decrease spacing between fasteners where required to comply with design wind loads, and as indicated in shop drawings submitted under Division 05 Section "Cold-Formed Metal Framing."

2. For sheathing under stucco cladding, boards may be initially tacked in place with screws if overlying self-furring metal lath is screw-attached through sheathing to studs immediately after sheathing is installed.

3.3 SHEATHING JOINT-AND-PENETRATION TREATMENT

A. Seal sheathing joints according to "Air-Barrier" manufacturer's written recommendations.

1. Apply sealant on joints and fasteners and trowel flat. Apply sufficient quantity of sealant to completely cover joints and fasteners after troweling, unless directed otherwise by "Air-Barrier" manufacturer's written instructions. Seal other penetrations and openings.
   a. Utilize primers and tapes as recommended by sealant manufacturer at corners and joints at adjacent substrates.

B. Taping of joints will not be accepted as an alternative or substitute for application of joint sealant.

END OF SECTION 061643

SECTION 064116

PLASTIC-LAMINATE-FACED ARCHITECTURAL CABINETS [HCA]

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. Plastic-laminate-faced architectural cabinets.
2. Wood furring, blocking, shims, and hanging strips for installing plastic-laminate-faced architectural cabinets unless concealed within other construction before cabinet installation.

B. Related Requirements:

1. Section 061000 "Rough Carpentry" for wood furring, blocking, shims, and hanging strips required for installing cabinets and concealed within other construction before cabinet installation.
2. Section 079200 “Joint Sealants” for sealing gaps between casework components and building components.
3. Section 092216 "Non-Structural Metal Framing" for reinforcements in metal-framed partitions for anchoring casework.
4. Section 096513 "Resilient Base and Accessories" for resilient base applied to plastic-laminate-faced casework.
5. ~~Section 123623.13 "Plastic-Laminate-Clad Countertops."~~
6. ~~6.~~5. Section 123661 "Simulated Stone Countertops."
7. ~~7.~~6. Division 22 Plumbing Fixtures and Trim.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product , including panel products high-pressure decorative laminate adhesive for bonding plastic laminate and cabinet hardware and accessories.

1. Include data for fire-retardant treatment from chemical-treatment manufacturer and certification by treating plant that treated materials comply with requirements.

B. Shop Drawings: Show location of each item, dimensioned plans and elevations, large-scale details, attachment devices, and other components.

1. Show locations and sizes of furring, blocking, and hanging strips, including concealed blocking and reinforcement specified in other Sections.
2. Show locations and sizes of cutouts and holes for electrical switches and outlets and other items installed in architectural plastic-laminate cabinets.
3. Apply AWI Quality Certification Program label to Shop Drawings.

C. Samples for Verification:

1. Plastic laminates, 8 by 10 inches, for each [type,] color, pattern, and surface finish, with one sample applied to core material and specified edge material applied to one edge.
2. Wood-grain plastic laminates, 12 by 24 inches, for each type, pattern and surface finish, with one sample applied to core material and specified edge material applied to one edge.
3. Thermoset decorative panels, 8 by 10 inches, for each color, pattern, and surface finish, with edge banding on one edge.
4. Corner pieces as follows:

a. Cabinet-front frame joints between stiles and rails, as well as exposed end pieces, 18 inches high by 18 inches wide by 6 inches deep.
b. Miter joints for standing trim.

5. Exposed cabinet hardware and accessories, one unit for each type and finish.

1.4 INFORMATIONAL SUBMITTALS

A. Qualification Data: For fabricator.
B. Product Certificates: For each type of product.
C. Woodwork Quality Standard Compliance Certificates: AWI Quality Certification Program certificates.
D. Evaluation Reports: For fire-retardant-treated materials, from ICC-ES.

1.5 QUALITY ASSURANCE

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

1.6 DELIVERY, STORAGE, AND HANDLING

A. Do not deliver cabinets until painting and similar operations that could damage woodwork have been completed in installation areas. If cabinets must be stored in other than installation areas, store only in areas where environmental conditions comply with requirements specified in "Field Conditions" Article.

1.7 FIELD CONDITIONS

A. Environmental Limitations: Do not deliver or install cabinets until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature between 60 and 90 deg F and relative humidity between 25 and 55 percent during the remainder of the construction period.
B. Field Measurements: Where cabinets are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication, and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
1. Locate concealed framing, blocking, and reinforcements that support cabinets by field measurements before being enclosed, and indicate measurements on Shop Drawings.
C. Established Dimensions: Where cabinets are indicated to fit to other construction, establish dimensions for areas where cabinets are to fit. Provide allowance for trimming at site, and coordinate construction to ensure that actual dimensions correspond to established dimensions.

1.8 COORDINATION

A. Coordinate sizes and locations of framing, blocking, furring, reinforcements, and other related units of Work specified in other Sections to ensure that cabinets can be supported and installed as indicated.

PART 2 - PRODUCTS

2.1 PLASTIC-LAMINATE-FACED ARCHITECTURAL CABINETS

A. Quality Standard: Unless otherwise indicated, comply with the "Architectural Woodwork Standards" for grades of architectural plastic-laminate cabinets indicated for construction, finishes, installation, and other requirements.
   1. Provide labels and certificates from AWI certification program indicating that woodwork complies with requirements of grades specified.
   2. The Contract Documents contain selections chosen from options in the quality standard and additional requirements beyond those of the quality standard. Comply with those selections and requirements in addition to the quality standard.

B. Grade: Premium.

C. Type of Construction: As indicated on Drawings..

D. Cabinet, Door, and Drawer Front Interface Style: Flush overlay.

E. Reveal Dimension: 1/2 inch.

F. High-Pressure Decorative Laminate: NEMA LD 3, grades as indicated or if not indicated, as required by woodwork quality standard.
   1. Manufacturers: Subject to compliance with requirements, provide products by the following:
      a. Formica Corporation.
      b. Nevamar Decorative Surfaces.
      c. Wilsonart International; Div. of Premark International, Inc.
      d. <Insert manufacturer's name>.
   2. Manufacturers: Subject to compliance with requirements, provide products by manufacturers listed in Document 002150 - Owner’s Preferred Vendor List.

G. Laminate Cladding for Exposed Surfaces:
   1. Horizontal Surfaces: Grade HGS.
   2. Postformed Surfaces: Grade HGP.
   3. Vertical Surfaces: Grade VGS.
   4. Edges: Grade HGS PVC T-mold matching laminate in color, pattern, and finish.
   5. Pattern Direction: Vertically for drawer fronts, doors, and fixed panels.

H. Materials for Semiexposed Surfaces:
   1. Surfaces Other Than Drawer Bodies: High-pressure decorative laminate, NEMA LD 3, Grade VGS.
      a. Edges of Plastic-Laminate Shelves: PVC T-mold matching laminate in color, pattern, and finish.
      b. Edges of Thermoset Decorative Panel Shelves: PVC or polyester edge banding.
      c. For semiexposed backs of panels with exposed plastic-laminate surfaces, provide surface of high-pressure decorative laminate, NEMA LD 3, Grade VGS.
   2. Drawer Sides and Backs: Solid-hardwood lumber.
   3. Drawer Bottoms: Hardwood plywood.

I. Dust Panels: 1/4-inch plywood or tempered hardboard above compartments and drawers unless located directly under tops.

J. Concealed Backs of Panels with Exposed Plastic-Laminate Surfaces: High-pressure decorative laminate, NEMA LD 3, Grade BKL.

K. Drawer Construction: Fabricate with exposed fronts fastened to subfront with mounting screws from interior of body.
   1. Join subfronts, backs, and sides with glued rabbeted joints supplemented by mechanical fasteners or glued dovetail joints.

L. Colors, Patterns, and Finishes: Provide materials and products that result in colors and textures of exposed laminate surfaces complying with the following requirements:

1. As indicated by laminate manufacturer's designations.
2. Match Architect's sample.

2.2 WOOD MATERIALS

A. Wood Products: Provide materials that comply with requirements of referenced quality standard for each type of woodwork and quality grade specified unless otherwise indicated.
   1. Wood Moisture Content: 8 to 13 percent.

B. Composite Wood and Agrifiber Products: Provide materials that comply with requirements of referenced quality standard for each type of woodwork and quality grade specified unless otherwise indicated.
   1. Composite Wood and Agrifiber Products: Products shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."
   2. Medium-Density Fiberboard: ANSI A208.2, [Grade 130], made with binder containing no urea formaldehyde].
   3. Particleboard: ANSI A208.1, Grade M-2.
   4. Softwood Plywood: DOC PS 1 , medium-density overlay.
   5. Veneer-Faced Panel Products (Hardwood Plywood): HPVA HP-1, made with adhesive containing no urea formaldehyde.
   6. Thermoset Decorative Panels: Particleboard or medium-density fiberboard finished with thermally fused, melamine-impregnated decorative paper and complying with requirements of NEMA LD 3, Grade VGL, for test methods 3.3, 3.4, 3.6, 3.8, and 3.10.

2.3 CABINET HARDWARE AND ACCESSORIES

A. General: Provide cabinet hardware and accessory materials associated with architectural cabinets except for items specified in Section 087111 "Door Hardware (Descriptive Specification)."

B. Butt Hinges: 2-3/4-inch, five-knuckle steel hinges made from 0.095-inch-thick metal, and as follows:
   1. Semiconcealed Hinges for Flush Doors: BHMA A156.9, B01361.
   2. Semiconcealed Hinges for Overlay Doors: BHMA A156.9, B01521.
   3. Non-Ferrous Hinges for applications in MRI Rooms: Rockford Process Controls #376-SS.

C. Frameless Concealed Hinges (European Type): BHMA A156.9, B01602, 170 degrees of opening, self-closing.

D. Pocket Door Slide System: Haefele No. RP 42/60, Nickel-Plated, size as required.

E. Pulls: ADA compliant, solid stainless-steel wire pulls, fastened from back with two screws. For sliding doors, provide recessed stainless-steel flush pulls. Provide two pulls for drawers more than 24 inches wide.
   1. Stainless Steel: ADA compliant, Type 304 Stainless Steel (Non-Ferrous) at MRI Rooms.

F. Catches: Magnetic catches, BHMA A156.9, B03141.
   1. Provide non-ferrous nylon roller spring-catch at MRI Rooms.

G. Adjustable Shelf Standards and Supports: BHMA A156.9, B04071; with shelf rests, B04081.

H. Shelf Rests: BHMA A156.9, B04013; metal.

I. Drawer Slides: BHMA A156.9.
   1. Grade 1 and Grade 2: Side mounted and extending under bottom edge of drawer; full-extension type; epoxy-coated steel with polymer rollers.
   2. Grade 1HD-100 and Grade 1HD-200: Side mounted; full-extension type; zinc-plated-steel ball-bearing slides.

3. For drawers not more than 3 inches (75 mm) high and not more than 24 inches (600 mm) wide, provide Grade 2.
4. For drawers more than 3 inches (75 mm) high but not more than 6 inches (150 mm) high and not more than 24 inches (600 mm) wide, provide Grade 1.
5. For drawers more than 6 inches (150 mm) high or more than 24 inches (600 mm) wide, provide Grade 1HD-100.
6. For computer keyboard shelves, provide Grade 1.
7. For trash bins not more than 20 inches (500 mm) high and 16 inches (400 mm) wide, provide Grade 1HD-100.

J. Door Locks: BHMA A156.11, E07121.
K. Drawer Locks: BHMA A156.11, E07041.
L. Door and Drawer Silencers: BHMA A156.16, L03011.
M. Exposed Hardware Finishes: For exposed hardware, provide finish that complies with BHMA A156.18 for BHMA finish number indicated.
1. Satin Stainless Steel: BHMA 630.
N. For concealed hardware, provide manufacturer's standard finish that complies with product class requirements in BHMA A156.9.
O. Counter Top Supports: As made by RAAKS Inc., in configurations as required for detailed conditions.
P. Keyboard Drawer: Refer to Drawings.

2.4 MISCELLANEOUS MATERIALS

A. Furring, Blocking, Shims, and Hanging Strips: Softwood or hardwood lumber, kiln dried to less than 15 percent moisture content.
B. Anchors: Select material, type, size, and finish required for each substrate for secure anchorage. Provide metal expansion sleeves or expansion bolts for post-installed anchors. Use nonferrous-metal or hot-dip galvanized anchors and inserts at inside face of exterior walls and at floors.
C. Adhesives: Do not use adhesives that contain urea formaldehyde.
D. Adhesive for Bonding Plastic Laminate: Unpigmented contact cement.
1. Adhesive for Bonding Edges: Hot-melt adhesive or adhesive specified above for faces.

2.5 FABRICATION

A. Sand fire-retardant-treated wood lightly to remove raised grain on exposed surfaces before fabrication.
B. Fabricate cabinets to dimensions, profiles, and details indicated.
C. Complete fabrication, including assembly and hardware application, to maximum extent possible before shipment to Project site. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.
1. Trial fit assemblies at fabrication shop that cannot be shipped completely assembled. Install dowels, screws, bolted connectors, and other fastening devices that can be removed after trial fitting. Verify that various parts fit as intended and check measurements of assemblies against field measurements before disassembling for shipment.
D. Shop-cut openings to maximum extent possible to receive hardware, appliances, electrical work, and similar items. Locate openings accurately and use templates or roughing-in diagrams to produce accurately sized and shaped openings. Sand edges of cutouts to remove splinters and burrs.
E. Install glass to comply with applicable requirements in Section 088000 "Glazing" and in GANA's "Glazing Manual." For glass in wood frames, secure glass with removable stops.

PART 3 - EXECUTION

3.1 PREPARATION

A. Before installation, condition cabinets to average prevailing humidity conditions in installation areas.

B. Before installing cabinets, examine shop-fabricated work for completion and complete work as required.

3.2 INSTALLATION

A. Grade: Install cabinets to comply with same grade as item to be installed.

B. Assemble cabinets and complete fabrication at Project site to the extent that it was not completed in the shop.

C. Install cabinets level, plumb, true, and straight. Shim as required with concealed shims. Install level and plumb to a tolerance of 1/8 inch in 96 inches.

D. Scribe and cut cabinets to fit adjoining work, refinish cut surfaces, and repair damaged finish at cuts.

E. Anchor cabinets to anchors or blocking built in or directly attached to substrates. Secure with countersunk, concealed fasteners and blind nailing. Use fine finishing nails or finishing screws for exposed fastening, countersunk and filled flush with woodwork.

1. Use filler matching finish of items being installed.

F. Cabinets: Install without distortion so doors and drawers fit openings properly and are accurately aligned. Adjust hardware to center doors and drawers in openings and to provide unencumbered operation. Complete installation of hardware and accessory items as indicated.

1. Install cabinets with no more than 1/8 inch in 96-inch sag, bow, or other variation from a straight line.
2. Fasten wall cabinets through back, near top and bottom, and at ends not more than 16 inches o.c. with either No. 10 wafer-head sheet metal screws through metal backing or metal framing behind wall finish or toggle bolts through metal backing or metal framing behind wall finish.

3.3 ADJUSTING AND CLEANING

A. Repair damaged and defective cabinets, where possible, to eliminate functional and visual defects; where not possible to repair, replace woodwork. Adjust joinery for uniform appearance.

B. Clean, lubricate, and adjust hardware.

C. Clean cabinets on exposed and semiexposed surfaces.

END OF SECTION

SECTION 072116
THERMAL AND BATT INSULATION [HCA]

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

~~A. Section 044313.13: Anchored Stone Masonry Veneer.~~

~~B.~~A. Section 072610: Vapor retarder materials adjacent to insulation.

~~C.~~B. Section 092900: Batt-type sound attenuation blanket insulation.

1.2 SUMMARY

A. Full-thick non-backed formaldehyde-free fiberglass batts, thickness as indicated, for exterior stud wall cavity insulation.

B. Perimeter foundation and under-slab rigid insulation.

C. Cavity wall rigid insulation.

1.3 REFERENCED STANDARDS

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

1. E84 - Test Method for Surface Burning Characteristics of Building Materials.
2. E136 - Test Method for Behavior of Materials in a Vertical Tube Furnace at 750oC.
3. C518 - Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter.
4. C665 - Mineral Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing.
5. Research Reports: For foam-plastic insulation, from ICC-ES
6. C578 - Type X and UL Classification Certificate U-197.

1.4 SUBMITTALS

A. Submit items under provisions of Section 013310.

B. Submit product data showing product characteristics, performance criteria, limitations and installation instructions. Include certification that insulation is free of formaldehyde.

1.5 DELIVERY, STORAGE AND HANDLING

A. Deliver items to the site and handle, store and protect under provisions of Section 016000.

PART 2 - PRODUCTS

2.1 BATT INSULATION MATERIALS

A. Acceptable manufacturers: Refer to the Owner's Bulk Purchasing Vendor List in Document 002150 for the Owner's preferred manufacturer. Materials of manufacturers other than the preferred manufacturers which are of the same function and performance will be considered under provisions of Section 016000.

B. Batt Insulation: Full-thick non-backed formaldehyde-free fiberglass batts, thickness as indicated, complying with the property requirements of ASTM C665, Type 1, and ASTM E136. Use insulation wide enough to compress between building components and completely fill the cavity being insulated.

1. Maximum flame characteristics: Flame Spread rating of 10, Smoke Development rating of 10 when tested in accordance with ASTM E84.
2. Minimum thermal insulating value: R-value of 3 per inch thickness when tested in accordance with ASTM C518.
3. Dimensional stability: Linear shrinkage less than 0.1%.

C. Tie wire: 22 gauge galvanized steel wire.

2.2 EXTRUDED POLYSTYRENE FOAM-PLASTIC BOARD INSULATION

A. Foundation Extruded Polystyrene Board Insulation, at perimeter and under-slab applications as indicated on drawings: meeting ASTM C578, Type IV, minimum psi (kPa) compressive strength value of 25 (172), per ASTM D1621.

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

    a. Owens Corning, (BASIS-OF-DESIGN), Foamular 250 (XPS) Rigid Foam Insulation.
    b. Dow Chemical Company (The).

2. R-Value: 5.6 per inch.

3. Flame-Spread Index: Not more than 25 when tested in accordance with ASTM E84.
4. Smoke-Developed Index: Not more than 450 when tested in accordance with ASTM E84.
5. Labeling: Provide identification of mark indicating R-value of each piece of insulation 12 inches (305 mm) and wider in width.

B. Cavity Wall Extruded Polystyrene Board Insulation, at cast stone veneer applications as indicated on drawings: meeting ASTM C578, Type IV, minimum psi (kPa) compressive strength value of 25 (173), per ASTM D1621.

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

a. Owens Corning, (BASIS-OF-DESIGN), Foamular High-R CW Plus (XPS) Rigid Foam Insulation, with “JointSealR Foam Joint Tape.”
b. Dow Chemical Company (The).

2. R-Value: 5.6 per inch.

3. Flame-Spread Index: Not more than 25 when tested in accordance with ASTM E84.
4. Smoke-Developed Index: Not more than 450 when tested in accordance with ASTM E84.
5. Labeling: Provide identification of mark indicating R-value of each piece of insulation 12 inches (305 mm) and wider in width
6. Foam Joint Tape: 3 1/2-inches wide.

PART 3 - EXECUTION

3.1 CAVITY WALL BATT INSTALLATION

A. Preparation:

1. Verify adjacent materials are dry and ready to receive insulation.
2. Verify mechanical and electrical services within walls have been installed and tested.
3. Coordinate the work of this Section with the work of Section 072610 for installation of vapor retarder materials.

B. Install insulation in accordance with the manufacturer's printed instructions without voids or gaps. Use batts free of damage. Do not compress insulation.

C. Trim insulation to neatly fit spaces. Insulate miscellaneous gaps.

D. Fit insulation tight in spaces and tight to exterior side of mechanical, plumbing and electrical services within the plane of the insulation.

3.2 INSTALLATION OF SLAB INSULATION

A. On vertical slab edge and foundation surfaces, set insulation units using manufacturer's recommended adhesive according to manufacturer's written instructions.

1. If not otherwise indicated, extend insulation a minimum of 36 inches (915 mm) below exterior grade line.

B. On horizontal surfaces, loosely lay insulation units according to manufacturer's written instructions. Stagger end joints and tightly abut insulation units.

1. If not otherwise indicated, extend insulation a minimum of 36 inches (915 mm) in from exterior walls.

3.3 INSTALLATION OF FOUNDATION WALL INSULATION

A. Butt panels together for tight fit.

B. Anchor Installation: Install board insulation on concrete substrates by adhesively attached, spindle-type insulation anchors as follows:

1. Adhesive Installation: Install with adhesive or press into tacky waterproofing or damp-proofing according to manufacturer's written instructions.

3.4 INSTALLATION OF CAVITY WALL INSULATION

A. Install cavity wall rigid insulation and taped joints per manufacturer’s written installation.

3.5 PROTECTION

A. Protect installed insulation from damage due to harmful weather exposures, physical abuse, and other causes.

B. Provide temporary coverings or enclosures where insulation is subject to abuse and cannot be concealed and protected by permanent construction immediately after installation.

C. Replace insulation that becomes wet or is otherwise damaged with new insulation.

END OF SECTION

SECTION 072610

VAPOR RETARDERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. Polyethylene vapor retarders.

B. Related Requirements:

1. Section 033000 "Cast-in-Place Concrete" for under-slab vapor retarders.
2. Section 072100 "Thermal Insulation" for vapor retarders integral with insulation products.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.4 INFORMATIONAL SUBMITTALS

A. Product Test Reports: For each product, for tests performed by a qualified testing agency.

PART 2 - PRODUCTS

2.1 POLYETHYLENE VAPOR RETARDERS

A. Polyethylene Vapor Retarders: ASTM D4397, 6-mil thick sheet, with maximum permeance rating of 0.1 perm.

2.2 ACCESSORIES

A. Vapor-Retarder Tape: Pressure-sensitive tape of type recommended by vapor-retarder manufacturer for sealing joints and penetrations in vapor retarder.

B. Adhesive for Vapor Retarders: Product recommended by vapor-retarder manufacturer and has demonstrated capability to bond vapor retarders securely to substrates indicated.

C. Vapor-Retarder Fasteners: Pancake-head, self-tapping steel drill screws; with fender washers.

PART 3 - EXECUTION

3.1 PREPARATION

A. Clean substrates of substances that are harmful to vapor retarders, including removing projections capable of puncturing vapor retarders.

3.2 INSTALLATION OF VAPOR RETARDERS ON FRAMING

A. Place vapor retarders on side of construction indicated on Drawings.

B. Extend vapor retarders to extremities of areas to protect from vapor transmission. Secure vapor retarders in place with adhesives, vapor retarder fasteners, or other anchorage system as recommended by manufacturer. Extend vapor retarders to cover miscellaneous voids in insulated substrates, including those filled with loose-fiber insulation.

C. Seal vertical joints in vapor retarders over framing by lapping no fewer than two studs and sealing with vapor-retarder tape according to vapor-retarder manufacturer's written instructions. Locate all joints over framing members or other solid substrates.

D. Seal joints caused by pipes, conduits, electrical boxes, and similar items penetrating vapor retarders with vapor-retarder tape to create an airtight seal between penetrating objects and vapor retarders.

E. Repair tears or punctures in vapor retarders immediately before concealment by other work. Cover with vapor-retarder tape or another layer of vapor retarders.

3.3 PROTECTION

A. Protect vapor retarders from damage until concealed by permanent construction.

END OF SECTION

SECTION 074263.16

FABRICATED EIFS WALL PANEL ASSEMBLIES - HCA

PART 1 - GENERAL

1.1 SUMMARY

A. Sto Panel Technology Affiliate shall provide finished, pre-fabricated, structural, exterior wall panels with integral StoGuard air and moisture barrier and ci (continuous insulation) for exterior above grade walls for a water drainage EIFS system.

B. Related Requirements:
1. Section 002150, "HCA Preferred Vendors and Manufacturers" for requirements.
2. Section 002510.1, "HCA Preferred Vendors List" for listing of approved vendors and manufacturer's.
~~3. Section 054100: Cold Formed Metal Framing (used for other work)~~
~~4.~~3. Section 061643: Gypsum Sheathing (used for other work)
~~5.~~4. Section 072116: Thermal Insulation (used for other work)
~~6.~~5. Section 072419: Water Drainage EIFS System [HCA]
~~7.~~6. Section 072419.01: EIFS QA Program Form [HCA]
~~8.~~7. Section 079200: Joint Sealants.
~~9.~~8. Section 081113: Hollow Metal Doors and Frames.
~~10.~~9. Section 084113: Aluminum Framed Entrances and Storefronts
~~11. Section 084413: Glazed Aluminum Curtain Walls~~

1.2 REFERENCED STANDARDS

A. ASTM Standards
1. A36-12 Standard Specification for Carbon Structural Steel.
2. A47-99(2009) Standard Specification for Ferritic Malleable Iron Castings
3. A108-2013 Standard Specification for Steel Bar, Carbon and Alloy, Cold-Finished.
4. A283-13 Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates, Shapes and Bars.
5. A496-07 Standard Specification for Steel Wire, Deformed, For Concrete Reinforcement.
6. A500-13 Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.
7. A572-13a Standard Specification for High-Strength Low-Alloy Columbium-Vanadium Structural Steel.
8. A780-09 Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings.
9. A1003-13b Standard Specification for Steel Sheet, Carbon, Metallic- and Nonmetallic-Coated for Cold-Formed Framing Members.
10. B117-11 Test Method for Salt Spray (Fog) Testing.
11. C150-12 Standard Specification for Portland Cement.
12. C578-13 Specification for Preformed, Cellular Polystyrene Thermal Insulation.
13. C920-11 Standard Specification for Elastomeric Joint Sealants.

14. C954-11 Standard Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs from 0.033 In. (0.84 Mm) to 0.112 In. (2.84 Mm) in Thickness.
15. C1177-13 Specification for Glass Mat Gypsum for Use as Sheathing.
16. C1382-11 Test Method for Determining Tensile Adhesion Properties of Sealants When Used in Exterior Insulation and Finish Systems (EIFS) Joints.
17. C1513-13 Standard Specification for Steel Tapping Screws for Cold-Formed Steel Framing Connections.
18. D968- 05(2010) Test Method for Abrasion Resistance of Organic Coatings by Falling Abrasive.
19. D1784-11 Standard Specification for Rigid Poly(Vinyl Chloride) (PVC) Compounds and Chlorinated Poly(Vinyl Chloride) (CPVC) Compounds.
20. D2247-11 Practice for Testing Water Resistance of Coatings in 100% Relative Humidity.
21. D3273-12 Test for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber.
22. E84-2013a Test Method for Surface Burning Characteristics of Building Materials.
23. E119-12a Method for Fire Tests of Building Construction and Materials.
24. E283-04(2012) Test Method for Determining the Rate of Air Leakage through Exterior Windows, Curtain Walls, and Doors under Specified Pressure Differences Across the Specimen.
25. E330-02(2010) Test Method for Structural Performance of Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
26. E331-00(2009) Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
27. E2098- 13 Test Method for Determining Tensile Breaking Strength of Glass Fiber Reinforcing Mesh for Use in Class PB Exterior Insulation and Finish System after Exposure to a Sodium Hydroxide Solution.
28. E2134- 14 Test Method for Evaluating the Tensile-Adhesion Performance of an Exterior Insulation and Finish System (EIFS).
29. E2430- 13 Specification for Expanded Polystyrene (EPS) Thermal Insulation Boards for use in Exterior Insulation and Finish Systems (EIFS).
30. E2485- 13 Standard Test Method for Freeze/Thaw Resistance of Exterior Insulation and Finish Systems (EIFS) and Water Resistive Barrier Coatings.
31. E2486- 13 Standard Test Method for Impact Resistance of Class PB and PI Exterior insulation and Finish Systems (EIFS).
32. G153-13 Recommended Practice for Operating Light-and Water-Exposure Apparatus (Carbon-Arc Type) for Exposure of Nonmetallic Materials.
33. G154-12a Recommended Practice for Operating Light-and Water-Exposure Apparatus (Fluorescent UV-Condensation Type) for Exposure of Nonmetallic Materials.
34. G155-13 Standard Practice for Operating Xenon Arc Light Apparatus for Exposure of Non-metallic Materials.

