

TECHNICAL SPECIFICATIONS
“REVITALIZACIÓN PARQUE LAS CAVERNAS DEL RÍO CAMUY”
CAMUY DECK, HATILLO DECK & “CUEVA CLARA” IMPROVEMENTS
CALLEJONES WARD, LARES PR

I CERTIFY THAT THIS DOCUMENT CONSISTS OF FIFTY EIGHT (58) PAGES INCLUDING THIS ONE:

A handwritten signature in blue ink, appearing to read 'Manuel A. Rivera Albelo'.

ENG. MANUEL A. RIVERA ALBELO
DATE: 1/12/2023

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SECTION 01100

SUMMARY

PART 1 - GENERAL

1.1 SUMMARY

- A. Project Identification: "Revitalización Parque Las Cavernas del Rio Camuy"
 - 1. Physical Address: State Road PR-129 Km 27.1, Callejones Ward, Lares, Puerto Rico
- B. Project Summary: Improvement to Camuy & Hatillo Platforms, and "Cueva Clara".
- C. Codes: Comply with applicable codes and regulations of authorities having jurisdiction. Submit copies of inspection reports, notices, and similar communications to Architect.
- D. Dimensions: Verify dimensions indicated on drawings with field dimensions before fabrication or ordering of materials. Do not scale drawings.
- E. Existing Conditions: Notify Architect of existing conditions differing from those indicated on the drawings. Do not remove or alter structural components without prior written approval.
- F. Coordination:
 - 1. Coordinate the work of all trades.
 - 2. Prepare coordination drawings for areas above ceilings where close tolerances are required between building elements and mechanical and electrical work.
 - 3. Verify location of utilities and existing conditions.
- G. Installation Requirements, General:
 - 1. Inspect substrates and report unsatisfactory conditions in writing.
 - 2. Do not proceed until unsatisfactory conditions have been corrected.
 - 3. Take field measurements prior to fabrication where practical. Form to required shapes and sizes with true edges, lines and angles. Provide inserts and templates as needed for work of other trades.
 - 4. Install materials in exact accordance with manufacturer's instructions and approved submittals.
 - 5. Install materials in proper relation with adjacent construction and with proper appearance.
 - 6. Restore units damaged during installation. Replace units which cannot be restored at no additional expense to the Owner.
 - 7. Refer to additional installation requirements and tolerances specified under individual specification sections.
- H. Limit use of work as indicated. Keep driveways and entrances clear.
- I. Maintain existing building in a weathertight condition. Repair damage caused by construction operations. Protect building and its occupants.
- J. Definitions:
 - 1. Provide: Furnish and install, complete with all necessary accessories, ready for intended use. Pay for all related costs.
 - 2. Approved: Acceptance of item submitted for approval. Not a limitation or release for compliance with the Contract Documents or regulatory requirements. Refer to limitations of 'Approved' in General and Supplementary Conditions.
 - 3. Match Existing: Match existing as acceptable to the Owner.

- K. Intent: Drawings and specifications are intended to provide the basis for proper completion of the work suitable for the intended use of the Owner. Anything not expressly set forth but which is reasonable implied or necessary for proper performance of the project shall be included.
- L. Writing style: Specifications are written in the imperative mode. Except where specifically intended otherwise, the subject of all imperative statements is the Contractor. For example, 'Provide tile' means 'Contractor shall provide tile.'

PART 2 - PRODUCTS - NOT APPLICABLE TO THIS SECTION

PART 3 - EXECUTION - NOT APPLICABLE TO THIS SECTION

END OF SECTION

SECTION 01300
ADMINISTRATIVE REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Provide administrative requirements for the proper coordination and completion of work including the following:
 - 1. Supervisory personnel.
 - 2. Preconstruction conference.
 - 3. Project meetings, minimum of two per month; distribute minutes.
- B. Submit daily and special reports.
- C. Submit progress schedule, bar-chart type, updated monthly.
- D. Prepare submittal schedule; coordinate with progress schedule.
- E. Submit schedule of values.
- F. Submit schedule of required tests including payment and responsibility.
- G. Perform surveys:
 - 1. Laying out the work and verifying locations during construction.
 - 2. Final site survey.
- H. Submit and post a list of emergency telephone numbers and address for individuals to be contacted in case of emergency.
- I. Submit record drawings and specifications; to be maintained and annotated by Contractor as work progresses.
- J. Submit payment request procedures.
- K. Clean and protect the work.

