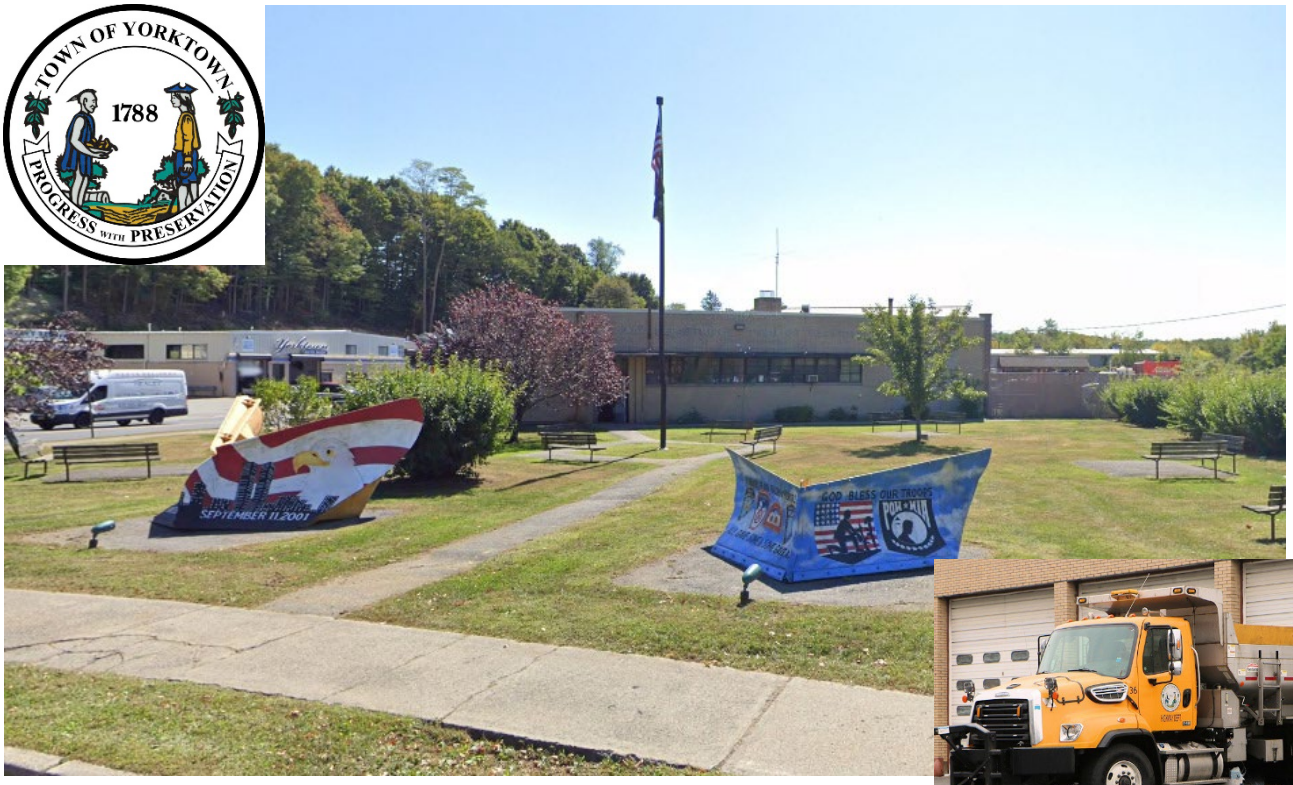
Addition and Alteration To
The Highway Garage Building
Town Of Yorktown
Highway Department

281 Underhill Avenue
Yorktown Heights, NY 10598



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ARCHITECTURAL SPECIFICATIONS

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SECTION 011000 - SUMMARY

1.1 PROJECT INFORMATION

A. Project Identification: Town of Yorktown Highway Garage Addition and Alteration.

1. Project Location: 281 Underhill Avenue – Yorktown Heights, NY 10598.

B. Owner: Town of Yorktown.

1. Owner's Representative: David Paganelli and Diana Quast.

C. Architect: David Tetro.

1. Architect's Representative: David Tetro.

D. Architect's Consultants: Architect has retained the following design professionals, who have prepared designated portions of the Contract Documents:

1. MEP Engineer: Revans Design PE PC.

a. Representative: Paul Revans.

1.2 WORK COVERED BY CONTRACT DOCUMENTS

A. The Work of Project: Interior Addition to existing Highway Superintendent’s Office, Toilet Room Alteration and Upgrades, and Bunkroom Addition

B. Type of Contract: Single prime contract.

C. Phased Construction: One phase.

D. Owner's Occupancy Requirements: Full Owner occupancy.

1. Owner occupancy of completed areas of construction.

END OF SECTION 011000

SECTION 012300 - ALTERNATES

1.1 SCHEDULE OF ALTERNATES

A. Alternate No. 1: Asphalt pavement.

1. Base Bid: Broom-swept concrete walkway.
2. Alternate: Asphalt of same dimensions and layout as specified concrete walkway.

END OF SECTION 012300

SECTION 012500 - SUBSTITUTION PROCEDURES

1.1 ACTION SUBMITTALS

A. Documentation:

1. Justification.
2. Coordination information.
3. Detailed comparison.
4. Product Data.
5. Samples.
6. Certificates and qualification data.
7. List of similar installations.
8. Material test reports.
9. Research reports.
10. Detailed comparison of Contractor's construction schedule.
11. Cost information.
12. Contractor's certification.
13. Contractor's waiver of rights to additional payment or time.

B. Architect's Action: If necessary, Architect will request additional information within three days of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection within ten days of receipt, or seven days of receipt of additional information.

1.2 SUBSTITUTIONS

A. Substitutions for Cause: Not later than ten days prior to time required for preparation and review of submittals.

B. Substitutions for Convenience: Will be considered if received within 30 days after the Notice of Award.

END OF SECTION 012500

SECTION 012600 - CONTRACT MODIFICATION PROCEDURES

1.1 SUMMARY

A. Minor Changes in the Work: On form mutually agreed-upon by Project team.

B. Owner-Initiated Work Change Proposal Requests: Issued by Architect or Construction Manager.

C. Contractor-Initiated Work Change Proposals: Submit to Architect or Construction Manager.

1. Comply with requirements in Section 012500 "Substitution Procedures" if the proposed change requires substitution of one product or system for product or system specified.

D. Change Orders: Issued by Architect or Construction Manager for signatures of Owner and Contractor.

E. Construction Change Directives: Issued by Architect or Construction Manager for signatures of Owner and Contractor.

END OF SECTION 012600

SECTION 013200 - CONSTRUCTION PROGRESS DOCUMENTATION

1.1 INFORMATIONAL SUBMITTALS

A. Format for Submittals: PDF electronic file.

B. Startup construction schedule.

C. Startup network diagram.

D. Contractor's construction schedule.

E. Daily Construction Reports: Submit at weekly intervals.

F. Material Location Reports: Submit at weekly intervals.

G. Site condition reports.

H. Unusual event reports.

1.2 CONTRACTOR'S CONSTRUCTION SCHEDULE

A. Schedule Type: Gantt chart.

B. Milestones: Notice to Proceed, Substantial Completion, and final completion.

C. Updating: At monthly intervals, issued one week before each progress meeting.

END OF SECTION 013200

SECTION 013300 - SUBMITTAL PROCEDURES

1.1 SUBMITTALS

A. Submit submittal schedule.

1.2 PROCEDURES

A. Prepare and submit submittals as PDF sent via email.

B. Content: Submittals to be sent as a single complete submittal of each product or assembly separately. Mass submittals will not be accepted.

C. Liability: Submittals rejected by Architect shall not impact the construction time schedule and shall not be included as part of the processing times listed below.

D. Processing Time:

1. Initial Review: 5 days.
2. Resubmittal Review: 5 days.
3. Sequential Review: 10 days.
4. Concurrent Consultant Review: 10 days.

E. Certificates and Certifications Submittals: Includes signature of entity responsible for preparing certification.

F. Delegated Design Services Certification: In addition to other required submittals, submit signed PDF electronic file and three paper copies of certificate, signed and sealed by the responsible design professional.

G. Contractor's Submittal Review: Mark with approval stamp before submitting to Architect and Construction Manager.

END OF SECTION 013300

SECTION 014000 - QUALITY REQUIREMENTS

1.1 DEFINITIONS

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

B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements.

C. Mockups: Full-size physical assemblies that are constructed on-site either as freestanding temporary built elements or as part of permanent construction.

1.2 QUALITY ASSURANCE

A. Delegated Design Services: For products and systems assigned to Contractor to be designed and certified by Contractor's design professional to be in compliance with performance and design criteria.

B. Qualifications:

1. Contractor's quality-control personnel.
2. Manufacturer.
3. Fabricator.
4. Installer.
5. Professional engineer performing delegated design services.
6. Specialists.
7. Testing agency.
8. Manufacturer's technical representative.
9. Factory-authorized service representative.

C. Preconstruction testing.

D. Mockups: For each form of construction and finish required, using materials indicated for the completed Work.

1. Demonstrate the proposed range of aesthetic effects and workmanship.
2. Maintain mockups as a standard for judging the completed Work.
3. Demolish and remove mockups when directed unless otherwise indicated.

E. Integrated Exterior Mockups: Construct according to approved Shop Drawings.

1.3 QUALITY CONTROL

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

1. Payment will be made from testing and inspecting allowances.

B. Contractor Responsibilities: Tests and inspections not explicitly assigned to Owner are Contractor's responsibility.

C. Manufacturer's field services.

D. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.

E. Associated Services: Access to the Work, taking and storing samples, and delivery of samples to testing agency.

F. Special Tests and Inspections: Engage a qualified testing agency to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner.

G. Test and inspection log.

H. Repair and Protection: Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 014000

SECTION 014339 - MOCKUPS

1.1 SUMMARY

A. Integrated exterior mockups.

1.2 INTEGRATED EXTERIOR MOCKUPS

A. Design and construct support foundation and superstructure.

B. The Work of integrated exterior mockups includes, but is not limited to, the following:

1. Air and weather barriers.
2. Thermal insulation.
3. Through-wall flashing.
4. Flashing and sheet metal trim.
5. Joint sealants.
6. Aluminum windows.
7. Synthetic Stucco.

END OF SECTION 014339

SECTION 015000 - TEMPORARY FACILITIES AND CONTROLS

1.1 USE CHARGES

A. Sewer Service: Available from existing system without charge.

B. Water Service: Available from existing system without charge.

C. Electric Power Service: Available from existing system without charge.

1.2 INFORMATIONAL SUBMITTALS

A. Erosion- and sedimentation-control plan.

B. Moisture-protection plan.

C. Noise- and vibration-control plan.

D. Fire-safety program.

E. Dust- and HVAC-control plan.

1.3 MATERIALS

A. Chain-link fencing.

B. Portable chain-link fencing.

C. Wood enclosure fence.

1.4 TEMPORARY FACILITIES

A. Common-Use Field Office: Prefabricated or mobile units.

B. Use of Owner's existing facilities for field office.

C. Storage and fabrication sheds.

1.5 EQUIPMENT

A. Fire extinguishers.

B. HVAC Equipment: Unless Owner authorizes use of permanent HVAC system, provide vented, self-contained heaters with individual space thermostatic control.

1. Permanent HVAC System: If Owner authorizes use of HVAC system, provide filter with MERV of 8 at each return-air grille and clean HVAC system.

C. Air-Filtration Units: HEPA-filter-equipped portable units. Configure to run continuously.

1.6 INSTALLATION, GENERAL

A. Isolation of work areas in occupied facilities.

1.7 TEMPORARY UTILITY INSTALLATION

A. Sewers and drainage.

B. Water Service: Connect to existing service.

C. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water.

D. Heating and Cooling: Provide temporary heating and cooling required by construction activities.

E. Ventilation and humidity control.

F. Electric Power Service: Connect to existing service.

G. Lighting: Provide temporary lighting.

H. Telephone Service: Provide temporary telephone service in common-use facilities.

1.8 SUPPORT FACILITIES INSTALLATION

A. Temporary Roads and Paved Areas: Coordinate and locate temporary roads and paved areas with Owner.

B. Parking: Use designated areas of Owner's existing parking areas.

C. Dewatering Facilities and Drains: Maintain Project site, excavations, and construction free of water.

D. Project Signs: Provide Project signs as indicated. Unauthorized signs are not permitted.

1.9 SECURITY AND PROTECTION FACILITIES INSTALLATION

A. Temporary erosion and sedimentation control.

B. Stormwater control.

C. Tree and plant protection.

D. Covered Walkway: Erect protective, covered walkway for passage of individuals through or adjacent to Project site.

E. Temporary Partitions: Provide floor-to-ceiling dustproof partitions to separate areas occupied by Owner from fumes and noise.

END OF SECTION 015000

SECTION 015639 - TEMPORARY TREE AND PLANT PROTECTION

1.1 MATERIALS

A. Backfill Soil: Stockpiled soil mixed with planting soil.

B. Organic Mulch: Shredded hardwood.

1.2 EXECUTION

A. Protection Zones: Enclosed with protection-zone fencing and signage.

B. Trunk Protection: Wood planks and plastic construction fencing.

C. Trenching near Trees: Excavation under or around roots or tunneling under the roots.

D. Tree Replacement: Replacement of protected trees that are dead or unhealthy due to construction operations.

1. Small Trees: New trees of same size and species as those being replaced.
2. Large Trees: Two tree(s) of 4-inch caliper size for each tree being replaced. Species as selected by Architect.

END OF SECTION 015639

SECTION 016000 - PRODUCT REQUIREMENTS

1.1 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Use means and methods that will prevent damage, deterioration, and loss, including theft.

B. Store products to allow for inspection and measurement or counting of units.

C. Provide for storage of materials and equipment by Owner.

1.2 PRODUCT WARRANTIES

A. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.

1.3 PRODUCT SELECTION PROCEDURES

A. Sole Product: Product named that complies with requirements.

B. Sole Manufacturer/Source: Product by manufacturer or from source named that complies with requirements.

C. Limited List of Products: One of the products listed that complies with requirements. Comparable products will be considered unless otherwise indicated.

D. Limited List of Manufacturers: Product by one of the manufacturers listed that complies with requirements. Comparable products will be considered unless otherwise indicated.

E. Non-Limited List of Products: One of the products listed that complies with requirements, or another product submitted by Contractor that meets requirements. Substitution request is not required.

F. Non-Limited List of Manufacturers: Product by one of the manufacturers listed that complies with requirements, or product of another manufacturer that meets requirements. Substitution request is not required.

G. Basis-of-Design Product: Either the specified product or a comparable product by one of the other named manufacturers, approved by Architect as part of normal Project submittal.

H. Visual Matching Specification: Product that matches Architect's sample. Architect's decision will be final.

I. Visual Selection Specification: Product (and manufacturer) that complies with other specified requirements. Architect will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

1.4 COMPARABLE PRODUCTS

A. Conditions for Consideration:

1. Product does not require revisions to the Contract Documents, is consistent with the Contract Documents and will produce the indicated results, and is compatible with other portions of the Work.
2. Comparison of proposed product with those named in the Specifications.
3. Product provides specified warranty.
4. Similar installations, if requested.
5. Samples, if requested.