B. American Iron & Steel Institute (AISI)
1. AISI 1018, Steel, Cold Drawn, High Temperature, Stress Relieved, 16-22 mm (0.625-0.875 in) Round.
2. AISI 1019, Steel, Cold Drawn.
3. AISI 1020, Carbon Steel.
4. AISI S100, North American Specification for the Design of Cold-Formed Steel Structural Members and AISI S100-12.

5. AISI S200, North American Standard for Cold-Formed Steel Framing – General Provisions, 2012 Edition
6. AISI S211, North American Standard for Cold-Formed Steel Framing - Wall Stud Design, 2007 Edition With Supplement 1 (Reaffirmed 2012).

C. American Welding Society (AWS)
1. D1.1/D1.1M, Structural Welding Code – Steel.
2. D1.3/1.3M, Structural Welding Code – Sheet Steel.

D. National Fire Protection Association (NFPA) Standards
1. NFPA 268, Standard Test Method for Determining Ignitability of Exterior Wall Assemblies Using a Radiant Heat Energy Source
2. NFPA 285, Standard Method of Test for the Evaluation of Flammability Characteristics of Exterior Non-Load-Bearing Wall Assemblies containing Combustible Components Using the Intermediate-Scale, Multistory Test Apparatus

E. Other Reference Documents
1. American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc., ASHRAE 90.1, Energy Standard for Buildings Except Low-Rise Residential Buildings.
2. Building Code Standards, ICC ES – AC 219, Acceptance Criteria for Exterior Insulation and Finish Systems, Subject AC219-1009-R1 (MB/YM).
3. Occupational Safety and Health Administration (OSHA), 29 CFR 1926.

1.3 ADMINISTRATIVE REQUIREMENTS

A. Coordination: Allow time in the project schedule for coordination with related sections through the General Contractor.

B. Pre-Installation Conference: Prior to mobilizing installation forces onto the jobsite, participate in a Pre-Installation Conference with the General Contractor to review the following:
1. General Contractor and Sto Panel Technology Affiliate Field Operations contact info.
2. Safety Plans and Procedures
   a. Potential jobsite hazards.
3. Schedules
   a. Time frames for Layout/Hardware Install, Erecting, and Final Tune-up.
   b. Operating hours and constraints.
4. Access requirements for materials, equipment, processes, and personnel.
5. Equipment (Cranes, Trucks, Welding machines, etc.).
6. Jobsite areas strictly reserved for panel storage, staging, and erecting operations.
7. General Contractor and preceding trade work requirements
   a. Complete and stable structure and panel attachment surfaces.
   b. Benchmarks and Control Lines as required.
   c. Site conditions compliant with all safety requirements.
   d. Clear access to all areas of work.
   e. Do not allow the storage of materials or installation of work of other trades in areas where the panel installation process (including welding and torch burning) may damage such materials or work, or may present a fire or other hazard.
8. Special or unique conditions or issues.

1.4 ACTION SUBMITTALS

A. Sto Panel Technology Affiliate shall submit the following:
   1. Component manufacturer's product data.
   2. Shop drawings for each panel and for project-specific details.
      a. Detail configurations of panelized units.
      b. Indicate locations, plans, elevations, dimensions, shapes, and cross sections of each unit.
      c. Indicate joints, reveals, drips, chamfers, and extent and location of each surface finish.
      d. Indicate design for Lateral Drift in exterior walls. Shop drawings to be stamped by a licensed engineer registered to practice engineering in Nevada.
      e. Provide calculations indicating accommodation for Lateral Drift in exterior walls.
      f. Indicate details at building corners.
      g. Indicate type, size, and length of welded connections by AWS standard symbols. Detail loose and in-panel hardware and connections.
      h. Indicate locations and details of anchorage devices to be embedded in or attached to structure or other construction.
      i. Include plans and elevations showing unit location and sequence of erection for special conditions.
      j. Indicate location of each panelized unit by same identification mark placed on panel.
      k. Indicate relationship of panelized units to adjacent materials.
   3. Samples for approval:
      a. Samples for initial selection:
         1) For each type of finish-coat color and texture indicated.
      b. Samples for verification: ** 24-inch- (600-mm-) ** square panels for each type of finish-coat color and texture indicated, prepared using same tools and techniques intended for actual work including ** custom trim, each profile, ** and ** an aesthetic reveal.

1.5 INFORMATIONAL SUBMITTALS

A. Sto Panel Technology Affiliate shall submit the following.
   1. Component manufacturer’s code compliance report.
   2. Affiliate’s Sto Panel Technology affiliate certificate.
   3. EPS board manufacturer's certificate of compliance with ASTM E2430.
   4. Calculations: Provide structural calculations prepared in compliance with these specifications. Where these specifications and code differ, more severe requirements shall govern. Test reports are not an acceptable substitute for calculations. Calculations shall include the following information:
      a. Analysis for all applicable loads on framing members and attachment hardware.
      b. Seal and signature on calculations of professional structural engineer currently registered in State in which the project is located.

1.6 CLOSEOUT SUBMITTALS

A. Maintenance Data: Manufacturer’s recommendations for cleaning and repairing damage to system.

B. Component manufacturer's standard warranty.

1.7 QUALITY ASSURANCE

A. Fabricator and Installer Qualifications
   1. StoPanel fabricator/installer shall be an Affiliate in good standing with Sto Panel Technology.
   2. Sto Panel Technology Affiliate shall fabricate and install the StoPanel panels in accordance with Sto Panel Technology Fabrication and Installation Quality Standards.

B. Quality-Control Standard: For manufacturing procedures and testing requirements, quality-control recommendations, and dimensional tolerances for types of units required, comply with Sto Panel Technology Fabrication and Installation Quality Standards.

C. Inspections
   1. Provide independent third party inspection of completed StoPanel panel installation, where required by code or contract documents.
   2. Conduct inspections in accordance with code requirements and Contract Documents.

D. Mock-up Testing (when required by contract)
   1. Construct full-scale mock-up of typical panel assembly with specified tools and materials incorporating windows, doors and other penetrations, as depicted in Contract Documents.
   2. Test air and water infiltration and structural performance in accord with ASTM E283, E331 and E330, respectively, through an independent laboratory.
   3. Mock-up shall comply with Design Team requirements.
   4. Acceptable mock-up may remain as part of project.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Deliver panels to site reserved and secured trailer staging area in sequence of erection and according to scheduled dates.

B. If panels are stored on site, provide protection of panels from weather and damage.

1.9 FIELD/SITE CONDITIONS

A. General Contractor shall provide restricted, level and stabilized staging and truck/crane operating area for the exclusive use of the panel installation operation, in accordance with OSHA standards for Steel Erection. (See 29 CFR 1926, Subpart R—Steel Erection, Section 1926.752(c)).

B. All project general conditions safety measures (perimeter fall protection, stairs, hole covers, rebar capping, site grading, etc.) shall be coordinated by the General Contractor and installed and maintained by others prior to the panel installation forces mobilizing on site. All such measures shall allow for the required access of panel installation forces and processes and shall be configured such that panel installation can be completed without the modification or removal of such measures. All such measures shall be removed and/or modified by others at the direction of the General Contractor after the completion of panel installation and the General Contractor has determined that they are no longer needed.

C. General Contractor shall provide all project general conditions items and services (water, power, general lighting, sanitary facilities, dumpster, restricted jobsite, etc.).

1.10 WARRANTY

A. Sto Panel Technology Affiliate shall provide standard warranty from fabricator. Warranty shall begin on date of substantial Completion.

B. Sto Panel Technology Affiliate's warranty shall not cover leakage due to infiltration of water or air through windows, doors or other penetrating elements installed by others.

C. Sto Panel Technology Affiliate's warranty shall not cover leakage of water or air due to failure of joint sealers not installed as part of the work of this section.

D. Provide Sto Panel Technology limited 5-year warranty. Warranty shall begin on date of substantial Completion.

PART 2 - PRODUCTS

2.1 PANEL MANUFACTURERS

A. Finished wall panel system shall be fabricated by a Sto Panel Technology Affiliate.

B. Air/moisture barrier and ci components shall be manufactured or recognized for use in the wall panel assembly by Sto Corp.

C. Acceptable Fabricators:
1. The Raymond Group
2. Other approved fabricator(s) subject to compliance with requirements of Sto Panel Technology

2.2 PERFORMANCE REQUIREMENTS

A. Sto Panel Technology Affiliate shall fabricate the StoPanel panels using materials shown to meet or exceed the following performance requirements.

Table 1—EIFS System Durability

TEST	METHOD	CRITERIA	RESULTS
1. Accelerated Weathering	ASTM G153 (Formerly ASTM G 23)	No deleterious effects* at 2000 hours when viewed under 5x magnification	2000
2. Accelerated Weathering	ASTM G154 (Formerly ASTM G 53)	No deleterious effects* at 2000 hours when viewed under 5x magnification	Pass @ 4000 hours
3. Freeze/Thaw Resistance	ASTM E2485	No deleterious effects* at 10 cycles when viewed under 5x magnification	Pass @ 90 cycles

4. Water Penetration	ASTM E331 (modified per ICC-ES AC 219)	No water penetration beyond the plane of the base coat/EPS board interface after 15 minutes at 6.24 psf (299 Pa) or 20% of design wind pressure, whichever is greater	Pass at 12.0 psf (575 Pa) after 30 minutes
5. Tensile Adhesion	ASTM E2134	No failure in the adhesive, base coat, or finish coat. Minimum 15 psi (34 kPa) tensile strength before/after accelerated weathering and freeze/thaw exposure	Pass
6. Water Resistance	ASTM D2247	No deleterious effects* at 14 day exposure	Pass @ 28 days
7. Salt Spray	ASTM B117	No deleterious effects* at 300 hours	Pass @ 500 hours
8. Abrasion Resistance	ASTM D968	No cracking or loss of film integrity at 528 quarts (500 L) of sand	Pass @ 1057 quarts (1000 L)*
9. Mildew Resistance	ASTM D3273	No growth at 28 days	Pass at 42 days
10. Impact Resistance	ASTM E2486	Level 1: 25-49 in-lbs (2.83-5.54J) Level 2: 50-89 in-lbs (5.65-10.1J) Level 3: 90-150 in-lbs (10.2-17J) Level 4: >150 in-lbs (>17J)	Pass with one layer Sto Mesh Pass with two layers Sto Mesh Pass with one layer Sto Intermediate Mesh Pass with one layer Sto Armor Mat and one layer Sto Mesh

*No deleterious effects: no cracking, checking, crazing, erosion, rusting, blistering, peeling or delamination
Currently method G153 or G155
Currently method G154

Table 2—EIFS Fire Performance

TEST	METHOD	CRITERIA	RESULT
1. Fire Endurance	ASTM E 119	Maintain fire resistance of existing rated assembly	Pass*

2. Intermediate Scale Multi-Story Fire Test	NFPA 285 (UBC Standard 26-9)	1. Resistance to vertical spread of flame within the core of the panel from one story to the next 2. Resistance to flame propagation over the exterior surface 3. Resistance to vertical spread of flame over the interior surface from one story to the next 4. Resistance to significant lateral spread of flame from the compartment of fire origin to adjacent spaces	Pass with 12 inches of EPS insulation *
3. Radiant Heat Ignition	NFPA 268	No ignition @ 20 minutes	Pass with 12 inches of EPS insulation
4. Surface Burning (individual components)	ASTM E84	Insulation board and reinforced coating system shall each have a flame spread of 25 or less, and smoke developed of 450 or less	Flame: 0 Smoke Developed: 5

Note: * indicates results based on extrapolation of data from series testing. ASTM E119 testing performed on assembly with 4 inch thick (102 mm) EPS.

Table 3—EIFS Component Performance

TEST	METHOD	CRITERIA	RESULT
1. Alkali Resistance of Reinforcing Mesh	ASTM E2098	Greater than 120 pli (21 dN/cm) retained tensile strength	Pass
2. Requirements for Rigid PVC Accessories	ASTM D1784	Meets cell classification 13244C	Pass

B. Energy Standards Compliance: Wall panel system shall comply with the requirements of ASHRAE 90.1 for:
   1. Section 5: Building Envelope Continuous Insulation (ci) over Metal Frame Walls - All Climate Zones (with sufficient ci thickness)
   2. Section 5: Continuous Air Barrier

2.3 DESIGN CRITERIA

A. Manufacturer: Subject to compliance with requirements, provide product by the following and subject to compliance with requirements, per Section 002150 - Owner's Preferred Vendor List. No substitutions permitted.

   1. Sto Corp. (BASIS OF DESIGN)

B. Sto Panel Technology Affiliate shall engage a qualified professional structural engineer, licensed in the state in which the project is located, to provide structural calculations:
   1. Acknowledging the applicable Code design parameter values.
   2. Acknowledging the loading applied to the panels (including transferred window loads, etc.).
   3. Substantiating the detailed panel framing and connection hardware.
   4. Providing the loads transferred to the supporting building structure, for submission to the Design Team and the Project Engineer of Record.

C. AISI Specifications and Standards: Unless more stringent requirements are indicated, comply with AISI S100, AISI S200 and AISI S211.

D. Incorporate provisions within the structural calculations for the StoPanel wall panel system to provide for expected movement of structural members, as determined by structural engineer of record, without damage or overstressing, sheathing failure, connection failure, undue strain on fasteners and anchors, or other detrimental effects. Incorporate provisions for panels to allow for movement of adjacent framing members outside the insulated building envelope, when subject to a maximum ambient temperature change of 120 deg F (67 deg C).

E. Design panels to accommodate Lateral Drift in Exterior Walls per current building code requirements.

F. Wind Load
   1. Incorporate provisions within the structural calculations for the StoPanel wall panels for maximum allowable system deflection, normal to the plane of the wall, of L/240. Adjust allowable deflection requirement for more stringent deflection requirements where required by code or specific finish requirements.
   2. Provide for wind load resistance in conformance with code requirements and as agreed to with the Project Design Team.

G. Moisture Control: Fabricate panels to restrict air and water infiltration into the panel assembly to limits determined by applicable ASHRAE 90.1 requirements.

H. Impact resistance: Provide panels with impact resistance as determined by the Design Team and as indicated on design drawings.
   1. Standard impact resistance: (Default U.N.O.): One layer of nominal 4.5 oz/yd^2 (153 gm/m^2).
   2. Medium impact resistance: One layer of nominal 11.0 oz/yd^2 (373gm/m^2) reinforcing mesh (where indicated).
   3. Ultra-high impact resistance: One layer of nominal 4.5 oz/yd^2 (153 gm/m^2) reinforcing mesh and one layer of nominal 15 oz/yd^2)509 gm/m^2) reinforcing mesh (where indicated).

I. Joints:
   1. Provide panels with allowance for minimum nominal 3/4 inch (19 mm) wide joints between panels and adjacent to other work.
   2. Provide panels with allowance for minimum nominal 3/4 inch (19 mm) wide perimeter sealant joints at penetrations through the pre-fabricated panel assembly (windows, doors, etc.).

3. Panel Joint Filler (Provided by others): Unless otherwise noted by design team, provide joint design including sealants and backer rods specified in Joint Sealants section that comply with the following requirements:
    a. One part low modulus silicone sealant conforming to ASTM C920
    b. Maintain air barrier continuity across the joint.
    c. Use double seals or other approved redundant joint sealant configuration.
    d. Use sealant/primer combinations compatible with the materials on both sides of the sealant joints.

J. Grade Condition: Panels shall not be installed below grade or where panel surfaces are subject to continuous or intermittent water immersion or hydrostatic pressure. Provide minimum 6 inch (152 mm) clearance above finished grade or as required by code. Keep Sto Classic finish a minimum of 8 inches (203 mm) or greater (as recommended by roofing manufacturer) above roofing surfaces.

K. Trim, Projecting Architectural Features and Reveals
1. Trim and projecting architectural features shall have a minimum 1:2 [27°] slope along their top surface. Horizontal reveals shall have a minimum 1:2 [27°] slope along their bottom surface. Increase slope for northern climates to prevent accumulation of ice/snow and water on surface. Where trim/feature or bottom surface of reveal projects more than 2 inches (51 mm) from the face of the panel wall plane, protect the top surface with Sto Flexyl waterproof base coat.
2. Where panel finish system occurs on weather exposed projecting ledges, sills, and other projecting features, support by framing or other structural support and protect with metal coping or flashing.

L. Fire Protection:
1. Limit foam plastic insulation to 12 inches (305 mm) maximum thickness for Types I, II, III, and IV construction.
2. Limit foam insulation to 4 inches (102 mm) maximum thickness in fire-resistance rated wall construction.
3. Field application of additional fire resistant materials (such as interior gypsum wallboard) are typically required to be added to the installed panels (by others) to provide the finished fire-resistant and building code compliant assembly.

2.4 COLD-FORMED METAL FRAMING

A. Manufacturer shall be a member in good standing with at least one of the following steel framing industry associations:
1. Certified Steel Stud Association (CSSA)
2. Steel Framing Alliance (SFA)
3. Steel Framing Industry Association (SFIA)
4. Steel Stud Manufacturers Association (SSMA).

5. Material: Metallic coated steel meeting ASTM A1003-13b, Coating Designation G60:
6. Grade: As required by structural performance requirements.

B. Studs and runners (track):
1. Stud sizes: As indicated on approved shop drawings.

2. Stud gauge: Minimum 0.0428 inch (1.37 mm), except where stud manufacturer's product data requires heavier gauge for heights and conditions of use and as indicated on approved shop drawings and structural calculations.
3. Runners: 1-1/4 inches (32 mm) deep by widths to receive studs, and as indicated on approved shop drawings and structural calculations.

C. Recycled Content of Steel Materials: Postconsumer recycled content plus one-half of preconsumer recycled content not less than 25 percent.

D. Steel Connection Materials
1. Carbon-Steel Shapes and Plates: ASTM A36/A36M.
2. Carbon-Steel-Headed Studs: ASTM A108, AISI 1018 through AISI 1020, cold finished, AWS D1.1/D1.1M, Type A or Type B, with arc shields.
3. Carbon-Steel Plate: ASTM A283/A283M, Grade C.
4. High-Strength, Low-Alloy Structural Steel: ASTM A572/A572M.
5. Carbon-Steel Structural Tubing: ASTM A500/A500M, Grade B or Grade C.
6. Deformed-Steel Wire or Bar Anchors: ASTM A496/A 496M or ASTM A706/A706M.
7. Welding Electrodes: Comply with AWS standards.

E. Red Oxide Primer: Red oxide primer meeting requirements of SSPC-Paint No. 15, Type I.

F. Cold-Galvanizing Compound: Pre-mixed, zinc dust and organic binders formulated specifically for use on steel surfaces. Compounds shall have concentrations of zinc dust in the range of 65% to 69% or above 92% in the dried film in accord with ASTM A780.

2.5 SHEATHING

A. Acceptable products:
1. CertainTeed Corp., GlasRoc Sheathing.
2. G-P Gypsum Products, DensGlass Sheathing.
3. National Gypsum, Gold Bond eXP Extended Exposure Sheathing.
4. Temple-Inland GreenGlass Fiber-Glassed Faced Gypsum Sheathing.

B. Material:
1. Composition: Conforming to ASTM C1177; noncombustible water-resistant core, essentially gypsum, surfaced with glass mat partially or completely embedded in the core.
2. Mold resistance: Resistant to mold growth when tested in accord with ASTM D3273.
3. ** Type: Minimum 5/8" thickness for stud spacing of up to 2'-0" o.c. Face size shall be 4'-0" wide by 8'-0", 9'-0", 10'-0", or custom length, square ends and edges. **
** OR **
4. ** Type: Type X Grade fire-rated board, minimum 5/8" thickness. Face size shall be 4'-0" wide by 8'-0", 9'-0", 10'-0", or custom length, square ends and edges. **
5. Weight: Minimum 2300 lbs. /msf.

C. Fasteners: Screws for application of fiberglass-faced gypsum sheathing to cold-formed metal framing shall be minimum 1-1/4 inch (31.8 mm) long, non-corrosive coated, self-drilling fasteners complying with ASTM C1002 and ASTM C954.

2.6 AIR AND MOISTURE BARRIER

A. Acceptable Product: StoGuard®
   1. Joint Treatment (Pick one):
      a. Sto Gold Fill® with StoGuard Mesh Nominal 4.2 oz. /yd^2 (143 g/m^2).
      b. Sto Gold Coat® with StoGuard Fabric.
      c. StoGuard RapidFill™.
   2. Rough Opening Protection (Pick one):
      a. Sto Gold Fill® with StoGuard Mesh Nominal 4.2 oz. /yd^2 (143 g/m^2).
      b. Sto Gold Coat® with StoGuard Fabric
      c. StoGuard® RapidSeal™
   3. Air and Moisture Barrier Coating: Sto Gold Coat® - Ready mixed waterproof coating for wall sheathing.

2.7 ADHESIVE

A. Acceptable Cementitious Adhesive:
   1. Sto Primer/Adhesive: Acrylic based base coat mixed with Portland cement for use over glass mat gypsum sheathing.

2.8 INSULATION BOARD

(Note: Minimum required thickness is 1 inch [25 mm] and maximum allowable thickness is 12 inches [305 mm] when installed in accordance with ICC ESR 1720. Insert thickness and R-value required for project.)

A. Nominal 1.0 lb/ft^3 (16 kg/m^3) Expanded Polystyrene (EPS) insulation board in compliance with ASTM E2430 and ASTM C578, Type I requirements.
   1. Thickness: ** 1 inch (25 mm). **
   2. Aged R value at 75 degrees F.: ** 3.5/in. **

2.9 BASE COAT

A. Cementitious Base Coats:
   1. Sto Primer/Adhesive: Acrylic based base coat mixed with Portland cement.
   2. Sto Primer/Adhesive-B: Factory blended polymer modified Portland cement base coat.

B. Waterproof Base Coat: Sto Flexyl - two component fiber reinforced acrylic based waterproof base coat mixed with Portland cement (for use as a waterproof base coat for foundations, parapets, splash areas, trim and other projecting architectural features).

2.10 REINFORCING MESHES

A. Standard Mesh: Sto Mesh - Nominal 4.5 oz./yd^2 (153 g/m^2), symmetrical, interlaced open-weave glass fiber fabric made with alkaline resistant coating for compatibility with Sto materials which shall achieve Standard Impact Classification.

B. Intermediate Mesh: Sto Mesh - Nominal 11.0 oz/yd^2 (373gm/m^2) symmetrical, interlaced open-weave glass fiber fabric made with alkaline resistant coating for compatibility with Sto materials which shall achieve Intermediate Impact Classification.

C. Ultra-High Impact Mesh: Sto Armor Mat - Nominal 15 oz./yd^2 (509 g/m^2), ultra-high impact, double strand, interwoven, open-weave glass fiber fabric with alkaline resistant coating for compatibility with Sto materials installed to a height of 6'-0" above grade or as indicated on drawings. Mesh shall achieve Ultra-High Impact Classification when applied beneath Sto Mesh.

D. Specialty Meshes: Sto Detail Mesh - Nominal 4.2 oz/yd^2 (143 g/m^2), flexible, symmetrical, interlaced glass fiber fabric, with alkaline resistant coating for compatibility with Sto materials. Use for standard back wrapping, edge wrapping and aesthetic detailing. It may also be used for reinforcement of sheathing joints and protection of rough openings with Sto Gold Fill as part of the StoGuard waterproof air barrier.

2.11 PRIMERS

A. Acceptable Products:
1. Sto Primer Sand: Use for priming prepared concrete, EIFS base coat, or prior to application of Sto finishes and coatings.
2. Sto Primer Creativ™: Acrylic based tinted, sanded primer for use with specific Sto finishes.

2.12 FINISH COAT

A. Finish-Coat Materials: EIFS manufacturer's standard acrylic-based coating complying with the following:

1. Sealer: Manufacturer's waterproof, clear acrylic-based sealer for protecting finish coat.
2. Finishes and color: (SEE EXTERIOR FINISH LEGEND)

2.13 JOINT SEALANTS

A. Acceptable products:
1. Sealant: Dow Corning Corp., 790.
2. Primer: Dow corning Corp., 1200 OS Primer or as recommended by Dow Corning Corp.

B. Sealant:
1. Type: One-part, low modulus silicone rubber; meeting ASTM C920, Type S, Grade NS, Class 50, for use NT.
2. Colors: ** Custom ** Standard ** colors as selected by Architect.

2.14 MIXED INGREDIENTS

A. Water: Clean and potable.

B. Portland cement: Type I, Type II, or Type I-II in conformance with ASTM C150.

2.15 MIXING

A. Mix components in accordance with Sto Panel Technology Fabrication and Installation Quality Standards.

2.16 FABRICATION

A. Fabricate all StoPanel panels and connection hardware in accordance with shop drawings and Sto Panel Technology Fabrication and Installation Quality Standards.

B. Product Tolerances: Fabricate panelized units to shapes, lines, and dimensions indicated in accord with Sto Panel Technology Fabrication and Installation Quality Standards and the following dimensional tolerances:
   1. Overall Height and Width of Units, Measured at the Face Exposed to View:
      a. 10 feet (3 m) or under, plus or minus 1/8 inch (3 mm).
      b. 10 to 20 feet (3 to 6 m), plus 1/8 inch (3 mm), minus 3/16 inch (5 mm).
      c. 20 to 40 feet (6 to 12 m), plus or minus 1/4 inch (6 mm).
      d. Each additional 10 feet (3 m), plus or minus 1/16 inch (1.5 mm).
   2. Total Thickness at Perimeter: Plus 1/4 inch (6 mm), minus 1/8 inch (3 mm).
   3. Variation from Square or Designated Skew (Difference in Length of the Two Diagonal Measurements): Plus or minus 1/8 inch/72 inches (3 mm/1830 mm) or 1/2 inch (13 mm) total, whichever is greater.
   4. Length and Width of Openings within One Unit: Plus or minus 1/4 inch (6 mm).
   5. Bowing: Plus or minus L/360, maximum 1 inch (25 mm).
   6. Local Smoothness: 1/4 inch/10 feet (6 mm/3 m).
   7. Warping: 1/16 inch/12 inches (1.5 mm/300 mm) of distance from nearest adjacent corner.
   8. Dimensions of In-Plane Architectural Features and Rustications: Plus or minus 1/8 inch (3 mm).

C. Position Tolerances: Fabricate panelized units to shapes, lines, and dimensions indicated in accordance with Sto Panel Technology Fabrication and Installation Quality Standards and the following positional tolerances
   1. Built-In Anchors: Plus or minus 1/2 inch (13 mm).
   2. Handling Devices: Plus or minus 3 inches (75 mm).
   3. Location of Aesthetic Joints: Plus or minus 1/8 inch (3 mm).
   4. Location of Opening within Panel: Plus or minus 1/4 inch (6 mm).
   5. Location of Finish Terminations on Panel: Plus or minus 1/4 inch (6 mm).
   6. Location of Misc. Openings (Electrical Outlets, Hose Bibs): Plus or minus 1/2 inch (13 mm).
   7. Location of Connection Plates: Plus or minus 1/4 inch (6 mm).

PART 3 - EXECUTION

3.1 EXAMINATION

A. Upon mobilization onto the project site, examine building supporting structural frame elements and adjacent conditions for compliance with requirements for proper panel installation, in accordance with approved panel shop drawings. Check bearing and adjacent surface locations and other conditions affecting installation of the panels.