PART 2 - PRODUCTS - NOT APPLICABLE TO THIS SECTION

PART 3 - EXECUTION - NOT APPLICABLE TO THIS SECTION

END OF SECTION

SECTION 01330
SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Provide types of submittals listed in individual sections and number of copies required below.
 - 1. Shop drawings, reviewed and annotated by the Contractor - transparency and two blackline prints.
 - 2. Product data - 4 copies.
 - 3. Samples - 2, plus extra samples as required to indicate range of color, finish, and texture to be expected.
 - 4. Inspection and test reports - 4 copies.
 - 5. Warranties - 4 copies.
 - 6. Survey data - 4 copies.
 - 7. Closeout submittals - 4 copies.
 - 8. Project photographs - 8 - 8x10 color prints each month and at beginning and end of construction. Include digital in a USB flash drive. Date and time stamp each photograph as it is being taken so stamp is integral to photograph.
- B. Comply with project format for submittals.
- C. Comply with submittal procedures established by Architect including Architect's submittal and shop drawing stamp. Provide required resubmittals if original submittals are not approved. Provide distribution of approved copies including modifications after submittals have been approved.
- D. Samples and shop drawings shall be prepared specifically for this project. Shop drawings shall include dimensions and details, including adjacent construction and related work. Note special coordination required. Note any deviations from requirements of the Contract Documents.
- E. Provide warranties as specified; warranties shall not limit length of time for remedy of damages Owner may have by legal statute. Contractor, supplier or installer responsible for performance of warranty shall sign warranties.

PART 2 - PRODUCTS - NOT APPLICABLE TO THIS SECTION

PART 3 - EXECUTION - NOT APPLICABLE TO THIS SECTION

END OF SECTION

SECTION 01400
QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 QUALITY CONTROL

- A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.
- B. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

1.2 TOLERANCES

- A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate. Comply with manufacturers' tolerances.

1.3 REFERENCES

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

1.4 MANUFACTURERS' FIELD SERVICES

- A. When specified in individual specification sections, require material or product suppliers or manufacturers to provide qualified staff personnel to perform the following as applicable, and to initiate instructions when necessary.
 - 1. Observe site conditions.
 - 2. Conditions of surfaces and installation.
 - 3. Quality of workmanship.
 - 4. Start-up of equipment.
 - 5. Test, adjust and balance of equipment.

1.5 CONTRACTOR'S QUALITY CONTROL

- A. Perform quality control during installation.

1.6 MOCK-UP REQUIREMENTS

- A. Assemble and erect specified items with specified attachment and anchorage devices, flashings, seals, and finishes. Accepted mock-ups shall be a comparison standard for the remaining Work.
- B. Where mock-up has been accepted by Architect and no longer needed, remove mock-up and clear area when directed to do so.

PART 2 - PRODUCTS - NOT APPLICABLE TO THIS SECTION

PART 3 - EXECUTION - NOT APPLICABLE TO THIS SECTION

END OF SECTION

SECTION 01500

TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 SUMMARY

- A. Provide temporary services and utilities, including utility costs:
 - 1. Water (potable and non-potable).
 - 2. Toilet facilities.
 - 3. Materials storage.
- B. Provide security and protection requirements:
 - 1. Fire extinguishers.
 - 2. Site enclosure fence, barricades, warning signs, and lights.
 - 3. Building enclosure and lock-up.
 - 4. Environmental protection.
 - 5. Pest control during and at the end of construction.
- C. Provide personnel support facilities:
 - 1. Sanitary facilities.
 - 2. Drinking water.
 - 3. Project identification sign.
 - 4. Cleaning, trash removal and legal disposal of materials.

PART 2 - PRODUCTS - NOT APPLICABLE TO THIS SECTION

PART 3 - EXECUTION - NOT APPLICABLE TO THIS SECTION

END OF SECTION

SECTION 01600
PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Provide products from one manufacturer for each type or kind as applicable. Provide secondary materials as acceptable to manufacturers of primary materials.
- B. Provide products selected or equal approved by Architect. Products submitted for substitution shall be submitted with complete documentation, and include construction costs of substitution including related work.
- C. Request for substitution must be in writing. Conditions for substitution include:
 - 1. An 'or equal' phrase in the specifications.
 - 2. Specified material cannot be coordinated with other work.
 - 3. Specified material is not acceptable to authorities having jurisdiction.
 - 4. Substantial advantage is offered to the Owner in terms of cost, time, or other valuable consideration.
- D. Substitutions shall be submitted prior to award of contract, unless otherwise acceptable. Approval of shop drawings, product data, or samples containing substitutions is not an approval of a substitution unless an item is clearly presented as a substitution at the time of submittal.

PART 2 - PRODUCTS - NOT APPLICABLE TO THIS SECTION

PART 3 - EXECUTION - NOT APPLICABLE TO THIS SECTION

END OF SECTION

SECTION 01700
EXECUTION REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. The following are prerequisites to substantial completion. Provide the following:
 - 1. Punch list prepared by Contractor and subcontractors as applicable.
 - 2. Supporting documentation.
 - 3. Warranties.
 - 4. Certifications.
 - 5. Occupancy permit.
 - 6. Start-up and testing of building systems.
 - 7. Change over of locks.
 - 8. Meter readings.
- B. Provide the following prerequisites to final acceptance:
 - 1. Final payment request with supporting affidavits.
 - 2. Completed punch list.
- C. Provide a marked-up set of drawings including changes, which occurred during construction.
- D. Provide the following during project closeout:
 - 1. Submission of record documents.
 - 2. Submission of maintenance manuals.
 - 3. Training and turnover to Owner's personnel.
 - 4. Final cleaning and touch-up.
 - 5. Removal of temporary facilities.