END OF SECTION 016000

SECTION 017300 - EXECUTION

1.1 DEFINITIONS

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

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

1.2 MATERIALS

A. Complete final cleaning using products that comply with Green Seal's GS-37 and the California Code of Regulations maximum allowable VOC levels.

1.3 EXECUTION

A. Existing Conditions: Existence and location of site improvements, utilities, and other construction affecting the Work must be investigated and verified.

B. Review of the Contract Documents and field conditions.

C. Construction Layout: Engage a land surveyor to lay out the Work, using accepted surveying practices.

D. Installation: Comply with manufacturer's written instructions.

1.4 CUTTING AND PATCHING

A. Provide temporary support.

B. Protect in-place construction.

C. Protect adjacent occupied areas.

D. Existing Utility Services and Mechanical/Electrical Systems: Minimize interruption to occupied areas.

E. Cutting: In general, use hand or small power tools. Cut holes and slots neatly to minimum size required. Temporarily cover openings when not in use.

F. Patching: Patch with durable seams that are as invisible as practicable.

G. Finishes: Restore exposed finishes. Extend new finishes to perimeter of patched surface. Leave patched work indistinguishable from existing undisturbed work.

1.5 COORDINATION OF OWNER'S PORTION OF THE WORK

A. Coordinate the Work with work performed by Owner's construction personnel and Owner's separate contractors.

B. Provide temporary facilities for Owner-furnished, Contractor-installed and Owner-furnished, Owner-installed products.

C. Provide access to Project site for Owner's personnel.

D. Inform Owner of Contractor's preferred construction schedule for Owner's portion of the Work. Adjust construction schedule based on a mutually agreeable timetable.

E. Include Owner's personnel at preinstallation conferences.

1.6 PROGRESS CLEANING

A. Clean Project site and work areas daily. Dispose of materials lawfully.

B. Keep installed work clean.

C. Remove debris from concealed spaces.

1.7 STARTING AND ADJUSTING

A. Start equipment and operating components to confirm proper operation.

B. Adjust equipment for proper operation.

1.8 PROTECTION OF INSTALLED CONSTRUCTION

A. Provide final protection and maintain conditions that ensure Work is without damage.

1.9 CORRECTION OF THE WORK

A. Repair or remove and replace damaged, defective, or nonconforming Work. Restore damaged substrates and finishes.

END OF SECTION 017300

SECTION 017419 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

1.1 SUMMARY

A. Recycling nonhazardous cardboard, glass, and other demolition and construction waste that can be recycled.

B. Disposing of nonhazardous nonrecyclable demolition and construction waste legally and safely.

1.2 WASTE MANAGEMENT

A. Type of waste and whether it will be recycled or disposed of in landfill or incinerator.

1.3 PLAN IMPLEMENTATION

A. Engage a waste management coordinator.

B. Train workers, subcontractors, and suppliers on proper waste management procedures.

1.4 PROCEDURES

A. Dispose of on-site construction waste on a daily basis into approved construction waste containers.

B. Construction areas to be kept broom swept clean at the end of each workday.

C. Exterior areas where debris dumpsters and containers are kept shall be secure at the end of the work day against access and entry.

D. All debris shall be disposed of legally.

END OF SECTION 017419

SECTION 017700 - CLOSEOUT PROCEDURES

1.1 CLOSEOUT PROCEDURES

A. Prepare and submit Contractor's list of incomplete items (punch list) in the form of PDF electronic file.

B. Submit closeout items required in other Sections.

C. Submit Project warranties.

D. Complete final cleaning using products that comply with Green Seal's GS-37 and the California Code of Regulations maximum allowable VOC levels.

E. Replace bulbs that are dim or burned out.

F. Clean ducts, blowers, and coils if units were operated without filters during construction or that display contamination with particulate matter on inspection.

1. Clean HVAC system in compliance with NADCA ACR. Provide written report on completion of cleaning.

G. Touch up or repair finishes.

END OF SECTION 017700

SECTION 017823 - OPERATION AND MAINTENANCE DATA

1.1 SUMMARY

A. Procedures for preparing the following manuals:

1. Operation and maintenance documentation directory manuals.
2. Emergency manuals.
3. Systems and equipment operation manuals.
4. Systems and equipment maintenance manuals.
5. Product maintenance manuals.

1.2 PRODUCTS

A. Format:

1. PDF electronic files by email to Architect.
2. Heavy-duty, three-ring, vinyl-covered, loose-leaf binders, one set(s) of copies.

B. Directory Manuals: Organized reference to emergency, operation, and maintenance manuals.

C. Emergency Manuals: Types of emergencies, emergency instructions, and emergency procedures.

D. Operation Manuals: System, subsystem, and equipment descriptions; operating procedures; wiring diagrams; control diagrams and sequence of operation; and piped system diagrams.

E. Product Maintenance Manuals: Source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds.

F. Systems and Equipment Maintenance Manuals: Source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranties and bonds.

END OF SECTION 017823

SECTION 017839 - PROJECT RECORD DOCUMENTS

1.1 RECORD DOCUMENTS

A. Record Drawings:

1. Initial Submittal: One paper-copy set for Owner and PDF electronic files for owner and Design Professionals.
2. Final Submittal: One paper-copy set for Owner and PDF electronic files for owner and Design Professionals.

B. Record Specifications: One paper-copy set for Owner and PDF electronic files for owner and Design Professionals.

C. Record Product Data: One paper-copy set for Owner and PDF electronic files for owner and Design Professionals.

D. Miscellaneous Record Submittals: One paper-copy set for Owner and PDF electronic files for owner and Design Professionals.

E. Record Digital Data Files: Corrected digital data files of the Contract Drawings, as follows:

1. Format: Annotated PDF electronic file with comment function enabled.

END OF SECTION 017839

SECTION 017900 - DEMONSTRATION AND TRAINING

1.1 INSTRUCTION PROGRAM

A. Provide training for each system and for equipment not part of a system. Presented by factory-authorized service representatives where necessary.

B. Program Structure: Provide training modules for each of the following:

1. Basis of system design, operational requirements, and criteria.
2. Documentation.
3. Emergencies.
4. Operations.
5. Adjustments.
6. Troubleshooting.
7. Maintenance.
8. Repairs.

C. Facilitator to prepare instruction program and training modules and to coordinate instructors.

END OF SECTION 017900

SECTION 033000 - CAST-IN-PLACE CONCRETE

1.1 PRODUCTS

A. Concrete General: ACI 301 and ACI 117.

B. Cementitious Materials:

1. Portland Cement: ASTM C150, Type I,.
2. Fly Ash: ASTM C618, Class C or F.
3. Slag Cement: ASTM C989/C989M, Grade 100 or 120.
4. Blended Hydraulic Cement: ASTM C595/C595M, Type IS.
5. Silica fume.
6. Performance-Based Hydraulic Cement: ASTM C1157/C1157M: Type GU, general use.
7. Aggregate: Normal weight.
8. Water.

C. Mixing: Ready mixed.

1.2 CONCRETE MIXTURES

A. Compressive Strength (28 Days):

1. Footings and Grade Beams: 4000 psi.
2. Slabs-on-Ground: 3000 psi.

1.3 REINFORCEMENT

A. Steel Reinforcement:

1. Reinforcing Bars: Deformed.
2. Welded-Wire Reinforcement: Plain.

1.4 INSTALLATION

A. Comply with CRSI's "Manual of Standard Practice" for placing and supporting reinforcement.

1.5 INSTALLATION

A. Formed Finishes: Surface Finish 1.0.

B. Floor and Slab Finishes:

1. Trowel Finish: Surfaces exposed to view or to be covered with carpet.
2. Trowel and Fine-Broom Finish: Surfaces to be covered with ceramic or quarry tile to be installed by either thickset or thinset method.

3. Broom Finish: Exterior concrete Walkways.

1.6 FIELD QUALITY CONTROL

A. Testing: By Contractor-engaged agency.

B. Special Inspections: By Owner-engaged special inspector.

END OF SECTION 033000

SECTION 042200 - CONCRETE UNIT MASONRY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Concrete masonry units.
2. Steel reinforcing bars.

1.2 DEFINITIONS

A. CMU(s): Concrete masonry unit(s).

B. Reinforced Masonry: Masonry containing reinforcing steel in grouted cells.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.4 INFORMATIONAL SUBMITTALS

A. Material Certificates: For each type and size of product. For masonry units, include data on material properties.

B. Mix Designs: For each type of mortar. Include description of type and proportions of ingredients.

1. Include test reports for mortar mixes required to comply with property specification. Test in accordance with ASTM C109/C109M for compressive strength, ASTM C1506 for water retention, and ASTM C91/C91M for air content.
2. Include test reports, in accordance with ASTM C1019, for grout mixes required to comply with compressive strength requirement.

1.5 FIELD CONDITIONS

A. Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Remove and replace unit masonry damaged by frost or by freezing conditions. Comply with cold-weather construction requirements contained in TMS 602/ACI 530.1/ASCE 6.

B. Hot-Weather Requirements: Comply with hot-weather construction requirements contained in TMS 602/ACI 530.1/ASCE 6.

PART 2 - PRODUCTS

2.1 UNIT MASONRY, GENERAL

A. Masonry Standard: Comply with TMS 602/ACI 530.1/ASCE 6, except as modified by requirements in the Contract Documents.

B. Defective Units: Referenced masonry unit standards may allow a certain percentage of units to contain chips, cracks, or other defects exceeding limits stated. Do not use units where such defects are exposed in the completed Work.

C. Fire-Resistance Ratings: Comply with requirements for fire-resistance-rated assembly designs indicated.

1. Where fire-resistance-rated construction is indicated, units are listed and labeled by a qualified testing agency acceptable to authorities having jurisdiction.

2.2 CONCRETE MASONRY UNITS

A. Shapes: Provide shapes indicated and as follows, with exposed surfaces matching exposed faces of adjacent units unless otherwise indicated.

1. Provide special shapes for lintels, corners, jambs, sashes, movement joints, headers, bonding, and other special conditions.

B. CMUs: ASTM C90.

1. Unit Compressive Strength: Provide units with minimum average net-area compressive strength of 2150 psi.
2. Density Classification: Normal weight.

2.3 MORTAR AND GROUT MATERIALS

A. Portland Cement: ASTM C150/C150M, Type I or II, except Type III may be used for cold-weather construction. Provide natural color or white cement as required to produce mortar color indicated.

B. Hydrated Lime: ASTM C207, Type S.

C. Portland Cement-Lime Mix: Packaged blend of portland cement and hydrated lime containing no other ingredients.

D. Masonry Cement: ASTM C91/C91M.

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

a. Cemex S.A.B. de C.V.
b. Lafarge North America Inc.
c. Lehigh Hanson; Heidelberg Cement Group.

E. Aggregate for Mortar: ASTM C144.

1. White-Mortar Aggregates: Natural white sand or crushed white stone.
2. Colored-Mortar Aggregates: Natural sand or crushed stone of color necessary to produce required mortar color.

F. Aggregate for Grout: ASTM C404.

G. Water: Potable.

2.4 REINFORCEMENT

A. Uncoated-Steel Reinforcing Bars: ASTM A615/A615M or ASTM A996/A996M, Grade 60.

B. Reinforcing Bar Positioners: Wire units designed to fit into mortar bed joints spanning masonry unit cells and to hold reinforcing bars in center of cells. Units are formed from 0.148-inch steel wire, hot-dip galvanized after fabrication. Provide units designed for number of bars indicated.

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

a. Heckmann Building Products, Inc.
b. Hohmann & Barnard, Inc.
c. Wire-Bond.

C. Masonry-Joint Reinforcement, General: ASTM A951/A951M.

1. Exterior Walls: Hot-dip galvanized carbon steel.
2. Wire Size for Side Rods: 0.148-inch diameter.
3. Wire Size for Cross Rods: 0.148-inch diameter.
4. Spacing of Cross Rods: Not more than 16 inches o.c.
5. Provide in lengths of not less than 10 feet.

2.5 MORTAR AND GROUT MIXES

A. General: Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures unless otherwise indicated.

1. Do not use calcium chloride in mortar or grout.
2. Use portland cement-lime or masonry cement mortar unless otherwise indicated.

B. Preblended, Dry Mortar Mix: Furnish dry mortar ingredients in form of a preblended mix. Measure quantities by weight to ensure accurate proportions, and thoroughly blend ingredients before delivering to Project site.

C. Mortar for Unit Masonry: Comply with ASTM C270, Property Specification. Provide the following types of mortar for applications stated unless another type is indicated.

1. For masonry below grade or in contact with earth, use Type S.

D. Grout for Unit Masonry: Comply with ASTM C476.

1. Use grout of type indicated or, if not otherwise indicated, of type (fine or coarse) that will comply with TMS 602/ACI 530.1/ASCE 6 for dimensions of grout spaces and pour height.
2. Proportion grout in accordance with ASTM C476, Table 1 or paragraph 4.2.2 for specified 28-day compressive strength indicated, but not less than 2000 psi.
3. Provide grout with a slump of 8 to 11 inches as measured in accordance with ASTM C143/C143M.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Use full-size units without cutting if possible. If cutting is required to provide a continuous pattern or to fit adjoining construction, cut units with motor-driven saws; provide clean, sharp, unchipped edges. Allow units to dry before laying unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.

3.2 TOLERANCES

A. Dimensions and Locations of Elements:

1. For dimensions in cross section or elevation, do not vary by more than plus 1/2 inch or minus 1/4 inch.
2. For location of elements in plan, do not vary from that indicated by more than plus or minus 1/2 inch.
3. For location of elements in elevation, do not vary from that indicated by more than plus or minus 1/4 inch in a story height or 1/2 inch total.

B. Lines and Levels:

1. For bed joints and top surfaces of bearing walls, do not vary from level by more than 1/4 inch in 10 feet, or 1/2-inch maximum.
2. For conspicuous horizontal lines, such as lintels, sills, parapets, and reveals, do not vary from level by more than 1/8 inch in 10 feet, 1/4 inch in 20 feet, or 1/2-inch maximum.
3. For vertical lines and surfaces, do not vary from plumb by more than 1/4 inch in 10 feet, 3/8 inch in 20 feet, or 1/2-inch maximum.
4. For conspicuous vertical lines, such as external corners, door jambs, reveals, and expansion and control joints, do not vary from plumb by more than 1/8 inch in 10 feet, 1/4 inch in 20 feet, or 1/2-inch maximum.
5. For lines and surfaces, do not vary from straight by more than 1/4 inch in 10 feet, 3/8 inch in 20 feet, or 1/2-inch maximum.