B. Do not proceed with wall panel installation until General Contractor confirms that the structure is structurally ready to receive loads from panel units and preceding trades' work is complete and corrected.

C. Proceed with panel installation only after all unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Layout: Layout for installation of panels from control lines and bench marks provided by General Contractor.
   1. Install sufficient layout markings to install panels as per approved shop drawings and Sto Panel Technology Fabrication and Installation Quality Standards.
   2. Install clips, plates, and other accessories required for connecting wall panels to supporting structure.
   3. Re-check preceding trade work for compliance of proper and complete panel installation, as per approved shop drawings.
   4. Do not deviate from the approved panel shop drawing layout. Deviate only as directed by and agreed to with the General Contractor.

B. Erection: Erect panels level, plumb, and square within specified allowable tolerances in accordance with approved shop drawings:
   1. Erect panels from trailers or staging stacks onto the building, in the agreed to sequence, to approximate line and grade as established in the layout phase.
   2. Maintain approximate horizontal and vertical joint alignment and approximate uniform joint width as erection proceeds.
   3. Install a sufficient number of permanent and/or temporary connections as required to maintain stability of the panels until panels are tuned-up and all permanent connections are completed.
   4. Install temporary shims and/or erecting aids as necessary as panels are being erected.
   5. Return reusable dunnage to fabrication plant on unloaded panel delivery trailers.
   6. Deposit trash and waste into dumpsters as provided by the General Contractor.

C. Tune-up: Adjust and final connect wall panels in position by bolting, welding, or as otherwise indicated on shop drawings and in accordance with Sto Panel Technology Fabrication and Installation Quality Standards.
   1. Adjust panel locations as necessary to maintain final panel positions within tolerances.
   2. Install balance of permanent connections.
   3. Remove temporary shims and/or erecting aids after panel connections are completed.
   4. Notify General Contractor of completed panel tune-up progress and request a review of tuned-up panels and release for follow-up trade work.

D. Welding: Comply with applicable requirements in AWS D1.1/D1.1M and AWS D1.3/D1.3M for welding, welding electrodes, appearance, quality of welds, and methods used in correcting welding work.

E. Tolerances: Install panels level, plumb, square, and in alignment without exceeding the erection tolerances of Sto Panel Technology Fabrication and Installation Quality Standards and the following:
   1. Plan Location from Building Grid Datum: Plus or minus 1/2 inch (13 mm).
   2. Top Elevation from Nominal Top Elevation: As follows:
      a. Exposed Individual Panel: Plus or minus 1/4 inch (6 mm).
      b. Exposed Panel Relative to Adjacent Panel: 1/4 inch (6 mm).
   3. Maximum Plumb Variation over the Lesser of Height of Structure or 100 Feet (30 m): 1 inch (25 mm).

4. Plumb in Any 10 Feet (3 m) of Element Height: 1/4 inch (6 mm).
5. Maximum Jog in Alignment of Matching Edges: 1/4 inch (6 mm).
6. Joint Width (Governs over Joint Taper): Plus or minus 1/4 inch (6 mm).
7. Maximum Joint Taper: 3/8 inch (10 mm).
8. Joint Taper in 10 Feet (3 m): 1/4 inch (6 mm).
9. Maximum Jog in Alignment of Matching Faces: 1/4 inch (6 mm).
10. Differential Bowing or Camber, as Erected, between Adjacent Members of Same Design: 1/4 inch (6 mm).
11. Opening Height between Spandrel Panels: Plus or minus 1/4 inch (6 mm).

3.3 ACCEPTANCE CRITERIA

A. All StoPanel panels shall be fabricated and installed in accordance with these specifications and Sto Panel Technology Fabrication and Installation Quality Standards.

B. All functional damages or deficiencies shall be promptly corrected. The Sto Panel Affiliate shall be reimbursed for all costs for repair of all damages to in-place panels not caused by the Affiliate.

C. All aesthetic variations shall be evaluated in accordance with Sto Panel Technology Fabrication and Installation Quality Standards and the following:
1. Aesthetic quality shall not be evaluated in conditions of "Critical Lighting." Critical Lighting is defined as a condition where the angle of the light from the illumination source intersects with the plane of the finished surface at an angle of fifteen degrees or less. Critical Lighting from natural sunlight conditions are transient; care is advised when specifying artificial lighting that would create a Critical Lighting condition.
2. Aesthetic quality shall be evaluated by unaided, normal eye sight at a threshold distance of twenty feet or more. Aesthetic imperfections not viewable at that distance are deemed acceptable. By mutual agreement, the threshold distance may be reduced at entrances and aesthetic features normally viewable by the public at such closer distances and increased at locations not normally viewable by the public or otherwise obscured from view.
3. StoPanel finishes are generally hand-tool applied and by their nature have texturing variations within and among panels. The span of normal variations is not represented by small samples.
4. Aesthetic quality of repairs is limited by normal expectations of repairs performed in accordance with Sto Panel Technology Fabrication and Installation Quality Standards.

3.4 PROTECTION

A. General Contractor shall coordinate follow-up trades and follow-up work to proceed in such a way to protect installed panels from water infiltration into or behind panels.

3.5 MAINTENANCE

A. Building Owner shall over time clean and maintain panels and sealants for a fresh appearance and to prevent water entry into and behind panel system. Repair cracks, impact damage, spalls or delamination promptly.

B. Building Owner shall maintain adjacent components of construction such as sealants, windows, doors, and flashing, to prevent water entry into the building or wall panel assembly.

END OF SECTION 074263.16

SECTION 077200

ROOF ACCESSORIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. Equipment supports.
2. Pipe supports.
3. Roof curbs.
4. Roof hatches.

1.3 PERFORMANCE REQUIREMENTS

A. General Performance: Roof accessories shall withstand exposure to weather and resist thermally induced movement without failure, rattling, leaking, or fastener disengagement due to defective manufacture, fabrication, installation, or other defects in construction.

B. Design Wind Loads: As indicated on structural drawings or as otherwise determined using design wind loads applicable to Project from basic wind speed indicated in miles per hour, according to ASCE 7per the governing code.

1.4 SUBMITTALS

A. Product Data: For each type of roof accessory indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.

B. Shop Drawings: For roof accessories. Include plans, elevations, keyed details, and attachments to other work. Indicate dimensions, loadings, and special conditions. Distinguish between plant- and field-assembled work.

C. Samples: For each exposed product and for each color and texture specified, prepared on Samples of size to adequately show color.

D. Operation and Maintenance Data: For roof accessories to include in operation and maintenance manuals. Provide at project close-out.

E. Warranty: Sample of special warranty.

1.5 COORDINATION

A. Coordinate layout and installation of roof accessories with roofing membrane and base flashing and interfacing and adjoining construction to provide a leak-proof, weathertight, secure, and non-corrosive installation.

B. Coordinate dimensions with rough-in information or Shop Drawings of equipment to be supported.

1.6 WARRANTY

A. Special Warranty on Painted Finishes: Manufacturer's standard form in which manufacturer agrees to repair finishes or replace roof accessories that show evidence of deterioration of factory-applied finishes within specified warranty period.

1. Fluoropolymer Finish: Deterioration includes, but is not limited to, the following:
   a. Color fading more than 5 Hunter units when tested according to ASTM D 2244.
   b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
   c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
2. Finish Warranty Period: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 METAL MATERIALS

A. Metallic-Coated Steel Sheet: 24-gauge (min.) G-90 (ASTM-A525) Restricted flatness steel sheet metallic coated by the hot-dip process and pre-painted by the coil-coating process to comply with ASTM A 755.

1. 2-Coat Fluoropolymer: AAMA 621. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
2. Concealed Finish: Apply pretreatment and manufacturer's standard white or light-colored acrylic or polyester backer finish, consisting of prime coat and wash coat with a minimum total dry film thickness of 0.5 mil.
   a. Color: As selected by Architect from manufacturer's full range.

B. Stainless-Steel Sheet and Shapes: ASTM A 240 or ASTM A 666, Type 304.

C. Steel Shapes: ASTM A 36, hot-dip galvanized according to ASTM A 123 unless otherwise indicated.

D. Galvanized-Steel Tube: ASTM A 500, round tube, hot-dip galvanized according to ASTM A 123.

2.2 MISCELLANEOUS MATERIALS

A. General: Provide materials and types of fasteners, protective coatings, sealants, and other miscellaneous items required by manufacturer for a complete installation.

B. Glass-Fiber Board Insulation: ASTM C 726, thickness as indicated.

C. Wood Nailers: Softwood lumber, pressure treated with waterborne preservatives for aboveground use, acceptable to authorities having jurisdiction, containing no arsenic or chromium, and complying with AWPA C2; not less than 1-1/2 inchesthick. Provide fire retardant treated where required by code.

D. Underlayment:

1. Felt: ASTM D 226, Type II (No. 30), asphalt-saturated organic felt, non-perforated.

E. Fasteners: Roof accessory manufacturer's recommended fasteners suitable for application and metals being fastened. Match finish of exposed fasteners with finish of material being fastened. Provide non-removable fastener heads to exterior exposed fasteners. Furnish the following unless otherwise indicated:

1. Fasteners for Zinc-Coated or Aluminum-Zinc Alloy-Coated Steel: Series 300 stainless steel or hot-dip zinc-coated steel according to ASTM A 153 or ASTM F 2329.
2. Fasteners for Aluminum Sheet: Aluminum or Series 300 stainless steel.
3. Fasteners for Stainless-Steel Sheet: Series 300 stainless steel.

F. Elastomeric Sealant: ASTM C 920, elastomeric silicone polymer sealant as recommended by roof accessory manufacturer for installation indicated; low modulus; of type, grade, class, and use classifications required to seal joints and remain watertight.

2.3 EQUIPMENT SUPPORTS

A. Equipment Supports: Internally reinforced metal equipment supports capable of supporting superimposed live and dead loads, including equipment loads and other construction indicated on Drawings; with welded or mechanically fastened and sealed corner joints, integral metal can, and integrally formed deck-mounting flange at perimeter bottom.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    a. Curbs Plus, Inc.
    b. Custom Solution Roof and Metal Products.
    c. Pate Company (The).
    d. Thybar Corporation.

B. Size: Coordinate dimensions with roughing-in information or Shop Drawings of equipment to be supported.

C. Material: 0.050 inch thick aluminum.

1. Finish: Two-coat fluoropolymer.
2. Color: As selected by Architect from manufacturer's full range.

D. Construction:

1. Insulation: Factory insulated with 1-1/2-inch- thick glass-fiber board insulation.
2. Liner: Same material as equipment support, of manufacturer's standard thickness and finish.
3. Factory-installed continuous wood nailers 3-1/2 inches wide at tops of equipment supports.
4. Metal Counterflashing: Manufacturer's standard, removable, fabricated of same metal and finish as equipment support.
5. Fabricate equipment supports to minimum height of 12 inches unless otherwise indicated.
6. Security Grille: Provide where indicated.

2.4 PIPE SUPPORTS

A. Pipe Supports:
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. Portable Pipe Hangers Inc.
2. Pipe Support Height: As indicated on Drawings.
3. Roller Assembly: With stainless-steel roller and high density polypropylene base plate, sized for supported pipes.
   a. Color: As selected by Architect from manufacturer's full range.

2.5 ROOF HATCHES, MANUAL OPERATION

A. Roof Hatch:
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following or approved equal:
   a. Bilco Company (BASIS OF DESIGN) – Med-Surg = Type NB-20 & Dietary = Type E-20
   b. Substitutions: Refer to 01 25 00 Substitution Procedures.
2. Single-Leaf Roof Scuttle: Factory-assembled steel frame and cover, complete with operating and release hardware.
   a. Style: Provide flat metal covers unless otherwise indicated.
   b. Mounting: Provide frames and curbs suitable for mounting on concrete composite metal deck.
   c. Size: 30”x54” (Med-Surg)
   d. Size: 36”x36” (Dietary)
3. Frames/Curbs: One-piece curb and frame with integral cap flashing to receive roof flashings; extended bottom flange to suit mounting.
   a. Material: Galvanized steel, 14 gage, 0.0747 inch thick.
   b. Finish: Factory prime paint.
   c. Insulation: 1 inch rigid glass fiber, located on outside face of curb.
4. Metal Covers: Flush, insulated, hollow metal construction.
   a. Capable of supporting 40 psf live load.
   b. Material: Galvanized steel; outer cover 14 gage, 0.0747 inch thick, liner 22 gage, 0.03 inch thick.
   c. Finish: Factory prim paint.
   d. Insulation: 1 inch rigid glass fiber.

e. Gasket: Neoprene, continuous around cover perimeter.

5. Hardware: Steel, zinc coated and chromate sealed, unless otherwise indicated or required by manufacturer.
   a. Lifting mechanisms: Compression or torsion spring operator with shock absorbers that automatically opens upon release of latch; capable of lifting covers despite 10 psf load.
   b. Hinges: Heavy duty pintle type.
   c. Hold open arm with vinyl-coated handle for manual release.
   d. Latch: Upon closing, engage latch automatically and reset manual release.
   e. Manual Release: Pull handle on interior.
   f. Locking: Padlock hasp on interior.
   g. Provide a telescoping arm (Bilco LadderUP Safety Post, Modul LU-1 BASIS OF DESIGN)
      1) It shall be designed with a telescoping tubular section that locks automatically when fully extended. Upward and downward movement shall be controlled by a stainless steel spring balancing mechanism. Unit shall be completely assembled with fasteners for securing to the ladder rungs in accordance with the manufacturer's instructions.

6. Bil-Guard Railing System (Bilco, Model RL2-NB) for Med-Surg Roof Hatch NB-20.

2.6 GENERAL FINISH REQUIREMENTS

A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

B. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, to verify actual locations, dimensions, and other conditions affecting performance of the Work.

B. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored.

C. Verify dimensions of roof openings for roof accessories.

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

3.2 INSTALLATION

A. General: Install roof accessories according to manufacturer's written instructions.

1. Install roof accessories level, plumb, true to line and elevation, and without warping, jogs in alignment, excessive oil canning, buckling, or tool marks.

2. Anchor roof accessories securely in place so they are capable of resisting indicated loads.
3. Use fasteners, separators, sealants, and other miscellaneous items as required to complete installation of roof accessories and fit them to substrates.
4. Install roof accessories to resist exposure to weather without failing, rattling, leaking, or loosening of fasteners and seals.

B. Metal Protection: Protect metals against galvanic action by separating dissimilar metals from contact with each other or with corrosive substrates by painting contact surfaces with bituminous coating or by other permanent separation as recommended by manufacturer.

1. Underlayment: Where installing roof accessories directly on cementitious or wood substrates, install a course of felt underlayment and cover with a slip sheet, or install a course of polyethylene sheet.

C. Equipment Support Installation: Install equipment supports so top surfaces are level with each other.

D. Pipe Support Installation: Install pipe supports so top surfaces are in contact with and provide equally distributed support along length of supported item.

E. Seal joints with elastomeric sealant as required by roof accessory manufacturer.

3.3 REPAIR AND CLEANING

A. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing according to ASTM A 780.

B. Touch up factory-primed surfaces with compatible primer ready for field painting according to Division 09 painting Sections.

C. Clean exposed surfaces according to manufacturer's written instructions.

D. Clean off excess sealants.

E. Replace roof accessories that have been damaged or that cannot be successfully repaired by finish touchup or similar minor repair procedures.

END OF SECTION 077200

SECTION 07 8443

JOINT FIRESTOPPING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. Joints in or between fire-resistance-rated constructions.
2. Joints in smoke barriers.

B. Related Requirements:

1. Section 07 841300 "~~Penetration~~ Firestopping" for penetrations in fire-resistance-rated walls, horizontal assemblies, and smoke barriers and for wall identification.
2. Section 07 9500 "Expansion Control" for fire-resistive architectural joint systems.
3. ~~Section 07 9513.13 "Interior Expansion Joint Cover Assemblies" for fire-resistive manufactured expansion-joint cover assemblies for interior floors, walls, and ceilings.~~
4. ~~Section 07 9513.16 "Exterior Expansion Joint Cover Assemblies" for fire-resistive manufactured expansion-joint cover assemblies for exterior building walls, soffits, and parapets.~~
5. 3. Section 09 2216 "Non-Structural Metal Framing" for firestop tracks for metal-framed partition heads.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Product Schedule: For each joint firestopping system. Include location, illustration of firestopping system, and design designation of qualified testing agency.

1. Engineering Judgments: Where Project conditions require modification to a qualified testing agency's illustration for a particular joint firestopping system condition, submit illustration, with modifications marked, approved by joint firestopping system manufacturer's fire-protection engineer as an engineering judgment or equivalent fire-resistance-rated assembly.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

B. Product Test Reports: For each joint firestopping system, for tests performed by a qualified testing agency.

1.6 CLOSEOUT SUBMITTALS

A. Installer Certificates: From Installer indicating that joint firestopping systems have been installed in compliance with requirements and manufacturer's written instructions.

1.7 PROJECT CONDITIONS

A. Environmental Limitations: Do not install joint firestopping systems when ambient or substrate temperatures are outside limits permitted by joint firestopping system manufacturers or when substrates are wet due to rain, frost, condensation, or other causes.

B. Install and cure joint firestopping systems per manufacturer's written instructions using natural means of ventilation or, where this is inadequate, forced-air circulation.

1.8 COORDINATION

A. Coordinate construction of joints to ensure that joint firestopping systems can be installed according to specified firestopping system design.

B. Coordinate sizing of joints to accommodate joint firestopping systems.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Fire-Test-Response Characteristics:

1. Perform joint firestopping system tests by a qualified testing agency acceptable to authorities having jurisdiction.
2. Test per testing standards referenced in "Joint Firestopping Systems" Article. Provide rated systems complying with the following requirements:

    a. Joint firestopping systems shall bear classification marking of a qualified testing agency.

        1) UL in its "Fire Resistance Directory."

2) Intertek Group in its "Directory of Listed Building Products."

2.2 JOINT FIRESTOPPING SYSTEMS

A. Joint Firestopping Systems: Systems that resist spread of fire, passage of smoke and other gases, and maintain original fire-resistance rating of assemblies in or between which joint firestopping systems are installed. Joint firestopping systems shall accommodate building movements without impairing their ability to resist the passage of fire and hot gases.

B. Joints in or between Fire-Resistance-Rated Construction: Provide joint firestopping systems with ratings determined per ASTM E 1966 or UL 2079.

1. Manufacturers: Subject to compliance with requirements, provide products by the following:

a. Hilti, Inc; (Basis-of-Design)

2. Fire-Resistance Rating: Equal to or exceeding the fire-resistance rating of the roof edge-parapet condition in or between which it is installed.

C. Joints in Smoke Barriers: Provide fire-resistive joint systems with ratings determined per UL 2079 based on testing at a positive pressure differential of 0.30-inch wg.

1. Manufacturers: Subject to compliance with requirements, provide products by the following:

a. Hilti, Inc.

2. L-Rating: Not exceeding 5.0 cfm/ft. of joint at both ambient and elevated temperatures.

D. Exposed Joint Firestopping Systems: Flame-spread and smoke-developed indexes of less than 25 and 450, respectively, as determined per ASTM E 84.

E. Accessories: Provide components of fire-resistive joint systems, including primers and forming materials, that are needed to install elastomeric fill materials and to maintain ratings required. Use only components specified by joint firestopping system manufacturer and approved by the qualified testing agency for conditions indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Installer present, for compliance with requirements for joint configurations, substrates, and other conditions affecting performance of the Work.

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

3.2 PREPARATION

A. Surface Cleaning: Before installing fire-resistive joint systems, clean joints immediately to comply with fire-resistive joint system manufacturer's written instructions and the following requirements:

1. Remove from surfaces of joint substrates foreign materials that could interfere with adhesion of elastomeric fill materials or compromise fire-resistive rating.
2. Clean joint substrates to produce clean, sound surfaces capable of developing optimum bond with elastomeric fill materials. Remove loose particles remaining from cleaning operation.
3. Remove laitance and form-release agents from concrete.

B. Prime substrates where recommended in writing by joint firestopping 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.

3.3 INSTALLATION

A. General: Install fire-resistive joint systems to comply with manufacturer's written installation instructions and published drawings for products and applications indicated.

B. Install forming materials and other accessories of types required to support elastomeric fill materials during their application and in position needed to produce cross-sectional shapes and depths required to achieve fire ratings indicated.

1. After installing elastomeric fill materials and allowing them to fully cure, remove combustible forming materials and other accessories not indicated as permanent components of fire-resistive joint system.

C. Install elastomeric fill materials for fire-resistive joint systems by proven techniques to produce the following results:

1. Elastomeric fill voids and cavities formed by joints and forming materials as required to achieve fire-resistance ratings indicated.
2. Apply elastomeric fill materials so they contact and adhere to substrates formed by joints.
3. For elastomeric fill materials that will remain exposed after completing the Work, finish to produce smooth, uniform surfaces that are flush with adjoining finishes.

3.4 IDENTIFICATION

A. Joint Identification: Identify joint firestopping systems with legible metal or plastic labels. Attach labels permanently to surfaces adjacent to and within 6 inches of joint edge so labels are visible to anyone seeking to remove or joint firestopping system. 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:

1. The words "Warning - Joint Firestopping - Do Not Disturb. Notify Building Management of Any Damage."

2. Contractor's name, address, and phone number.
3. Designation of applicable testing agency.
4. Date of installation.
5. Manufacturer's name.
6. Installer's name.

3.5 FIELD QUALITY CONTROL

A. Inspecting Agency: Owner will engage a qualified testing agency to perform tests and inspections according to ASTM E 2393.

B. Where deficiencies are found or joint firestopping systems are damaged or removed due to testing, repair or replace joint firestopping systems so they comply with requirements.

C. Proceed with enclosing joint firestopping systems with other construction only after inspection reports are issued and installations comply with requirements.

3.6 CLEANING AND PROTECTION

A. Clean off excess elastomeric fill materials adjacent to joints as the Work progresses by methods and with cleaning materials that are approved in writing by joint firestopping system manufacturers and that do not damage materials in which joints occur.

B. Provide final protection and maintain conditions during and after installation that ensure joint firestopping systems are without damage or deterioration at time of Substantial Completion. If damage or deterioration occurs despite such protection, cut out and remove damaged or deteriorated fire-resistive joint systems immediately and install new materials to produce fire-resistive joint systems complying with specified requirements.

3.7 JOINT FIRESTOPPING SYSTEM SCHEDULE

A. Where UL-classified systems are indicated, they refer to system numbers in UL's "Fire Resistance Directory" under product Category XHBN or Category XHDG.

B. Where Intertek Group-listed systems are indicated, they refer to design numbers in Intertek Group's "Directory of Listed Building Products" under product category Expansion/Seismic Joints or Firestop Systems.

C. Floor-to-Floor, Wall-to-Wall, Floor-to-Wall, Perimeter Joint, Head-of-Wall, Bottom-of-Wall Joint Firestopping Systems, etc., Refer to Drawings.

END OF SECTION

SECTION 081113

HOLLOW METAL DOORS AND FRAMES

PART 1 GENERAL

1.01 RELATED REQUIREMENTS

A. Section 087100 - Door Hardware.

B. Section 088000 - Glazing: Glass for doors and windows.

C. Section 099100 - Painting and Coatings, Staining and Transparent Finishing.

~~D. Section 134900 - Radiation Protection: Lead sheet for installation in lead-lined doors, windows and frames.~~

1.02 REFERENCE STANDARDS

A. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design; 2010.

B. ANSI A250.11 - Recommended Erection Instructions for Steel Frames; 2012.

C. ANSI/SDI A250.4 - Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors, Frames and Frame Anchors; 2011.

D. ANSI/SDI A250.8 - Specifications for Standard Steel Doors and Frames (SDI-100); 2014.

E. ANSI/SDI A250.10 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames; 2011.

F. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2015.

G. ASTM A1008/A1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable; 2015.

H. ASTM A1011/A1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength; 2014.

I. ASTM A924/A924M - Standard Specification for General Requirements for Sheet Steel, Metallic-Coated by the Hot-Dip Process; 2013.

J. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements; 2009.

K. ASTM E330/E330M - Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference; 2014.

L. ASTM E413 - Classification for Rating Sound Insulation; 2010.

M. BHMA A156.115 - American National Standard for Hardware Preparation in Steel Doors and Steel Frames; 2014.

N. FBC TAS 201 - Impact Test Procedures; Testing Application Standard; 1994.

O. FBC TAS 202 - Criteria for Testing Impact and Non-Impact Resistant Building Envelope Components Using Uniform Static Air Pressure; Testing Application Standard; 1994.

P. FBC TAS 203 - Criteria for Testing Products Subject To Cyclic Wind Pressure Loading; Testing Application Standard; 1994.

Q. FLA (PAD) - Florida Building Code Online - Product Approval Directory; database at www.floridabuilding.org.

R. ICC A117.1 - Accessible and Usable Buildings and Facilities; 2009.

S. ITS (DIR) - Directory of Listed Products; current edition.

T. Miami (APD) - Approved Products Directory; Miami-Dade County; database at www.miamidade.gov/development/product-control.asp.

U. NFPA 80 - Standard for Fire Doors and Other Opening Protectives; 2016.

V. NFPA 252 - Standard Methods of Fire Tests of Door Assemblies; 2012.

W. SDI 111 - Recommended Standard Details for Steel Doors & Frames; 2009.

X. UL (DIR) - Online Certifications Directory; current listings at database.ul.com.

Y. UL 10C - Standard for Positive Pressure Fire Tests of Door Assemblies; Current Edition, Including All Revisions.

1.03 SUBMITTALS

A. See Section 013000 - Administrative Requirements, for submittal procedures.

B. Product Data: Materials and details of design and construction, hardware locations, reinforcement type and locations, anchorage and fastening methods, and finishes; and one copy of referenced standards/guidelines.

C. Wind-Borne-Debris Resistance Approval Documentation: Provide the manufacturer's current approved documentation of equivalent NOA or Florida Building Code approval as acceptable to the authorities having jurisdiction.

D. Shop Drawings: Details of each opening, showing elevations, glazing, frame profiles, and any indicated finish requirements.
   1. For Frames at Lead-Lined Door Openings: Show location and contour of lead to be placed into frame.
   2. Indicate frame configurations, anchor types and spacing, location of cutouts for hardware, reinforcement, to ensure doors and frames are properly prepared and coordinated to receive hardware.
   3. Indiccate door elevations, internal reinforcement, closure method, and cutouts for items such as, but not limited to, glass lights and louvers.

E. Installation Instructions: Manufacturer's published instructions, including any special installation instructions relating to this project.

F. Distributor's Personnel Qualifications: Identify individuals credentialed as Architectural Openings Consulant, Architectural Hardware Consultant, Certified Door Consultants and Electrified Hardware Consultant.

G. Submittals not including all of the requirements of this Article will be considered incomplete, will not be reviewed, and will be returned directly to the Contractor

1.04 QUALITY ASSURANCE

A. Installer Qualifications: Company specializing in performing work of the type specified and with at least three years of documented experience.

B. Distributor Qualifications: Company regularly engaged in distribution of hollow metal doors and frames with contacts credentialed as an Architectural Openings Consultant (AOC) assigned to be available to consult with the Architect regarding matters affecting this Project's openings.

C. Maintain at project site copies of reference standards relating to installation of products specified.

1.05 REQUIREMENTS FOR RATED OPENINGS

A. Comply with all requirements of the code having jurisdiction for fire rated door frames, window frames, and sidelite frames, and doors for the rating class indicated.
   1. Label fire doors and frames listed in accordance with Underwriters Laboratories standard UL10C, and Positive Pressure Fire Tests of Door Assemblies.
   2. In case of conflicts in required fire protection ratings, provide fire ratings as required by NFPA and UL.