PART 2 - PRODUCTS - NOT APPLICABLE TO THIS SECTION

PART 3 - EXECUTION - NOT APPLICABLE TO THIS SECTION

END OF SECTION

SECTION 01730
CUTTING AND PATCHING

PART 1 - GENERAL

1.1 SUMMARY

- A. Provide cutting and patching work to properly complete the work of the project, complying with project requirements for:
 - 1. Structural work.
 - 2. Mechanical/electrical systems.
 - 3. Visual requirements, including detailing and tolerances.
 - 4. Operational and safety limitations.
 - 5. Fire resistance ratings.
 - 6. Inspection, preparation, and performance.
 - 7. Cleaning.
- B. Do not cut and patch in a manner that would result in a failure of the work to perform as intended, decrease energy performance, increase maintenance, decrease operational life, or decrease safety performance.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Match existing materials for cutting and patching work with new materials conforming to project requirements.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Inspect conditions prior to work to identify scope and type of work required. Protect adjacent work. Notify Owner of work requiring interruption to building services or Owner's operations.
- B. Perform work with workmen skilled in the trades involved. Prepare sample area of each type of work for approval.
- C. Cutting: Use cutting tools, not chopping tools. Make neat holes. Minimize damage to adjacent work. Inspect for concealed utilities and structure before cutting.
- D. Patching: Make patches, seams, and joints durable and inconspicuous. Comply with tolerances for new work.
- E. Clean work area and areas affected by cutting and patching operations.

END OF SECTION

SECTION 02220

DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

A. Building and Site Demolition:

1. Demolition of designated building structures.
2. Demolition of site improvements including paving, curbing, site walls, and utility structures.
3. Demolition of below-grade foundations and site improvements to depth to avoid conflict with new construction or site work.
4. Removal of hollow items or items which could collapse.
5. Detach items from existing construction and deliver them to Owner ready for reuse
6. Protection of site work and adjacent structures.
7. Disconnection, capping, and removal of utilities.
8. Pollution control during building demolition, including noise control.
9. Removal and legal disposal of materials.

B. Selective Demolition:

1. Selective demolition of interior partitions, systems, and building components designated to be removed.
2. Selective demolition of exterior facade, structures, and components designated to be removed.
3. Protection of portions of building adjacent to or affected by selective demolition.
4. Removal of abandoned utilities and wiring systems.
5. Notification to Owner of schedule of shut-off of utilities which serve occupied spaces.
6. Pollution control during selective demolition, including noise control.
7. Removal and legal disposal of materials.

1.2 SUBMITTALS

- ###### A. Schedule:
- Submit for approval selective demolition schedule, including schedule and methods for capping utilities to be abandoned and maintaining existing utility service.

1.3 QUALITY ASSURANCE

- ###### A. Comply with governing codes and regulations. Use experienced workers.
- ###### B. Remove and store refrigerant according to regulations of authorities having jurisdiction.

1.4 PROJECT CONDITIONS

- ###### A. Immediate areas of work will not be occupied during selective demolition. The public, including children, may occupy adjacent areas.
- ###### B. No responsibility for buildings and structures to be demolished will be assumed by the Owner

PART 2 - PRODUCTS - NOT APPLICABLE TO THIS SECTION

PART 3 - EXECUTION

3.1 DEMOLITION

- A. Do not damage building elements and improvements indicated to remain. Items of salvage value, not included on schedule of salvage items to be returned to Owner, shall be removed from structure. Storage or sale of items at project site is prohibited.
- B. Locate, identify, disconnect, and seal or cap off utilities in buildings to be demolished.
- C. Provide and maintain interior and exterior shoring and bracing.
- D. No explosives are permitted.
- E. Do not close or obstruct streets, walks, drives or other occupied or used spaces or facilities without the written permission of the Owner and the authorities having jurisdiction. Do not interrupt utilities serving occupied or used facilities without the written permission of the Owner and authorities having jurisdiction. If necessary, provide temporary utilities.
- F. Cease operations if public safety or remaining structures are endangered. Perform temporary corrective measures until operations can be continued properly.
- G. Provide adequate protection against accidental trespassing. Secure project after work hours.
- H. Restore finishes of patched areas.

END OF SECTION

SECTION 02230

SITE CLEARING

PART 1 - GENERAL

1.1 SUMMARY

- A. Provide site-clearing operations.
- B. Protecting existing trees and plants to remain.
- C. Temporary erosion and sedimentation control measures.