C. Joints:

1. For bed joints, do not vary from thickness indicated by more than plus or minus 1/8 inch, with a maximum thickness limited to 1/2 inch.
2. For head and collar joints, do not vary from thickness indicated by more than plus 3/8 inch or minus 1/4 inch.
3. For exposed head joints, do not vary from thickness indicated by more than plus or minus 1/8 inch.

3.3 LAYING MASONRY WALLS

A. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement-type joints, returns, and offsets. Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.

B. Bond Pattern for Exposed Masonry: Unless otherwise indicated, lay exposed masonry in running bond; do not use units with less-than-nominal 4-inch horizontal face dimensions at corners or jambs.

C. Built-in Work: As construction progresses, build in items specified in this and other Sections. Fill in solidly with masonry around built-in items.

D. Fill space between steel frames and masonry solidly with mortar unless otherwise indicated.

E. Where built-in items are to be embedded in cores of hollow masonry units, place a layer of metal lath, wire mesh, or plastic mesh in the joint below, and rod mortar or grout into core.

F. Fill cores in hollow CMUs with grout 24 inches under bearing plates, beams, lintels, posts, and similar items unless otherwise indicated.

3.4 MORTAR BEDDING AND JOINTING

A. Lay hollow CMUs as follows:

1. Bed face shells in mortar and make head joints of depth equal to bed joints.
2. Bed webs in mortar in all courses of piers, columns, and pilasters.
3. Bed webs in mortar in grouted masonry, including starting course on footings.
4. Fully bed entire units, including areas under cells, at starting course on footings where cells are not grouted.

B. Lay solid CMUs with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not deeply furrow bed joints or slush head joints.

C. Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than joint thickness unless otherwise indicated.

D. Cut joints flush for masonry walls to receive plaster or other direct-applied finishes (other than paint) unless otherwise indicated.

3.5 MASONRY-JOINT REINFORCEMENT

A. General: Install entire length of longitudinal side rods in mortar with a minimum cover of 5/8 inch on exterior side of walls, 1/2 inch elsewhere. Lap reinforcement a minimum of 6 inches.

1. Space reinforcement not more than 16 inches o.c.
2. Space reinforcement not more than 8 inches o.c. in foundation walls and parapet walls.
3. Provide reinforcement not more than 8 inches above and below wall openings and extending 12 inches beyond openings in addition to continuous reinforcement.

B. Interrupt joint reinforcement at control and expansion joints unless otherwise indicated.

C. Provide continuity at wall intersections by using prefabricated T-shaped units.

D. Provide continuity at corners by using prefabricated L-shaped units.

3.6 REINFORCED UNIT MASONRY

A. Temporary Formwork and Shores: Construct formwork and shores as needed to support reinforced masonry elements during construction.

1. Construct formwork to provide shape, line, and dimensions of completed masonry as indicated. Make forms sufficiently tight to prevent leakage of mortar and grout. Brace, tie, and support forms to maintain position and shape during construction and curing of reinforced masonry.
2. Do not remove forms and shores until reinforced masonry members have hardened sufficiently to carry their own weight and that of other loads that may be placed on them during construction.

B. Placing Reinforcement: Comply with requirements in TMS 602/ACI 530.1/ASCE 6.

C. Grouting: Do not place grout until entire height of masonry to be grouted has attained enough strength to resist grout pressure.

1. Comply with requirements in TMS 602/ACI 530.1/ASCE 6 for cleanouts and for grout placement, including minimum grout space and maximum pour height.
2. Limit height of vertical grout pours to not more than [**60 inches**] [**12.67 ft.**] <**Insert height**>.

3.7 REPAIRING, POINTING, AND CLEANING

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

B. Final Cleaning: After mortar is thoroughly set and cured, clean exposed masonry as follows:

1. Test cleaning methods on sample wall panel; leave one-half of panel uncleaned for comparison purposes.
2. Clean concrete masonry by applicable cleaning methods indicated in NCMA TEK 8-4A.

3.8 MASONRY WASTE DISPOSAL

A. Waste Disposal as Fill Material: Dispose of clean masonry waste, including excess or soil-contaminated sand, waste mortar, and broken masonry units, by crushing and mixing with fill material as fill is placed.

1. Do not dispose of masonry waste as fill within 18 inches of finished grade.

B. Masonry Waste Recycling: Return broken CMUs not used as fill to manufacturer for recycling.

C. Excess Masonry Waste: Remove excess clean masonry waste that cannot be used as fill, as described above or recycled, and other masonry waste, and legally dispose of off Owner's property.

END OF SECTION 042200

SECTION 051200 - STRUCTURAL STEEL FRAMING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Structural steel.
2. Shrinkage-resistant grout.

1.2 DEFINITIONS

A. Structural Steel: Elements of the structural frame indicated on Drawings and as described in ANSI/AISC 303.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.4 ACTION SUBMITTALS

A. Product Data:

1. Structural-steel materials.
2. High-strength, bolt-nut-washer assemblies.
3. Threaded rods.
4. Forged-steel hardware.
5. Shop primer.
6. Shrinkage-resistant grout.

B. Shop Drawings: Show fabrication of structural-steel components.

C. Delegated Design Submittal: For structural-steel connections indicated on Drawings to comply with design loads, include analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.5 INFORMATIONAL SUBMITTALS

A. Welding certificates.

B. Mill test reports for structural-steel materials, including chemical and physical properties.

C. Source quality-control reports.

D. Field quality-control reports.

1.6 QUALITY ASSURANCE

A. Fabricator Qualifications: A qualified fabricator that participates in the AISC Quality Certification Program and is designated an AISC-Certified Plant, Category BU or is accredited by the IAS Fabricator Inspection Program for Structural Steel (Acceptance Criteria 172).

B. Installer Qualifications: A qualified Installer who participates in the AISC Quality Certification Program and is designated an AISC-Certified Erector, Category ACSE.

C. Welding Qualifications: Qualify procedures and personnel in accordance with AWS D1.1/D1.1M.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Comply with applicable provisions of the following specifications and documents:

1. ANSI/AISC 303.
2. ANSI/AISC 360.
3. RCSC's "Specification for Structural Joints Using High-Strength Bolts."

B. Connection Design Information:
1. Design connections in accordance with ANSI/AISC 303 by fabricator's qualified professional engineer. Member reinforcement at connections is indicated on Drawings.

a. Use Load and Resistance Factor Design; data are given at factored-load level.

C. Moment Connections: Type PR, partially restrained.

D. Construction: Combined system of moment frame and braced frame.

2.2 STRUCTURAL-STEEL MATERIALS

A. W-Shapes: ASTM A992/A992M.

B. Hollow Structural Sections: ASTM A500/A500M, Grade C structural tubing.

C. Welding Electrodes: Comply with AWS requirements.

2.3 BOLTS AND CONNECTORS

A. High-Strength A325 Bolts, Nuts, and Washers: ASTM F3125/F3125M, Grade A325, Type 1, heavy-hex steel structural bolts; ASTM A563, Grade DH, heavy-hex carbon-steel nuts; and ASTM F436/F436M, Type 1, hardened carbon-steel washers; all with plain finish.

1. Direct-Tension Indicators: ASTM F959/F959M, Type 325-1, compressible-washer type with plain finish.

2.4 RODS

A. Threaded Rods: ASTM A36/A36M.

1. Finish: Plain.

2.5 PRIMER

A. Steel Primer:

1. Fabricator's standard lead- and chromate-free, nonasphaltic, rust-inhibiting primer complying with MPI#79 and compatible with topcoat.

2.6 SHRINKAGE-RESISTANT GROUT

A. Nonmetallic, Shrinkage-Resistant Grout: ASTM C1107/C1107M, factory-packaged, nonmetallic aggregate grout, noncorrosive and nonstaining, mixed with water to consistency suitable for application and a 30-minute working time.

2.7 FABRICATION

A. Structural Steel: Fabricate and assemble in shop to greatest extent possible. Fabricate in accordance with ANSI/AISC 303 and to ANSI/AISC 360.

2.8 SHOP PRIMING

A. Shop prime steel surfaces, except the following:

1. Surfaces embedded in concrete or mortar. Extend priming of partially embedded members to a depth of 2 inches.
2. Surfaces to be field welded.
3. Surfaces of high-strength bolted, slip-critical connections.
4. Surfaces enclosed in interior construction.

B. Surface Preparation of Steel: Clean surfaces to be painted. Remove loose rust and mill scale and spatter, slag, or flux deposits. Prepare surfaces in accordance with the following specifications and standards:

1. SSPC-SP 2.

C. Priming: Immediately after surface preparation, apply primer in accordance with manufacturer's written instructions and at rate recommended by SSPC to provide a minimum dry film thickness of 1.5 mils. Use priming methods that result in full coverage of joints, corners, edges, and exposed surfaces.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify, with certified steel erector present, elevations of concrete- and masonry-bearing surfaces and locations of anchor rods, bearing plates, and other embedments for compliance with requirements.

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

3.2 ERECTION

A. Set structural steel accurately in locations and to elevations indicated and in accordance with ANSI/AISC 303 and ANSI/AISC 360.

B. Baseplates Bearing Plates and Leveling Plates: Clean concrete- and masonry-bearing surfaces of bond-reducing materials and roughen surfaces prior to setting plates. Clean bottom surface of plates.

1. Set plates for structural members on wedges, shims, or setting nuts as required.
2. Weld plate washers to top of baseplate.
3. Snug-tighten anchor rods after supported members have been positioned and plumbed. Do not remove wedges or shims but, if protruding, cut off flush with edge of plate before packing with grout.
4. Promptly pack shrinkage-resistant grout solidly between bearing surfaces and plates, so no voids remain. Neatly finish exposed surfaces; protect grout and allow to cure. Comply with manufacturer's written installation instructions for grouting.

C. Maintain erection tolerances of structural steel within ANSI/AISC 303.

3.3 FIELD CONNECTIONS

A. High-Strength Bolts: Install high-strength bolts in accordance with RCSC's "Specification for Structural Joints Using High-Strength Bolts" for bolt and joint type specified.

1. Joint Type: Snug tightened.

B. Weld Connections: Comply with AWS D1.1/D1.1M for tolerances, appearances, welding procedure specifications, weld quality, and methods used in correcting welding work.

1. Comply with ANSI/AISC 303 and ANSI/AISC 360 for bearing, alignment, adequacy of temporary connections, and removal of paint on surfaces adjacent to field welds.

3.4 FIELD QUALITY CONTROL

A. Special Inspections: Owner will engage a special inspector to perform the following special inspections:

1. Verify structural-steel materials and inspect steel frame joint details.
2. Verify weld materials and inspect welds.
3. Verify connection materials and inspect high-strength bolted connections.

B. Testing Agency: Engage a qualified testing agency to perform tests and inspections.

1. Bolted Connections: Inspect bolted connections in accordance with RCSC's "Specification for Structural Joints Using High-Strength Bolts."
2. Welded Connections: Visually inspect field welds in accordance with AWS D1.1/D1.1M.

a. In addition to visual inspection, test and inspect field welds in accordance with AWS D1.1/D1.1M and the following inspection procedures, at testing agency's option:

1) Liquid Penetrant Inspection: ASTM E165/E165M.
2) Magnetic Particle Inspection: ASTM E709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration are not accepted.
3) Ultrasonic Inspection: ASTM E164.
4) Radiographic Inspection: ASTM E94/E94M.

END OF SECTION 051200

SECTION 052100 - STEEL JOIST FRAMING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. K-series steel joists.
2. Steel joist accessories.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of joist, accessory, and product.

B. Shop Drawings:

1. Include layout, designation, number, type, location, and spacing of joists.
2. Include joining and anchorage details; bracing, bridging, and joist accessories; splice and connection locations and details; and attachments to other construction.

1.3 INFORMATIONAL SUBMITTALS

A. Welding certificates.

B. Manufacturer certificates.

C. Paint compatibility certificates.

D. Mill Certificates: For each type of bolt.

E. Field quality-control reports.

1.4 QUALITY ASSURANCE

A. Manufacturer Qualifications: A manufacturer certified by SJI to manufacture joists complying with applicable standard specifications and load tables in SJI's "Specifications."

1. Manufacturer's responsibilities include providing professional engineering services for designing special joists to comply with performance requirements.

B. Welding Qualifications: Qualify field-welding procedures and personnel in accordance with AWS D1.1/D1.1M, "Structural Welding Code - Steel."

PART 2 - PRODUCTS

2.1 MANUFACTURERS

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

1. Canam Buildings US Inc.; Canam Group Inc.
2. Gooder-Henrichsen Co.
3. Structures of U.S.A., Inc.
4. Vulcraft/Verco Group; a division of Nucor Corp.

2.2 STEEL JOISTS

A. K-Series Steel Joist: Manufactured steel joists of type indicated in accordance with "Standard Specification for Open Web Steel Joists, K-Series" in SJI's "Specifications," with steel-angle top- and bottom-chord members, underslung ends, and parallel top chord.

1. Steel Joist Substitutes: Manufacture in accordance with "Standard Specifications for Open Web Steel Joists, K-Series" in SJI's "Specifications," with steel-angle or -channel members.

2.3 PRIMERS

A. Primer:

1. SSPC-Paint 15, or manufacturer's standard shop primer complying with performance requirements in SSPC-Paint 15.

2.4 STEEL JOIST ACCESSORIES

A. Bridging:

1. Provide bridging anchors and number of rows of horizontal or diagonal bridging of material, size, and type required by SJI's "Specifications" for type of joist, chord size, spacing, and span. Furnish additional erection bridging if required for stability.
2. Schematically indicated. Detail and fabricate in accordance with SJI's "Specifications." Furnish additional erection bridging if required for stability.
3. Fabricate as indicated on Drawings and in accordance with SJI's "Specifications." and "Standard Specification for Composite Steel Joists, CJ-Series" in "Standard Specifications for Composite Steel Joists, Weight Tables and Bridging Tables, Code of Standard Practice." Furnish additional erection bridging if required for stability.

B. Furnish ceiling extensions, either extended bottom-chord elements or a separate extension unit of enough strength to support ceiling construction.

1. Extend ends to within 1/2 inch of finished wall surface unless otherwise indicated on Drawings.

C. High-Strength Bolts, Nuts, and Washers: ASTM F3125/F3125M, Grade A325, Type 1, heavy-hex steel structural bolts; ASTM A563, Grade DH, heavy-hex carbon-steel nuts; and ASTM F436/F436M, Type 1, hardened carbon-steel washers.

1. Finish: Plain.

D. Furnish miscellaneous accessories including splice plates and bolts required by joist manufacturer to complete joist assembly.

2.5 CLEANING AND SHOP PAINTING

A. Clean and remove loose scale, heavy rust, and other foreign materials from fabricated joists and accessories.

B. Apply one coat of shop primer to joists and joist accessories.

C. Shop priming of joists and joist accessories to be performed by fabricator.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Do not install joists until supporting construction is in place and secured.

B. Install joists and accessories plumb, square, and true to line; securely fasten to supporting construction in accordance with SJI's "Specifications," joist manufacturer's written instructions, and requirements in this Section.