B. Labeling Agency:
   1. If labeling agency is Underwriters' Laboratories: Manufacture doors and frames under the UL factory inspection program and in strict compliance to UL procedures, and provide the degree of fire protection, heat transmission and panic loading capability indicated by the opening class.
   2. If labeling agency is Intertek Testing Services/Warnock Hersey: Manufacture doors and frames under the ITS/WH factory inspection program and in strict compliance to ITS/WH procedures, and provide the degree of fire protection capability indicated by the opening class

C. Have metal labels, bearing the name of the labeling agency, shipped on items located as follows:
   1. Door Frames: Placed on the rabbet between the two upper hinge locations so as to be concealed when doors are shut.
   2. Doors: Placed on the hinge stile between the two upper hinge locations so as to be concealed when doors are shut.
   3. Window frames: Placed on the public side rabbet approximately 5 ft above finished floor - do not place on the face of the frame.

D. The following label materials/methods will not be acceptable and will be cause for rejection of all work of this Section:
   1. Paper or plastic labels.
   2. Stamped or embossed label markings.
   3. Loose labels to be applied at the site.

E. Provide stairway doors to meet 250 degrees F Rise Class criteria minimum.

1.06 REQUIREMENTS FOR LEAD-LINED OPENINGS

A. Coordinate with Section 134905 - X-Ray Radiation Protection for receiving specified sheet lead for installation specified under this Section.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Comply with ANSI/SDI A250.8 (SDI-100) in accordance with specified requirements.

B. Protect with resilient packaging; avoid humidity build-up under coverings; prevent corrosion and adverse effects on factory applied painted finish.
   1. Do not use non-vented plastic or canvas shelters, which create a humidity chamber and promote rusting.

2. If items become wet, or moisture appears, remove protective wrapping immediately and take measures to dry items.

C. Store items in an enclosed space not subject to precipitation..
1. Store frames in an upright position with heads uppermost under cover on wood sills on floors in a manner that will prevent rust and damage. Do not store more than five in a stack. Provide a 2 inch space between frames to permit air circulation.
2. Store doors vertically. Place the units on at least 4 inch high wood sills on floors in a manner that will prevent rust and damage. Provide a 4 inch space between the doors to permit air circulation.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Hollow Metal Doors and Frames:
1. Refer to the Owner's Bulk Purchasing Vendor List in Document 002150 for the Owner's sole source manufacturer - No substitutions.
a. Basis of Design - Frames: Steelcraft F Series.
b. Basis of Design - Exterior Doors: Steelcraft B-Series.
c. Basis of Design - Exterior Doors: Steelcraft H-Series, Florida Building Code Approval FL12400-R6.
d. Basis of Design - Temperature Rise Doors: Steelcraft T- Series.

2.02 DESIGN CRITERIA

A. Requirements for Hollow Metal Doors and Frames:
1. Steel used for fabrication of doors and frames shall comply with one or more of the following requirements; Galvannealed steel conforming to ASTM A653/A653M, cold-rolled steel conforming to ASTM A1008/A1008M, or hot-rolled pickled and oiled (HRPO) steel conforming to ASTM A1011/A1011M, Commercial Steel (CS) Type B for each.
2. Accessibility: Comply with ICC A117.1 and ADA Standards.
3. Door Edge Profile: Beveled, both sides.
4. Vertical Edge Seams on Doors: Continuous vertical mechanical inter-locking joints at lock and hinge edges with visible edge seams, or a one piece full height 14 gage channel
5. Typical Door Face Sheets: Flush.
6. Glass Moldings and Stops (Labeled and Non-Labeled Doors:
a. Fabricate from 24 gage steel:
1) Interior Openings: ASTM A1008/A1008M cold rolled steel.
2) Exterior Openings: ASTM A924/A924M Zinc-Iron Alloy-Coated galvannealed steel with a zinc coating of 0.06 ounces per square foot (A60).
b. Install trim into the door as a four sided welded assembly with mitered, reinforced and welded corners; indentical on both sides of doors.
c. Mounting:
1) Fit into a formed area of the door face, not extending beyond the door face, and interlocking into the recessed area.
2) Cap the cutout not extend more than 1/16" from the door face.
3) Exposed fasteners are not permitted.
7. Hardware Preparations, Selections and Locations: Comply with BHMA A156.115 and ANSI/SDI A250.8 (SDI-100) in accordance with specified requirements.
a. Coordinate with approved hardware schedule provided under Section 087100 - Door Hardware for frames to be prepped for siliencers and frames to be left un-punched to recieve gasketing or weatherstripping.

b. Silencer preparation: Punch or drill frames for resilient rubber type, specified in Section 087100.
    1) Single Doors: 3 on strike side jamb.
    2) Pairs With no Center Mullion: 2 on head.
    3) Pairs With Center Mullion: 3 on each side of mullion.
c. Mortises: Prepare mortises to fit hardware. Coordinate location of mortises with locations of door hardware items.
d. Reinforcements:
    1) Mortise Hinges: Minimum 7 gage (0.180 inch).
        (a) Provide high frequency hinge reinforcement for top hinge on all exterior, cross corridor, and stairwell frames, in accordance with SDI 111-H, Example "A" Application, where full mortise hinges are specified.
    2) Strikes: Minimum 16 gage (0.053 inch) and prepared for an ANSI-A115.1-2 strike.
    3) Closers: Minimum 14 gage (0.067 inch)steel.
    4) Provide adequate reinforcements for other hardware as required.
    5) Provide reinforcements to be galvanized in galvanized/galvannealed frames.
    6) Projection weld hinge and strike reinforcements to the door frame.
    7) Provide metal plaster guards for all mortised cutouts.

8. Frame Welds: Factory die-mitered corner connections reinforced with four integral tabs to secure and interlock at jambs to head. Continuously face-weld joints. Grind and finish all exposed surfaces of joints so that no traces of the mitered joints are visible. Frames showing traces of mitered joints are not acceptable.
    a. Note: The remaining elements at miters between jambs and head (soffit, stop and rabbets) are not required to be welded.
9. Frame Returns:
    a. Masonry Walls: Where frames are shown to wrap the masonry, provide wrap-around returns between frame face and wall to be 1/2 inch. Where frames are mounted within the opening, provide returns of a minimum of 1/4 inch so that frame faces do not face straight into the masonry jamb.
    b. Metal Stud Walls: Provide standard returns for all frames in metal stud walls. Size returns between frame face as follows:
        1) Frames With Resilient Base Abuting Frame: 1/2 inch.
        2) Frames Where Sheet Flooring With Coved Base Cccurs: 3/4 inch.
        3) Frames in Walls where no Base is Scheduled: 1/2 inch.
10. Frame Anchors: Each jamb to have:
    a. Frames in Masonry Walls: One masonry anchor for each two feet of frame height.
    b. Frames in Metal Stud Walls: One floor clip and one metal stud anchor for each two feet of frame height.

B. Electrical Requirements: Coordinate electrical requirements for doors and frames. Make provisions for installation of electrical items arranged so that wiring can be readily removed and replaced.
    1. Openings With Electrified Hinges: Furnish conduit raceway to permit wiring from electric door hardware.
        a. Hinge Locations: Provide electric hinge at intermediate or center location. Top or bottom electric hinge locations are not acceptable.
        b. Refer to Section 087100 - Door Hardware for electrified hardware items

C. Combined Requirements: If a particular door and frame unit is indicated to comply with more than one type of requirement, comply with the specified requirements for each type; for instance, an exterior door that is also indicated as being sound-rated must comply with the requirements specified for exterior doors and for sound-rated doors; where two requirements conflict, comply with the most stringent.

2.03 HOLLOW METAL DOORS

A. Door Finish: Factory primed and field finished.

B. Exterior Doors: Thermally insulated.
   1. Based on SDI Standards: ANSI/SDI A250.8 (SDI-100).
      a. Level 3 - Extra Heavy-duty.
      b. Physical Performance Level A, 1,000,000 cycles; in accordance with ANSI/SDI A250.4.
      c. Model 1 - Full Flush.
      d. Door Face Metal Thickness: 16 gage, 0.053 inch, minimum.
      e. Zinc Coating: A60/ZF180 galvannealed coating; ASTM A653/A653M.
   2. Core: Mineral core, fiberglass or other non-foam plastic type standard with the manufacturer.
   3. Reinforcing: 20 gage channel shaped or hat chaped vertical stiffeners at 6 inches oc, welded to both sheets.
   4. Door Thickness: 1-3/4 inch, nominal.
   5. Top Closures for Outswinging Doors and Interior Doors in Sterile Environments: Flush with top of faces and edges.
   6. Insulating Value: U-value of 0.50, when tested in accordance with ASTM C1363.

C. Interior Doors, Non-Fire Rated:
   1. Based on SDI Standards: ANSI/SDI A250.8 (SDI-100).
      a. Level 2 - Heavy-duty.
      b. Physical Performance Level B, 500,000 cycles; in accordance with ANSI/SDI A250.4.
      c. Model 1 - Full Flush.
      d. Door Face Metal Thickness: 18 gage, 0.042 inch, minimum.
   2. Core Material: Non-foam plastic type standard with the manufacturer.
   3. Reinforcing: Channel shaped vertical stiffeners at 6 inches oc, welded to both sheets.
   4. Door Thickness: 1-3/4 inch, nominal.

D. Fire-Rated Doors:
   1. Based on SDI Standards: ANSI/SDI A250.8 (SDI-100).
      a. Level 2 - Heavy-duty.
      b. Physical Performance Level B, 500,000 cycles; in accordance with ANSI/SDI A250.4.
      c. Model 1 - Full Flush.
      d. Door Face Metal Thickness: 18 gage, 0.042 inch, minimum.
   2. Fire Rating: As indicated on drawings, tested in accordance with UL 10C and NFPA 252 ("positive pressure fire tests").
      a. Temperature-Rise Rating (TRR) Across Door Thickness: 250 degrees F.
      b. Provide units listed and labeled by UL (DIR) or ITS (DIR).
      c. Attach fire rating label to each fire rated unit.
   3. Core Material: Mineral board.
   4. Reinforcing: Channel shaped vertical stiffeners at 6 inches oc, welded to both sheets.
   5. Door Thickness: 1-3/4 inch, nominal.

E. Sound-Rated Interior Doors:
   1. Based on SDI Standards: ANSI/SDI A250.8 (SDI-100).
      a. Level 3 - Extra Heavy-duty.
      b. Physical Performance Level A, 1,000,000 cycles; in accordance with ANSI/SDI A250.4.
      c. Model 1 - Full Flush.
      d. Door Face Metal Thickness: 16 gage, 0.053 inch, minimum.

2. Sound Transmission Class (STC) Rating of Door and Frame Assembly: STC of 35, calculated in accordance with ASTM E413, and tested in accordance with ASTM E90.
3. Core Material: Manufacturer's standard construction as required to meet acoustic requirements indicated.
4. Door Thickness: As required to meet acoustic requirements indicated.
5. Reinforcing: Channel shaped vertical stiffeners at 6 inches oc, welded to both sheets.
6. Sound Seals: Integral, concealed in door and/or frame.
7. Opening Force of Sound-Rated Doors, Non-Fire Rated: 5 lbs, maximum, in compliance with ADA Standards.

2.04 HOLLOW METAL FRAMES

A. Comply with standards and/or custom guidelines as indicated for corresponding door in accordance with applicable door frame requirements.

B. Exterior Door Frames: Face welded type.
1. Galvanizing: Components hot-dipped zinc-iron alloy-coated (galvannealed) in accordance with ASTM A653/A653M, with A60/ZF180 coating.
2. Frame Metal Thickness: 14 gage, 0.067 inch, minimum.
3. Frame Finish: Factory primed and field finished.
4. Weatherstripping: Separate, see Section 087100.

C. Interior Door Frames, Non-Fire Rated: Face welded type.
1. Frame Metal Thickness: 16 gage, 0.053 inch, minimum.
2. Frame Finish: Factory primed and field finished.

D. Door Frames, Fire-Rated: Face welded type.
1. Fire Rating: Labelled as a fire rated frame.
2. Frame Metal Thickness: 16 gage, 0.053 inch, minimum.
3. Frame Finish: Factory primed and field finished.

E. Frames for Wood Doors: Comply with frame requirements in accordance with corresponding door.

F. Borrowed Lites Glazing Frames: Construction and face dimensions to match door frames, and as indicated on drawings. Additionally, meet the following:
1. Welds: Continuously weld joints along all surfaces along the throat of the frames. Grind and finish all exposed surfaces of joints so that no traces of the mitered joints are visible. Frames showing traces of mitered joints are not acceptable.
2. Anchors: One anchor appropriate for the surrounding construction construction for each 2 feet of jamb height in each jamb.

G. Provide mortar guard boxes for hardware cut-outs in frames to be installed in masonry or to be grouted.

H. Frames in Masonry Walls: Size to suit masonry coursing with head member 4 inch high to fill opening without cutting masonry units.

2.05 FINISHES

A. Primer: Rust-inhibiting, complying with ANSI/SDI A250.10, door manufacturer's standard.

2.06 ACCESSORIES

A. Glazing: As specified in Section 088000, factory installed.

B. Removable Stops: Formed sheet steel, shape as indicated on drawings, mitered corners; prepared for countersink style tamper proof screws.

C. Grout for Frames: Portland cement grout with maximum 4 inch slump for hand troweling; thinner pumpable grout is prohibited.

D. Temporary Frame Spreaders: Provide for factory- or shop-assembled frames.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify that opening sizes and tolerances are acceptable.

C. Verify that finished walls are in plane to ensure proper door alignment.

3.02 PREPARATION

A. Coat inside of frames to be installed in masonry or to be grouted, with bituminous coating, prior to installation.

3.03 INSTALLATION

A. Install doors and frames in accordance with manufacturer's instructions and with Steel Door Institute's ANSI A250.11 recommended erection instructions for steel frames.

B. Install fire rated units in accordance with NFPA 80.

C. Coordinate frame anchor placement with wall construction.

D. Grout frames in masonry construction, using hand trowel methods; brace frames so that pressure of grout before setting will not deform frames.
   1. Provide a vertical wood brace during grouting of frame at openings over 4'0" wide, to prevent sagging of frame header.
   2. Provide full height 3/8 inch to 1-1/2 inch thick strip of polystyrene foam blocking at non-labeled frames requiring grouting where continuous hinges are specified. Apply the strip to the back of the frame, where the hinge is to be installed, to facilitate field drilling or tapping

E. Coordinate installation of hardware.

F. Coordinate installation of glazing.

G. Coordinate installation of electrical connections to electrical hardware items.

H. Touch up damaged factory finishes.
   1. Sand smooth rusted or damaged areas of prime coat, and apply touch-up of compatible air-drying primer.
   2. Leave touched-up areas without blemishes that will affect adherence or appearance of final paint coatings.

3.04 TOLERANCES

A. Maximum Diagonal Distortion: 1/16 in measured with straight edge, corner to corner.

3.05 ADJUSTING

A. Adjust for smooth and balanced door movement.

B. Adjust sound control doors so that seals are fully engaged when door is closed.

C. Test doors with gasketing for weather, fire, smoke, or sound for force to close, latch, and unlatch; adjust as necessary in compliance with requirements.

3.06 PROTECTION

A. Provide protective measures required throughout the construction period to ensure that door and frame units will be without damage or deterioration, other than normal weathering, at time of acceptance.

END OF SECTION

SECTION 08 71 00 – DOOR HARDWARE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes items known commercially as finish or door hardware that are required for swing, sliding, and folding doors, except special types of unique hardware specified in the same sections as the doors and door frames on which they are installed.

B. This Section includes the following:

1. Hinges
2. Continuous hinges
3. Pivots
4. Key control system
5. Lock cylinders and keys
6. Lock and latch sets
7. Bolts
8. Exit devices
9. Closers
10. Overhead stops and holders
11. Miscellaneous door control devices
12. Door trim units
13. Protection plates
14. Weatherstripping for exterior doors
15. Sound and smoke seals for interior doors
16. Automatic drop seals (door bottoms)
17. Astragals or meeting seals on pairs of doors
18. Thresholds

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

1. Section 0: Section “Access Control” for key pad and card readers not specified in this section.
2. Division 8: Sections for Hollow Metal Doors and Frames.
3. Division 8: Sections for Laminated Plastic Faced Wood Doors.
4. Division 8: Sections for Overhead Coiling Doors.
5. Division 8: Sections for Automatic Door Operators.
6. Division 26: Sections for electrical connections provided separately including conduit and wiring for power to, and control of, swinging automatic entrances.
7. Division 28: Section “Access Control” for key pad and card readers not specified in this section.

D. Products furnished but not installed under this Section to include:

1. Cylinders for locks on entrance doors.

1.3 REFERENCES

A. Standards of the following as referenced:

1. American National Standards Institute (ANSI)
2. Door and Hardware Institute (DHI)
3. Factory Mutual (FM)
4. National Fire Protection Association (NFPA)
5. Underwriters' Laboratories, Inc. (UL)UL 10C - Fire Tests Door Assemblies
6. Texas Accessibility Current Standards
7. Warnock Hersey

B. Regulatory standards of the following as referenced:

1. Department of Justice, Office of the Attorney General, *Americans with Disabilities Act*, Public Law 101-336 (ADA).
2. CABO/ANSI A117.1: Providing Accessibility and Usability for Physically Handicapped People, 2010 edition.

1.4 SYSTEM DESCRIPTION

A. Refer to applicable “HW SETS” for system description for electric and electro-pneumatic hardware products.

1.5 SUBMITTALS

A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification sections.

B. Product data including manufacturers' technical product data for each item of door hardware, installation instructions, maintenance of operating parts and finish, and other information necessary to show compliance with requirements. For items other than those scheduled in the “Headings” of Section 3, provide catalog information for the specified items and for those submitted.

C. Final hardware schedule coordinated with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.

1. Final Hardware Schedule Content: Based on hardware indicated, organize schedule into vertical format “hardware sets” indicating complete designations of every item required for each door or opening. Use specification HW SET numbers with any variations suffixed a, b, etc. Include the following information:

a. Type, style, function, size, and finish of each hardware item.
b. Name and manufacturer of each item.
c. Fastenings and other pertinent information.
d. Location of each hardware set cross-referenced to indications on Drawings both on floor plans and in door and frame schedule.
e. Explanation of all abbreviations, symbols, and codes contained in schedule.
f. Mounting locations for hardware.
g. Door and frame sizes and materials.
h. Keying information.

i. Cross-reference numbers used within schedule deviating from those specified.

1) Column 1: State specified item and manufacturer.
2) Column 2: State prior approved substituted item and its manufacturer.

2. Furnish complete wiring diagrams, riser diagrams, elevation drawings, and operational descriptions of electrical components and systems, listed by opening in the hardware submittals. Elevation drawings to identify locations of the system components with respect to their placement in the door opening. Operational descriptions to fully detail how each electrical component will function within the opening, including all conditions of ingress and egress. Provide a copy with each hardware schedule submitted for approval. Supply a copy with delivery of hardware to the jobsite and another copy to the Owner at the time of project completion.
3. Submittal Sequence: Submit final schedule at earliest possible date particularly where acceptance of hardware schedule must precede fabrication of other work that is critical in the Project construction schedule. Include with schedule the product data, samples, shop drawings of other work affected by door hardware, and other information essential to the coordinated review of schedule.
4. Keying Schedule: Submit separate detailed schedule indicating clearly how the Owner's final instructions on keying of locks has been fulfilled.

D. Provide samples, if requested, of each type of exposed hardware unit in finish indicated and tagged with full description for coordination with schedule. Submit samples prior to submission of final hardware schedule.

1. Samples will be returned to the supplier. Units that are acceptable and remain undamaged through submittal, review, and field comparison process may, after final check of operation, be incorporated in the Work, within limitations of keying coordination requirements.

E. Templates for doors, frames, and other work specified to be factory prepared for the installation of door hardware. Check shop drawings of other work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.

F. Contract closeout submittals:

1. Operation and maintenance data: Complete information for installed door hardware.
2. Warranty: Completed and executed warranty forms.

1.6 QUALITY ASSURANCE

A. Single Source Responsibility: Obtain each type of hardware (latch and locksets, hinges, closers, etc.) from a single manufacturer.

B. Supplier Qualifications: A recognized architectural door hardware distributor, with warehousing facilities in the Project's vicinity, that has a record of successful in-service performance for supplying door hardware similar in quantity, type, and quality to that indicated for this Project and that employs an experienced Architectural Hardware Consultant (AHC) who is available for consultation to Owner, Architect, and Contractor, at reasonable times during the course of the Work.

C. Coordination Meetings:

1. Organize and attend the following:

a. Lock distributor to meet with the Owner to finalize lock functions and keying requirements and to obtain final instructions in writing.
b. Lock distributor and lock, closer and exit device manufacturers' representative(s) to meet with the installer prior to commencing installation of door hardware. Instruct installer on proper installation of scheduled products.

2. Organize and attend the following:

a. Meet with the Owner, hardware supplier, frame and door supplier, electrical sub-contractor and security sub-contractor to coordinate all electrical hardware items. Hardware supplier to provide riser diagrams, elevation drawings, wiring diagrams, and operational descriptions as required by the General and sub-contractors.

D. Fire-Rated Openings: Provide door hardware for fire-rated openings that complies with NFPA Standard No. 80 requirements of authorities having jurisdiction. Provide only items of door hardware that are listed and tested by UL or Warnock Hersey for given type/size opening and degree of label. Provide proper latching hardware, door closers, approved-bearing hinges, and seals whether listed in the Hardware Schedule or not. All hardware to comply with State and local codes and UL 10C.
2. Where emergency exit devices are required on fire-rated doors, (with supplementary marking on doors' UL labels indicating "Fire Door to be equipped with Fire Exit Hardware") provide UL label on exit devices indicating "Fire Exit Hardware".

E. All hardware is to comply with Federal and State Handicap laws. Provide tactile warning at the back of all outside levers to electrical, mechanical, machine rooms, and doors that lead to hazardous areas.

1.7 PRODUCT HANDLING

A. Tag each item or package separately with identification related to final hardware schedule, and include basic installation instructions with each item or package.

B. Inventory door hardware jointly with representatives of hardware supplier and hardware installer until each is satisfied that count is correct.

C. Deliver individually packaged door hardware items promptly to place of installation.

D. Provide secure lock-up for door hardware delivered to the Project, but not yet installed. Control handling and installation of hardware items that are not immediately replaceable so that completion of the Work will not be delayed by hardware losses both before and after installation.

1.8 WARRANTY

A. Special warranties:

1. Surface Door Closers: Thirty (30) year period
2. Exit Devices: Three (3) year period
3. Automatic Door Operators: Two (2) year period
4. Mortise Locks and Cylinders: Three (3) year period

1.9 MAINTENANCE

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

PART 2 - PRODUCTS

2.1 MANUFACTURED UNITS
(*Denotes manufacturer referenced in the Hardware Headings)

A. Hinges:

1. Acceptable manufacturers:

a. Ives*

2. Characteristics:

a. Templates: Provide only template-produced units.
b. Screws: Provide Phillips flat-head screws complying with the following requirements:

1) For metal doors and frames install machine screws into drilled and tapped holes.
2) For wood doors and frames install threaded-to-the-head wood screws.
3) For fire-rated wood doors install #12 x 1-1/4", threaded-to-the-head steel wood screws.
4) Finish screw heads to match surface of hinges or pivots.

c. Hinge pins: Except as otherwise indicated, provide hinge pins as follows:

1) Out-Swing Exterior Doors: Non-removable pins.
2) Interior Doors: Non-rising pins.
3) Tips: Flat button and matching plug. Finished to match leafs.

d. Size: Size hinges in accordance with specified manufacturer's published recommendations.
e. Quantity: Furnish one pair of hinges for all doors up to 5'-0" high. Furnish one hinge for each additional 2-1/2 feet or fraction thereof.

B. Continuous Hinges:

1. Acceptable manufacturers:

a. Ives*

2. Characteristics:

a. Continuous gear hinges to be manufactured of extruded 6063-T6 aluminum alloy with anodized finish, or factory painted finish as scheduled.
b. All hinges are to be manufactured to template. Uncut hinges to be non-handed and to be a pinless assembly of three interlocking extrusions applied to the full height of the door and frame without mortising.
c. Vertical door loads to be carried on chemically lubricated polyacetal thrust

bearings. The door and frame leaves to be continually geared together for the entire hinge length and secured with a full cover channel. Hinge to operate to a full 180°.

d. Hinges to be milled, anodized, and assembled in matching pairs. Fasteners supplied to be steel self-drilling, self-tapping 12-24 x 3/4".
e. Provide UL listed continuous hinges at fire doors. Continuous hinges at fire doors to meet the required ratings without the use of auxiliary fused pins or studs.

C. Pivot Sets:

1. Acceptable manufacturers:

a. Ives*

2. Characteristics:

a. Pivots to be high strength forged bronze with top pivot housing with spring activated bronze retracting pin. Pivots to have tilt-on bearing and bearing pin.
b. Offset and intermediate pivots to be handed at the factory. Pivot set to support doors to 1000 pounds. Each intermediate pivot to support 100 additional pounds. Centerline of pivots to be 3/4" from face of door, 3/4" from edge of door.

D. Cylinders:

1. Acceptable manufacturers:

a. Schlage. (CONFIRM KEYING SYSTEM WITH OWNER PRIOR TO SUBMITTAL)

2. Characteristics:

a. Except as otherwise indicated, provide new master key system for Project. Final keying to match the requirements of the facility and parent of the facility, if applicable. Key systems for all new construction shall be keyed to existing key system. For additions or renovations at existing buildings, contact shall be made with HCA Project Manager to provide direction as to type of key system to be specified or keyed to system currently in place at facility, dependent on integrity and condition of the existing system. If following the existing key system use the existing manufacturer's cylinders in Schlage ND series locks or Schlage mortise L9000 series locks.
b. Equip locksets with interchangeable core cylinders featuring patented, restricted keys and auxiliary locking pin.
c. Metals: Construct lock cylinder parts from brass or bronze, stainless steel, or nickel silver.
d. Comply with Owner's instructions for master keying and, except as otherwise indicated, provide individual change key for each lock that is not designated to be keyed alike with a group of related locks.

1) Permanently inscribe each key with number of lock that identifies cylinder manufacturer's key symbol, and notation, "DO NOT DUPLICATE".

e. Key Material: Provide keys of nickel silver only.
f. Key Quantity: Furnish 3 change keys for each lock, 5 master keys for each master system, 5 grandmaster keys for each grandmaster system, 5 construction master keys, and 5 control keys for interchangeable core series.

1) Furnish one extra blank for each lock.
2) Furnish construction master keys to General Contractor.
3) Deliver keys to Owner.

E. Locksets, Latchsets, Deadbolts:

1. Acceptable manufacturers:

a. Schlage*

2. Mortise Locksets and Latchsets: as scheduled.

a. Chassis: Cold-rolled steel, handing field-changeable without disassembly.
b. Latchbolts: 3/4” throw stainless steel anti-friction type.
c. Lever Trim: Through-bolted, accessible design, cast or solid rod lever as scheduled. Spindles: Independent break-away.
d. Thumbturns: Accessible design not requiring pinching or twisting motions to operate.
e. Deadbolts: Stainless steel 1” throw.
f. Electric operation: Manufacturer-installed continuous duty solenoid.
g. Strikes: 16 gage curved stainless steel, bronze, or brass with 1” deep box construction, lips of sufficient length to clear trim and protect clothing.
h. Scheduled Lock Series and Design: Schlage L series.
i. Certifications:

1) ANSI A156.13, 1994, Grade 1 Operational, Grade 1 Security.
2) ANSI/ASTM F476-84 Grade 30 UL Listed.