1.2 SUBMITTALS

- A. Clearing Plan: Submit list of proposed operations, and identify site improvements and features to remain. Include proposed location for stockpiles.

1.3 QUALITY ASSURANCE

- A. Comply with governing codes and regulations. Use experienced workers.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Tree protection, erosion control, siltation control, and dust control materials suitable for site conditions.

PART 3 - EXECUTION

3.1 SITE CLEARING OPERATIONS

- A. Protection of existing trees, vegetation, landscaping, and site improvements not scheduled for clearing which might be damaged by construction activities.
- B. Trimming of existing trees and vegetation as recommended by arborist for protection during construction activities.
- C. Clearing and grubbing of stumps and vegetation, and removal and disposal of debris, rubbish, designated trees, and site improvements.
- D. Topsoil stripping and stockpiling.
- E. Temporary erosion control, siltation control, and dust control.
- F. Temporary protection of adjacent property, structures, benchmarks, and monuments.
- G. Temporary relocation of play structures, fencing, and site improvements scheduled for reuse.
- H. Watering of trees and vegetation during construction activities.

- I. Removal and legal disposal of cleared materials.

3.2 CLEARING

- A. Prevent damage to existing improvements indicated to remain, including improvements on and off site. Protect existing trees and vegetation indicated to remain. Do not stockpile materials and restrict traffic within drip line of existing trees to remain. Provide and maintain temporary guards to encircle trees or groups of trees to remain; obtain approval before beginning work.
- B. Water vegetation as required to maintain health. Cover temporarily exposed roots with wet burlap and backfill as soon as possible. Coat cut plant surfaces with approved emulsified asphalt plant coating.
- C. Repair or replace vegetation, which has been damaged, or pay damages. Remove heavy growths of grass before stripping. Stockpile satisfactory topsoil containing no large stones, foreign matter and weeds on site for reuse.
- D. Completely remove all improvements including stumps and debris except for those indicated to remain. Remove below grade improvements at least 12" below finish grade and to the extent necessary so as not to interfere with new construction. Remove abandoned mechanical and electrical work as required.
- E. Prevent erosion and siltation of streets, catch basins and piping. Control windblown dust. Remove waste materials and unsuitable soil from site and dispose of in a legal manner.

END OF SECTION

SECTION 02260

EXCAVATION SUPPORT AND PROTECTION

PART 1 - GENERAL

1.1 SUMMARY

- A. Provide shoring and bracing for sidewalls in deep excavations with steel sheet, soldier piles or timber lagging to protect existing buildings, utilities, roadways, and improvements.

1.2 SUBMITTALS

- A. Shop Drawings: Layout of shoring and bracing and other data, acceptable to local authorities having jurisdiction, prepared by a qualified professional engineer.

1.3 QUALITY ASSURANCE

- A. Survey of Adjacent Structures and Levels: Registered land surveyor prior to excavation.
- B. Engineer: A professional engineer licensed in the jurisdiction of the project.
- C. System Design: Prevent cave-ins, loss of ground, or damage to people and property. Maintain shoring and bracing during construction activities and remove shoring and bracing if practical when construction and filling is complete.
- D. Comply with codes and ordinances of governing authorities having jurisdiction. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Sheet steel: Heavy-gauge steel sheet suitable for service.
- B. Soldier piles: Steel H-beams in serviceable condition.
- C. Timber lagging: Heavy timber pressure treated with wood preservative.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install in proper relation with adjacent construction to permit forming and finishing of concrete surfaces. Coordinate with work of other sections. Monitor during work progress
- D. Locate shoring and bracing to avoid permanent construction. Anchor and brace to prevent collapse.

END OF SECTION

SECTION 02362
TERMITE CONTROL

PART 1 - GENERAL

1.1 SUMMARY

- A. Provide soil treatment for termite control.

1.2 SUBMITTALS

- A. Product Data: Submit manufacturer's product data and installation instructions for each material and product used.
- B. Warranty: Submit manufacturer's standard warranty. Include labor and materials to repair or replace defective materials.
 - 1. Warranty Period: 5 years.

1.3 QUALITY ASSURANCE

- A. Regulatory Requirements: Formulate and apply termiticides according to the EPA-Registered Label.
- B. Comply with governing codes and regulations. Provide products of acceptable manufacturers, which have been in satisfactory use in similar service for three years. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.
- C. Environmental Limitations: To ensure penetration, do not treat soil that is water saturated or frozen. Do not treat soil while precipitation is occurring. Comply with requirements of the EPA-Registered Label and requirements of authorities having jurisdiction.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Soil Treatment Materials: Soil treatment materials shall bear Federal registration number of U.S. Environmental Protection Agency and acceptable to authorities having jurisdiction.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Mix soil treatment termiticide solution to a uniform consistency. Provide quantity required for application at the label volume and rate for the maximum specified concentration of termiticide, according to manufacturer's EPA-Registered Label.
- B. Mix wood treatment borate solution to a uniform consistency. Provide quantity required for application at the label volume and rate for the maximum specified concentration of borate, according to manufacturer's EPA-Registered Label, so that wood framing, sheathing, siding, and structural members subject to infestation receive treatment.