1. Before installation, splice joists delivered to Project site in more than one piece.
2. Space, adjust, and align joists accurately in location before permanently fastening.
3. Install temporary bracing and erection bridging, connections, and anchors to ensure that joists are stabilized during construction.

C. Field weld joists to supporting steel bearing plates and framework. Coordinate welding sequence and procedure with placement of joists. Comply with AWS requirements and procedures for welding, appearance and quality of welds, and methods used in correcting welding work.

D. Bolt joists to supporting steel framework using carbon-steel bolts.

E. Bolt joists to supporting steel framework using high-strength structural bolts. Comply with RCSC's "Specification for Structural Joints Using High-Strength Bolts" for high-strength structural bolt installation and tightening requirements.

F. Install and connect bridging concurrently with joist erection, before construction loads are applied. Anchor ends of bridging lines at top and bottom chords if terminating at walls or beams.

3.2 FIELD QUALITY CONTROL

A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.

B. Visually inspect field welds in accordance with AWS D1.1/D1.1M.

C. Visually inspect bolted connections.

D. Prepare test and inspection reports.

END OF SECTION 052100

SECTION 053100 - STEEL DECKING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Roof deck.

1.2 ACTION SUBMITTALS

A. Product Data:

1. Roof deck.

B. Shop Drawings:

1. Include layout and types of deck panels, anchorage details, reinforcing channels, pans, cut deck openings, special jointing, accessories, and attachments to other construction.

1.3 INFORMATIONAL SUBMITTALS

A. Certificates:

1. Welding certificates.
2. Product Certificates: For each type of steel deck.

B. Test and Evaluation Reports:

1. Product Test Reports: For tests performed by a qualified testing agency, indicating that power-actuated mechanical fasteners comply with requirements.
2. Research Reports: For steel deck, from ICC-ES showing compliance with the building code.

C. Field Quality-Control Submittals:

1. Field quality-control reports.

D. Qualification Statements: For welding personnel.

1.4 QUALITY ASSURANCE

A. Qualifications:

1. Welding Qualifications: Qualify procedures and personnel in accordance with SDI QA/QC and the following welding code:

a. AWS D1.3/D1.3M.

B. FM Approvals' RoofNav Listing: Provide steel roof deck evaluated by FM Approvals and listed in its "RoofNav" for Class 1 fire rating and windstorm ratings. Identify materials with FM Approvals Certification markings.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Store products in accordance with SDI MOC3. Stack steel deck on platforms or pallets and slope to provide drainage. Protect with a waterproof covering and ventilate to avoid condensation.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. AISI Specifications: Comply with calculated structural characteristics of steel deck in accordance with AISI S100.

B. Fire-Resistance Ratings: Comply with ASTM E119; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

1. Indicate design designations from UL's "Fire Resistance Directory" or from listings of another qualified testing agency.

2.2 ROOF DECK

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

1. ASC Steel Deck; ASC Profiles, LLC.
2. Canam Buildings US Inc.; Canam Group Inc.
3. New Millennium Building Systems, LLC.
4. Roof Deck, Inc.
5. Tristate Decking, Inc.

B. Roof Deck: Fabricate panels, without top-flange stiffening grooves, to comply with SDI RD and with the following:
1. Galvanized-Steel Sheet: ASTM A653/A653M, Structural Steel (SS), Grade 33, zinc coating.
2. Deck Profile: Type IR, intermediate rib.
3. Profile Depth: 3 inches.
4. Design Uncoated-Steel Thickness: 0.0358 inch.
5. Span Condition: Double span.
6. Side Laps: Interlocking seam.

2.3 ACCESSORIES

A. Provide manufacturer's standard accessory materials for deck that comply with requirements indicated.

B. Mechanical Fasteners: Corrosion-resistant, low-velocity, power-actuated or pneumatically driven carbon-steel fasteners; or self-drilling, self-threading screws.

C. Side-Lap Fasteners: Corrosion-resistant, hexagonal washer head; self-drilling, carbon-steel screws, No. 10 minimum diameter.

D. Flexible Closure Strips: Vulcanized, closed-cell, synthetic rubber.

E. Miscellaneous Sheet Metal Deck Accessories: Steel sheet, minimum yield strength of 33,000 psi, not less than 0.0359-inch design uncoated thickness, of same material and finish as deck; of profile indicated or required for application.

F. Pour Stops and Girder Fillers: Steel sheet, minimum yield strength of 33,000 psi, of

G. Column Closures, End Closures, Z-Closures, and Cover Plates: Steel sheet, of same material, finish, and thickness as deck unless otherwise indicated.

H. Weld Washers: Uncoated steel sheet, shaped to fit deck rib, [**0.0598 inch**] [**0.0747 inch**] thick, with factory-punched hole of 3/8-inch minimum diameter.

I. Flat Sump Plates: Single-piece steel sheet, 0.0747 inch thick, of same material and finish as deck. For drains, cut holes in the field.

J. Galvanizing Repair Paint: ASTM A780/A780M.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Install deck panels and accessories in accordance with SDI C, SDI NC, and SDI RD, as applicable; manufacturer's written instructions; and requirements in this Section.

B. Install temporary shoring before placing deck panels if required to meet deflection limitations.

C. Locate deck bundles to prevent overloading of supporting members.

D. Place deck panels on supporting frame and adjust to final position with ends accurately aligned and bearing on supporting frame before being permanently fastened. Do not stretch or contract side-lap interlocks.

E. Place deck panels flat and square and fasten to supporting frame without warp or deflection.

F. Cut and neatly fit deck panels and accessories around openings and other work projecting through or adjacent to deck.

G. Provide additional reinforcement and closure pieces at openings as required for strength, continuity of deck, and support of other work.

H. Comply with AWS requirements and procedures for manual shielded metal arc welding, appearance and quality of welds, and methods used for correcting welding work.

I. Mechanical fasteners may be used in lieu of welding to fasten deck. Locate mechanical fasteners and install in accordance with deck manufacturer's written instructions.

3.2 INSTALLATION OF ROOF DECK

A. Fasten roof-deck panels to steel supporting members by arc spot (puddle) welds of the surface diameter indicated or arc seam welds with an equal perimeter that is not less than 1-1/2 inches long, and as follows:

1. Weld Diameter: 5/8 inch, nominal.
2. Weld Spacing: Weld edge and interior ribs of deck units with a minimum of two welds per deck unit at each support. Space welds 18 inches apart, maximum 12 inches apart in Zone 1 and 6 inches apart in Zones 2 and 3, based on roof-area definitions in FM Global Loss Prevention Data Sheet 1-28.
3. Weld Washers: Install weld washers at each weld location.

B. Side-Lap and Perimeter Edge Fastening: Fasten side laps and perimeter edges of panels between supports, at intervals not exceeding the lesser of one-half of the span or 18 inches, and as follows:

1. Mechanically fasten with self-drilling, No. 10 diameter or larger, carbon-steel screws.
2. Mechanically clinch or button punch.
3. Fasten with a minimum of 1-1/2-inch-long welds.

C. End Bearing: Install deck ends over supporting frame with a minimum end bearing of 1-1/2 inches, with end joints as follows:

1. End Joints: Lapped 2 inches minimum or butted at Contractor's option.

D. Roof Sump Pans and Sump Plates: Install over openings provided in roof deck and weld flanges to top of deck. Space welds not more than 12 inches apart with at least one weld at each corner.

1. Install reinforcing channels or zees in ribs to span between supports and weld.

E. Miscellaneous Roof-Deck Accessories: Install ridge and valley plates, finish strips, end closures, and reinforcing channels in accordance with deck manufacturer's written instructions. to substrate to provide a complete deck installation.

1. Weld cover plates at changes in direction of roof-deck panels unless otherwise indicated.

F. Flexible Closure Strips: Install flexible closure strips over partitions, walls, and where indicated. Install with adhesive in accordance with manufacturer's written instructions to ensure complete closure.

3.3 REPAIR

A. Galvanizing Repairs: Prepare and repair damaged galvanized coatings on both surfaces of deck with galvanized repair paint in accordance with ASTM A780/A780M and manufacturer's written instructions.

B. Repair Painting:

1. Wire brush and clean rust spots, welds, and abraded areas on both surfaces of prime-painted deck immediately after installation, and apply repair paint.

2. Apply repair paint, of same color as adjacent shop-primed deck, to bottom surfaces of deck exposed to view.

3.4 FIELD QUALITY CONTROL

A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.

B. Tests and Inspections:

1. Special inspections and qualification of welding special inspectors for cold-formed steel floor and roof deck in accordance with quality-assurance inspection requirements of SDI QA/QC.

a. Field welds will be subject to inspection.

2. Steel decking will be considered defective if it does not pass tests and inspections.

C. Prepare test and inspection reports.

END OF SECTION 053100

SECTION 054000 - COLD-FORMED METAL FRAMING

1.1 SUSTAINABILITY REQUIREMENTS

A. LEED v4:

1. Recycled content.

1.2 QUALITY ASSURANCE

A. Code-compliance certification of studs and tracks by the Certified Steel Stud Association, the Steel Framing Industry Association or the Steel Stud Manufacturers Association.

1.3 MATERIALS

A. Steel Sheet: ASTM A1003/A1003M, Structural Grade, with G60, A60, AZ50, or GF30 metallic coating.

B. Load-Bearing Wall Framing: Standard C-shaped, punched steel studs, steel box or back-to-back headers, and U-shaped, unpunched track.

1. Minimum Steel Thickness: 33-mil.

C. Exterior Non-Load-Bearing Wall Framing: Standard C-shaped, punched steel studs and U-shaped, unpunched track.

1. Minimum Steel Thickness: Minimum Steel Thickness: 33-mil.
2. Vertical deflection clips Single deflection track Double deflection track and Drift clips.

D. Interior Non-Load-Bearing Wall Framing: Standard C-shaped, punched steel studs and U-shaped, unpunched track.

1. Minimum Steel Thickness: 33-mil.
2. Vertical deflection clips.

E. Framing Accessories: Supplementary framing Bracing, bridging, and solid blocking Web stiffeners Anchor clips End clips Foundation clips Gusset plates Stud kickers and knee braces Joist hangers and end closures Hole reinforcing plates and backer plates.

1.4 INSTALLATION

A. Fasten framing by welding or screw fastening.

1. Load-Bearing Wall Stud Spacing: 16 inches.
2. Exterior Non-Load-Bearing Wall Stud Spacing: 16 inches.
3. Interior Non-Load-Bearing Wall Stud Spacing: 24 inches.

END OF SECTION 054000

SECTION 072100 - THERMAL INSULATION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Extruded polystyrene foam-plastic board insulation.
2. Glass-fiber blanket insulation.
3. Mineral-wool blanket insulation.

1.2 SUSTAINABILITY REQUIREMENTS

A. LEED v4:

1. Recycled content.
2. Low-emitting adhesives.
3. Low-emitting walls and ceilings.
4. Low-emitting insulation.

1.3 ACTION SUBMITTALS

A. Product Data: For the following:

1. Extruded polystyrene foam-plastic board insulation.
2. Glass-fiber blanket insulation.
3. Mineral-wool blanket insulation.

1.4 INFORMATIONAL SUBMITTALS

A. Installer's Certification: Listing type, manufacturer, and R-value of insulation installed in each element of the building thermal envelope.

1. Sign, date, and post the certification in a conspicuous location on Project site.

B. Product test reports.

C. Research reports.

PART 2 - PRODUCTS

2.1 EXTRUDED POLYSTYRENE FOAM-PLASTIC BOARD INSULATION

A. Extruded Polystyrene Board Insulation, Type X: ASTM C578, Type X, 15-psi minimum compressive strength; unfaced.

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

2.2 GLASS-FIBER BLANKET INSULATION

A. Glass-Fiber Blanket Insulation, Unfaced at metal stud assemblies: ASTM C665, Type I; passing ASTM E136 for combustion characteristics.

1. Flame-Spread Index: Not more than 25 when tested in accordance with ASTM E84.
2. Smoke-Developed Index: Not more than 50 when tested in accordance with ASTM E84.
3. Labeling: Provide identification of mark indicating R-value of each piece of insulation 12 inches and wider in width.

2.3 MINERAL-WOOL BLANKET INSULATION

A. Mineral-Wool Blanket Insulation, Unfaced: ASTM C665, Type I (blankets without membrane facing); consisting of fibers; passing ASTM E136 for combustion characteristics.

1. Flame-Spread Index: Not more than 25 when tested in accordance with ASTM E84.
2. Smoke-Developed Index: Not more than 50 when tested in accordance with ASTM E84.
3. Labeling: Provide identification of mark indicating R-value of each piece of insulation 12 inches and wider in width.

2.4 ACCESSORIES

A. Insulation for Miscellaneous Voids:

1. Glass-Fiber Insulation: ASTM C764, Type II, loose fill; with maximum flame-spread and smoke-developed indexes of 5, per ASTM E84.
2. Spray Polyurethane Foam Insulation: ASTM C1029, Type II, closed cell, with maximum flame-spread and smoke-developed indexes of 75 and 450, respectively, per ASTM E84.
3. Polyurethane Pour-In-Place Insulation: Closed cell, with maximum flame-spread and smoke-developed indexes of 75 and 450, respectively, per ASTM E84, specifically formulated for pour-in-place applications.

B. Insulation Anchors, Spindles, and Standoffs: As recommended by manufacturer.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Comply with insulation manufacturer's written instructions applicable to products and applications.

B. Install insulation that is undamaged, dry, and unsoiled and that has not been left exposed to ice, rain, or snow at any time.

C. Install insulation with manufacturer's R-value label exposed after insulation is installed.

D. Extend insulation to envelop entire area to be insulated. Fit tightly around obstructions and fill voids with insulation. Remove projections that interfere with placement.

E. Provide sizes to fit applications and selected from manufacturer's standard thicknesses, widths, and lengths. Apply single layer of insulation units unless multiple layers are otherwise shown or required to make up total thickness or to achieve R-value.

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 24 inches 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.

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.

C. Adhesive Installation: Install with adhesive or press into tacky waterproofing or dampproofing according to manufacturer's written instructions.

3.4 INSTALLATION OF INSULATION IN FRAMED CONSTRUCTION

A. Blanket Insulation: Install in cavities formed by framing members according to the following requirements:

1. Use insulation widths and lengths that fill the cavities formed by framing members. If more than one length is required to fill the cavities, provide lengths that will produce a snug fit between ends.

2. Place insulation in cavities formed by framing members to produce a friction fit between edges of insulation and adjoining framing members.
3. For metal-framed wall cavities where cavity heights exceed 96 inches, support unfaced blankets mechanically and support faced blankets by taping flanges of insulation to flanges of metal studs.

B. Miscellaneous Voids: Install insulation in miscellaneous voids and cavity spaces where required to prevent gaps in insulation using the following materials:

1. Glass-Fiber Insulation: Compact to approximately 40 percent of normal maximum volume equaling a density of approximately 2.5 lb/cu. ft..
2. Spray Polyurethane Insulation: Apply according to manufacturer's written instructions.