3. Extra Heavy Duty Cylindrical Locks and Latches: as scheduled, fastened with through-bolts.

a. Chassis: Cylindrical design, corrosion-resistant plated cold-rolled steel.
b. Locking Spindle: Stainless steel, interlocking design.
c. Latch Retractors: Forged steel. Balance of inner parts: Corrosion-resistant plated steel, or stainless steel.
d. Lever Trim: Accessible design, independent operation, spring-cage supported, minimum 2” clearance from lever mid-point to door face.
e. Rosettes: Minimum 3-7/16” diameter for coverage of ANSI/DHI A115.18, 1994 door preparation, through-bolt lugs on both spring cages to fully engage this pattern.
f. Springs: Full compression type.
g. Electric operation: Manufacturer-installed continuous duty solenoid.
h. Strikes: 16 gage curved steel, bronze, or brass with 1” deep box construction, lips of sufficient length to clear trim and protect clothing.
i. Lock Series and Design: Schlage ND series.
j. Certifications:

1) ANSI A156.2, 1994, Series 4000, Grade 1. Tested to exceed 3,000,000 cycles.
2) UL listed for A label single doors up to 4 ft x 8 ft.

4. Deadbolts: as scheduled. Rotating cylinder trim rings of attack-resistant design. Mounting plates and actuator shields of plated cold-rolled steel. Mounting screws of 1/4” dia. steel and protected by drill-resistant ball bearings. Steel alloy deadbolt with

hardened steel roller. Strike with 1/8" thick strike reinforcer and two 3" long screws. ANSI A156.5, 1992 Grade 1 certified.

F. Exit Devices:

1. Acceptable manufacturers:

a. Von Duprin*

2. Characteristics:

a. Exit devices to be "UL" listed for life safety. All exit devices for fire rated openings to have "UL" labels for "Fire Exit Hardware".
b. All exit devices mounted on labeled wood doors to be mounted on the door in accordance with the door manufacturer's requirements.
c. All trim to be thru-bolted to the lock stile case. Lever design to match locksets.
d. All exit devices to be made of brass, bronze, stainless steel, or aluminum material, powder coated, anodized, or plated to the standard architectural finishes to match the balance of the door hardware.
e. Provide glass bead conversion kits to shim exit devices on doors with raised glass beads.
f. All exit devices to be one manufacturer. No deviation will be considered.
g. All series exit devices to incorporate a fluid damper, which decelerates the touchpad on its return stroke and eliminates noise associated with exit device operation.
h. All exit devices to be non-handed. Touchpad to extend a minimum of 1/2 of the door width and extend to the height of the cross rail housing for a "no pinch" operation. Plastic touchpads are not acceptable.
i. All latchbolts to be the deadlocking type. Latchbolts to have a self-lubricating coating to reduce wear. Plated or plastic coated latchbolts are not acceptable. Plastic linkage and "dogging" components are not acceptable.
j. Lever trim to be solid case material with a break-away feature to limit damage to the unit from vandalism. The break-away feature to utilize a clutch mechanism allowing the lever to drop to the six o'clock position and reset manually.
k. Surface vertical rod devices to be UL labeled for fire door applications without the use of bottom rod assemblies. Where bottom rods are required for security applications, the devices to be UL labeled for fire doors applications with rod and latch guards by the device manufacturer.
l. Exit devices to include impact resistant, flush mounted end cap design to avoid damage due to carts and other heavy objects passing through an opening. End cap to be of heavy-duty metal alloy construction and provide horizontal adjustment to provide alignment with device cover plate. When exit device end cap is installed, no raised edges will protrude.

G. Electric Strikes:

1. Acceptable manufacturers:

a. Von Duprin*

2. Characteristics:

a. Heavy duty, stainless steel construction.
b. Adjustable strike box to compensate for any misalignment of door or frame.
c. Two-piece plug connectors for ease of installation and for removal during strike

servicing.

H. Closers and Door Control Devices:

1. Acceptable manufacturers:

a. LCN Closers*

2. Characteristics:

a. Door closers to have fully hydraulic, full rack and pinion action with a high strength cast iron cylinder.
b. All closers to utilize a stable fluid withstanding temperature range of 120°F to -30°F without seasonal adjustment of closer speed to properly close the door. Closers for fire-rated doors to be provided with temperature stabilizing fluid that complies with standards UBC 7-2 (1997) and UL 10C.
c. Spring power to be continuously adjustable over the full range of closer sizes, and allow for reduced opening force for the physically handicapped. Hydraulic regulation to be by tamper-proof, non-critical valves. Closers to have separate adjustment for latch speed, general speed and back check.
d. All closers to have solid forged steel main arms and, where specified, to have a stop on the closer shoe (“SCUSH”). Where door travel on out-swing doors must be limited, “SCUSH” type closers. Auxiliary stops are not required when “SCUSH” type closers are used. Provide drop plates where top rail of door is not sufficient for closer mounting. Provide “cush shoe supports” and “blade stop spacers” where dictated by frame details.
e. All closers (overhead, surface, and concealed) to be of one manufacturer and carry manufacturer's ten (10) year warranty. Electric closers to have two year warranty.
f. Access-Free Manual Closers: Where manual closers are indicated for doors required to be accessible to the physically handicapped provide adjustable units complying with ADA and ANSI A-117.1 provisions for door opening force.
g. Closers to be installed to allow door swing to the maximum degree of opening before striking an obstruction. Doors swinging into exit corridors to provide for corridor clear width as required by code. Where possible, mount closers inside rooms.
h. Powder coating finish to be certified to exceed 100 hours salt spray testing by ETL, an independent testing laboratory used by BHMA for ANSI certification.
i. Combination Door Closers and Holders: Provide units designed to hold door in open position under normal usage and to release and automatically close door under fire conditions. Incorporate an integral electromagnetic holder mechanism designed for use with UL listed fire detectors, provided with normally closed switching contacts.
j. Magnetic Door Holders to be heavy duty wall mounted with metal housing and complete mounting hardware. Provide 24V holding coils unless otherwise scheduled.

I. Overhead Door Stops and Holders:

1. Acceptable manufacturers:

a. Glynn Johnson*

2. Characteristics:

a. Provide door stops and holders of brass, bronze or stainless steel.
b. Concealed stops and holders to be installed with the jamb bracket mortised flush with the bottom of the jamb. The arm and channel to be mortised into the door.
c. Surface-mounted stops and holders to be installed with the jamb bracket mounted on the stop.

J. Floor Stops and Wall Bumpers:

1. Acceptable manufacturers:

a. Ives*

2. Characteristics: Refer to Part 3, Hardware Schedule.

K. Door Bolts/Coordinators:

1. Acceptable manufacturers:

a. Ives*
b. Richards Wilcox* - Cane bolt only

2. Characteristics:

a. Flush bolts to be forged brass 6-3/4” x 1”, with 1/2” diameter bolts. Plunger to be supplied with milled surface one side that fits into a matching guide.
b. Automatic flush bolts to be UL listed as top and bottom bolts on a pair of classified fire doors. Bolt construction to be of rugged steel and brass components.
c. Self-latching flush bolts to be UL listed as top and bottom bolts on a pair of classified fire doors. Bolt construction to be of rugged steel and brass components.
d. Automatic flush bolts and self-latching flush bolts are to be UL listed for fire door application without bottom bolts.
e. Furnish dust proof bottom strikes.
f. Coordinator to be soffit mounted non-handed fully automatic UL listed coordinating device for sequential closing of paired doors with or without astragals.
g. Provide filler pieced to close the header. Provide brackets as required for mounting of soffit applied hardware.

L. Push Plates:

1. Acceptable manufacturers:

a. Ives*

2. Characteristics:

a. Exposed Fasteners: Provide manufacturers standard exposed fasteners.
b. Material to be stainless steel.
c. Provide plates sized as shown in Part 3, Hardware Schedule.

M. Door Pulls & Pull Plates:

1. Acceptable manufacturers:

a. Ives*

2. Characteristics:

   a. Provide concealed thru-bolted trim on back to back mounted pulls, but not for single units.
   b. Material to be stainless steel.
   c. Provide units of types and sizes shown in Part 3, Hardware Schedule.

N. Protective Plates:

1. Acceptable manufacturers:

   a. Ives*

2. Characteristics:

   a. Provide manufacturers standard exposed fasteners for door trim units consisting of either machine screws or self-tapping screws.
   b. Materials:

      1) Metal Plates: Stainless Steel, .050 inch (U.S. 18 gage).

   c. Fabricate protection plates not more than 2” less than door width on push side and not more than 1” less than door width on pull side.

O. Thresholds:

1. Acceptable manufacturers:

   a. Zero Weatherstripping*

2. Types: Indicated in Part 3, Hardware Schedule.

P. Door Seals/Gasketing:

1. Acceptable manufacturers:

   a. Steelcraft*
   b. Zero Weatherstripping*

2. Types: Indicated in Part 3, Hardware Schedule.

Q. Silencers:

1. Acceptable manufacturers:
2. Ives*
3. Three (3) for each single door; two (2) for each pair of doors.
4. Omit silencers at openings scheduled to receive perimeter gasketing.

R. Key Cabinet and System:

1. Acceptable manufacturers:

   a. Telkee

2. Provide a key control system including envelopes, labels, tags with self-locking key clips, receipt forms, 3-way visible card index, temporary markers, permanent markers, and standard metal cabinet, all as recommended by system manufacturer, with capacity for 150 percent of the number of locks required for the project.

    a. Provide complete cross index system set up by key control distributor, and place keys on markers and hooks in the cabinet as determined by the final key schedule.
    b. Provide hinged-panel type cabinet for wall mounting.
    c. Provide multiple-drawer type cabinet.

2.2 MATERIALS AND FABRICATION

A. Base Metals: Produce hardware units of basic metal and forming method indicated, using manufacturer's standard metal alloy, composition, temper, and hardness, but in no case of lesser (commercially recognized) quality than specified for applicable hardware units by applicable ANSI/BHMA A156 series standards for each type of hardware item and with ANSI/BHMA A156.18 for finish designations indicated. Do not furnish “optional” materials or forming methods for those indicated, except as otherwise specified.

B. Fasteners: Provide hardware manufactured to conform to published templates, generally prepared for machine screw installation.

1. Do not provide hardware that has been prepared for self-tapping sheet metal screws, except as specifically indicated.
2. Furnish screws for installation with each hardware item. Provide Phillips flat-head screws except as otherwise indicated. Finish exposed (exposed under any condition) screws to match hardware finish or, if exposed in surfaces of other work, to match finish of this other work as closely as possible including “prepared for paint” surfaces to receive painted finish.
3. Unless indicated otherwise provide concealed fasteners for hardware units that are exposed when door is closed except to the extent no standard units of type specified are available with concealed fasteners.
4. Use thru-bolts for installation of all exit devices, closers, and overhead stops. Coordinate with wood doors and metal doors and frames. Where thru-bolts are used, provide sleeves for each thru-bolt as a means of reinforcing the work, or use sex nut and bolt fasteners.

2.3 HARDWARE FINISHES

A. Match items to the manufacturer’s standard color and texture finish for the latch and lock sets (or push-pull units if no latch or lock sets).

B. Provide finishes that match those established by ANSI or, if none established, match the Architect’s sample.

C. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness, and other qualities complying with manufacturer’s standards, but in no case less than specified by referenced standards for the applicable units of hardware.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Mount hardware units at heights indicated in following applicable publications, except as specifically indicated or required to comply with governing regulations and except as otherwise directed by Architect.

B. “Recommended Locations for Builders Hardware for Standard Steel Doors and Frames” by the Door and Hardware Institute.

C. Install each hardware item in compliance with the manufacturer's instructions and recommendations. Where cutting and fitting is required to install hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation or application of surface protection with finishing work specified in the Division 9 Sections. Do not install surface-mounted items until finishes have been completed on the substrates involved.

D. Set units level, plumb, and true to line and location. Adjust and reinforce the attachment substrate as necessary for proper installation and operation.

E. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors in accordance with industry standards.

F. Set thresholds for exterior doors in full bed of butyl-rubber or polyisobutylene mastic sealant complying with requirements specified in Division 7 Section “Joint Sealers”.

G. Weatherstripping and Seals: Comply with manufacturer's instructions and recommendations to the extent installation requirements are not otherwise indicated.

3.2 ADJUSTING, CLEANING, AND DEMONSTRATING

A. Adjust and check each operating item of hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate freely and smoothly or as intended for the application made.

1. Where door hardware is installed more than one month prior to acceptance or occupancy of a space or area, return to the installation during the week prior to acceptance or occupancy and make final check and adjustment of all hardware items in such space or area. Clean operating items as necessary to restore proper function and finish of hardware and doors. Adjust door control devices to function properly with final operation of heating and ventilating equipment.

B. Clean adjacent surfaces soiled by hardware installation.

C. Door Hardware Supplier's Field Service:

1. Inspect door hardware items for correct installation and adjustment after complete installation of door hardware.
2. Instruct Owner's personnel in the proper adjustment and maintenance of door hardware and hardware finishes.
3. File written report of this inspection to Architect.

HARDWARE SCHEDULE

Hardware Group No. 001A

For use on Door #(s):

3-2000	3-2004	3-2008	3-2012	3-2018	3-2022
3-2026	3-2030	3-2052	3-2056	3-2063	3-2067
3-2071					

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1HWSC 5		652	IVE
1	EA	PUSH/PULL LATCH	HL6 5" A		626	SCH
1	EA	WALL STOP	WS406CCV		630	IVE
3	EA	SILENCER	SR64		GRY	IVE

Hardware Group No. 001B

For use on Door #(s):

3-2002	3-2006	3-2010	3-2016	3-2020	3-2024
3-2028	3-2050	3-2054	3-2058	3-2065	3-2069
3-2073					

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1HWSC 5		652	IVE
1	EA	PUSH/PULL LATCH	HL6 5" A		626	SCH
1	EA	OH STOP	90S		652	GLY
1	EA	ROLLER BUMPER	RB471/RB472 AS REQ.		626	IVE
3	EA	SILENCER	SR64		GRY	IVE

Hardware Group No. 001E

For use on Door #(s):

3-2014	3-2060

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1HWSC 5		652	IVE
1	EA	PUSH/PULL LATCH	HL6 5" A		626	SCH
1	EA	SURFACE CLOSER	4050A RW/PA		689	LCN
1	EA	GASKETING	488SBR PSA		BR	ZER
1	EA	DOOR BOTTOM	369AA		AA	ZER

Hardware Group No. 002A

For use on Door #(s):
3-2001 3-2003 3-2072 3-2074

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5		652	IVE
1	EA	HOSPITAL PRIVACY	ND44S SPA		626	SCH
1	EA	OH STOP	90S		652	GLY
3	EA	SILENCER	SR64		GRY	IVE

Hardware Group No. 003A

For use on Door #(s):
1-1304 1-1305 2-2002 2-2003 2-2004 2-2005
2-2006 2-2007 2-2008 2-2009 3-2041 3-2121

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5		652	IVE
1	EA	ENTRANCE LOCK	ND53HD SPA		626	SCH
1	EA	SFIC EVEREST CORE	80-037		626	SCH
1	EA	WALL STOP	WS406CCV		630	IVE
3	EA	SILENCER	SR64		GRY	IVE

Hardware Group No. 003B

For use on Door #(s):
1-1311

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5		652	IVE
1	EA	ENTRANCE LOCK	ND53HD SPA		626	SCH
1	EA	SFIC EVEREST CORE	80-037		626	SCH
1	EA	SURFACE CLOSER	4050A RW/PA		689	LCN
1	EA	WALL STOP	WS406CCV		630	IVE
1	EA	GASKETING	488SBR PSA		BR	ZER

Hardware Group No. 004A

For use on Door #(s):
2-2010 2-2011A 2-2011B 3-2062

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5		652	IVE
1	EA	CLASSROOM LOCK	ND70HD SPA		626	SCH
1	EA	SFIC EVEREST CORE	80-037		626	SCH
1	EA	WALL STOP	WS406CCV		630	IVE
3	EA	SILENCER	SR64		GRY	IVE

Hardware Group No. 004C

For use on Door #(s):
2-2013 2-2014 2-2017

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5		652	IVE
1	EA	CLASSROOM LOCK	ND70HD SPA		626	SCH
1	EA	SFIC EVEREST CORE	80-037		626	SCH
1	EA	SURFACE CLOSER	4050A RW/PA		689	LCN
1	EA	WALL STOP	WS406CCV		630	IVE
3	EA	SILENCER	SR64		GRY	IVE

Hardware Group No. 004F

For use on Door #(s):
1-1309 1-1310

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1HW 5 X 4.5		652	IVE
1	EA	CLASSROOM LOCK	ND70HD SPA		626	SCH
1	EA	SFIC EVEREST CORE	80-037		626	SCH
1	EA	SURFACE CLOSER	4050A RW/PA		689	LCN
1	EA	KICK PLATE	8400 10" X 1" LDW B-CS		630	IVE
1	EA	ARMOR PLATE	8400 34" X 2" LDW B-CS		US32D	IVE
1	EA	WALL STOP	WS406CCV		630	IVE
3	EA	SILENCER	SR64		GRY	IVE
1	EA	GASKETING	488SBR PSA		BR	ZER

Hardware Group No. 005B

For use on Door #(s):
1-1314 2-2018 2-2019 3-2119 3-2120

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5		652	IVE
1	EA	PRIVACY LOCK W/ OUTSIDE INDICATOR	ND40S SPA OS-OCC		626	SCH
1	EA	SURFACE CLOSER	4050A RW/PA		689	LCN
1	EA	WALL STOP	WS406CCV		630	IVE
1	EA	GASKETING	488SBR PSA		BR	ZER

Hardware Group No. 006A

For use on Door #(s):
1-1313 3-2085A

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5		652	IVE
1	EA	STOREROOM LOCK	ND80HD SPA		626	SCH
1	EA	SFIC EVEREST CORE	80-037		626	SCH
1	EA	SURFACE CLOSER	4050A RW/PA		689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		630	IVE
1	EA	WALL STOP	WS406CCV		630	IVE
1	EA	GASKETING	488SBR PSA		BR	ZER
3	EA	SILENCER	SR64 AT NON-RATED		GRY	IVE

Hardware Group No. 007A

For use on Door #(s):
3-2040 3-2082

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5		652	IVE
1	EA	STOREROOM LOCK	ND80HD SPA		626	SCH
1	EA	SFIC EVEREST CORE	80-037		626	SCH
1	EA	SURFACE CLOSER	4050A RW/PA		689	LCN
1	EA	WALL STOP	WS406CCV		630	IVE
1	EA	GASKETING	488SBR PSA		BR	ZER
1	EA	DOOR BOTTOM	369AA		AA	ZER

Hardware Group No. 007A.1

For use on Door #(s):
3-2091

Provide each PR door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5		652	IVE
2	EA	CONST LATCHING BOLT	FB61T		630	IVE
1	EA	STOREROOM LOCK	ND80HD SPA		626	SCH
1	EA	SFIC EVEREST CORE	80-037		626	SCH
1	EA	COORDINATOR	COR X FL		628	IVE
2	EA	SURFACE CLOSER	4050A SCUSH		689	LCN
1	EA	WALL STOP	WS406CCV		630	IVE
1	EA	GASKETING	488SBR PSA		BR	ZER
1	EA	DOOR BOTTOM	369AA		AA	ZER

Hardware Group No. 008B

For use on Door #(s):
1-1306

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5		652	IVE
1	EA	PASSAGE SET	ND10S SPA		626	SCH
1	EA	SURFACE CLOSER	4050A RW/PA		689	LCN
1	EA	ARMOR PLATE	8400 34" X 1" LDW B-CS		630	IVE
1	EA	ARMOR PLATE	8400 36" X 2" LDW B-CS		630	IVE
1	EA	WALL STOP	WS406CCV		630	IVE
3	EA	SILENCER	SR64		GRY	IVE

Hardware Group No. 009A

For use on Door #(s):
1-1302 2-2016 2-2022 3-2034 3-2077 3-2118

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5		652	IVE
1	EA	STOREROOM LOCK	ND80HD SPA		626	SCH
1	EA	SFIC EVEREST CORE	80-037		626	SCH
1	EA	ELECTRIC STRIKE	6211 FSE	✓	630	VON
1	EA	SURFACE CLOSER	4050A RW/PA		689	LCN
1	EA	WALL STOP	WS406CCV		630	IVE
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS AS REQ		630	IVE
1	EA	GASKETING	488SBR PSA		BR	ZER
3	EA	SILENCER	SR64 @ NON-RTD		GRY	IVE
1	EA	MULTITECH READER	LNL-R11325-05TB - BY ACCESS CONTROL SYSTEM CONTRACTOR	✓		
1	EA	DOOR CONTACT	679-05HM		BLK	SCE
1	EA	POWER SUPPLY	BY SECURITY CONTRACTOR			

OPERATIONAL DESCRIPTION
PRESENTATION OF VALID CREDENTIAL UNLOCKS ELECTRIC STRIKE. ELECTRIC STRIKE RE-LOCKS AFTER PRESET INTERVAL. FREE EGRESS AT ALL TIMES. COORDINATE WITH ELECTRICAL, SECURITY AND FIRE LIFE SAFETY SYSTEMS

Hardware Group No. 009B

For use on Door #(s):

3-2035A	3-2035B	3-2036	3-2039B	3-2042	3-2081A
3-2081B	3-2083				

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1HW 5 X 4.5		652	IVE
1	EA	STOREROOM LOCK	ND80HD SPA		626	SCH
1	EA	SFIC EVEREST CORE	80-037		626	SCH
1	EA	ELECTRIC STRIKE	6211 FSE	✓	630	VON
1	EA	SURFACE CLOSER	4050A RW/PA		689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS AS REQ		630	IVE
1	EA	WALL STOP	WS406CCV		630	IVE
1	EA	GASKETING	488SBR PSA		BR	ZER
3	EA	SILENCER	SR64 @ NON-RTD		GRY	IVE
1	EA	MULTITECH READER	LNL-R11325-05TB - BY ACCESS CONTROL SYSTEM CONTRACTOR	✓		
1	EA	DOOR CONTACT	679-05HM		BLK	SCE
1	EA	POWER SUPPLY	BY SECURITY CONTRACTOR			

OPERATIONAL DESCRIPTION
PRESENTATION OF VALID CREDENTIAL UNLOCKS ELECTRIC STRIKE. ELECTRIC STRIKE RE-LOCKS AFTER PRESET INTERVAL. FREE EGRESS AT ALL TIMES. COORDINATE WITH ELECTRICAL, SECURITY AND FIRE LIFE SAFETY SYSTEMS

Hardware Group No. 009B.1

For use on Door #(s):
3-2039A 3-2078A 3-2078B

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1HW 5 X 4.5		652	IVE
1	EA	STOREROOM LOCK	ND80HD SPA		626	SCH
1	EA	SFIC EVEREST CORE	80-037		626	SCH
1	EA	ELECTRIC STRIKE	6211 FSE		630	VON
1	EA	OH STOP	90S		652	GLY
1	EA	SURFACE CLOSER	4050A RW/PA		689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS AS REQ		630	IVE
1	EA	WALL STOP	WS406CCV		630	IVE
1	EA	GASKETING	488SBR PSA		BR	ZER
3	EA	SILENCER	SR64 @ NON-RTD		GRY	IVE
1	EA	MULTITECH READER	LNL-R11325-05TB - BY ACCESS CONTROL SYSTEM CONTRACTOR			
1	EA	DOOR CONTACT	679-05HM		BLK	SCE
1	EA	POWER SUPPLY	BY SECURITY CONTRACTOR			

OPERATIONAL DESCRIPTION
PRESENTATION OF VALID CREDENTIAL UNLOCKS ELECTRIC STRIKE. ELECTRIC STRIKE RE-LOCKS AFTER PRESET INTERVAL. FREE EGRESS AT ALL TIMES. COORDINATE WITH ELECTRICAL, SECURITY AND FIRE LIFE SAFETY SYSTEMS

Hardware Group No. 010C

For use on Door #(s):
3-ST3 3-ST4

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1HW 5 X 4.5		652	IVE
1	EA	POWER TRANSFER	EPT10		689	VON
1	EA	DELAYED FIRE EXIT HARDWARE	CX98-L-F-M996-17-FS-SNB 24 VDC		626	VON
1	EA	SFIC MORT CYL W/ TEMP. CORE	80-132 BRN		626	SCH
1	EA	SFIC RIM CYL W/ TEMP. CORE	80-159 BRN		626	SCH
2	EA	SFIC EVEREST CORE	80-037		626	SCH
1	EA	SURFACE CLOSER	4050A RW/PA		689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		630	IVE
1	EA	FLOOR STOP	FS441		626	IVE
1	EA	GASKETING	488SBR PSA		BR	ZER
1	EA	MULTITECH READER	LNL-R11325-05TB - BY ACCESS CONTROL SYSTEM CONTRACTOR			
1	EA	DOOR CONTACT	679-05HM		BLK	SCE
1	EA	POWER SUPPLY	PS902 900-2RS		LGR	SCE

OPERATIONAL DESCRIPTION
PRESSURE ON EXIT DEVICE FOR 2 SECONDS INITIATES AN IREVERSIBLE COUNTDOWN DURING WHICH ALARM WILL SOUND. EXIT DEVICE WILL RELEASE AFTER DELAY INTERVAL FOR EGRESS. PRESENTATION OF VALID CREDENTIAL FROM EITHER SIDE OF DOOR OR LIFE SAFETY ALARM CONDITION TEMPOARILY SHUNTS DELAYED EGRESS SYSTEM. AFTER PRESET INTERVAL. SYSTEM WILL RE-ARM. COORDINATE WITH ELECTRICAL, SECURITY AND FIRE LIFE SAFETY SYSTEMS

Hardware Group No. 011C

For use on Door #(s):
3-2043 3-COR6A 3-COR6B 3-COR7

Provide each DE door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
6	EA	HINGE	5BB1HW 5 X 4.5		630	IVE
2	EA	FIRE EXIT HARDWARE	9827-EO-F-LBR-499F-SNB		626	VON
2	EA	SURFACE CLOSER	4050A EDA		689	LCN
2	EA	KICK PLATE	8400 10" X 1" LDW B-CS		630	IVE
2	EA	WALL STOP	WS406CCV		630	IVE
1	EA	GASKETING	488SBR PSA		BR	ZER
2	EA	MEETING STILE	8194AA		AA	ZER

Hardware Group No. 014B

For use on Door #(s):
2-2020

Provide each PR door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
2	EA	CONT. HINGE	224XY EPT		628	IVE
2	EA	POWER TRANSFER	EPT10		689	VON
1	EA	ELEC FIRE EXIT HARDWARE	RX-QEL-9827-EO-F-LBR-499F-SNB 24 VDC		626	VON
1	EA	ELEC FIRE EXIT HARDWARE	RX-QEL-9827-L-F-LBR-17-499F-SNB 24 VDC		626	VON
1	EA	SFIC RIM CYL W/ TEMP. CORE	80-159 BRN		626	SCH
1	EA	SFIC EVEREST CORE	80-037		626	SCH
2	EA	SURFACE CLOSER	4050A RW/PA		689	LCN
2	EA	KICK PLATE	8400 10" X 1" LDW B-CS		630	IVE
2	EA	WALL STOP	WS406/407CCV		630	IVE
1	EA	GASKETING	488SBR PSA		BR	ZER
2	EA	MEETING STILE	8194AA		AA	ZER
1	EA	MULTITECH READER	LNL-R11325-05TB - BY ACCESS CONTROL SYSTEM CONTRACTOR			
1	EA	POWER SUPPLY	PS902 BBK 900-4RL-FA 120/240 VAC		LGR	SCE

OPERATIONAL DESCRIPTION
PRESENTATION OF VALID CREDENTIAL OR PRESSING ACTUATOR RELEASES LATCHBOLT ON EXIT DEVICES AND ENGAGES AUTOMATIC OPERATOR. DOORS CLOSE AND EXITS RELATCH AFTER PRESET INTERVAL. COORDINATE WITH FIRE AND LIFE SAFETY

Hardware Group No. 14

For use on Door #(s):

2-2012A	2-2012B	2-2015A	2-2015B	3-2038A	3-2038B
3-2079	3-2080				

Provide each CO door(s) with the following:

QTY	DESCRIPTION	CATALOG NUMBER	FINISH	MFR

CASED OPENING - NO HARDWARE REQUIRED

Hardware Group No. 101B

For use on Door #(s):
1-1303 4-ST3 4-ST4

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1HW 4.5 X 4.5 NRP		630	IVE
1	EA	STOREROOM W/DEADBOLT	L9480T 17A L583-363		630	SCH
1	EA	SFIC EVEREST CORE	80-037		626	SCH
1	EA	SURFACE CLOSER	4050A SCUSH		689	LCN
1	EA	CUSH SHOE SUPPORT	4050A-30		689	LCN
1	EA	RAIN DRIP	142AA		AA	ZER
1	EA	GASKETING	312A-S		A	ZER
1	EA	DOOR SWEEP	39A		A	ZER
1	EA	THRESHOLD	65A-223		A	ZER

NOTE: REVISE FUNCTION AS NEED FOR DOOR LOCATION.