- C. Place bait stations and monitoring stations, according to the EPA-Registered Label for the product and manufacturer's written instructions
- D. Post signs and other warnings indicating that soil poisoning has been applied. Protect persons and property from injury or damage from soil treatment work.

END OF SECTION

SECTION 02370
EROSION AND SEDIMENTATION CONTROL

PART 1 - GENERAL

1.1 SUMMARY

- A. Provide erosion and sedimentation control.

1.2 SUBMITTALS

- A. Product Data: Submit manufacturer's product data and installation instructions for each material and product used, including:
 - 1. Types of stone and sizes.
 - 2. Types of fabrics and erosion control matting.

1.3 QUALITY ASSURANCE

- A. Comply with governing codes and regulations. Provide products of acceptable manufacturers, which have been in satisfactory use in similar service for three years. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Crushed Stone Bedding: 2 feet thick, with filter fabric, and mechanically placed 1-foot thick stone riprap.
- B. Retaining Wall Systems: Modular retaining wall system
- C. Erosion Control Matting:
 - 1. Type: 100% UV stabilized polypropylene fiber; Erosion Control Systems
 - 2. Type: Polyvinyl chloride non-woven mat
 - 3. Type: Woven or knitted high-tenacity polyester yarn
 - 4. Type: Nylon geomatrix

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install materials and systems in accordance with manufacturer's instructions and approved submittals. Install materials and systems in proper relation with adjacent construction. Coordinate with work of other sections.

END OF SECTION

SECTION 05120
STRUCTURAL STEEL

PART 1 - GENERAL

1.1 SUMMARY

- A. Provide structural steel for building construction including sub-framing units, which are part of the general framing system. Include related anchors, fasteners, and connectors.
- B. Modify existing structural steel systems and components to accommodate remodeling and new work.
- C. Architecturally exposed structural steel.

1.2 SUBMITTALS

- A. Product Data: Submit manufacturer's product data and installation instructions for each material and product used.
- B. Shop Drawings: Submit shop drawings indicating material characteristics, details of construction, connections, and relationship with adjacent construction.
 - 1. Shop drawings shall be prepared and stamped by a qualified engineer licensed in the jurisdiction of the project.
- C. Submit for approval test reports.

1.3 QUALITY ASSURANCE

- A. Comply with governing codes and regulations. Provide products of acceptable manufacturers, which have been in satisfactory use in similar service for three years. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.
- B. Standards: AISC, Code of Standard Practice for Steel Buildings and Bridges, and applicable regulations.
- C. Architecturally Exposed Structural Steel: Comply with fabrication requirements, including tolerance limits, and installation tolerances of AISC's "Code of Standard Practice for Steel Buildings and Bridges" for structural steel identified as architecturally exposed structural steel.
- D. Testing: Independent testing laboratory.
- E. Erection Tolerances: AISC standards.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Steel Materials:
 - 1. Structural Steel Shapes, Plates, and Bars: ASTM A 572.
 - 2. Cold-Formed Steel Tubing: ASTM A 500, Grade B.

3. Hot-Formed Steel Tubing: ASTM A 501.
4. Steel Pipe: ASTM A 53, Type E or S, Grade B; or ASTM A 501.
5. Steel Castings: ASTM A 27, Grade 65-35.
6. Headed Stud-Type Shear Connectors: ASTM A 108, Grade 1015 or 1020.
7. Anchor Bolts: ASTM A 307, nonheaded type.
8. Unfinished Threaded Fasteners: ASTM A 307, Grade A.
9. High-Strength Threaded Fasteners: ASTM A 325 or ASTM A 490, as applicable.

B. Auxiliary Materials:

1. Direct Tension Indicators: ASTM A 959.
2. Electrodes for Welding: AWS Code.
3. Structural Steel Primer Paint: SSPC - Paint 13, compatible with topcoats.
4. Cement Grout: Portland cement, sand.
5. Metallic Shrinkage-Resistant Grout: Premixed ferrous aggregate grouting compound ASTM C 1107.
6. Nonmetallic Shrinkage-Resistant Grout: Premixed nonmetallic grouting compound, ASTM C 1107.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Comply with AISC codes and specifications, and with AWS "Structural Welding Code".
- B. Employ a registered engineer to check elevations and plumb and level tolerances; certify that installed work is within AISC Standards. Owner may engage testing/inspection agency to inspect welded and bolted connections.
- C. Architecturally exposed steel: Fabricate with special care using materials carefully selected for best appearance. Store materials off ground and keep clean. Cut, fit and assemble work with surfaces smooth, square and with complete contact at joints. Set all cambers up. Weld all work continuously; grind smooth and flush to make seams not visible after priming. Prepare surfaces to comply with SSPC-SP6; apply prime coat within 24 hours after cleaning.
- D. Touch-up field welds and abraded areas with shop primer.