END OF SECTION 072100

SECTION 072413 - EXTERIOR INSULATION AND FINISH SYSTEM (EIFS)

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. EIFS-clad barrier-wall assemblies that are field applied over substrate.

1.2 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.3 SUSTAINABILITY REQUIREMENTS

A. LEED v4:

1. Low-emitting adhesives.
2. Low-emitting coatings.

1.4 ACTION SUBMITTALS

A. Product Data: For each EIFS component, trim, and accessory.

B. Samples: For each exposed product and for each color and texture specified.

1.5 INFORMATIONAL SUBMITTALS

A. Manufacturer certificates.

B. Product certificates.

C. Product test reports.

D. Field quality-control reports.

E. Sample warranty.

1.6 CLOSEOUT SUBMITTALS

A. Maintenance data.

1.7 QUALITY ASSURANCE

A. Installer Qualifications: An installer who is certified in writing by AWCI International as qualified to install Class PB EIFS using trained workers.

1.8 WARRANTY

A. Manufacturer's Special Warranty: Manufacturer agrees to repair or replace components of EIFS that fail in materials or workmanship within specified warranty period.

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

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following (Design based upon Sto ci XPS Lotusan System):

1. Dryvit Systems, Inc.
2. Parex USA, Inc.
3. Sto Corp.

2.2 PERFORMANCE REQUIREMENTS

A. EIFS Performance: Comply with ASTM E2568 and with the following:

1. Weathertightness: Resistant to water penetration from exterior.
2. Impact Performance: ASTM E2568, High impact resistance.

2.3 EIFS MATERIALS

A. Flexible-Membrane Flashing: Cold-applied, self-adhering, self-healing, rubberized-asphalt and polyethylene-film composite sheet or tape and primer; EIFS manufacturer's standard or product recommended in writing by EIFS manufacturer.

B. Insulation Adhesive: EIFS manufacturer's standard formulation designed for indicated use; compatible with substrate.

C. Molded, (Expanded) Rigid Cellular Polystyrene Board Insulation: Comply with ASTM E2430/E2430M.

1. Foam Buildouts: Provide with profiles and dimensions indicated on Drawings.

D. Reinforcing Mesh: Balanced, alkali-resistant, open-weave, glass-fiber mesh treated for compatibility with other EIFS materials, made from continuous multi-end strands with retained mesh tensile strength of not less than 120 lbf/in. according to ASTM E2098/E2098M.

1. Reinforcing Mesh for EIFS, General: Not less than weight required to comply with impact-performance level specified in "Performance Requirements" Article.

E. Water-Resistant Base Coat: EIFS manufacturer's standard waterproof formulation.

F. Primer: EIFS manufacturer's standard factory-mixed, elastomeric-polymer primer for preparing base-coat surface for application of finish coat.

G. Finish Coat: EIFS manufacturer's siliconized acrylic-based coating.

1. Colors: As selected by Architect from manufacturer's full range.
2. Textures: As indicated by manufacturer's designations.

H. Trim Accessories: Type as designated or required to suit conditions indicated and to comply with EIFS manufacturer's written instructions; manufactured from UV-stabilized PVC; and complying with ASTM D1784 and ASTM C1063.

PART 3 - EXECUTION

3.1 EIFS INSTALLATION

A. Comply with ASTM C1397, ASTM E2511, and EIFS manufacturer's written instructions for installation of EIFS as applicable to each type of substrate.

B. Flexible-Membrane Flashing: Apply and lap to shed water; seal at openings, penetrations, and terminations. Prime substrates with flashing primer if required and install flashing.

C. Trim: Apply trim accessories at perimeter of EIFS, at expansion joints,[**at windowsills,**] and elsewhere as indicated. Coordinate with installation of insulation.

D. Board Insulation: Adhesively attach insulation to substrate in compliance with ASTM C1397.

1. Rasp or sand flush entire surface of insulation to remove irregularities projecting more than [**1/32 inch**] [**1/16 inch**] from surface of insulation and to remove yellowed areas due to sun exposure; do not create depressions deeper than 1/16 inch. Prevent airborne dispersal and immediately collect insulation raspings or sandings.
2. Coordinate installation of flashing and insulation to produce wall assembly that does not allow water to penetrate behind flashing and EIFS lamina.

E. Expansion Joints: Install at locations indicated and where required by EIFS manufacturer.

F. Water-Resistant Base Coat: Apply full-thickness coverage to exposed insulation and to exposed surfaces of sloped shapes, window sills, parapets, foam buildouts, and to other surfaces indicated on Drawings.

G. Base Coat: Apply full coverage to exposed insulation and foam buildouts with not less than 1/16-inch dry-coat thickness.

H. Reinforcing Mesh: Embed reinforcing mesh in wet base coat to produce wrinkle-free installation with mesh continuous at corners, overlapped not less than 2-1/2 inches or otherwise treated at joints to comply with ASTM C1397. Do not lap reinforcing mesh within 8 inches of corners. Completely embed

mesh, applying additional base-coat material if necessary, so reinforcing-mesh color and pattern are invisible.

I. Double-Layer Reinforcing-Mesh Application: Where indicated or required, apply second base coat and second layer of reinforcing mesh, overlapped not less than 2-1/2 inches or otherwise treated at joints to comply with ASTM C1397 in same manner as first application. Do not apply until first base coat has cured.

J. Additional Reinforcing Mesh: Apply strip-reinforcing mesh around openings, extending 4 inches beyond perimeter. Apply additional 9-by-12-inch strip-reinforcing mesh diagonally at corners of openings (re-entrant corners). Apply 8-inch-wide, strip-reinforcing mesh at both inside and outside corners unless base layer of mesh is lapped not less than 4 inches on each side of corners.

K. Foam Buildouts: Fully embed reinforcing mesh in base coat.

L. Double Base-Coat Application: Where indicated, apply second base coat in same manner and thickness as first application, except without reinforcing mesh. Do not apply until first base coat has cured.

M. Finish Coat: Apply full-thickness coverage over dry primed base coat, maintaining a wet edge at all times for uniform appearance, to produce a uniform finish of color and texture matching approved sample and free of cold joints, shadow lines, and texture variations.

N. Sealer Coat: Apply over dry finish coat, in number of coats and thickness required by EIFS manufacturer.

END OF SECTION 072413

SECTION 075423 - THERMOPLASTIC-POLYOLEFIN (TPO) ROOFING

1.1 WARRANTY

A. Manufacturer's Materials and Workmanship Warranty: 20 years.

B. Installer's Warranty: Two years.

1.2 PERFORMANCE REQUIREMENTS

A. Wind Uplift Resistance:

1. Shall meet the requirement of the New York State Building Code and applicable rules and regulations of jurisdictions having authority.

B. FM Approvals' RoofNav Listing: Class 1A-120.

C. Exterior Fire-Test Exposure: Class A.

D. Provide TPO 80-mil 20-year warranty roof system.

E. All accessories, flashing, reinforcement, fasteners, adhesives, etc. to be part of a complete warranty roof system.

1.3 MATERIALS

A. Low-emitting adhesives and sealants.

B. TPO Roofing: ASTM D6878/D6878M, internally fabric- or scrim-reinforced, self-adhering TPO sheet.

1. Thickness: 80 mils, nominal.
2. Color: Tan or White.

C. Sheet Flashing: Same as TPO sheet.

D. Substrate Board: Glass-mat, water-resistant gypsum substrate.

E. Vapor Retarder: Self adhering compatible membrane as part of the Manufacturer’s system.

F. Roof Insulation: Polyisocyanurate board.

1. Tapered Insulation: 1/4 inch per foot.

1.4 INSTALLATION

A. Roof Insulation: Adhered.

B. Membrane Roofing: Adhered.

END OF SECTION 075423

SECTION 079100 - PREFORMED JOINT SEALS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Preformed foam joint sill seal gaskets.
2. Preformed fiber expansion joints for concrete.

1.2 ACTION SUBMITTALS

A. Product data.

1.3 INFORMATIONAL SUBMITTALS

A. Test and Evaluation Reports:

1. Product Test Reports: For each preformed joint seal, provide with manufacturer’s product data.

B. Sample warranties.

1.4 WARRANTY

A. Special Installer's Warranty: Installer agrees to repair or replace preformed joint seals that fail in materials or workmanship within specified warranty period.

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

B. Special Manufacturer's Warranty: Manufacturer agrees to furnish preformed joint seals to repair or replace those that fail in materials or workmanship within their standard specified warranty period.

PART 2 - PRODUCTS

2.1 PREFORMED, FOAM JOINT SEALS

A. Preformed, Foam Joint Seals: Manufacturer's standard joint seal manufactured from urethane or EVA (ethylene vinyl acetate) foam with minimum density of 10 lb/cu. ft. and impregnated with a nondrying, water-repellent agent. Factory produce them in precompressed sizes in roll or stick form to fit joint widths based on design criteria indicated, with factory- or field-applied adhesive for bonding to substrates.

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

    a. EMSEAL Joint Systems, Ltd.
    b. MM Systems Corporation.
    c. Pecora Corporation.
    d. Watson Bowman Acme Corp.
    e. Willseal LLC.

2. Design Criteria:

    a. Movement Capability: -25 percent/+25 percent.

3. Joint Seal Color: As indicated by manufacturer's designations.

2.2 PREFORMED, FIBER JOINT SEALS

A. Preformed, Fiber Joint Seals: Manufacturer's standard joint seal manufactured from asphalt and mineral or vegetable fibers. Factory produce them in precompressed sizes in roll or stick form to fit joint widths based on design criteria indicated, with factory- or field-applied adhesive for bonding to substrates.

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

    a. J.D. Russell, Co.
    b. Reflectix

    c. W. R. Meadows, Inc.

2. Design Criteria:

    a. Movement Capability: -70 percent.

PART 3 - EXECUTION

3.1 PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing preformed joint seals to comply with preformed joint seal manufacturer's written instructions and the following requirements:

1. Remove all foreign material from joint substrates that could interfere with adhesion of preformed joint seal, including dust, paints (except for permanent protective coatings tested and approved for seal adhesion and compatibility by seal manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
2. Clean porous joint substrate surfaces by brushing, grinding, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimal bond with preformed joint seals. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include the following:

a. Concrete.
b. Masonry.
c. Unglazed surfaces of ceramic tile.
d. Exterior insulation and finish systems.

3. Remove laitance and form-release agents from concrete.
4. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint seals. Nonporous joint substrates include the following:

a. Metal.
b. Glass.
c. Porcelain enamel.
d. Glazed surfaces of ceramic tile.

B. Joint Priming: Prime joint substrates where recommended by preformed joint seal manufacturer or as indicated by tests or prior experience. Apply primer to comply with joint seal manufacturer's written instructions. Confine primers to areas of joint seal bond; do not allow spillage or migration onto adjoining surfaces.

C. Masking Tape: Use masking tape where required to prevent contact of adhesive or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove smears. Remove tape immediately after tooling without disturbing joint seal.

3.2 INSTALLATION

A. General: Comply with preformed joint seal manufacturer's written installation instructions for products and applications indicated unless more stringent requirements apply.

B. Installation of Preformed, Foam Joint Seals:

1. Install each length of seal immediately after removing protective wrapping.
2. Firmly secure compressed joint seals to joint gap side to obtain full bond using exposed pressure-sensitive adhesive or field-applied adhesive as recommended by manufacturer.
3. Do not pull or stretch material. Produce seal continuity at splices, ends, turns, and intersections of joints.
4. For applications at low ambient temperatures, heat foam joint seal material in compliance with manufacturer's written instructions.

3.3 PROTECTION

A. Protect preformed joint seals from damage resulting from construction operations or other causes so seals are without deterioration or damage at time of Substantial Completion.

B. Cut out, remove, and repair damaged or deteriorated seals so repaired areas are indistinguishable from original work.

END OF SECTION 079100

SECTION 079200 - JOINT SEALANTS

1.1 SUSTAINABILITY REQUIREMENTS

A. LEED v4:

1. Low-emitting sealants.

1.2 WARRANTY

A. Installer Warranty: Two years.

B. Special Manufacturer's Warranty: Five years.

1.3 JOINT SEALANTS

A. Silicone joint sealants.

B. Nonstaining silicone joint sealants.

C. Urethane joint sealants.

D. Immersible joint sealants.

E. Silyl-terminated polyether joint sealants.

F. Mildew-resistant joint sealants.

G. Polysulfide joint sealants.

H. Butyl joint sealants.

I. Latex joint sealants.

J. Joint-sealant backing to be compatible with joint sealant used and material being installed between.

K. Provide sealant primer where required by construction conditions or as indicated by manufacturer.

1.4 JOINT SEALANT SCHEDULE

A. Exterior joints between EIFS and Concrete Walkway.

1. Joint Sealant: Basis of Design; Sikaflex 510 AM50 Silane Terminated Polymner (or approved equal).
2. Joint-Sealant Color: Match EIFS color.

B. Exterior joints in horizontal traffic surfaces (Walkways, changes in material at exterior doors, etc.).

1. Joint Sealant: Basis of Design; Sikaflex 1C SL – one-part polyurethane sealant (or approved equal).
2. Joint-Sealant Color: Match Concrete.

C. Interior joints in horizontal traffic surfaces (New construction to existing construction).

1. Joint Sealant: Basis of Design; Sikaflex 1C SL – one-part polyurethane sealant (or approved equal).
2. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

D. Interior joints in vertical surfaces and horizontal nontraffic surfaces.

1. Joint Sealant: Basis of Design; Sikaflex 1C SL – one-part polyurethane sealant (or approved equal).
2. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

E. Interior joints in vertical surfaces and horizontal nontraffic surfaces subject to significant movement.

1. Joint Sealant: Basis of Design; Sikaflex 510 AM50 Silane Terminated Polymner (or approved equal).
2. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

F. Mildew-resistant interior joints in vertical surfaces and horizontal nontraffic surfaces.

1. Joint Sealant: Basis of design; Sikasil GP one-part acetoxy silicone (or approved equal).
2. Joint-Sealant Color: Match toilet fixture color at fixture joints and match finish color at finish materials.

G. Concealed mastics for setting exterior door saddles.

1. Joint Sealant: Basis of design; Henry Co. Prograde 167 modified SEBS rubber mastic (or approved equal).
2. Joint-Sealant Color: Manufacturer’s standard.

H. Interior joints at rated wall assemblies.

1. Joint Sealant: Basis of design; 3M Fire Barrier Sealant FD 150+ latex-based elastomeric sealant (or approved equal).
2. Joint-Sealant Color: Manufacturer’s standard.

I. Thru-wall penetrations at rated wall assemblies.

1. Joint Sealant: Basis of design; 3M Fire Barrier Sealant CP 25WB+ one-part latex-based intumescent sealant (or approved equal).
2. Joint-Sealant Color: Manufacturer’s standard.