Hardware Group No. 105A.1

For use on Door #(s):
1-1300B

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
1	EA	CONT. HINGE	112XY		628	IVE
1	EA	PANIC HARDWARE	35A-NL-OP-388		626	VON
1	EA	RIM CYLINDER	20-057 ICX		626	SCH
1	EA	SFIC EVEREST CORE	80-037		626	SCH
1	EA	90 DEG OFFSET PULL	8190HD 10" O		630	IVE
1	EA	SURFACE CLOSER	4050A SCUSH X PLATE AS REQ		689	LCN
1	EA	CUSH SHOE SUPPORT	4050A-30		689	LCN
1	EA	BLADE STOP SPACER	4050A-61		689	LCN
1	EA	SEAL	BY ALUM DR MFG			
1	EA	DOOR SWEEP	BY ALUM DR MFG			
1	EA	THRESHOLD	65A-223		A	ZER
1	EA	DOOR CONTACT	679-05HM		BLK	SCE

OPERATIONAL DESCRIPTION
PRESENTATION OF VALID CREDENTIAL RELEASED EXIT DEVICES. DOORS CLOSE AND EXITS RE-LOCKS AFTER PRESET INTERVAL

~~Hardware Group No. 107A.1~~

~~For use on Door #(s):~~
~~1-1300~~

~~Provide each PR door(s) with the following:~~

~~QTY~~		~~DESCRIPTION~~	~~CATALOG NUMBER~~		~~FINISH~~	~~MFR~~
~~2~~	~~EA~~	~~CONT. HINGE~~	~~112XY~~		~~628~~	~~IVE~~
~~1~~	~~EA~~	~~PANIC HARDWARE~~	~~3549A-EO~~		~~626~~	~~VON~~
~~1~~	~~EA~~	~~PANIC HARDWARE~~	~~3549A-NL-OP-388~~		~~626~~	~~VON~~
~~1~~	~~EA~~	~~RIM CYLINDER~~	~~20-057 ICX~~		~~626~~	~~SCH~~
~~1~~	~~EA~~	~~SFIC EVEREST CORE~~	~~80-037~~		~~626~~	~~SCH~~
~~2~~	~~EA~~	~~90 DEG OFFSET PULL~~	~~8190HD 10" O~~		~~630~~	~~IVE~~
~~2~~	~~EA~~	~~SURFACE CLOSER~~	~~4050A SCUSH X PLATE AS REQ~~		~~689~~	~~LCN~~
~~2~~	~~EA~~	~~CUSH SHOE SUPPORT~~	~~4050A-30~~		~~689~~	~~LCN~~
~~2~~	~~EA~~	~~BLADE STOP SPACER~~	~~4050A-61~~		~~689~~	~~LCN~~
~~1~~	~~EA~~	~~SEAL~~	~~BY ALUM DR MFG~~			
~~2~~	~~EA~~	~~DOOR SWEEP~~	~~BY ALUM DR MFG~~			
~~1~~	~~EA~~	~~THRESHOLD~~	~~65A-223~~		~~A~~	~~ZER~~
~~2~~	~~EA~~	~~DOOR CONTACT~~	~~679-05HM~~		~~BLK~~	~~SCE~~

~~OPERATIONAL DESCRIPTION~~
~~PRESENTATION OF VALID CREDENTIAL RELEASES EXIT DEVICES. DOORS CLOSE AND EXITS RE-LOCKS AFTER PRESET INTERVAL~~

Hardware Group No. 013A - PAIR SWING LOBBY/DINING ENTRY

For use on Door #(s):
1-1300

Provide each PR door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
6	EA	HINGE	5BB1HW 4.5 X 4.5		652	IVE
1	EA	FIRE EXIT HARDWARE	9827-EO-F-LBR-499F-SNB		626	VON
2	EA	FIRE EXIT HARDWARE	9827-L-F-LBR-17-499F-SNB		626	VON
1	EA	SFIC RIM CYL W/ TEMP. CORE	80-159 BRN		626	SCH
1	EA	SFIC EVEREST CORE	80-037		626	SCH
2	EA	SURFACE CLOSER	4050A SCUSH		689	LCN
2	EA	KICK PLATE	8400 10" X 1" LDW B-CS		630	IVE
1	EA	GASKETING	488SBR PSA		BR	ZER
2	EA	MEETING STILE	8194AA		AA	ZER

Hardware Group No. EX11

For use on Door #(s):
1-1703A

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
1	EA	ELECTRIC STRIKE	6211 FSE CON 12/16/24/28 VAC/VDC		630	VON
1	EA	SURF. AUTO OPERATOR	9531 MS AS REQ (120/240 VAC)		ANCL R	LCN
1	EA	WALL MOUNT ACTUATOR	8310-856T		630	LCN
1	EA	WIRE HARNESS	CON-50P (EL STK TO OPERATOR)			SCH
1	EA	MULTI-TECH READER	BY ACCESS CONTROL CONTRACTOR			
1	EA	ELEVATION DRAWING	BY HARDWARE SUPPLIER			
1	EA	POINT-TO-POINT WIRING DIAGRAM	BY ACCESS CONTROL INSTALLER			

NOTE 1: EXISTING HINGES, LOCK AND KICK PLATE TO REMAIN.
NOTE 2: POWER FOR ELECTRIC STRIKE BY AUTO OPERATOR.

ELECTRICAL OPERATION DESCRIPTION:
DOOR NORMALLY CLOSED AND LOCKED. PRESENTING VALID CREDENTIAL TO READER ACTIVATES AUTO OPERATOR TO FIRST RELEASE THE ELECTRIC STRIKE AND THEN HAVE THE AUTO OPERATOR OPEN THE DOOR. INTERIOR PUSH PLATE CAUSES SAME SEQUENCE TO OPEN DOOR. IN THE EVENT OF A POWER OUTAGE A KEY MUST BE USED TO OPEN THE DOOR AND THE AUTO OPERATOR ACTS AS A NORMAL DOOR CLOSER. FREE EGRESS AT ALL TIMES.

Hardware Group No. EX34

For use on Door #(s):
UN-
NUMBERED

Provide each DE door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
2	EA	WALL MAGNET	SEM7840 AS REQ (EXTENSIONS AS REQUIRED)		689	LCN

NOTE 1: ALL EXISTING HARDWARE TO REMIAN AND BE RE-USED.
NOTE 2: WALL MAGENETS POWERED BY FIRE ALARM SYSTEM

ELECTRICAL OPERATION DESCRIPTION:
DOORS NORMALLY HELD OPEN BY WALL MAGNETS. IN THE EVENT OF A FIRE THE MAGNETS ARE RELEASED ALLOWING THE DOORS TO CLOSE AND LATCH. IN THE EVENT OF A POWER LOSS THE DOORS CLOSE AND LATCH. DOORS MUST BE MANUALLY RE-OPENED TO THE THE HOLD-OPEN POSITION. FREE EGRESS IN BOTH DIRECTIONS AT ALL TIMES.

END OF SECTION

SECTION 092116
GYPSUM BOARD SHAFT WALL ASSEMBLIES [HCA]

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Gypsum board shaft wall assemblies.

B. Related Requirements:

1. Section 07840013 "~~Penetration~~ Firestopping" for penetrations of fire rated walls.
2. Section 092216 "Non-Structural Metal Framing" for non-structural framing and suspension systems that support gypsum board panels.

1.2 ACTION SUBMITTALS

A. Coordination: Submit related product data / shop drawings, specified in another Section simultaneously for approval.

1. Gypsum board product data for gypsum board to be used as part of non-structural metal framing.
2. Non-structural metal framing product data for walls related to shaft wall assemblies.

B. Product Data: Furnish a material list with technical data documenting the location and primary function, quality, and performance of each material component or system to be used in the Work, or other such primary characteristics as required by the Drawings or Specifications.

1.3 INFORMATIONAL SUBMITTALS

A. Span and Deflection Design Criteria: Provide height to load deflection charts showing studs supplied conform to deflection limit scheduled and allowed per ASTM C 754.

1. Mark on chart(s) showing major partitions scheduled conformance with criteria.
2. Submit manufacturer's certification of stud size, thickness, and spacing complying with performance requirements and selections made by architect are correct for application shown.

B. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design shaft wall framing.

C. Evaluation Reports: For shaft wall assemblies and firestop tracks, from ICC-ES.

1.4 QUALITY ASSURANCE

A. Fire-Resistance-Rated Assemblies: Provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing and inspecting agency acceptable to authorities having jurisdiction.

1. Fire-Resistance-Rated Assemblies: Indicated by design designations from GA-600, "Fire Resistance Design Manual."

B. STC-Rated Assemblies: For gypsum board shaft-wall assemblies indicated to have STC ratings, provide assembly materials and construction complying with requirements of assemblies whose STC ratings were determined according to ASTM E 90 and classified according to ASTM E 413 by a qualified independent testing agency.

C. Pre-installation Conference: Conduct conference at Project site to comply with requirements of Section 013100 "Project Management and Coordination." Review methods and procedures for installing work related to gypsum board shaft-wall assemblies including, but not limited to, the following:

1. Fasteners proposed for anchoring steel framing to building structure.
2. Sprayed fire-resistive materials applied to structural framing.
3. Elevator equipment, including hoistway doors, elevator call buttons, and elevator floor indicators.
4. Wiring devices in shaft-wall assemblies.
5. Doors and other items penetrating shaft-wall assemblies.
6. Items supported by shaft-wall-assembly framing.
7. Mechanical work enclosed within shaft-wall assemblies.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Store materials inside under cover and keep them dry and protected against weather, condensation, direct sunlight, construction traffic, and other potential causes of damage. Stack panels flat and supported on risers on a flat platform to prevent sagging.

1.6 FIELD CONDITIONS

A. Environmental Limitations: Comply with ASTM C 840 requirements or with 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, moisture damaged, or mold damaged.

1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, and 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 PERFORMANCE REQUIREMENTS

A. Structural Performance:

1. Provide gypsum board shaft-wall assemblies capable of withstanding the full air-pressure loads indicated for maximum heights of partitions without failing and while maintaining an airtight and smoke-tight seal. 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.
2. Shaft Wall Deflection Limits per ASTM C 754:

    a. Intermittent Air Pressure (Elevators): Withstands minimum of 7.5 lbf/sq.ft. (36 Pa) lateral load.
    b. Constant Air Pressure (HVAC Shafts): Withstands minimum of 5 lbf/sq.ft. (24 Pa) lateral load.
    c. Deflection of Wall Assemblies:

        1) Typical Finishes: L/240.
        2) Tile, Plaster, Stone or Similar Finishes: L/360.

    d. Where partition heights exceed stud manufacturer's recommended spans, and to resist deflection limits or seismic forces, provide one of the following:

        1) Heavier stud gage.
        2) Closer stud spacing.
        3) Deeper stud size (space permitting, as determined by Architect).
        4) Above-ceiling bracing, anchored to structure above

B. Fire-Resistance-Rated Assemblies: For fire-resistance-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing agency.

C. STC-Rated Assemblies: Provide materials and construction identical to those of assemblies tested according to ASTM E 90 and classified according to ASTM E 413 by a testing and inspecting agency.

2.2 GYPSUM BOARD SHAFT WALL ASSEMBLIES

A. Fire-Resistance Rating: As indicated.

B. STC Rating: As indicated.

C. Gypsum Shaftliner Board:
1. Moisture- and Mold-Resistant Type X: ASTM C 1396/C 1396M; manufacturer's proprietary fire-resistive liner panels with ASTM D 3273 mold-resistance score of 10 as rated according to ASTM D 3274, 1 inch (25.4 mm) thick, and with double beveled long edges.
    a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1) CertainTeed Corp.; ProRoc Moisture and Mold Resistant Shaftliner.
2) Georgia-Pacific Gypsum LLC, Subsidiary of Georgia Pacific; Dens-Glass Ultra Shaftliner.
3) National Gypsum Company; Gold Bond Brand Fire-Shield Shaftliner XP.
4) USG Corporation; Sheetrock Brand Mold Tough Gypsum Liner Panel (EcoSmart version is acceptable).

D. Non-Load-Bearing Steel Framing, General: Complying with ASTM C 645 requirements for metal unless otherwise indicated and complying with requirements for fire-resistance-rated assembly indicated.
1. Protective Coating: Coating with equivalent corrosion resistance of ASTM A 653/A 653M, G40 (Z120) unless otherwise indicated.

E. Studs: Manufacturer's standard profile for repetitive members, corner and end members, and fire-resistance-rated assembly indicated.

1. Depth: 2-1/2 inchesor required to comply with span and deflection design criteria.
2. Minimum Base Metal Thickness: 0.018 inches (0.45 mm) unless otherwise indicated or required to comply with span and deflection design criteria, before application of protective coating.

F. Runner Tracks: Manufacturer's standard J-profile track with manufacturer's standard long-leg length, but at least 2 inches long and matching studs in depth.

1. Minimum Base-Metal Thickness: 0.018 inch.

G. Firestop Tracks: Provide firestop track at head of shaft wall on each floor level.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
a. Fire Trak Corp.; Fire Trak System attached to studs with Fire Trak Posi Klip.
b. Steel Network, Inc. (The); VertiClip SLD or VertiTrack VTD Series.
c. Substitutions: Comparable product from another steel framing manufacturer, provided track system has been tested as part of an assembly according to ASTM E 119 by an independent testing and inspecting agency acceptable to authorities having jurisdiction.
2. Single Deep-Leg Track (slotted or unslotted): Not permitted.

H. Elevator Hoistway Entrances: Manufacturer's standard J-profile jamb strut with long-leg length of 3 inches (76 mm), matching studs in depth, and not less than 0.033 inch (0.84 mm) thick.

I. Finish Panels: **Gypsum board as specified in Section 09 29 00 "Gypsum Board."**

J. Sound Attenuation Blankets: As specified in **Section 09 29 00 "Gypsum Board."**

K. Shaft-Side Finish: Gypsum shaftliner board, moisture- and mold-resistant Type X and as indicated by fire-resistance-rated assembly design designation.

2.3 PANEL PRODUCTS

A. Panel Size: Provide in maximum lengths and widths available that will minimize joints in each area and that correspond with support system indicated.

B. Gypsum Shaftliner Board, Moisture- and Mold-Resistant Type X: ASTM C 1396/C 1396M; manufacturer's proprietary fire-resistive liner panels with moisture- and mold-resistant core and surfaces.

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

a. USG Corporation; Sheetrock Brand Mold Tough Gypsum Liner Panel.

b. Georgia Pacific.

2. Thickness: 1 inch (25.4 mm).
3. Long Edges: Double bevel.
4. Mold Resistance: ASTM D 3273, score of 10 as rated according to ASTM D 3274.

C. Gypsum Board: As specified in Section 092900 "Gypsum Board."

D. Gypsum Base for Gypsum Veneer Plaster: As specified in Section 092613 "Gypsum Veneer Plastering."

E. Substitutions: Refer to the Owner's Preferred Vendor List in Document 002150 for other acceptable manufacturers.

2.4 NON-LOAD-BEARING STEEL FRAMING

A. Steel Framing Members: Comply with ASTM C 645 requirements for metal unless otherwise indicated.

1. Protective Coating: ASTM A 653/A 653M, G60, hot-dip galvanized unless otherwise indicated.

B. 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, provide one of the following:

a. Fire Trak Corp.; Fire Trak System attached to studs with Fire Trak Posi Klip.
b. Steel Network Inc. (The); VertiClip SLD or VertiTrack VTD Series.
c. Substitutions: Comparable product from another steel framing manufacturer listed, provided track system has been tested as part of an assembly according to ASTM E 119 by an independent testing and inspecting agency acceptable to authorities having jurisdiction.

2. Single Deep-Leg Track: Not permitted.

2.5 AUXILIARY MATERIALS

A. General: Provide auxiliary materials that comply with manufacturer's written recommendations.

B. Trim Accessories: Cornerbead, edge trim, and control joints of material and shapes as specified in Section 092900 "Gypsum Board" that comply with gypsum board shaft wall assembly manufacturer's written recommendations for application indicated.

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 according to 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 according to ASTM E 1190 conducted by a qualified testing agency.

E. Sound Attenuation Blankets: As specified in Section 092900 "Gypsum Board."

F. Acoustical Sealant: As specified in Section 092900 "Gypsum Board."

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates to which gypsum board shaft wall assemblies attach or abut, with Installer present, including hollow-metal frames, elevator hoistway door frames, cast-in anchors, and structural framing. Examine for compliance with requirements for installation tolerances and other conditions affecting performance.

B. Examine panels before installation. Reject panels that are wet, moisture damaged, or mold damaged.

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

3.2 PREPARATION

A. Sprayed Fire-Resistive Materials: Coordinate with gypsum board shaft wall assemblies so both elements of Work remain complete and undamaged. Patch or replace sprayed fire-resistive materials removed or damaged during installation of shaft wall assemblies to comply with requirements specified in Section 078100 "Applied Fireproofing."

B. After sprayed fire-resistive materials are applied, remove only to extent necessary for installation of gypsum board shaft wall assemblies and without reducing the fire-resistive material thickness below that which is required to obtain fire-resistance rating indicated. Protect remaining fire-resistive materials from damage.

3.3 INSTALLATION

A. General: Install gypsum board shaft wall assemblies to comply with requirements of fire-resistance-rated assemblies indicated, manufacturer's written installation instructions, and ASTM C 754 other than stud-spacing requirements.

1. Provide stud spacing as follows:

a. 16 inches o.c., unless otherwise indicated or required to comply with span and deflection design criteria.

B. Do not bridge building expansion joints with shaft wall assemblies; frame both sides of expansion joints with furring and other support.

C. Install supplementary framing in gypsum board shaft wall assemblies around openings and as required for blocking, bracing, and support of gravity and pullout loads of fixtures, equipment, services, heavy trim, furnishings, wall-mounted door stops, and similar items that cannot be supported directly by shaft wall assembly framing.

1. Elevator Hoistway: At elevator hoistway-entrance door frames, provide jamb struts on each side of door frame.
2. Reinforcing: Where handrails directly attach to gypsum board shaft wall assemblies, provide galvanized steel reinforcing strip with 0.033-inch minimum thickness of base metal (uncoated), accurately positioned and secured behind at least one layer of face panel.

D. Penetrations: At penetrations in shaft wall, maintain fire-resistance rating of shaft wall assembly by installing supplementary steel framing around perimeter of penetration and fire protection behind boxes containing wiring devices, elevator call buttons, elevator floor indicators, and similar items.

E. Isolate perimeter of gypsum panels from building structure to prevent cracking of panels, while maintaining continuity of fire-rated construction.

F. Firestop Tracks: Where indicated, install to maintain continuity of fire-resistance-rated assembly indicated.

G. Control Joints: Install control joints according to ASTM C 840 and in specific locations approved by Architect while maintaining fire-resistance rating of gypsum board shaft wall assemblies.

H. Sound-Rated Shaft Wall Assemblies: Seal gypsum board shaft walls with acoustical sealant at perimeter of each assembly where it abuts other work and at joints and penetrations within each assembly.

I. Cant Panels: At projections into shaft exceeding 4 inches, install 1/2- or 5/8-inch-thick gypsum board cants covering tops of projections.

1. Slope cant panels at least 75 degrees from horizontal. Set base edge of panels in adhesive and secure top edges to shaft walls at 24 inches o.c. with screws fastened to shaft wall framing.

2. Where steel framing is required to support gypsum board cants, install framing at 24 inches o.c. and extend studs from the projection to shaft wall framing.

J. 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 PARTITION IDENTIFICATION

A. At fire-rated wall and smoke partition assemblies, provide an identification of the wall rating in 4-inch high stenciled block letters in red paint. Space identifications 12'-0" on center maximum, 4'-0" from corners maximum, above the ceiling. Provide identification on both sides of wall.

B. Partition Identification Text: Apply the following, as applicable:

1. 1-HOUR FIRE BARRIER – PROTECT ALL OPENINGS (Noted on Drawings as '1FB').
2. 2-HOUR FIRE BARRIER – PROTECT ALL OPENINGS (Noted on Drawings as '2FBS').

C. Refer to Section 099100 "Painting." Use Semi-Gloss, Low Odor paint.

3.5 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, or mold damaged.

1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, and 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

SECTION 09 54 23

LINEAR METAL CEILINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Section Includes

Drawings and general conditions of Contract, including General and Supplementary Conditions and Divisions-1 Specification sections apply to work of this section.

1.2 SUMMARY

A. Section Includes

1. Acoustical metal ceiling panels
2. Exposed grid suspension system
3. Wire hangers, fasteners, main runners, cross tees, and wall angle moldings
4. Perimeter Trim

B. Related Sections:

1. Divisions 23 - HVAC Air Distribution
2. Division 26 - Electrical

C. Alternates

1. Prior Approval: Unless otherwise provided for in the Contract documents, proposed product substitutions may be submitted no later than TEN (10) working days prior to the date established for receipt of bids. Acceptability of a proposed substitution is contingent upon the Architect's review of the proposal for acceptability and approved products will be set forth by the Addenda. If included in a Bid are substitute products that have not been approved by Addenda, the specified products shall be provided without additional compensation.

2. Submittals that do not provide adequate data for the product evaluation will not be considered. The proposed substitution must meet all requirements of this section, including but not necessarily limited to, the following: Single source materials suppliers (if specified in Section 1.5); Underwriters' Laboratories Classified Acoustical performance; Panel design, size, composition, color, and finish; Suspension system component profiles and sizes; Compliance with the referenced standards.

1.3 REFERENCES

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

1. ASTM A 1008 Standard Specification for Steel, Sheet, Cold Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability

2. ASTM A 641 Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire

3. ASTM A 653 Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process

4. ASTM C 423 Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method

5. ASTM C 635 Standard Specification for Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings

6. ASTM C 636 Recommended Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels

7. ASTM D 3273 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber

8. ASTM E 84 Standard Test Method for Surface Burning Characteristics of Building Materials

9. ASTM E 580 Installation of Metal Suspension Systems in Areas Requiring Moderate Seismic Restraint

10. ASTM E 1111 Standard Test Method for Measuring the Interzone Attenuation of Ceilings Systems

11. ASTM E 1414 Standard Test Method for Airborne Sound Attenuation Between Rooms Sharing a Common Ceiling Plenum

12. ASTM E 1264 Classification for Acoustical Ceiling Products

B. International Building Code

C. ASHRAE Standard 62 1 2004 Ventilation for Acceptable Indoor Air Quality

D. NFPA 70 National Electrical Code

E. ASCE 7 American Society of Civil Engineers, Minimum Design Loads for Buildings and Other Structures

F. International Code Council-Evaluation Services - AC 156 Acceptance Criteria for Seismic Qualification Testing of Non-structural Components

G. International Code Council-Evaluation Services Report - Seismic Engineer Report

1. ESR 1308 - Armstrong Suspension Systems

H. LEED - Leadership in Energy and Environmental Design is a set of rating systems for the design, construction, operation, and maintenance of green buildings.

1.4 SYSTEM DESCRIPTION

Continuous/Wall-to-Wall

1.5 SUBMITTALS

A. Product Data: Submit manufacturer's technical data for each type of acoustical ceiling unit and suspension system required.

B. Samples: Minimum 6-inch x 6-inch samples of specified acoustical panel; 8-inch-long samples of exposed wall molding and suspension system, including main runner and 4-foot cross tees.

C. Shop Drawings: Layout and details of acoustical ceilings show locations of items that are to be coordinated with or supported by the ceilings.

D. Certifications: Manufacturer's certifications that products comply with specified requirements, including laboratory reports showing compliance with specified tests and standards. For acoustical performance, each carton of material must carry an approved independent laboratory classification of NRC, CAC, and AC.

E. If the material supplied by the acoustical subcontractor does not have an Underwriter's Laboratory classification of acoustical performance on every carton, subcontractor shall be required to send material from every production run appearing on the job to an independent or NVLAP approved laboratory for testing, at the architect's or owner's discretion. All products not conforming to manufacturer's current published values must be removed, disposed of, and replaced with complying product at the expense of the Contractor performing the work.

1.6 QUALITY ASSURANCE

A. Single-Source Responsibility: Provide acoustical panel units and grid components by a single manufacturer.

B. Fire Performance Characteristics: Identify acoustical ceiling components with appropriate markings of applicable testing and inspecting organization.

a. Surface Burning Characteristics: ASTM E 84 and complying with ASTM E 1264 Classification.

C. Acoustic Panels: As with other architectural features located at the ceiling, may obstruct, or skew the planned fire sprinkler water distribution pattern through possibly delay or accelerate the activation of the sprinkler or fire detection systems by channeling heat from a fire either toward or away from the device. Designers and installers are advised to consult a fire protection engineer, NFPA 13, or their local codes for guidance where automatic fire detection and suppression systems are present.

D. Coordination of Work: Coordinate acoustical ceiling work with installers of related work including, but not limited to building insulation, gypsum board, light fixtures, mechanical systems, electrical systems, and sprinklers.

1.7 DELIVERY, STORAGE AND HANDLING

A. Deliver acoustical ceiling units to project site in original, unopened packages and store them in a fully enclosed space where they will be protected against damage from moisture, direct sunlight, surface contamination, and other causes.

B. Before installing acoustical ceiling units, permit them to reach room temperature and a stabilized moisture content.

C. Handle acoustical ceiling units carefully to avoid chipping edges or damaged units in any way.

1.8 PROJECT CONDITIONS

A. Space Enclosure:

Standard Ceilings: Do not install interior ceilings until space is enclosed and weatherproof; wet work in place is completed and nominally dry; work above ceilings is complete; and ambient conditions of temperature and humidity are continuously maintained at values near those intended for final occupancy. Building areas to receive ceilings shall be free of construction dust and debris.