END OF SECTION

SECTION 05210

STEEL JOISTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Provide roof framing.

1.2 SUBMITTALS

- A. Product Data: Submit manufacturer's product data and installation instructions for each material and product used.
- B. Shop Drawings: Submit shop drawings indicating material characteristics, details of construction, connections, and relationship with adjacent construction.
 - 1. Shop drawings shall be prepared and stamped by a qualified engineer licensed in the jurisdiction of the project.

1.3 QUALITY ASSURANCE

- A. Comply with governing codes and regulations. Provide products of acceptable manufacturers, which have been in satisfactory use in similar service for three years. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.
- B. Standards: Steel Joist Institute (SJI) Standard Specifications.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Steel Materials:
 - 1. Steel: SJI specifications for chord and web sections.
 - 2. Steel Bearing Plates: ASTM A 36.
 - 3. Type: K-series open web steel joists.
 - 4. Type: KCS-series open web steel joists.
 - 5. Type: LH-series Longspan steel joists.
 - 6. Type: DLH-series deep longspan steel joists.
 - 7. Type: Joist girders.
- B. Auxiliary Materials:
 - 1. Unfinished Threaded Fasteners: ASTM A 307, Grade A.
 - 2. Steel Prime Paint: SJI specifications.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Fabricate and install joists in compliance with SJI requirements and recommendations. Shop primer shall be compatible with finish paint specified in painting section.

- B. Coordinate installation of anchor bolts with other work as necessary. Place joists and bridging simultaneously; align work and weld or bolt into place in accordance with SJI specifications. Grout as required for sound bearing.
- C. Touch-up damaged coatings using same primer as shop painting.

END OF SECTION

SECTION 05310

STEEL DECK

PART 1 - GENERAL

1.1 SUMMARY

- A. Provide steel floor and roof deck units:
 - 1. Steel roof deck.

1.2 SUBMITTALS

- A. Product Data: Submit manufacturer's product data and installation instructions for each material and product used.
- B. Shop Drawings: Submit shop drawings indicating material characteristics, details of construction, connections, and relationship with adjacent construction.
 - 1. Shop drawings shall be prepared and stamped by a qualified engineer licensed in the jurisdiction of the project.

1.3 QUALITY ASSURANCE

- A. Comply with governing codes and regulations. Provide products of acceptable manufacturers, which have been in satisfactory use in similar service for three years. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.
- B. Standards: AISI, Specification for the Design of Cold-Formed Steel Structural Members; and SDI Design Manual for Composite Decks, Form Decks, and Roof Decks.
- C. Approvals: UL label and FM listing.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Steel Materials and Finish:
 - 1. Steel Shapes: ASTM A 36.
 - 2. Shear Connectors: Headed stud type, ASTM A 108.
 - 3. Sheet Metal Accessories: ASTM A 653, G 60, commercial quality, galvanized.
 - 4. Galvanizing: ASTM A 653, G60.
 - 5. Galvanizing Repair: ASTM A 780.
 - 6. Paint: Rust-inhibitive paint.
 - 7. Type: Steel for painted metal deck, ASTM A 611, Grade C.
 - 8. Type: Steel for galvanized metal deck, ASTM A 653, G 90 coating.
 - 9. Type: Aluminum-zinc alloy-coated steel sheet, ASTM A 792, Grade 33, AZ 50.
- B. Auxiliary Materials:
 - 1. Metal cover plates.
 - 2. Metal closure strips.
 - 3. Roof sump pans.
 - 4. Flexible closure strips.

5. Acoustic sound barrier closures.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Form to span at least 3 supports and with 2" laps. Place deck flat, square and with cells aligned. Anchor deck securely in place following manufacturer's directions and approved shop drawings.
- B. Cut and fit neatly around penetrations; provide additional framing, reinforcement and closure pieces to maintain structural continuity. Anchor closure strips at ends, edges, and penetrations.
- C. Touch-up damaged coatings with primer or galvanized repair paint.

END OF SECTION

SECTION 05521
PIPE AND TUBE RAILINGS

PART 1 - GENERAL

1.1 SUMMARY

- A. Provide pipe and tube handrails and railing systems.

1.2 SUBMITTALS

- A. Product Data: Submit manufacturer's product data and installation instructions for each material and product used.
- B. Shop Drawings: Submit shop drawings indicating material characteristics, details of construction, connections, and relationship with adjacent construction.