END OF SECTION 079200

SECTION 081113 - HOLLOW METAL DOORS AND FRAMES

1.1 SUSTAINABILITY REQUIREMENTS

A. LEED v4:

1. Recycled content.

1.2 PERFORMANCE REQUIREMENTS

A. Fire-rated assemblies.

B. Standard assemblies.

1.3 INTERIOR STANDARD STEEL DOORS AND FRAMES

A. Standard-Duty Doors and Frames: ANSI/SDI A250.8, Level 1.

1. Thickness: 1-3/4 inches.
2. Face: Uncoated steel sheet, minimum thickness of 0.032 inch.
3. Edge Construction: Model 1, Full Flush.
4. Core: Manufacturer's standard.
5. Frames: Slip-on drywall; uncoated steel sheet, minimum thickness of 0.042 inch.
6. Exposed Finish: Factory primed.

1.4 EXTERIOR STANDARD STEEL DOORS AND FRAMES

A. Heavy-Duty Doors and Frames: ANSI/SDI A250.8, Level 2.

1. Face: Metallic-coated steel sheet, minimum thickness of 0.042 inch.
2. Edge Construction: Model 1, Full Flush.
3. Core: Manufacturer's standard.
4. Frames Face welded; metallic-coated steel sheet, minimum thickness of 0.053 inch.
5. Exposed Finish: Factory primed.

1.5 RATED DOOR ASSEMBLIES

A. Rated doors and frames, along with hardware, shall bear the rating label permanently attached to the door and/or frame. All components of rated doors shall comply with the requirements of UL and the NYS Code.

1.6 INSTALLATION

A. Metal-Stud Partitions and Concrete Walls: Frames filled with insulation.

END OF SECTION 081113

SECTION 085113 - ALUMINUM WINDOWS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes aluminum windows for exterior locations.

1.2 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: Include plans, elevations, sections, hardware, accessories, insect screens, operational clearances, and details of installation, including anchor, flashing, and sealant installation.

C. Samples: For each exposed product and for each color specified.

1.4 INFORMATIONAL SUBMITTALS

A. Product test reports.

B. Sample warranties.

1.5 WARRANTY

A. Manufacturer's Warranty: Manufacturer agrees to repair or replace aluminum windows that fail in materials or workmanship within specified warranty period.

1. Warranty Period:

a. Window: 10 years from date of Substantial Completion.
b. Glazing Units: Five years from date of Substantial Completion.
c. Aluminum Finish: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 WINDOW PERFORMANCE REQUIREMENTS

A. Product Standard: Comply with AAMA/WDMA/CSA 101/I.S.2/A440 for definitions and minimum standards of performance, materials, components, accessories, and fabrication unless more stringent requirements are indicated.

1. Window Certification: AAMA certified with label attached to each window.

B. Performance Class and Grade: AAMA/WDMA/CSA 101/I.S.2/A440 as follows:

1. Minimum Performance Class: AW.
2. Minimum Performance Grade: 40.

C. Thermal Transmittance: NFRC 100 maximum whole-window U-factor of 0.38.

D. Solar Heat-Gain Coefficient (SHGC): NFRC 200 maximum whole-window SHGC of 0.36.

E. Condensation-Resistance Factor (CRF): Provide aluminum windows tested for thermal performance according to AAMA 1503, showing a CRF of 45.

F. Thermal Movements: Provide aluminum windows, including anchorage, that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change: 120 deg F ambient; 180 deg F material surfaces.

2.2 ALUMINUM WINDOWS

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

1. Arcadia, Inc.
2. EFCO Corporation.
3. Kawneer Company, Inc.; Arconic Corporation.
4. TRACO.

B. Types: As indicated on Drawings.

C. Frames and Sashes: Aluminum extrusions complying with AAMA/WDMA/CSA 101/I.S.2/A440.

1. Thermally Improved Construction: Fabricate frames, sashes, and muntins with an integral, concealed, low-conductance thermal barrier located between exterior materials and window members exposed on interior side in a manner that eliminates direct metal-to-metal contact.

D. Insulating-Glass Units: ASTM E2190.

1. Glass: ASTM C1036, Type 1, Class 1, q3.

a. Tint: Gray.
b. Kind: Fully tempered where required by NYS Code.

2. Lites: See Drawings.
3. Filling: Fill space between glass lites with argon.
4. Low-E Coating: Sputtered on second or third surface or per glazing manufacturer's standard insulated glazing.

E. Glazing System: Manufacturer's standard factory-glazing system that produces weathertight seal.

F. Hardware, General: Provide manufacturer's standard corrosion-resistant hardware sized to accommodate sash weight and dimensions.

1. Exposed Hardware Color and Finish: As selected by Architect from manufacturer's full range.

G. Projected Window Hardware:

1. Gear-Type Rotary Operators: Complying with AAMA 901 when tested according to ASTM E405, Method A. Provide operators that function without requiring the removal of interior screens or using screen wickets.

a. Type and Style: As selected by Architect from manufacturer's full range of types and styles.

2. Hinges: Non-friction type, not less than two per sash.
3. Lock: Manufacturer's standard.
4. Limit Devices: Limit clear opening to 4 inches for ventilation; with custodial key release.

H. Hung Window Hardware:

1. Counterbalancing Mechanism: AAMA 902.
2. Locks and Latches: Operated from the inside only.
3. Tilt Latch: Releasing latch allows sash to pivot about horizontal axis.

I. Horizontal-Sliding Window Hardware:

1. Sill Cap/Track: Designed to comply with performance requirements indicated and to drain to the exterior.
2. Locks and Latches: Operated from the inside only.
3. Roller Assemblies: Low-friction design.

J. Weather Stripping: Provide full-perimeter weather stripping for each operable sash unless otherwise indicated.

K. Fasteners: Noncorrosive and compatible with window members, trim, hardware, anchors, and other components.

1. Exposed Fasteners: Do not use exposed fasteners to greatest extent possible. For application of hardware, use fasteners that match finish hardware being fastened.

2.3 ACCESSORIES

A. Subsills: Thermally broken, extruded-aluminum subsills in configurations indicated on Drawings.

B. Column Covers: Extruded-aluminum profiles in sizes and configurations indicated on Drawings.

C. Interior Trim: Extruded-aluminum profiles in sizes and configurations indicated on Drawings.

D. Panning Trim: Extruded-aluminum profiles in sizes and configurations indicated on Drawings.

E. Receptor System: Two-piece, snap-together, thermally broken, extruded-aluminum receptor system that anchors windows in place.

2.4 INSECT SCREENS

A. General: Fabricate insect screens to integrate with window frame. Provide screen for each operable exterior sash. Screen wickets are not permitted.

1. Type and Location: Full, inside for projected, awning sashes.

B. Aluminum Frames: Complying with SMA 1004 or SMA 1201.

C. Glass-Fiber Mesh Fabric: 18-by-14 or 18-by-16 mesh of PVC-coated, glass-fiber threads; woven and fused to form a fabric mesh resistant to corrosion, shrinkage, stretch, impact damage, and weather deterioration. Comply with ASTM D3656/D3656M.

1. Mesh Color: Manufacturer's standard.

2.5 FABRICATION

A. Fabricate aluminum windows in sizes indicated. Include a complete system for assembling components and anchoring windows.

B. Glaze aluminum windows in the factory.

C. Weather strip each operable sash to provide weathertight installation.

D. Weep Holes: Provide weep holes and internal passages to conduct infiltrating water to exterior.

E. Provide water-shed members above side-hinged sashes and similar lines of natural water penetration.

F. Mullions: Provide mullions and cover plates, matching window units, complete with anchors for support to structure and installation of window units. Allow for erection tolerances and provide for movement of window units due to thermal expansion and building deflections. Provide mullions and cover plates capable of withstanding design wind loads of window units.

G. Complete fabrication, assembly, finishing, hardware application, and other work in the factory to greatest extent possible. Disassemble components only as necessary for shipment and installation.

2.6 ALUMINUM FINISHES

A. Class II, Color Anodic Finish: AA-M12C22A32/A34 (Mechanical Finish: nonspecular as fabricated; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class II, integrally colored or electrolytically deposited color coating 0.010 mm or thicker) complying with AAMA 611.

1. Color: As selected by Architect from full range of industry colors and color densities.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with manufacturer's written instructions for installing windows, hardware, accessories, and other components. For installation procedures and requirements not addressed in manufacturer's written instructions, comply with installation requirements in ASTM E2112.

B. Install windows level, plumb, square, true to line, without distortion or impeding thermal movement, anchored securely in place to structural support, and in proper relation to wall flashing and other adjacent construction to produce weathertight construction.

C. Install windows and components to drain condensation, water penetrating joints, and moisture migrating within windows to the exterior.

D. Separate aluminum and other corrodible surfaces from sources of corrosion or electrolytic action at points of contact with other materials.

E. Adjust operating sashes and hardware for a tight fit at contact points and weather stripping for smooth operation and weathertight closure.

F. Clean exposed surfaces immediately after installing windows. Avoid damaging protective coatings and finishes. Remove excess sealants, glazing materials, dirt, and other substances.

G. Remove and replace glass that has been broken, chipped, cracked, abraded, or damaged during construction period.

END OF SECTION 085113

SECTION 087100 - DOOR HARDWARE

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Mechanical door hardware for swinging doors.

1.2 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Samples: For each exposed product in each finish specified.

C. Door hardware schedule.

D. Keying schedule.

1.4 INFORMATIONAL SUBMITTALS

A. Sample warranty.

1.5 CLOSEOUT SUBMITTALS

A. Maintenance data.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: Supplier of products and an employer of workers trained and approved by product manufacturers and of an Architectural Hardware Consultant who is available during the course of the Work to consult Contractor, Architect, and Owner about door hardware and keying.

1.7 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace components of door hardware that fail in materials or workmanship within specified warranty period.

1. Warranty Period: Three years from date of Substantial Completion unless otherwise indicated below:

    a. Exit Devices: Two years from date of Substantial Completion.
    b. Manual Closers: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Fire-Rated Door Assemblies: Where fire-rated doors are indicated, provide door hardware complying with NFPA 80 that is listed and labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at positive pressure in accordance with NFPA 252 or UL 10C.

B. Means of Egress Doors: Latches do not require more than 15 lbf to release the latch. Locks do not require use of a key, tool, or special knowledge for operation.

C. Accessibility Requirements: For door hardware on doors in an accessible route, comply with ICC A117.1.

2.2 HINGES

A. Hinges: BHMA A156.1.

2.3 CONTINUOUS HINGES

A. Continuous Hinges: BHMA A156.26; minimum 0.120-inch-thick, hinge leaves with minimum overall width of 4 inches; fabricated to full height of door and frame and to template screw locations; with components finished after milling and drilling are complete.

B. Continuous, Gear-Type Hinges: Extruded-aluminum, pinless, geared hinge leaves joined by a continuous extruded-aluminum channel cap; with concealed, self-lubricating thrust bearings.

2.4 MECHANICAL LOCKS AND LATCHES

A. Lock Functions: As indicated in door hardware schedule.

B. Lock Throw: Comply with testing requirements for length of bolts required for labeled fire doors, and as follows:

1. Bored Locks: Minimum 1/2-inch latchbolt throw.
2. Mortise Locks: Minimum 3/4-inch latchbolt throw.
3. Deadbolts: Minimum [**1-inch**] [**1.25-inch**] <**Insert dimension**> bolt throw.

C. Lock Backset: 2-3/4 inches unless otherwise indicated.

D. Lock Trim:

1. Description: As selected by Architect from Manufacturer's standard options.
2. Levers: Wrought or Forged.
3. Dummy Trim: Match lever lock trim and escutcheons.

E. Strikes: Provide manufacturer's standard strike for each lock bolt or latchbolt complying with requirements indicated for applicable lock or latch and with strike box and curved lip extended to protect frame; finished to match lock or latch.

1. Flat-Lip Strikes: For locks with three-piece antifriction latchbolts, as recommended by manufacturer.
2. Extra-Long-Lip Strikes: For locks used on frames with applied wood casing trim.
3. Aluminum-Frame Strike Box: Manufacturer's special strike box fabricated for aluminum framing.
4. Rabbet Front and Strike: Provide on locksets for rabbeted meeting stiles.

F. Bored Locks: BHMA A156.2; Grade 1; Series 4000.

G. Mortise Locks: BHMA A156.13; Operational Grade 1; stamped steel case with steel or brass parts; Series 1000.

2.5 AUXILIARY LOCKS

A. Bored Auxiliary Locks: BHMA A156.36: Grade 1; with strike that suits frame.

B. Mortise Auxiliary Locks: BHMA A156.36; Grade 1; with strike that suits frame.

1. <Double click here to find, evaluate, and insert list of manufacturers and products.>

2.6 EXIT DEVICES AND AUXILIARY ITEMS

A. Exit Devices and Auxiliary Items: BHMA A156.3.

2.7 LOCK CYLINDERS

A. Lock Cylinders: Tumbler type, constructed from brass or bronze, stainless steel, or nickel silver.

B. Standard Lock Cylinders: BHMA A156.5; Grade 1 permanent cores; face finished to match lockset.

1. Core Type: Interchangeable.

C. Construction Master Keys: Provide cylinders with feature that permits voiding of construction keys without cylinder removal. Provide 10 construction master keys.

D. Construction Cores: Provide construction cores that are replaceable by permanent cores. Provide 10 construction master keys.

2.8 KEYING

A. Keying System: Factory registered, complying with guidelines in BHMA A156.28, appendix. Provide one extra key blank for each lock. Incorporate decisions made in keying conference.

1. No Master Key System: Only change keys operate cylinders.

a. Provide three cylinder change keys.

2. Master Key System: Change keys and a master key operate cylinders.

a. Provide three cylinder change keys and five master keys.

3. Grand Master Key System: Change keys, a master key, and a grand master key operate cylinders.

a. Provide three cylinder change keys and five each of master and grand master keys.

4. Great-Grand Master Key System: Change keys, a master key, a grand master key, and a great-grand master key operate cylinders.

a. Provide three cylinder change keys and five each of master, grand master, and great-grand master keys.

5. Existing System:

a. Master key or grand master key locks to Owner's existing system.
b. Re-key Owner's existing master key system into new keying system.

6. Keyed Alike: Key all cylinders to same change key.

B. Keys: Nickel silver.

1. Stamping: Permanently inscribe each key with a visual key control number and include the following notation:

a. Notation: Information to be furnished by Owner.

2.9 OPERATING TRIM

A. Operating Trim: BHMA A156.6; aluminum unless otherwise indicated.

2.10 SURFACE CLOSERS

A. Surface Closers: BHMA A156.4; rack-and-pinion hydraulic type with adjustable sweep and latch speeds controlled by key-operated valves and forged-steel main arm. Comply with manufacturer's written instructions for size of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Provide factory-sized closers, adjustable to meet field conditions and requirements for opening force.

2.11 OVERHEAD STOPS AND HOLDERS

A. Overhead Stops and Holders: BHMA A156.8.

2.12 DOOR GASKETING

A. Door Gasketing: BHMA A156.22; with resilient or flexible seal strips that are easily replaceable and readily available from stocks maintained by manufacturer.