1.9 LEED

A. Armstrong Metal Ceilings qualify for the following credits:

a. Category - Material & Resources

i. MR Credit 2.1, 2.2 - Construction Waste Management Divert 50% or 75% from disposal

ii. MR Credit 4.1, 4.2 - Recycled Content

iii. MR Credit 5.1, 5.2 - Regional Materials (dependent on location)

LEED NC - 10% Extracted, Processed & Manufactured Regionally

LEED CI - 20% Manufactured Regionally

b. Category - Indoor Environmental Quality

i. EQ Credit 4.1 to 4.6 - Low-Emitting Materials

c. Category - Innovation and Design Process

i. ID Credit - Acoustic Performance

1.10 WARRANTY

A. Acoustical Panel: Submit a written warranty executed by the manufacturer, agreeing to repair or replace panels that fail within the warranty period. Failures include, but are not limited to the following:

1. Acoustical Panels: Sagging and warping

2. Grid System: Rusting and manufacturer's defects.

B. Warranty Period:

1. Acoustical Metal panels: One (1) year from date of substantial completion

2. Grid: One (1) year from date of substantial completion

C. The Warranty shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and will be in addition to and run concurrent with other warranties made by the Contractor under the requirements of the Contract Documents.

1.11 MAINTENANCE

A. Extra Materials: Deliver extra materials to Owner. Furnish extra materials described below that match products installed. Packaged with protective covering for storage and identified with appropriate labels.

1. Acoustical Metal Ceiling Units: Furnish quality of full-size units equal to 5.0 percent of amount installed.

2. Exposed Suspension System Components: Furnish quantity of each exposed suspension component equal to 2.0 percent of amount installed.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

A. Metal Ceiling Panels:

1. Armstrong World Industries, Inc.

B. Suspension Systems:

1. Armstrong World Industries, Inc.

2.2.1 ACOUSTICAL CEILING UNITS

A. Acoustical Panels Type ~~AMP~~ACT5

1. Acoustical Panels Type ~~AMP-1~~ACT5:

a. Surface Texture: Smooth

b. Composition: Electrogalvanized Steel 0.028”

c. Color: Cocoa Bean FXCB

d. Size: 10IN x 96IN

e. Edge Profile: Linear

f. Perforation Option: Unperforated-M1

g. Noise Reduction Coefficient(NRC): 0.70

h. Ceiling Attenuation Class (CAC) : N/A

i. Sabin: N/A

j. Articulation Class (AC): N/A

k. Flame Spread: ASTM E 1264; Class A (FM)

l. Light Reflectance White Panel: 0.83

m. Dimensional Stability: Standard

n. Acceptable Product: Armstrong MetalWorks Linear -Classics, 8122 FXCB as manufactured by Armstrong World Industries

2. Panel Accessories: GC to verify required panel accessories needed for specified product type. Refer to interior drawings for additional information.

1. 8138___ 2IN End Cap
2. 5581___ 4IN End Cap
3. 7162___ 6IN End Cap
4. 5582___8IN End Cap
5. 8139___10IN End Cap
6. 5583___12IN End Cap
7. 8159– 2IN Panel Splice
8. 5495 – 4IN Panel Splice
9. 7163 – 6IN Panel Splice
10. 5496 – 8IN Panel Splice
11. 7177 - Main Beam Carrier Assembly – G90 Mill Finish
12. XL8945P - 4' Drywall Cross Tee
13. XL8945G90 - FrameAll™ 4' Drywall Cross Tee
14. XL7936G90 - 3' Drywall Cross Tee
15. XL8926G90 - 2' Drywall Cross Tee
16. 8161 - Pressure Spring
17. BERC2 - Beam End Retaining Clip
18. 5574____ - Carrier Molding
19. 7800____ - Hemmed Angle Molding
20. HD7801G90 __ - 10' Hemmed Angle Molding
21. 7237 – Cut Plank Support Bracket
22. 5494 – Contrast Filler Strip

PART 3 - EXECUTION

3.1 EXAMINATION

A. Do not proceed with installation until all wet work such as concrete, terrazzo, plastering and painting has been completed and thoroughly dried out, unless expressly permitted by manufacturer's printed recommendations. (Exception: HumiGuard Max Ceilings)

3.2 PREPARATION

A. Measure each ceiling area and establish layout of acoustical units to balance border widths at opposite edges of each ceiling. Avoid use of less than half width units at borders and comply with reflected ceiling plans. Coordinate panel layout with mechanical and electrical fixtures.

3.3 INSTALLATION

A. Follow manufacturer installation instructions

B. Install suspension system and panels in accordance with the manufacturer's instructions BPLA-297437, and in compliance with ASTM C636 and with the authorities having jurisdiction.

C. Panels with certain product finishes or characteristics, e.g., Sequels™ are part of our MetalWorks™ FASTPeel ™ Panel which come standard with our easier-to-remove protective film

3.4 ADJUSTING AND CLEANING

A. Replace damaged and broken panels.

B. Clean exposed surfaces of ceilings panels, including trim, edge moldings, and suspension members. Comply with manufacturer's instructions for cleaning and touch up of minor finish damage. Remove and replace work that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

SECTION 096513
RESILIENT BASE AND ACCESSORIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. Resilient base
2. Resilient stair accessories
3. Resilient molding accessories
4. Adhesive and related accessories

B. Related Sections:

1. Division 07 Section “Joint Sealants” for single-component and multi-component elastomeric, latex, silicone, urethane and other joint sealants.
2. Division 09 Section "Resilient Sheet Flooring" for resilient sheet floor coverings.
3. ~~Division 09 Section "Linoleum Flooring" for linoleum floor coverings.~~
4. 3. Division 09 Section "Resilient Tile Flooring" for resilient floor tile.
5. ~~Division 09 Section "Static-Control Resilient Flooring" for resilient floor coverings designed to control electrostatic discharge.~~
6. ~~Division 09 Section "Resilient Athletic Flooring" for resilient floor coverings for use in athletic-activity or support areas.~~

1.3 ACTION SUBMITTALS

A. Submit items in accordance with Division 01 Section “Submittal Procedures.”

B. Product Data: For each type of product indicated, submit two (2) copies of manufacturers’ product data, installation instructions, and accessories specified and/or required by manufacturer.

C. Samples for Verification: Submit two (2) samples for each type of product indicated in manufacturer's standard-size, but not less than 12 inches long, of each resilient product color, texture, and pattern required.

D. Product Schedule: See Finish Materials Listing in Finish Drawings.

1.4 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials/attic stock that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Furnish not less than 10 linear feet for every 500 linear feet or fraction thereof, of each type, color, pattern, and size of resilient product installed.

1.5 QUALITY ASSURANCE

A. Fire-Test-Response Characteristics: As determined by testing identical products according to ASTM E 648 or NFPA 253 by a qualified testing agency.

1. Critical Radiant Flux Classification: Class I, not less than 0.45 W/sq. cm.

B. Mockups: Provide resilient products with mockups specified in other Sections.

C. Concrete Sealer Installer Qualifications: Installer trained and certified by sealer manufacturer.

1.6 DELIVERY, STORAGE, AND HANDLING

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

1.7 PROJECT CONDITIONS

A. Maintain ambient temperatures within range recommended by manufacturer, but not less than 70 deg F or more than 95 deg F, in spaces to receive resilient products during the following time periods:

1. 48 hours before installation.
2. During installation.
3. 48 hours after installation.

B. Until Substantial Completion, maintain ambient temperatures within range recommended by manufacturer, but not less than 55 deg F or more than 95 deg F.

C. Install resilient products after other finishing operations, including painting, have been completed.

PART 2 - PRODUCTS

2.1 RESILIENT BASE

A. Resilient Base:

1. Manufacturers: Subject to compliance with requirements, see Finish Materials Listing for Basis of Design and HCA Preferred Vendor List for acceptable manufacturer.

B. Resilient Base Standard: ASTM F 1861

1. Material Requirement: Type TS (rubber, vulcanized thermoset)
2. Manufacturing Method: Group I (solid, homogeneous)
3. Style: See Finish Materials Listing in Finish Drawings.

C. Minimum Thickness: See Finish Materials Listing in Finish Drawings.

D. Height: See Finish Materials Listing in Finish Drawings.

E. Lengths: Coils in manufacturer's standard length.

F. Outside Corners: Preformed

G. Inside Corners: Preformed

H. Finish Colors and Patterns: See Finish Materials Listing in Finish Drawings.

~~2.2 RESILIENT STAIR ACCESSORIES~~

~~A. Resilient Stair Treads:~~

~~1. Manufacturers: Products: Subject to compliance with requirements, see Finish Materials Listing for Basis of Design and HCA Preferred Vendor List for acceptable manufacturer.~~

~~B. Resilient Stair Treads Standard: ASTM F 2169.~~

~~1. Material Requirement: Type TS (rubber, vulcanized thermoset)~~
~~2. Surface Design:~~

~~a. Class 1, Smooth (flat)~~
~~b. Class 2, Pattern: See Finish Materials Listing in Finish Drawings.~~

~~3. Manufacturing Method: **[Group 1, tread with embedded abrasive strips] [Group 2, tread with contrasting color for the visually impaired]**.~~

~~C. Nosing Style: **[Square, adjustable to cover angles between 60 and 90 degrees] [Square] [Round]**~~

~~D. Nosing Height: **[1-1/2 inches] [2 inches] [2-3/16 inches]**~~

~~E. Thickness: 1/4 inch (6 mm) and tapered to back edge~~

~~F. Size: Lengths and depths to fit each stair tread in **[one piece] [one piece or, for treads exceeding maximum lengths manufactured, in equal-length units]**.~~

~~G. Risers: Smooth, flat, **[coved-toe, 7 inches high by length matching treads] [toeless, height and length to cover risers]**; produced by same manufacturer as treads and recommended by manufacturer for installation with treads.~~

~~1. Thickness: **[0.125 inch (3.2 mm)] [0.080 inch (2.0 mm)]**~~

~~H. Stringers: Of same thickness as risers, height and length after cutting to fit risers and treads and to cover stair stringers; produced by same manufacturer as treads and recommended by manufacturer for installation with treads.~~

I. ~~Colors and Patterns: See Finish Materials Listing in Finish Drawings.~~

~~2.3~~2.2 RESILIENT MOLDING ACCESSORY

A. Resilient Molding Accessory:

1. Products: Subject to compliance with requirements, see Finish Materials Listing for Basis of Design and HCA Preferred Vendor List for acceptable manufacturer.

B. Description: See Finish Materials Listing and floor transition details in Finish Drawings.

C. Material: As standard with manufacturer.

D. Profile and Dimensions: See Finish Materials Listing and floor transition details in Finish Drawings.

E. Colors and Patterns: See Finish Materials Listing and floor transition details in Finish Drawings.

~~2.4~~2.3 INSTALLATION MATERIALS

A. Substrate Preparation Products:

1. Trowelable Leveling and Patching Compounds: Portland cement-based or blended hydraulic cement-based formulation provided or approved by floor covering manufacturer for applications indicated. Products for manufacturers' consideration are Armstrong S-184 or S-194 (leveling or patching), Ardex SP-F Feather Finish (patching), K-15 (leveling) or Concure Feather Cement (patching), SL-1 (leveling).
2. Moisture Mitigation Product – Concure Vapor Barrier Two-Step System; Concure Corporation, Collingdale, PA.

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

1. Adhesives shall have a VOC content of 50 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24), except that adhesive for rubber stair treads shall have a VOC content of 60 g/L or less.
2. Adhesives shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

C. Stair-Tread-Nose Filler: Two-part epoxy compound recommended by resilient tread manufacturer to fill nosing substrates that do not conform to tread contours.

D. Metal Edge Strips: Extruded aluminum with mill finish of width shown, of height required to protect exposed edges of tiles, and in maximum available lengths to minimize running joints.

E. Floor Polish: Provide protective liquid floor polish products as recommended by resilient stair tread manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, with Installer present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.

B. Verify that finishes of substrates comply with tolerances and other requirements specified in other Sections and that substrates are free of cracks, ridges, depressions, scale, and foreign deposits that might interfere with adhesion of resilient products.

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

3.2 PREPARATION

A. Prepare substrates according to manufacturer's written instructions to ensure adhesion of resilient products.

B. Concrete Substrates for Resilient Stair Treads and Accessories: Prepare according to ASTM F 710.

1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.
2. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by manufacturer. Do not use solvents.
3. Alkalinity and Adhesion Testing: Perform tests recommended by manufacturer.
4. Moisture Testing: Perform tests recommended by manufacturer and as follows. Proceed with installation only after all substrates pass testing.

    a. Perform anhydrous calcium chloride test, ASTM F 1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate allowed by manufacturer(s) for each product specified in 24 hours.
    b. Perform relative humidity test using in situ probes, ASTM F 2170. Proceed with installation only after substrates have maximum relative humidity level measurement allowed by manufacturer(s) for each product specified.
    c. If required, apply the moisture mitigation product per the manufacturer’s recommendations and provide any additional calcium chloride testing of the prepared substrate per moisture mitigation manufacturer’s recommendations prior

to installation of floor covering and register results with the moisture mitigation manufacturer, General Contractor, Owner and Architect.

5. After installation of vapor sealer and before flooring installation, conduct 72 - hour bond test to verify adhesion of each required type of flooring adhesive to concrete vapor sealer. Provide written report on such testing.

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

D. Do not install resilient products until they are same temperature as the space where they are to be installed.

1. Move resilient products and installation materials into spaces where they will be installed at least 48 hours in advance of installation.

E. Sweep and vacuum clean substrates to be covered by resilient products immediately before installation.

3.3 RESILIENT BASE INSTALLATION

A. Comply with manufacturer's written instructions for installing resilient base.

B. Apply resilient base to walls, columns, pilasters, casework and cabinets in toe spaces, and other permanent fixtures in rooms and areas where base is required.

C. Install resilient base in lengths as long as practicable without gaps at seams and with tops of adjacent pieces aligned.

D. Tightly adhere resilient base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.

E. Do not stretch resilient base during installation.

F. On masonry surfaces or other similar irregular substrates, fill voids along top edge of resilient base with manufacturer's recommended adhesive filler material.

G. Preformed Corners: Install preformed corners before installing straight pieces.

H. Job-Formed Corners:

1. Outside Corners: Use straight pieces of maximum lengths possible. Form without producing discoloration (whitening) at bends.
2. Inside Corners: Use straight pieces of maximum lengths possible.

3.4 RESILIENT ACCESSORY INSTALLATION

A. Comply with manufacturer's written instructions for installing resilient accessories.

B. Resilient Stair Accessories:

1. Use stair-tread-nose filler to fill nosing substrates that do not conform to tread contours.
2. Tightly adhere to substrates throughout length of each piece.
3. For treads installed as separate, equal-length units, install to produce a flush joint between units.

C. Resilient Molding Accessories: Butt to adjacent materials and tightly adhere to substrates throughout length of each piece. Install reducer strips at edges of all resilient floor covering that would otherwise be exposed per floor transition details.

3.5 CLEANING AND PROTECTION

A. Comply with manufacturer's written instructions for cleaning and protection of resilient products.

B. Perform the following operations immediately after completing resilient product installation:

1. Remove adhesive and other blemishes from exposed surfaces.
2. Sweep and vacuum surfaces thoroughly.
3. Damp-mop surfaces to remove marks and soil.

C. Protect resilient products from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.

D. Floor Polish: Remove soil, visible adhesive, and surface blemishes from resilient stair treads before applying liquid floor polish.

1. Apply liquid floor polish per manufacturers' recommendations.

E. Joint Sealant: Coordinate with floor finish material for requirements concerning applying sealant at door frames and other joints and penetrations.

F. Cover resilient products until Substantial Completion.

END OF SECTION

SECTION 096516
RESILIENT SHEET FLOORING [HCA]

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. Vinyl sheet floor covering, with and without backing
2. Rubber sheet floor covering, with and without backing
3. Adhesive and related accessories
4. Surface-applied moisture mitigation and related products

B. Related Sections:

1. Division 07 Section “Joint Sealants” for single-component and multi-component elastomeric, latex, silicone, urethane and other joint sealants.
2. Division 09 Section "Resilient Base and Accessories" for resilient base, reducer strips, and other accessories installed with resilient floor coverings.
3. ~~Division 09 Section "Linoleum Flooring" for linoleum sheet floor coverings.~~
4. ~~4.~~3. Division 09 Section "Resilient Tile Flooring" for resilient floor tile.
5. ~~Division 09 Section "Static-Control Resilient Flooring" for resilient floor coverings designed to control electrostatic discharge.~~
6. ~~Division 09 Section "Resilient Athletic Flooring" for resilient floor coverings for use in athletic-activity or support areas.~~

1.3 SEQUENCING

A. Install sheet flooring after other finishing operations, including painting, have been completed.

B. Install sheet flooring before installation of base cabinets.

1.4 ACTION SUBMITTALS

A. Submit items in accordance with Division 01 Section “Submittal Procedures.”

B. Product Data: For each type of product indicated, submit two (2) copies of manufacturers’ product data, installation instructions and accessories specified and/or required by manufacturer.

C. Shop Drawings: Submit Drawings for each type of floor covering. Include floor covering layouts, locations of seams, edges, columns, doorways, enclosing partitions, built-in furniture, cabinets, and cutouts.

1. Show details of special patterns, type, locations and direction. See Finish Drawings.
2. Transition details to other floor materials.

D. Samples for Verification: Submit two samples of each specified color of flooring. If products other than those specified are proposed, provide a sample of the specified item with the proposed sample. Label samples with finish designations included on the Finish Legend (SVF-1, SRF-2, etc.) - failure to label as such will be cause for rejection of the submittal for the entire Section. Note: if the submitted items are not the specified items, not matching the specified colors will be cause for rejection of the submittal for this Section. Submit samples in the following minimum sizes:

1. Sheet Goods: 4 x 4 inch
2. Welding rods: 4 inches long

E. Seam Samples: For each flooring product, provide a seam running lengthwise and in center, and one inside and one outside corner of integral base. Sample to be on rigid backing and prepared by Installer for this Project.

F. Product Schedule: See Finish Materials Listing in Finish Drawings.

1.5 CLOSEOUT SUBMITTALS

A. Maintenance Data: For each type of floor covering, provide maintenance manuals including manufacturers' written instructions for cleaning and maintenance.

B. Manufacturers' warranties.

1.6 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials/attic stock that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Floor Covering: Furnish quantity not less than 10 linear feet for every 500 linear feet or fraction thereof, in roll form and in full roll width for each color, pattern, and type of floor covering installed.

1.7 QUALITY ASSURANCE

A. Installer Qualifications: A qualified installer with no less than three years' experience who employs workers for this Project who are competent in heat welding techniques required by manufacturer for floor covering installation with similar and successful installations within the last year. Provide documentation if requested.

1. Engage an installer who employs workers for this Project who are trained or certified by floor covering manufacturer for installation techniques required.

B. Installer Qualifications: Concrete Vapor Sealer: Acceptable to manufacturer and employing factory-trained installers.

C. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution including substrate preparation and required testing.

1. Build mockups for floor coverings including resilient base and accessories.

a. Size: Minimum 100 sq. ft. for each type, color and pattern in locations directed by Architect.
b. Maintain accepted mock-up throughout the construction process.
c. Accepted and approved mock-up may remain as part of the finished Work as a standard for subsequent Work.

D. Contractor to schedule pre-installation conference with flooring sub-contractor, Architect/Interior Designer and Owner to review seaming diagrams, adhesives, sealants, floor preparation procedures, moisture mitigation procedures, bond/adhesion tests, and installation procedures.

E. Convene a pre-installation conference covering the work of this Section

1. Schedule the meeting at least one week prior to commencing the work of this Section, but not before:

a. Submittals for the work of this Section have been approved by the Architect.
b. The mock-up of the moisture mitigation system specified in Section 090561.13 has been approved by the Architect.
c. The floor bond test specified below shows acceptable results.

2. Coincide the pre-installation conference with the construction of mock up samples of flooring and reviewing of submittals.
3. Require attendance of parties directly affecting the work of these Sections, the following must be in attendance: Architect, Contractor, Flooring Sub-Contractor project manager, Flooring and Moisture Mitigation System Installers, Floor manufacturers' representatives and the Moisture Mitigation Systems' representatives. Notify the Architect of conference at least 7 days prior to meeting.
4. Review conditions and degree of acceptableness of installation, installation procedures, and coordination required with related work. Use the following as a minimum agenda:

a. Review specifications for flooring and mitigation systems
b. Review approved submittals
c. Review schedule
d. Phasing and ordering of material
e. Review installation procedures
f. Inspect mockup(s) and review quality
g. Review acceptability criteria of substrate, discuss problem floor areas
h. Review acceptable environmental conditions

i. Material storage and acclimation
j. Verify acceptable trowels for each product
k. Verify testing requirements: Bond tests, Calcium chloride tests, Alkalinity
l. Review slab preparation requirements

1) Shot blasting/scarifying
2) Crack treatment
3) Moisture mitigation installation
4) Leveling - cement based
5) Feathering/final prep - cement based

m. No use of wax or oil based sweeping compound
n. Protection and final cleaning

1.8 DELIVERY, STORAGE, AND HANDLING

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

1.9 PROJECT CONDITIONS

A. Maintain ambient temperatures and humidity level within range recommended by manufacturer, but not less than 70 deg F or more than 85 deg F, in spaces to receive floor coverings during the following time periods:

1. 48 hours before installation
2. During installation
3. 48 hours after installation

B. Until Substantial Completion, maintain ambient temperatures and humidity level within range recommended by manufacturer, but not less than 55 deg F or more than 95 deg F.

C. Close spaces to traffic during floor covering installation.

D. Close spaces to foot traffic for 48 hours and to rolling traffic for 72 hours after floor covering installation.

E. Install floor coverings after other finishing operations, including painting, have been completed.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Fire-Test-Response Characteristics: For resilient tile flooring, as determined by testing identical products according to ASTM E 64 OR NFPA 253 by a qualified testing agency.

1. Critical Radiant Flux Classification: Class I, not less the 0.45 W/sq. cm.

B. FloorScore Compliance: Resilient sheet flooring shall comply with requirements of FloorScore Standard developed by the Resilient Floor Covering Institute (RFCI).

C. Low-Emitting Materials: Flooring system shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

2.2 VINYL SHEET FLOOR COVERING

A. Products: Subject to compliance with requirements, see Finish Materials Listing for Basis of Design and HCA Preferred Vendor List for acceptable manufacturer.

B. Unbacked Vinyl Sheet Floor Covering: ASTM F 1913, 0.080 inch (2.0 mm) thick.

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

1. Type (Binder Content): See Finish Materials Listing in Finish Drawings.
2. Wear-Layer Thickness: Grade 1
3. Overall Thickness: As standard with manufacturer.
4. Interlayer Material: As standard with manufacturer.
5. Backing Class: As standard with manufacturer.

D. Wearing Surface: Smooth with embedded abrasives or Embossed with embedded abrasives. See Finish Materials Listing in Finish Drawings.

E. Sheet Width: See Finish Materials Listing in Finish Drawings.

F. Seaming Method: Heat welded

G. Colors and Patterns: See Finish Materials Listing in Finish Drawings.

2.3 RUBBER SHEET FLOOR COVERING

A. Products: Subject to compliance with requirements, see Finish Materials Listing for Basis of Design and HCA Preferred Vendor List for acceptable manufacturer.

B. Unbacked Rubber Sheet Floor Covering: ASTM F 1859

1. Type: Type I (homogeneous rubber sheet).
2. Thickness: As standard with manufacturer and indicated on interior drawings.

C. Rubber Sheet Floor Covering with Backing: ASTM F 1860

1. Type: Type I, homogeneous rubber sheet with backing.
2. Wear-Layer Thickness: As standard with manufacturer and noted on interior drawings.
3. Overall Thickness: As standard with manufacturer and noted on interior drawings.
4. Interlayer Material: as noted on interior drawings.

5. Backing Type: See Finish Materials Listing in Finish Drawings.

D. Hardness: Manufacturer's standard hardness, measured using Shore, Type A durometer per ASTM D 2240.

E. Wearing Surface: Smooth, textured or molded pattern as per Material Finish Listing in Finish Drawings.

1. Molded-Pattern Figure: Raised discs or raised squares as per Material Finish Listing in Finish Drawings.

F. Sheet Width: See Finish Materials Listing in Finish Drawings.

G. Seaming Method: Heat welded

H. Colors and Patterns: See Finish Materials Listing in Finish Drawings.

2.4 INSTALLATION MATERIALS

A. Substrate Preparation Products:

1. Trowelable Leveling and Patching Compounds: Portland cement-based or blended hydraulic cement-based formulation provided or approved by floor covering manufacturer for applications indicated. Products for manufacturers' consideration are Armstrong S-184 or S-194 (leveling or patching), Ardex SP-F Feather Finish (patching), K-15 (leveling) or Concure Feather Cement (patching), SL-1 (leveling).
2. Moisture Mitigation Product – Concure Vapor Barrier Two-Step System; Concure Corporation, Collingdale, PA.

~~**[PROMPT: UNDER HEAVY STATIC LOADS, SUCH AS LDRP BED'S OR OTHER BEDS WITH LOCKING BRAKES, CONSIDERATION SHOULD BE GIVEN TO INCLUDING AN EPOXY ADHESIVE, AS RECOMMENDED BY THE FLOORING MANUFACTURE, UP TO 1'-0" OUTSIDE OF THE AREA OF THE BED. SUGGESTED ITEM 3. "**3. As indicated on Construction Documents, use Manufacture's recommended Heavy Load Bearing Epoxy Adhesive to 1'-0" outside of the beds perimeter.~~

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

1. Adhesives shall have a VOC content of not more than 50 or 60 g/L when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
2. Adhesives shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

C. Seamless-Installation Accessories:

1. Heat-Welding Bead: Manufacturer's solid-strand product for heat welding seams.

a. Color: As selected by Architect/Interior Designer from manufacturer's full range to contrast with floor covering.

D. Integral-Flash-Cove-Base Accessories:

1. Cove Strip: 1-inch (25-mm) radius provided or approved by manufacturer.
2. Cap Strip: Square metal provided or approved by manufacturer.
3. Corners: Metal inside and outside corners and end stops provided or approved by manufacturer.
4. Joint Sealant: Apply sealant at top of integral base.

E. Floor Polish: Provide protective liquid floor polish products as recommended by manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, with Installer present, for compliance with requirements for maximum moisture content, moisture vapor emission, temperature, alkalinity, installation tolerance, moisture mitigation, and other conditions affecting performance of the Work.

B. At areas which require moisture mitigation, brush blasting, bead blasting, shot blasting, scarifying or other substrate preparation, consult with Architect and Structural Engineer prior to performing Work.

C. Verify that finishes of substrates comply with tolerances and other requirements specified in other Sections and that substrates are free of cracks, ridges, depressions, scale, and foreign deposits that might interfere with adhesion of floor coverings.

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

3.2 PREPARATION

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

B. Concrete Substrates: Prepare according to ASTM F 710.

1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.
2. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by manufacturer. Do not use solvents.
3. Alkalinity and Adhesion Testing: Perform tests recommended by manufacturer. Proceed with installation only after substrates pass testing.
4. Moisture Testing: Perform tests recommended by manufacturer and as follows. Proceed with installation only after all substrates pass testing.

a. Perform anhydrous calcium chloride test, ASTM F 1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate allowed by manufacturer(s) for each product specified in 24 hours.
b. Perform relative humidity test using in situ probes, ASTM F 2170. Proceed with installation only after substrates have a maximum relative humidity level measurement allowed by manufacturer(s) for each product specified.
c. If required, apply the moisture mitigation product per the manufacturer's recommendations and provide any additional calcium chloride testing of the prepared substrate per moisture mitigation manufacturer's recommendations prior to installation of floor covering and register results with the moisture mitigation manufacturer, General Contractor, Owner and Architect.

5. After installation of vapor sealer and before flooring installation, conduct 72 - hour bond test to verify adhesion of each required type of flooring adhesive to concrete vapor sealer. Provide written report on such testing.

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

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

1. Move floor coverings and installation materials into spaces where they will be installed at least 48 hours in advance of installation.