1.3 QUALITY ASSURANCE

- A. Comply with governing codes and regulations. Provide products of acceptable manufacturers, which have been in satisfactory use in similar service for three years. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.
- B. Handrail and Railing Structural Performance: In accordance with 2018 Puerto Rico Building Code or the 2018 International Building Code

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Aluminum Pipe and Tube Railing Systems:
 - 1. Extruded Bar and Tube: ASTM B 221, alloy 6063 T5/T52.
 - 2. Extruded Structural Pipe and Tube: ASTM B 429, alloy 6063 T5/T52.
 - 3. Drawn Seamless Tube: ASTM B 210, alloy 6063 T832.
 - 4. Plate and Sheet: ASTM B 209, alloy 6061 T6.
 - 5. Die and Hand Forgings: ASTM B 247, alloy 6061 T6.
 - 6. Castings: ASTM B 26, alloy A356 T6.
 - 7. Finish: Mill finish.
- B. Stainless Steel Pipe and Tube Railing Systems:
 - 1. Tubing: ASTM A 554, Grade TP 304 or TP 316.
 - 2. Pipe: ASTM A 312, Grade TP 304 or TP 316.
 - 3. Castings: ASTM A 743, Grade CF 8 or CF 20.
 - 4. Plate: ASTM A 666, Type 304 or 316.
 - 5. Finish: 180 grit polished.
 - 6. Finish: 320 grit polished.
 - 7. Finish: AISI No. 4 bright directional polish.
- C. Steel Pipe and Tube Railing Systems:
 - 1. Steel Pipe, Black Finish: ASTM A 53.
 - 2. Steel Pipe, Galvanized Finish: ASTM A 53.

3. Steel Tubing: ASTM A 500 or A 501.
4. Steel Plates, Shapes and Bars: ASTM A 36.
5. Gray Iron Castings: ASTM A 48, Class 30.
6. Malleable Iron Castings: ASTM A 47, Grade 32510.
7. Finish: Primed.
8. Finish: Baked enamel.
9. Finish: Galvanized.
10. Finish: Galvanized and shop primed.

D. Auxiliary Materials:

1. Nonshrink Nonmetallic Grout: CE CRD-C621.
2. Interior Anchoring Cement: Hydraulic expansion cement.
3. Exterior/Interior Anchoring Cement: Erosion-resistant hydraulic expansion cement.
4. Shop Primer: Fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with MPI#79, compatible with topcoats.
5. Zinc-Rich Primer: Complying with SSPC-Paint 20 or SSPC-Paint 29 and compatible with topcoat.
6. Galvanizing Repair Paint: SSPC - Paint 20.
1. Bituminous Paint: Asphalt mastic, SSPC - Paint 12.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Take field measurements prior to fabrication, where possible. Form to required shapes and sizes with true, straight edges, lines and angles. Provide light-tight, hairline joints.
- B. Install materials and systems in accordance with manufacturer's instructions and approved submittals. Install materials and systems in proper relation with adjacent construction. Coordinate with work of other sections.
- C. Coordinate with work of other sections; provide inserts and templates as needed. Install work plumb and level with uniform appearance.
- D. Restore damaged finishes and protect work.

END OF SECTION

SECTION 06100
ROUGH CARPENTRY

PART 1 - GENERAL

1.1 SUMMARY

- A. Provide rough carpentry:
 - 1. Framing with dimension lumber.
 - 2. Framing with engineered wood products.
 - 3. Framing with timbers.
 - 4. Rooftop equipment bases and support curbs.
 - 5. Wood grounds, nailers, and blocking.
 - 6. Wood furring.
 - 7. Backing panels.
 - 8. Sheathing.
 - 9. Subflooring.
 - 10. Underlayment.
 - 11. Building wrap.

1.2 SUBMITTALS

- A. Product Data: Submit manufacturer's product data and installation instructions for each material and product used.

1.3 QUALITY ASSURANCE

- A. Comply with governing codes and regulations. Provide products of acceptable manufacturers, which have been in satisfactory use in similar service for three years. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.
- B. Lumber Standards and Grade Stamps: DOC PS 20, American Softwood Lumber Standard and inspection agency grade stamps.
- C. Construction Panel Standards: DOC PS 1, U.S. Product Standard for Construction and Industrial Plywood; APA PRP-108.
- D. Wood Framing Standards: NFPA House Framing Manual.
 - 1. Exterior Wall Framing: 2 inch by 6-inch nominal (38 mm by 140 mm actual) studs, 24 inches (61 cm) on center.
 - 2. Exterior Wall Framing: 2 inch by 4-inch nominal (38 mm by 89 mm actual) studs, 16 inches (40 cm) on center.
 - 3. Interior Wall Framing: 2 inch by 4-inch (38 mm by 89 mm actual) studs, 16 inches (40 cm) on center.
- E. Preservative Treatment: AWPA C2 for lumber and AWPA C9 for plywood; waterborne pressure treatment. Provide for wood in contact with soil, concrete, masonry, roofing, flashing, dampproofing and waterproofing.
- F. Fire-Retardant Treatment: AWPA C20 for lumber and AWPA C27 for plywood; noncorrosive type. Provide at building interior where required by code.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Dimension Lumber:

1. Light Framing: Stud, No. 2 or Standard grade.
2. Structural Framing: No. 1 grade.
3. Species: Any species of grade indicated.
4. Exposed Framing: Appearance grade.