B. Maximum Air Leakage: When tested in accordance with ASTM E283 with tested pressure differential of 0.3-inch wg, as follows:

2.13 THRESHOLDS

A. Thresholds: BHMA A156.21; fabricated to full width of opening indicated.

2.14 AUXILIARY DOOR HARDWARE

A. Auxiliary Hardware: BHMA A156.16.

2.15 FINISHES

A. Provide finishes complying with BHMA A156.18 as indicated in door hardware schedule.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Mounting Heights: Mount door hardware units at heights to comply with the following unless otherwise indicated or required to comply with governing regulations.

1. Standard Steel Doors and Frames: ANSI/SDI A250.8.
2. Custom Steel Doors and Frames: HMMA 831.
3. Wood Doors: DHI's "Recommended Locations for Architectural Hardware for Wood Flush Doors."

B. Install each door hardware item to comply with manufacturer's written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work. Do not install surface-mounted items until finishes have been completed on substrates involved.

C. Hinges: Install types and in quantities indicated in door hardware schedule, but not fewer than the number recommended by manufacturer for application indicated or one hinge for every 30 inches of door height, whichever is more stringent, unless other equivalent means of support for door, such as spring hinges or pivots, are provided.

D. Intermediate Offset Pivots: Where offset pivots are indicated, provide intermediate offset pivots in quantities indicated in door hardware schedule, but not fewer than one intermediate offset pivot per door and one additional intermediate offset pivot for every 30 inches of door height greater than 90 inches.

E. Lock Cylinders: Install construction cores to secure building and areas during construction period.

1. Replace construction cores with permanent cores as directed by Owner.
2. Furnish permanent cores to Owner for installation.

F. Perimeter Gasketing: Apply to head and jamb, forming seal between door and frame.

1. Do not notch perimeter gasketing to install other surface-applied hardware.

G. Door Bottoms: Apply to bottom of door, forming seal with threshold when door is closed.

3.2 ADJUSTING

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

END OF SECTION 087100

SECTION 092900 - GYPSUM BOARD

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Interior gypsum board.

1.2 ACTION SUBMITTALS

A. Product Data:

1. Gypsum board, Type X.
2. Mold-resistant gypsum board.
3. Joint treatment materials.
4. Sound-attenuation blankets.
5. Acoustical sealant.

1.3 SUSTAINABILITY REQUIREMENTS

A. LEED v4:

1. Recycled content.
2. Regional materials.
3. Low-emitting adhesives.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Fire-Resistance-Rated Assemblies: For fire-resistance-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E119 by an independent testing agency.

B. STC-Rated Assemblies: For STC-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E90 and classified according to ASTM E413 by an independent testing agency.

2.2 GYPSUM BOARD

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

B. Gypsum Board, Type X: ASTM C1396/C1396M.

1. Thickness: 5/8 inch.
2. Long Edges: Tapered.
3. Mold Resistance: ASTM D3273, score of 10 as rated according to ASTM D3274.

C. Mold-Resistant Gypsum Board: ASTM C1396/C1396M. With moisture- and mold-resistant core and paper surfaces.

1. Core: 5/8 inch, Type X.
2. Long Edges: Tapered.
3. Mold Resistance: ASTM D3273, score of 10 as rated according to ASTM D3274.

2.3 TRIM ACCESSORIES

A. Interior Trim: ASTM C1047.

1. Material: Galvanized or aluminum-coated steel sheet, rolled zinc, plastic, or paper-faced galvanized-steel sheet.
2. Shapes:

a. Cornerbead.
b. Bullnose bead.
c. LC-Bead: J-shaped; exposed long flange receives joint compound.
d. L-Bead: L-shaped; exposed long flange receives joint compound.
e. U-Bead: J-shaped; exposed short flange does not receive joint compound.
f. Expansion (control) joint.
g. Curved-Edge Cornerbead: With notched or flexible flanges.

2.4 JOINT TREATMENT MATERIALS

A. General: Comply with ASTM C475/C475M.

B. Joint Tape:

1. Interior Gypsum Board: Paper.
2. Exterior Gypsum Soffit Board: Paper.
3. Glass-Mat Gypsum Sheathing Board: 10-by-10 glass mesh.
4. Tile Backing Panels: As recommended by panel manufacturer.

C. Joint Compound for Interior Gypsum Board: For each coat, use formulation that is compatible with other compounds applied on previous or for successive coats.

1. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use setting-type taping compound.

a. Use setting-type compound for installing paper-faced metal trim accessories.

2. Fill Coat: For second coat, use setting-type, sandable topping compound.
3. Finish Coat: For third coat, use setting-type, sandable topping compound.

D. Steel Drill Screws: ASTM C1002 unless otherwise indicated.

1. Use screws complying with ASTM C954 for fastening panels to steel members from 0.033 to 0.112 inch thick.
2. For fastening cementitious backer units, use screws of type and size recommended by panel manufacturer.

E. Sound-Attenuation Blankets: ASTM C665, Type I (blankets without membrane facing) produced by combining thermosetting resins with mineral fibers manufactured from glass, slag wool, or rock wool.

1. Fire-Resistance-Rated Assemblies: Comply with mineral-fiber requirements of assembly.

F. Acoustical Sealant: As specified in Section 079219 "Acoustical Joint Sealants."

G. Thermal Insulation: As specified in Section 072100 "Thermal Insulation."

H. Vapor Retarder: As specified in Section 072600 "Vapor Retarders."

PART 3 - EXECUTION

3.1 INSTALLATION AND FINISHING OF PANELS

A. Examine panels before installation. Reject panels that are wet, moisture damaged, and mold damaged.

B. Comply with ASTM C840.

C. Isolate perimeter of gypsum board applied to non-load-bearing partitions at structural abutments. Provide 1/4- to 1/2-inch-wide spaces at these locations and trim edges with edge trim where edges of panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.

D. For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.

E. Prefill open joints and damaged surface areas.

F. Apply joint tape over gypsum board joints, except for trim products specifically indicated as not intended to receive tape.

G. Gypsum Board Finish Levels: Finish panels to levels indicated below and according to ASTM C840:

1. Level 1: Ceiling plenum areas, concealed areas, and where indicated.
2. Level 2: Panels that are substrate for tile.
3. Level 3: Where indicated on Drawings.
4. Level 4: At panel surfaces that will be exposed to view unless otherwise indicated.

a. Primer and its application to surfaces are specified in Section 099123 "Interior Painting."

3.2 PROTECTION

A. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.

B. Remove and replace panels that are wet, moisture damaged, and mold damaged.

END OF SECTION 092900

SECTION 095123 - ACOUSTICAL TILE CEILINGS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Acoustical tiles for interior ceilings.
2. Fully concealed, direct-hung, suspension systems.

1.2 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.3 SUSTAINABILITY REQUIREMENTS

A. LEED v4:

1. Recycled content.
2. Low-emitting adhesives.
3. Low-emitting ceilings.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Samples: For each exposed product and for each color and texture specified.

1.5 CLOSEOUT SUBMITTALS

A. Maintenance data.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Seismic Performance: Suspended ceilings shall withstand the effects of earthquake motions determined according to ASCE/SEI 7.

B. Surface-Burning Characteristics: Comply with ASTM E84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

1. Flame-Spread Index: 25 or less. Class A according to ASTM E1264.
2. Smoke-Developed Index: 50 or less.

2.2 ACOUSTICAL TILES

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

1. Armstrong World Industries, Inc.
2. Certainteed; SAINT-GOBAIN.
3. USG Corporation.

B. Acoustical Tile Standard: Manufacturer's standard tiles of configuration indicated that comply with ASTM E1264.

C. Classification: See drawings.

D. Color: White.

E. Light Reflectance (LR): 0.88.

F. Ceiling Attenuation Class (CAC): 33.

G. Noise Reduction Coefficient (NRC): 0.5.

H. Edge/Joint Detail: As indicated by manufacturer's designation.

I. Thickness: 5/8 inch.

J. Modular Size: 24” x 24”.

2.3 METAL SUSPENSION SYSTEM

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

1. Armstrong World Industries, Inc.
2. Certainteed; SAINT-GOBAIN.
3. USG Corporation.

B. Metal Suspension-System Standard: Manufacturer's standard, direct-hung, fully concealed, metal suspension system that complies with applicable requirements in ASTM C635/C635M.

C. Direct-Hung, Double-Web Suspension System: Main and cross runners roll formed from and capped with cold-rolled steel sheet, prepainted, electrolytically zinc coated, or hot-dip galvanized, G30 coating designation.

1. Structural Classification: Intermediate-duty system.
2. Access: Upward and end pivoted or side pivoted, with initial access openings of size indicated below and located throughout ceiling within each module formed by main and cross runners, with additional access available by progressively removing remaining acoustical tiles.

2.4 ACCESSORIES

A. Attachment Devices: Size for five times the design load indicated in ASTM C635/C635M, Table 1, "Direct Hung," unless otherwise indicated. Comply with seismic design requirements.

B. Seismic Clips: Manufacturer's standard seismic clips designed to secure acoustical tiles in-place during a seismic event.

PART 3 - EXECUTION

3.1 PREPARATION

A. Measure each ceiling area and establish layout of acoustical tiles to balance border widths at opposite edges of each ceiling. Avoid using less-than-half-width tiles at borders unless otherwise indicated.

B. Layout openings for penetrations centered on the penetrating items.

3.2 INSTALLATION OF SUSPENDED ACOUSTICAL TILE CEILINGS

A. Install suspended acoustical tile ceilings according to ASTM C636/C636M, seismic design requirements, and manufacturer's written instructions.

B. Install edge moldings and trim of type indicated at perimeter of acoustical ceiling area and where necessary to conceal edges of acoustical tiles.

1. Apply acoustical sealant in a continuous ribbon concealed on back of vertical legs of moldings before they are installed.
2. Do not use exposed fasteners, including pop rivets, on moldings and trim.

C. Arrange directionally patterned acoustical tiles as indicated on reflected ceiling plans.

END OF SECTION 095123

SECTION 096513 - RESILIENT BASE AND ACCESSORIES

1.1 SUSTAINABILITY REQUIREMENTS

A. LEED v4:

1. Low-emitting adhesives.

1.2 SUBMITTALS

A. Provide sample and product data submittals for approval.

1.3 PRODUCTS

A. Resilient Base: Vinyl, thermoplastic.

1. Style and Location:

a. Cove.

2. Minimum Thickness: 0.125 inch.
3. Height: 4 inches.
4. Outside Corners: Job formed or preformed.
5. Inside Corners: Job formed or preformed.

B. Resilient Accessories: Rubber.

1. Transition strips.

C. Installation Materials:

1. Trowelable leveling and patching compounds.
2. Adhesives.
3. Stair-tread-nose filler.
4. Metal edge strips.
5. Floor polish.

END OF SECTION 096513

SECTION 096813 - TILE CARPETING

1.1 SUMMARY

A. Section Includes:

1. Modular carpet tile.

1.2 WARRANTY

A. Materials and Workmanship for Carpet Tile: 10 years.

1.3 SUSTAINABILITY REQUIREMENTS

A. LEED v4:

1. Low-emitting adhesives.
2. Low-emitting flooring.

1.4 INFORMATIONAL SUBMITTALS

A. Product test reports.

B. Sample warranty.

1.5 PRODUCTS

A. Carpet Tile As indicated on Finish Schedule on Drawings – Or approved equal:

1.6 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 comply with flammability requirements for installed carpet tile, and are recommended by carpet tile manufacturer for releasable installation.

1.7 EXAMINATION

A. Concrete Slabs:

1. Moisture Testing: Perform tests so that each test area does not exceed 200 sq. ft., and perform no fewer than three tests in each installation area and with test areas evenly spaced in installation areas.

    a. Relative Humidity Test: Using in situ probes, ASTM F2170. Proceed with installation only after substrates have a maximum 75 percent relative humidity level measurement.
    b. Perform additional moisture tests recommended in writing by adhesive and carpet tile manufacturers. Proceed with installation only after substrates pass testing.

B. Wood Subfloors: Verify that underlayment surface is free of irregularities and substances that may interfere with adhesive bond or show through surface.

1.8 INSTALLATION

A. General: Comply with the Carpet and Rug Institute's CRI 104, Section 10, "Carpet Tile," and with carpet tile manufacturer's written installation instructions.

B. Installation Method: As recommended in writing by carpet tile manufacturer.

C. Maintain dye-lot integrity. Do not mix dye lots in same area.

D. Maintain pile-direction patterns indicated on Drawings.

E. 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.

F. Extend carpet tile into toe spaces, door reveals, closets, open-bottomed obstructions, removable flanges, alcoves, and similar openings.

G. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on carpet tile as marked on subfloor. Use nonpermanent, nonstaining marking device.

H. Install pattern parallel to walls and borders.

I. 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 096813

SECTION 099123 - PAINTING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Primers.
2. Water-based finish coatings.

1.2 SUSTAINABILITY REQUIREMENTS

A. LEED v4:

1. Low-emitting paints and coatings.
2. Product declarations.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Product Schedule: Use same designations indicated on Drawings and in the Interior Painting Schedule to cross-reference paint systems specified in this Section. Include color designations.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

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

1. Benjamin Moore & Co.
2. California Paints; ICP Building Solutions Group.
3. Approved Equal

2.2 PAINT PRODUCTS, GENERAL

A. Material Compatibility:

1. Materials for use within each paint system shall be compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.

2. For each coat in a paint system, products shall be recommended in writing by topcoat manufacturers for use in paint system and on substrate indicated.

B. Colors: As selected by Architect from manufacturer's full range.

2.3 PRIMERS

A. Office and Bunkroom: Interior Latex Primer Sealer: Water-based latex sealer used on new interior plaster, concrete, and gypsum wallboard surfaces.

B. Toilet Rooms: Interior, Institutional Low-Odor/VOC Primer Sealer: Water-based primer sealer with low-odor characteristics and a VOC of less than 10 grams per liter for use on new interior plaster, concrete, and gypsum wallboard surfaces that are subsequently to be painted with latex finish coats.

C. Hollow Metal Doors: Alkyd Quick-Dry Primer for Metal: Corrosion-resistant, solvent-based, modified-alkyd primer; lead and chromate free; formulated for quick-drying capabilities and for use on cleaned, interior steel surfaces. Exterior grade product to be used on doors to the exterior of the building.

2.4 WATER-BASED FINISH COATS

A. Gypsum Board Ceilings: Interior, Latex, Flat: Pigmented, water-based paint.

B. Gypsum Board Walls at Bunkroom and Office: Interior, Latex, Eggshell: Pigmented, water-based paint.

C. Gypsum Board Walls at Toilet Rooms: Interior, Latex, Pearl: Pigmented, water-based paint.

D. Hollow Metal Doors and Trim: Interior, Latex, Semigloss: Pigmented, water-based paint. Exterior grade product to be used on doors to the exterior of the building.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify suitability of substrates, including surface conditions and compatibility, with existing finishes and primers.