E. Sweep and vacuum clean substrates to be covered by floor coverings immediately before installation.

3.3 FLOOR COVERING INSTALLATION

A. Comply with manufacturer's written instructions for installing floor coverings.

B. Unroll floor coverings and allow them to stabilize before cutting and fitting.

C. Lay out floor coverings as follows:

1. As indicated in Finish Drawings.
2. Maintain uniformity of floor covering direction.
3. Minimize number of seams; place seams in inconspicuous and low-traffic areas, at least 6 inches away from parallel joints in floor covering substrates.
4. Match edges of floor coverings for color shading at seams.
5. Avoid cross seams.

D. Scribe and cut floor coverings to butt neatly and tightly to vertical surfaces, permanent fixtures, and built-in furniture including cabinets, pipes, outlets, and door frames.

E. Extend floor coverings into toe spaces, door reveals, closets, and similar openings.

F. Maintain reference markers, holes, or openings that are in place or marked for future cutting by repeating on floor coverings as marked on substrates. Use chalk or other nonpermanent marking device.

G. Install floor coverings on covers for telephone and electrical ducts and similar items in installation areas. Maintain overall continuity of color and pattern between pieces of floor coverings installed on covers and adjoining floor covering. Tightly adhere floor covering edges to substrates that abut covers and to cover perimeters.

H. Adhere floor coverings to substrates using a full spread of adhesive applied to substrate to produce a completed installation without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, and other surface imperfections.

1. Install resilient flooring in epoxy adhesive unless otherwise indicated OR Note Epoxy adhesive as needed under LDRP Beds and OR Tables minimally.

I. Seamless Installation:

1. Heat-Welded Seams: Comply with ASTM F 1516. Rout joints and use welding bead to permanently fuse sections into a seamless floor covering. Prepare, weld, and finish seams to produce surfaces flush with adjoining floor covering surfaces.
2. Vinyl Tile to Sheet Vinyl Transitions: Heat-Weld all joints between Vinyl Tile and Sheet Vinyl.

J. At areas receiving integral base, extend flooring material or pre-molded base up the wall to the height indicated on the drawings. Carefully miter corners and heat seal seams. The cut style at mitered corners must be consistent throughout entire project (boot or butterfly) as approved at the pre-installation conference.

1. Install integral base cove cap. Clean thoroughly and apply sealant between the cove cap and wall and to bottom of door frame to floor. See Division 07 Section “Joint Sealants.”

K. Protect flooring installations and do not allow walking traffic for 24 hours or rolling loads for 72 hours after completion of installation to allow for setting and drying of adhesive.

3.4 CLEANING AND PROTECTION

A. Comply with manufacturer's written instructions for cleaning and protection of floor coverings.

B. Perform the following operations immediately after completing floor covering installation:

1. Remove adhesive and other blemishes from floor covering surfaces.
2. Sweep and vacuum floor coverings thoroughly.
3. Damp-mop floor coverings to remove marks and soil.

C. Protect floor coverings from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.

D. Floor Polish: Remove soil, visible adhesive, and surface blemishes from floor covering before applying liquid floor polish.

1. Apply floor polish per manufacturers' recommendation.

E. Joint Sealant: Apply sealant to resilient sheet flooring at door frames, top of integral base and at other joints and penetrations.

F. Cover floor coverings until Substantial Completion.

END OF SECTION

SECTION 096519
RESILIENT TILE FLOORING [HCA]

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. Solid vinyl floor tile
2. Rubber floor tile
3. Vinyl composition floor tile
4. Adhesive and related accessories
5. Surface-applied moisture mitigation and related products

B. Related Sections:

1. Division 07 Section “Joint Sealants” for single-component and multi-component elastomeric, latex, silicone, urethane and other joint sealants.
2. Division 09 Section "Resilient Base and Accessories" for resilient base, reducer strips, and other accessories installed with resilient floor coverings.
3. Division 09 Section "Resilient Sheet Flooring" for resilient sheet floor coverings.
4. ~~Division 09 Section "Linoleum Flooring" for linoleum floor coverings.~~
5. ~~Division 09 Section "Static-Control Resilient Flooring" for resilient floor coverings designed to control electrostatic discharge.~~
6. ~~Division 09 Section "Resilient Athletic Flooring" for resilient floor coverings for use in athletic-activity or support area.~~

1.3 SEQUENCING

A. Install floor tile after other finishing operations, including painting, have been completed.

B. Install floor tile before installation of base cabinets.

1.4 ACTION SUBMITTALS

A. Submit items in accordance with Division 01 Section “Submittal Procedures.”

B. Product Data: For each type of product indicated, submit two (2) copies of manufacturers’ product data, installation instructions and accessories specified and/or required by manufacturer.

C. Shop Drawings: Submit Drawings for each type of floor tile. Include floor tile layouts, edges, columns, doorways, enclosing partitions, built-in furniture, cabinets, and cutouts.

1. Show details of special patterns, type, locations and direction. See Finish Drawings.
2. Transition details to other flooring materials.

D. Samples for Verification: Submit two samples of each specified color of floor tile. If products other than those specified are proposed, provide a sample of the specified item with the proposed sample. Label samples with finish designations included on the Finish Legend (VT-1, LVT-2, etc.) - failure to label as such will be cause for rejection of the submittal for the entire Section. Note: If the submitted items are not the specified items, not matching the specified colors will be cause for rejection of the submittal for this Section. Submit samples in the following minimum sizes:

1. Tiles: 4 x 4 inch
2. Welding rods: 4 inches long

E. Product Schedule: See Finish Material Listing in Finish Drawings.

1.5 CLOSEOUT SUBMITTALS

A. Maintenance Data: For each type of floor tile, provide maintenance manuals including manufacturers' written instructions for cleaning and maintenance.

B. Manufacturers' warranties.

1.6 MATERIALS MAINTENANCE SUBMITTALS

A. Furnish extra materials/attic stock that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Floor Tile: Furnish 1 box for every 50 boxes or fraction thereof, of each type, color, and pattern of floor tile installed.

1.7 QUALITY ASSURANCE

A. Installer Qualifications: A qualified installer who employs workers for this Project who are competent in techniques required by manufacturer for floor tile installation and seaming method indicated.

1. Engage an installer who employs workers for this Project who are trained or certified by manufacturer for installation techniques required.

B. Installer Qualifications: Concrete Vapor Sealer: Acceptable to manufacturer and employing factory-trained installers.

C. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution including substrate preparation and required testing.

1. Build mockups for floor tile including resilient base and accessories.

    a. Size: Minimum 100 sq. ft. for each type, color, and pattern in locations directed by Architect/Interior Designer.
    b. Maintain accepted mock-up throughout the construction process.
    c. Accepted and approved mock-up may remain as part of the finished Work as a standard for subsequent Work.

D. Contractor to schedule pre-installation conference with flooring sub-contractor, Architect/Interior Designer and Owner to review seaming diagrams, adhesives, floor preparation procedures, moisture mitigation procedures, bond/adhesion tests, and installation procedures.

E. Convene a pre-installation conference covering the work of this Section

1. Schedule the meeting at least one week prior to commencing the work of this Section, but not before:

    a. Submittals for the work of this Section have been approved by the Architect.
    b. The mock-up of the moisture mitigation system specified in Section XXXXX has been approved by the Architect.
    c. The floor bond test specified below shows acceptable results.

2. Coincide the pre-installation conference with the construction of mock up samples of flooring and review of submittals.
3. Require attendance of parties directly affecting the work of these Sections, including manufacturers' representatives and installers of both the moisture mitigation system and the flooring. Notify the Architect of conference at least 7 days prior to meeting.
4. Review conditions of installation, installation procedures, and coordination required with related work. Use the following as a minimum agenda:

    a. Review specifications for flooring and mitigation systems
    b. Review approved submittals
    c. Review schedule
    d. Phasing and ordering of material
    e. Review installation procedures
    f. Inspect mockup(s) and review quality
    g. Review acceptability criteria of substrate, discuss problem floor areas
    h. Review acceptable environmental conditions
    i. Material storage and acclimation
    j. Verify acceptable trowels for each product
    k. Verify testing requirements: Bond tests, Calcium chloride tests, Alkalinity
    l. Review slab preparation requirements

        1) Shot blasting/scarifying
        2) Crack treatment
        3) Moisture mitigation installation

4) Leveling - cement based
5) Feathering/final prep - cement based

m. No use of wax or oil based sweeping compound
n. Protection and final cleaning

1.8 DELIVERY, STORAGE, AND HANDLING

A. Store floor tile and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended by manufacturer, but not less than 50 deg F or more than 90 deg F. Store floor tiles on flat surfaces.

1.9 PROJECT CONDITIONS

A. Maintain ambient temperatures within range recommended by manufacturer, but not less than 70 deg F or more than 95 deg F, in spaces to receive floor tile during the following time periods:

1. 48 hours before installation.
2. During installation.
3. 48 hours after installation.

B. Until Substantial Completion, maintain ambient temperatures within range recommended by manufacturer, but not less than 55 deg F or more than 95 deg F.

C. Close spaces to traffic during floor tile installation.

D. Close spaces to walking traffic for 48 hours and to rolling traffic for 72 hours after floor tile installation.

E. Install floor tile after other finishing operations, including painting, have been completed.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Fire-Test-Response Characteristics: For resilient tile flooring, as determined by testing identical products according to ASTM E 64 OR NFPA 253 by a qualified testing agency.

1. Critical Radiant Flux Classification: Class I, not less the 0.45 W/sq. cm.

B. FloorScore Compliance: Resilient tile flooring shall comply with requirements of FloorScore Standard developed by the Resilient Floor Covering Institute (RFCI).

2.2 SOLID VINYL FLOOR TILE

A. Products: Subject to compliance with requirements, see Finish Material Listing for Basis of Design and HCA Preferred Vendor List for acceptable manufacturer.

B. Tile Standard: ASTM F 1700

C. Size, Seaming Method, Colors and Patterns: See Finish Material Listing in Finish Drawings.

2.3 RUBBER FLOOR TILE

A. Products: Subject to compliance with requirements, see Finish Material Listing for Basis of Design and HCA Preferred Vendor List for acceptable manufacturer.

B. Tile Standard: ASTM F 1344

C. Hardness: Manufacturer's standard hardness.

D. Wearing Surface: Smooth, textured or molded pattern as per Material Finish Listing in Finish Drawings.

1. Molded-Pattern Figure: Raised discs or raised squares as per Finish Material Listing in Finish Drawings.

E. Thickness Size, Seaming Method, Colors and Patterns: See Finish Material Listing in Finish Drawings.

2.4 VINYL COMPOSITION FLOOR TILE

A. Products: Subject to compliance with requirements, Finish Material Listing for Basis of Design and HCA Preferred Vendor List for acceptable manufacturer.

B. Tile Standard: ASTM F 1066

C. Wearing Surface: Smooth or embossed as per Finish Material Listing in Finish Drawings.

D. Size, Colors and Patterns: See Finish Material Listing in Finish Drawings.

2.5 INSTALLATION MATERIALS

A. Substrate Preparation Products:

1. Trowelable Leveling and Patching Compounds: Portland cement-based or blended hydraulic cement-based formulation provided or approved by floor covering manufacturer for applications indicated. Products for manufacturers' consideration are Armstrong S-184 or S-194 (leveling or patching), Ardex SP-F Feather Finish (patching), K-15 (leveling) or Concure Feather Cement (patching), SL-1 (leveling).
2. Moisture Mitigation Product – Concure Vapor Barrier Two-Step System; Concure Corporation, Collingdale, PA.

B. Adhesives: Water-resistant type recommended by manufacturer to suit floor tile and substrate conditions indicated. ADD EPOXY ADHESIVE

1. Adhesives shall comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):

    a. VCT Adhesives: Not more than 50 g/L.
    b. Rubber Floor Adhesives: Not more than 60 g/L.

C. Seamless-Installation Accessories:

1. Heat-Welding Bead: Manufacturer's solid-strand product for heat welding seams.

    a. Color: As selected by Architect from manufacturer's full range to contrast with floor tile.

D. Floor Polish: Provide protective liquid floor polish products as recommended by manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, with Installer present, for compliance with requirements for maximum moisture content, moisture vapor emission, temperature, alkalinity, installation tolerance, moisture mitigation, and other conditions affecting performance of the Work.

B. At areas which require moisture mitigation, brush blasting, bead blasting, shot blasting, scarifying or other substrate preparation, consult with Architect and Structural Engineer prior to performing Work.

C. Verify that finishes of substrates comply with tolerances and other requirements specified in other Sections and that substrates are free of cracks, ridges, depressions, scale, and foreign deposits that might interfere with adhesion of floor tile.

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

3.2 PREPARATION

A. Prepare substrates according to manufacturer's written instructions to ensure adhesion of resilient products.

B. Concrete Substrates: Prepare according to ASTM F 710.

1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.
2. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by manufacturer. Do not use solvents.
3. Alkalinity and Adhesion Testing: Perform tests recommended by manufacturer. Proceed with installation only after substrates pass testing.
4. Moisture Testing: Perform tests recommended by manufacturer and as follows. Proceed with installation only after all substrates pass testing.

a. Perform anhydrous calcium chloride test, ASTM F 1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of allowed / permissible by manufacturer(s) for each product specified in 24 hours.
b. Perform relative humidity test using in situ probes, ASTM F 2170. Proceed with installation only after substrates have the maximum relative humidity level measurement allowed by manufacturer(s) for each product specified.
c. If required, apply the moisture mitigation product per the manufacturer's recommendations and provide any additional calcium chloride testing of the prepared substrate per moisture mitigation manufacturer's recommendations prior to installation of floor covering and register results with the moisture mitigation manufacturer, General Contractor, Owner and Architect.

5. After installation of vapor sealer and before flooring installation, conduct 72 - hour bond test to verify adhesion of each required type of flooring adhesive to concrete vapor sealer. Provide written report on such testing.

C. Access Flooring Panels: Remove protective film of oil or other coating using method recommended by access flooring manufacturer.

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

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

1. Move resilient products and installation materials into spaces where they will be installed at least 48 hours in advance of installation.

F. Sweep and vacuum clean substrates to be covered by resilient products immediately before installation.

3.3 FLOOR TILE INSTALLATION

A. Comply with manufacturer's written instructions for installing floor tile.

B. Lay out floor tiles from center marks established with principal walls, discounting minor offsets, so tiles at opposite edges of room are of equal width. Adjust as necessary to avoid using cut widths that equal less than one-half tile at perimeter.

1. Lay tiles as indicated in Finish Drawings.

C. Match floor tiles for color and pattern by selecting tiles from cartons in the same sequence as manufactured and packaged, if so numbered. Discard broken, cracked, chipped, or deformed tiles.

1. Lay tiles as indicated in Finish Drawings.

D. Scribe, cut, seal and fit floor tiles to butt neatly and tightly to vertical surfaces and permanent fixtures including built-in furniture, cabinets, pipes, outlets, and door frames.

E. Extend floor tiles into toe spaces, door reveals, closets, and similar openings. Extend floor tiles to center of door openings.

F. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on floor tiles as marked on substrates. Use chalk or other nonpermanent, nonstaining marking device.

G. Install floor tiles on covers for telephone and electrical ducts, building expansion-joint covers, and similar items in finished floor areas. Maintain overall continuity of color and pattern between pieces of tile installed on covers and adjoining tiles. Tightly adhere tile edges to substrates that abut covers and to cover perimeters.

H. Adhere floor tiles to flooring substrates using a full spread of adhesive applied to substrate to produce a completed installation without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, and other surface imperfections.

1. Install resilient flooring in epoxy adhesive unless otherwise indicated.

I. At areas receiving integral base, extend flooring material or pre-molded base up the wall to the height indicated on the drawings. Carefully miter corners and heat seal seams. The cut style at mitered corners must be consistent throughout entire project as approved at the pre-installation conference or as per approved mock-up.

1. Install integral base cove cap. Clean thoroughly and apply sealant between the cove cap and wall and to bottom of door frame to floor. See Division 07 Section “Joint Sealants.”

J. Protect flooring installations and do not allow walking traffic for 24 hours or rolling loads for 72 hours after completion of installation to allow for setting and drying of adhesive.

K. Seamless Installation:

1. Heat Welded Seams: Comply with ASTM F 1516. Rout joints and heat weld with welding bead to permanently fuse sections into a seamless floor covering. Prepare, weld, and finish seams to produce surfaces flush with adjoining floor covering surfaces.
2. Vinyl Tile to Sheet Vinyl Transitions: Heat-Weld all joints between Vinyl Tile and Sheet Vinyl.

3.4 CLEANING AND PROTECTION

A. Comply with manufacturer's written instructions for cleaning and protection of floor tile.

B. Perform the following operations immediately after completing floor tile installation:

1. Remove adhesive and other blemishes from exposed surfaces.
2. Sweep and vacuum surfaces thoroughly.
3. Damp-mop surfaces to remove marks and soil.

C. Protect floor tile products from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.

D. Floor Polish: Remove soil, visible adhesive, and surface blemishes from floor tile surfaces before applying liquid floor polish.

1. Verify Manufacturer written instructions for floor polish. Floor polish is used with most VCT and **some** solid vinyl tile.
2. Apply floor polish per manufacturer's recommendation.

E. Joint Sealant: Apply sealant to resilient tile flooring at door frames and at other joints and penetrations.

F. Cover floor tile until Substantial Completion.

END OF SECTION

SECTION 096813
CARPET TILE [HCA]

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Furnish labor, materials, tools and other equipment, and services necessary to provide surface preparation and the installation of carpet tile, including all components and accessory items required for a complete installation.

1. Modular Carpet

B. Work under this Section also includes moisture and alkalinity testing, and surface preparation of substrates as required for acceptance of carpet tile, including but not necessarily limited to, cleaning, small crack repair, patching, filling, any other Work required to provide an appropriate substrate.

C. This specification shall be supplemented by any applicable federal, state and local building codes, guidelines, regulations, and standards adopted in the immediate geographic area of the Project; insurance rating organizations; including all other Authorities Having Jurisdiction.

1.3 RELATED SECTIONS

1. Division 01 Section “Submittal procedures.”
2. Division 02 Section "Selective Structure Demolition" for removing existing floor coverings.
3. Division 09 Section "Resilient Base and Accessories” for resilient wall base and accessories installed with carpet tile.
4. Division 09 Section "Sheet Carpeting."

1.4 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site prior to commencement of field installation with Contractor, Subcontractor, Architect/Designer and others, as required.

1. Review methods and procedures related to carpet tile installation including, but not limited to, the following:

a. Review delivery, storage, and handling procedures.
b. Review ambient conditions and ventilation procedures.
c. Review subfloor preparation procedures.

1.5 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include manufacturer's written data on physical characteristics, durability, and fade resistance.
2. Include installation recommendations and accessories specified and/or required by manufacturer for each type of substrate.
3. Product Test Reports: For carpet tile, for tests performed by a qualified testing agency.
4. Warranty: For each type indicated, copy of manufacturer’s warranty.

B. Shop Drawings: Show the following:

1. Columns, doorways, enclosing walls or partitions, built-in cabinets, and locations where cutouts are required in carpet tiles.
2. Carpet tile type and color.
3. Type of subfloor.
4. Type of installation.
5. Pattern of installation.
6. Pattern type, location, and direction.
7. Pile direction.
8. Type, color, and location of insets and borders.
9. Type, color, and location of edge, transition, and other accessory strips.
10. Transition details to other flooring materials.

C. Samples: For each of the following products and for each color and texture required. Label each Sample with manufacturer's name, material description, color, pattern, and designation indicated on Drawings and in schedules.

1. Carpet Tile: Submit two (2) full-size Samples.
2. Exposed Edge, Transition, and Other Accessory Stripping: Submit two (2) 12-inchlong Samples.

D. Product Schedule: For carpet tile. Use same designations indicated on Drawings.

1.6 CLOSEOUT/MAINTENANCE MATERIAL SUBMITTALS

A. Maintenance Data: For carpet tiles to include in maintenance manuals. Include the following:

1. Methods for maintaining carpet tile, including cleaning and stain-removal products and procedures and manufacturer's recommended maintenance schedule.
2. Precautions for cleaning materials and methods that could be detrimental to carpet tile.

1.7 EXTRA MATERIAL

A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Carpet Tile: Full-size units equal to 5 percent of amount installed for each type indicated, but not less than 10 sq. yd. COORDINATE WITH OWNER/CONTRACTOR.
2. Deliver usable carpet tiles to Owner. Neatly package and wrap such carpet tiles for storage protection. Do not include miscellaneous scrap pieces as part of the specified extra materials.

1.8 QUALITY ASSURANCE

A. Installer Qualifications: An experienced installer who is certified by the International Certified Floorcovering Installers Association at the Commercial II certification level. Verify Installer is approved by manufacturer, with a minimum of five years continuous, uninterrupted experience in successfully installing 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, and who agrees to employ only skilled tradesmen with a minimum of five years' experience.

B. Fire-Test-Response Ratings: Provide carpet tile identical to those of assemblies tested for fire response according to NFPA 253 or ASTM E648 by a qualified testing agency.

C. Carpet shall have smoke density development of 450 or less per NBS Smoke Chamber Test NFPA 258 or ASTM E 662.

D. Mockups: Build mockups to verify selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for fabrication and installation.

1. Build mockups at locations and in sizes shown on Drawings.
2. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

E. Factory Runs: Produce carpet tile, of each type specified, in one factory run and from one dye lot. Guarantee colors and shades to be uniform throughout the run of material.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Comply with CRI 104.

B. Arrange, in advance of delivery, with General Contractor for secure, clean, dry storage space.

1.10 FIELD CONDITIONS

A. Comply with CRI 104 for temperature, humidity, and ventilation limitations.

B. Environmental Limitations: Do not deliver or install carpet tiles until spaces are enclosed and weathertight, wet Work in spaces is complete and dry, and ambient temperature and humidity conditions are maintained at occupancy levels during the remainder of the construction period.

C. Do not install carpet tiles over concrete slabs until slabs have cured and are sufficiently dry to bond with adhesive and concrete slabs have pH range recommended by carpet tile manufacturer.

D. Install carpet tile after other finishing operations, including all painting, ceilings, and any overhead work have been completed.

E. Where demountable partitions or other items are indicated for installation on top of carpet tiles, install carpet tiles before installing these items.

1.11 WARRANTY

A. Special Warranty for Carpet Tiles: Manufacturer agrees to repair or replace components of carpet tile installation that fail in materials or workmanship within specified warranty period.

1. Warranty does not include deterioration or failure of carpet tile due to unusual traffic, failure of substrate, vandalism, or abuse.
2. Failures include, but are not limited to, more than 10 percent edge raveling, snags, runs, dimensional stability, excess static discharge, loss of tuft bind strength, loss of face fiber, and delamination.
3. Warranty Period: Minimum 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 CARPET TILE

A. Products: Subject to compliance with requirements, See Finish Materials Listing for Basis of Design. Also see preferred Vendor List for manufacturers that may be considered acceptable substitutions and must be submitted in accordance with Divison 01 Section "product requirements".

2.2 INSTALLATION ACCESSORIES

A. Trowelable Leveling and Patching Compounds: Latex-modified, hydraulic-cement-based formulation provided or recommended by carpet tile manufacturer.

B. Adhesives: Water-resistant, mildew-resistant, nonstaining, pressure-sensitive type to suit products and subfloor conditions indicated, that complies with flammability requirements for installed carpet tile and is recommended by carpet tile manufacturer for releasable installation.

C. Metal Edge/Transition Strips: See Floor Transition Details in the Finish Drawings.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for maximum moisture content, alkalinity range, installation tolerances, and other conditions affecting carpet tile performance. Examine carpet tile for type, color, pattern, and potential defects.

B. Concrete Subfloors: Verify that concrete slabs comply with ASTM F 710 and the following:

1. Slab substrates are dry and free of curing compounds, sealers, hardeners, and other materials that may interfere with adhesive bond. Determine adhesion and dryness characteristics by performing bond and moisture tests recommended by carpet tile manufacturer.
2. Subfloor finishes comply with requirements specified in Division 03 Section "Cast-in-Place Concrete" for slabs receiving carpet tile.
3. Subfloors are free of cracks, ridges, depressions, scale, and foreign deposits.
4. Alkalinity and Adhesion Testing: Perform tests recommended by manufacturer.

C. For metal subfloors, verify the following:

1. Underlayment surface is free of irregularities and substances that may interfere with adhesive bond or show through surface.

D. For painted subfloors, verify the following:

1. Perform bond test recommended in writing by adhesive manufacturer.

E. For raised access flooring systems, verify the following:

1. Access floor complies with installation requirements specified in Division 09 Section "Access Flooring."
2. Access floor substrate is compatible with carpet tile and adhesive if any.
3. Underlayment surface is flat, smooth, evenly planed, tightly jointed, and free of irregularities, gaps greater than 1/8 inch, protrusions more than 1/32 inch, and substances that may interfere with adhesive bond or show through surface.

F. Proceed with installation only after substrates pass testing and unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. General: Comply with CRI 104, Section 6.2, "Site Conditions; Floor Preparation," and with carpet tile manufacturer's written installation instructions for preparing substrates indicated to receive carpet tile installation.

B. Use trowelable leveling and patching compounds, according to manufacturer's written instructions, to fill cracks, holes, depressions, and protrusions in substrates. Fill or level cracks, holes and depressions 1/8 inch wide or wider and protrusions more than 1/32 inch unless more stringent requirements are required by manufacturer's written instructions.

C. Remove coatings, including curing compounds, and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, without using solvents. Use mechanical methods recommended in writing by carpet tile manufacturer.

D. Clean metal substrates of grease, oil, soil and rust, and prime if directed by adhesive manufacturer. Rough sand painted metal surfaces and remove loose paint. Sand aluminum surfaces, to remove metal oxides, immediately before applying adhesive.

E. Broom and vacuum clean substrates to be covered immediately before installing carpet tile.

3.3 INSTALLATION

A. General: Comply with CRI 104, Section 14, "Carpet Modules," and with carpet tile manufacturer's written installation instructions.

B. Installation Method: ~~[Glue down; install every tile with full-spread, releasable, pressure-sensitive adhesive] [~~**COORDINATE WITH MANUFACTURER**~~]~~.

C. Cut and fit carpet tile to butt tightly to vertical surfaces, permanent fixtures, and built-in furniture including cabinets, pipes, outlets, edgings, thresholds, and nosings. Bind or seal cut edges as recommended by carpet tile manufacturer.

D. Extend carpet tile into toe spaces, door reveals, closets, open-bottomed obstructions, removable flanges, alcoves, and similar openings.

E. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on finish flooring as marked on subfloor. Use nonpermanent, nonstaining marking device.

F. Install pattern parallel to walls and borders. See Finish Drawings per patterns and layouts.

G. Stagger joints of carpet tiles so carpet tile grid is offset from access flooring panel grid. Do not fill seams of access flooring panels with carpet adhesive; keep seams free of adhesive.

H. Install edge strips and trim in accordance with manufacturer's written instructions concealing exposed edges.

I. Do not place furniture or heavy objects on carpeted surfaces for a minimum of 2 hours or until adhesive has set.

3.4 CLEANING AND PROTECTION

A. Perform the following operations immediately after installing carpet tile:

1. Remove excess adhesive, seam sealer, and other surface blemishes using cleaner recommended by carpet tile manufacturer.
2. Remove yarns that protrude from carpet tile surface.
3. Vacuum carpet tile using commercial machine with face-beater element.

B. Protect installed carpet tile with non-staining building material paper, hard board or plywood to comply with CRI 104, Section 16, "Protecting Indoor Installations." Do not use plastic sheeting.

C. Protect carpet tile against damage from construction operations and placement of equipment and fixtures during the remainder of construction period. Use protection methods indicated or recommended in writing by carpet tile manufacturer.

END OF SECTION