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

1. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Comply with manufacturer's written instructions and recommendations applicable to substrates and paint systems indicated.

B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.

C. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.

3.3 INSTALLATION

A. Apply paints according to manufacturer's written instructions.

B. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

3.4 CLEANING AND PROTECTION

A. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

B. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

C. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

END OF SECTION 099123

SECTION 102113 - METAL TOILET COMPARTMENTS

1.1 SUMMARY

A. Painted steel toilet compartments configured as toilet enclosures and urinal screens.

1. Toilet-Enclosure Style: Overhead braced.
2. Urinal-Screen Style: Wall hung with integral flanges.

1.2 PERFORMANCE REQUIREMENTS

A. Regulatory Requirements: Comply with applicable provisions in ICC A117.1 for toilet compartments designated as accessible.

1.3 COMPONENTS

A. Door, Panel, and Pilaster Construction: No-sightline system.

B. Brackets (Fittings):

1. Stirrup Type: Ear or U-brackets; Manufacturer’s standard.

C. Steel Sheet Finish: Electrolytically coated steel sheet, with manufacturer's standard baked-on finish.

1. Color: As selected by Architect from manufacturer's full range.

a. Allow for application of one color in each room.

1.4 HARDWARE AND ACCESSORIES

A. Hardware and Accessories: Manufacturer's standard finish.

B. Hardware and Accessories: Manufacturer's heavy-duty stainless steel operating hardware and accessories.

END OF SECTION 102113

SECTION 102800 – TOILET ROOM ACCESSORIES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Public-use washroom accessories.
2. Underlavatory guards.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.3 WARRANTY

A. Manufacturer's Special Warranty for Mirrors: Manufacturer agrees to repair or replace mirrors that fail in materials or workmanship within specified warranty period.

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

PART 2 - PRODUCTS

2.1 PUBLIC-USE WASHROOM ACCESSORIES

A. Toilet Tissue (Roll) Dispenser:

1. Description: Dual roll holder with locking cover.
2. Mounting: Surface mounted.
3. Operation: Noncontrol delivery with standard spindle.
4. Capacity: Designed for 4-1/2- or 5-inch-diameter tissue rolls.
5. Material and Finish: Stainless steel, ASTM A480/A480M No. 4 finish (satin).

B. Paper Towel (Roll) Dispenser:

1. Description: Lever-actuated mechanism permitting controlled delivery of paper rolls in preset lengths.
2. Mounting: Surface mounted.
3. Minimum Capacity: 8-inch-wide, 800-foot-long roll.
4. Material and Finish: ABS plastic, gray, with translucent front cover.
5. Lockset: Tumbler type – Provide 6 keys to Owner.

C. Soap Dispenser:

1. Description: Designed for manual operation and dispensing soap in liquid or lotion form.
2. Mounting: Vertically oriented, surface mounted.
3. Capacity: 40-oz.
4. Materials: Stainless Steel.
5. Lockset: Tumbler type – Provide 6 keys to Owner.
6. Refill Indicator: Window type.

D. Grab Bar:

1. Mounting: Flanges with concealed fasteners.
2. Material: Stainless steel, 0.05 inch thick.

    a. Finish: Smooth, ASTM A480/A480M No. 4 finish (satin) on ends and slip-resistant texture in grip area.

3. Outside Diameter: 1-1/4 inches.
4. Configuration and Length: As indicated on Drawings.

E. Seat-Cover Dispenser:

1. Mounting: Surface mounted.
2. Minimum Capacity: 250 seat covers.
3. Exposed Material and Finish: Stainless steel, ASTM A480/A480M No. 4 finish (satin).
4. Lockset: Tumbler type – Provide 6 keys to Owner.

F. Mirror Unit:

1. Frame: Stainless steel channel.

    a. Corners: Manufacturer's standard.

2. Size: As indicated on Drawings.
3. Hangers: Manufacturer's standard rigid, tamper and theft resistant.

G. Hook:

1. Description: Double-prong unit.
2. Mounting: Concealed.
3. Material and Finish: Polished chrome-plated brass.

2.2 UNDERLAVATORY GUARDS

Underlavatory Guard:

1. Description: Insulating pipe covering for supply and drain piping assemblies that prevents direct contact with and burns from piping; allow service access without removing coverings.
2. Material and Finish: Antimicrobial, molded plastic, white.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install accessories according to manufacturers' written instructions, using fasteners appropriate to substrate indicated and recommended by unit manufacturer. Install units level, plumb, and firmly anchored in locations and at heights indicated.

1. Remove temporary labels and protective coatings.

B. Grab Bars: Install to comply with specified structural-performance requirements.

C. END OF SECTION 102800

SECTION 224216 - PLUMBING FIXTURES

1.1 VITREOUS-CHINA, WALL-MOUNTED LAVATORIES

A. Lavatory - Ledge Back, Vitreous China, Wall Mounted as specified on drawings (or approved equal):

1. Type: For wall hanging.
2. Faucet-Hole Punching: One hole.
3. Faucet-Hole Location: Top.
4. Faucet: Automatic-Type, Hardwired Electronic Sensor Operated, Mixing, with add-on power kit. Or Equal touchless hard-wired lavatory faucet acceptable.
5. Drain: Strainer.
6. Maximum GPM: 0.5 GPM (non-metered) 0.25 GPM (metered).

1.2 FLOOR-MOUNTED, BOTTOM-OUTLET WATER CLOSETS

A. Water Closets: Floor mounted, bottom outlet, top spud as specified on drawings (or approved equal):

1. Material: Vitreous china.
2. Type: Siphon jet.
3. Style: Flushometer valve.
4. Height: ADA compliant.
5. Water Consumption: Dual flush 1.1 gal. /1.6 gal. per flush.
6. Flushometer Valve: DC-powered, top-spud, sensor flushometer.
7. Toilet Seat: Heavy-duty open-front unit compatible with toilet.

1.3 WALL-HUNG URINALS

A. Urinals - Wall Hung, Washout: Accessible as specified on drawings (or approved equal):

1. Standards: ASME A112.19.2/CSA B45.1 and ASME A112.19.5/CSA B45.15.
2. Material: Vitreous china.
3. Water Consumption: 0.25 gpf.
4. Flushometer Valve: DC-powered, top-spud, sensor flushometer.

1.4 PREFABRICATED SHOWER UNITS

A. Barrier-Free Acrylic Shower Unit: Accessible as specified on drawings (or approved equal):

1. Standards: ANSI A117.1
2. Material: Acrylic.
3. Required Accessories: ADA faucet w/ mixing valve, grab bars, hand hose assembly, folding seat, curtain rod and weighted curtain.
4. Size: 60” x 36” nominal

1.5 ROOF DRAINS

A. Roof Drain: Sump-type with strainer (or approved equal):

1. Standards: ASTM 112.6.4.
2. Material: Enamel coated cast iron.
3. Effluent: 3”.

1.6 INSTALLATION, GENERAL

A. Fixture Installation:

1. Install level and plumb.
2. Install floor-mounted water closets on bowl-to-drain connecting fitting attachments to piping or building substrate.

B. Support Installation:

1. Install supports, affixed to building substrate, for floor-mounted, back-outlet water closets.
2. Use carrier supports with waste-fitting assembly and seal.
3. Install floor-mounted, back-outlet water closets attached to building floor substrate, onto waste-fitting seals; and attach to support.
4. Install wall-mounted, back-outlet water-closet supports with waste-fitting assembly and waste-fitting seals; and affix to building substrate.
5. Measure support height installation from finished floor, not structural floor.

C. Flushometer-Valve Installation:

1. Install flushometer-valve, water-supply fitting on each supply to each water closet.
2. Attach supply piping to supports or substrate within pipe spaces behind fixtures.
3. Install lever-handle flushometer valves for accessible water closets with handle mounted on open side of water closet.
4. Install actuators in locations easily reachable for people with disabilities.

D. Install toilet seats on water closets.

E. Wall Flange and Escutcheon Installation:

1. Install wall flanges or escutcheons at piping wall penetrations in exposed, finished locations and within cabinets and millwork.
2. Install deep-pattern escutcheons if required to conceal protruding fittings.
3. Comply with escutcheon requirements specified in Section 220518 "Escutcheons for Plumbing Piping."

F. Joint Sealing:

1. Seal joints between water closets and walls and floors using sanitary-type, one-part, mildew-resistant silicone sealant.
2. Match sealant color to water-closet color.
3. Comply with sealant requirements specified in Section 079200 "Joint Sealants."

G. Urinal Installation:

1. Install urinals level and plumb according to rough-in drawings.
2. Install wall-hung, back-outlet urinals onto waste fitting seals and attached to supports.
3. Install wall-hung, bottom-outlet urinals with tubular waste piping attached to supports.
4. Install accessible, wall-mounted urinals at mounting height for the handicapped/elderly, according to ICC A117.1.
5. Install trap-seal liquid in waterless urinals.
6. Install supports, affixed to building substrate, for wall-hung urinals.
7. Use off-floor carriers with waste fitting and seal for back-outlet urinals.
8. Use carriers without waste fitting for urinals with tubular waste piping.
9. Use chair-type carrier supports with rectangular steel uprights for accessible urinals.

H. Lavatory Installation:

1. Install lavatories level and plumb in accordance with roughing-in drawings.
2. Install supports, affixed to building substrate, for wall-mounted lavatories.
3. Indicate on Drawings those lavatories that are required to be accessible.
4. Install accessible wall-mounted lavatories at handicapped/elderly mounting height for people with disabilities or the elderly, in accordance with ICC A117.1.
5. Install wall flanges or escutcheons at piping wall penetrations in exposed, finished locations. Use deep-pattern escutcheons if required to conceal protruding fittings.
6. Seal joints between lavatories, counters, and walls using sanitary-type, one-part, mildew-resistant silicone sealant. Match sealant color to fixture color. Comply with sealant requirements specified in Section 079200 "Joint Sealants."
7. Indicate on Drawings those lavatories that are required to be accessible.
8. Install protective shielding pipe covers and enclosures on exposed supplies and waste piping of accessible lavatories.

1.7 PIPING CONNECTIONS

A. Connect fixtures with water supplies and soil, waste, and vent piping. Use size fittings required to match water closets.

B. Where installing piping adjacent to fixtures, allow space for service and maintenance.

1.8 ADJUSTING

A. Operate and adjust water closets and controls. Replace damaged and malfunctioning fixtures, fittings, and controls.

B. Adjust water pressure at flushometer valves to produce proper flow.

1.9 CLEANING AND PROTECTION

A. Clean fixtures and fittings with manufacturers' recommended cleaning methods and materials.

B. Install protective covering for installed fixtures and fittings.

C. Do not allow use of fixtures for temporary facilities unless approved in writing by Owner.

END OF SECTION 224216

SECTION 265100 – LIGHTING FIXTURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes interior luminaires, lamps, ballasts, and accessories.

1.2 INTERIOR LUMINAIRES

A. Product Description: Complete interior luminaire assemblies, with features, options, and accessories as scheduled on the Drawings.

B. Products: As specified on Drawings or approved equal units of equal wattage and performance.

1.3 INSTALLATION

A. Install suspended luminaires using pendants supported from swivel hangers. Install pendant length required to suspend luminaire at indicated height.

B. Support luminaires larger than 2 x 4 foot size independent of ceiling framing.

C. Locate recessed ceiling luminaires as indicated on Drawings.

D. Install surface mounted luminaires plumb and adjust to align with building lines and with each other. Secure to prevent movement.

E. Exposed Grid Ceilings: Support surface-mounted luminaires on grid ceiling directly from building structure.

F. Install recessed luminaires to permit removal from below.

G. Install recessed luminaires using accessories and firestopping materials to meet regulatory requirements for fire rating.

H. Install clips to secure recessed grid-supported luminaires in place.

I. Install wall-mounted luminaires at height as indicated on Drawings.

J. Install accessories furnished with each luminaire.

1.4 FIELD QUALITY CONTROL

A. Operate each luminaire after installation and connection. Inspect for proper connection and operation.

1.5 CLEANING

A. Remove dirt and debris from enclosures.

B. Clean photometric control surfaces as recommended by manufacturer.

C. Clean finishes and touch up damage.

END OF SECTION 265100

SECTION 321216 - ASPHALT PAVING

1.1 SCOPE

A. Asphalt paving for walkway is an Alternate to the concrete walkway.

1.2 MATERIALS

A. Asphalt Materials:

1. Asphalt Binder: ASTM D6373 or AASHTO M 320, performance graded.

B. Auxiliary Materials:

1. Recycled Materials: Reclaimed asphalt pavement; reclaimed, unbound-aggregate base material.

C. Mixes:

1. Recycled Content: Postconsumer recycled content plus one-half of preconsumer recycled content not less than 10 percent or more than 15 percent by weight.

a. Surface Course Limit: No more than 10 percent by weight.

D. Asphalt Mixes: Approved by authorities having jurisdiction.

E. Emulsified-Asphalt Slurry: ASTM D3910, Type 2.

1.3 INSTALLATION

A. Hot-Mix Asphalt Paving:

1. Subgrade proof-rolled for full-depth, hot-mix asphalt.
2. Herbicide applied.
3. Base Course: 4” minimum.
4. Surface Course: 4” minimum.

END OF SECTION 321216

SECTION 321313 - CONCRETE PAVING

1.1 PRODUCTS

A. Concrete, General: ACI 301.

B. Reinforcement:

1. Welded-Wire Reinforcement: 6x6 W1.4 x W1.4 plain steel.
2. Reinforcing Bars: Deformed steel.
3. Joint Dowel Bars: Plain steel.

C. Concrete:

1. Portland Cement Replacement: Use fly ash, slag cement, and silica fume to reduce portland cement by 40 percent.
2. Portland Cement: White.
3. Fly ash.
4. Slag cement.
5. Blended cement.
6. Normal-weight aggregate.
7. Air-entraining admixture.
8. Color pigment.
9. Compressive Strength: 3000 psi at 28 days.

D. Accessories:

1. Expansion Control: Provide fiber expansion joints for where walkway edges meet building structure.

1.2 FINISHING AND CURING

A. Finishes: Medium-to-fine-textured broom.

B. Cure concrete by moisture-retaining-cover curing.

1.3 FIELD QUALITY CONTROL

A. Testing: By Contractor-engaged agency.

END OF SECTION 321313

SECTION 329200 - TURF AND GRASSES

1.1 MATERIALS

A. Seed: Match existing species of grass..

B. Mulches: Straw.

C. Erosion-Control Materials: Blankets, Fiber mesh, or Mats.

1.2 INSTALLATION

A. Seeding Method: Sow.

B. Protect seeded areas with straw mulch, compost mulch, peat mulch, and/or planting soil.

C. Provide soil and top soil mix for areas affected by construction activities and plant seed, water regularly, protect and maintain areas of work throughout construction activity periods.

1.3 MAINTENANCE SERVICE

A. Turf: 30 days from date of planting completion.

END OF SECTION 329200