B. Timbers:

1. Species and Grade: WCLIB/WWPA select structural Douglas fir.
2. Species and Grade: SPIB No. 1 dense SR southern pine.
3. Type: Free of heart center.

C. Boards:

1. Exposed Boards: 15 percent moisture content.
2. Exposed Boards: 19 percent moisture content.
3. Concealed Boards: 19 percent moisture content.

D. Miscellaneous Lumber:

1. Moisture Content: 19 percent.
2. Grade: Standard grade light framing.

E. Engineered Wood Products:

1. Laminated-Veneer Lumber: A composite of wood veneers with grain primarily parallel to member lengths, manufactured with an exterior-type adhesive complying with ASTM D 2559.
2. Parallel-Strand Lumber: A composite of wood strand elements with grain primarily parallel to member lengths, manufactured with an exterior-type adhesive complying with ASTM D 2559.
3. Prefabricated Wood I Joists: Stress-graded lumber bonded to APA performance rated panel with exterior type adhesive; design stresses for use intended.
4. Composite Joists and Headers: Laminated lumber veneers; design stresses for use intended.

F. Construction Panels:

1. Combination Subfloor-Underlayment: Exposure 1, Structural I, Underlayment.
2. Combination Subfloor-Underlayment: Exposure 1, Underlayment.
3. Oriented-Strand-Board, Combination Subfloor-Underlayment: Exposure 1.
4. Plywood Subflooring: Exterior, Structural I.
5. Plywood Subflooring: Exposure 1, Structural I.
6. Plywood Wall Sheathing: Exterior, Structural I.
7. Plywood Wall Sheathing: Exposure 1, Structural I sheathing.
8. Oriented-Strand-Board Wall Sheathing: Exposure 1, Structural sheathing.
9. Plywood Roof Sheathing: Exterior, Structural I sheathing.
10. Plywood Roof Sheathing: Exposure 1, Structural I. Sheathing.
11. Oriented-Strand-Board Roof Sheathing: Exposure 1, Structural I sheathing.
12. Telephone and Electrical Equipment Backing Panels: DOC PS 1, Exposure 1, C-D Plugged, fire-retardant treated.
13. Plywood Underlayment for Resilient Flooring: DOC PS 1, Exterior A-C with fully sanded face.
14. Plywood Underlayment for Ceramic Tile: DOC PS 1, Exterior, C-C Plugged.
15. Plywood Underlayment for Carpet: DOC PS 1, Interior Underlayment.

- G. Fibrous Felted Boards:
 - 1. Hardboard Underlayment: AHA A135.4, Class 4 (Service), Surface S1S; with back side sanded.
 - 2. Fiberboard Wall Sheathing: AHA A194.1, Type IV, Class 1 (regular density).
- H. Particleboard:
 - 1. Underlayment: ANSI A 208.1, Grade PBU, grade marked.
- I. Gypsum Sheathing:
 - 1. Material: Gypsum sheathing board with water-resistant core.
 - 2. Glass-Mat Gypsum Wall Sheathing: ASTM C 1177; "Dens-Glass Gold" by G-P Gypsum Corp.
 - 3. Type: Regular ASTM C 79.
 - 4. Type: Type X fire-resistant ASTM C 79.
- J. Plastic Board Sheathing:
 - 1. Material: Extruded polystyrene, ASTM C 578, Type IV.
 - 2. Material: Polyisocyanurate-Foam thermal insulation complying with ASTM C 1289, Type I, Class 2.
- K. Auxiliary Materials:
 - 1. Building Paper: Asphalt-saturated organic felt, ASTM D 226, Type I, No. 15 felt, unperforated.
 - 2. Building Wrap: Air-retarder sheeting made from polyolefins; cross-laminated films, woven strands, or spun-bonded fibers; coated or uncoated; with or without perforations; ASTM E 1677, Type I.
 - 3. Sill Sealer Gaskets: Glass fiber strip resilient insulation.
 - 4. Framing Anchors and Fasteners: Non-corrosive, suitable for load and exposure. Drywall screws are not acceptable.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated,
- B. Plywood: Comply with applicable recommendations contained in APA Form No. E30K, "APA Design/Construction Guide: Residential & Commercial"
- C. Provide nailers, blocking and grounds where required. Set work plumb, level and accurately cut.
- D. Install materials and systems in accordance with manufacturer's instructions and approved submittals. Install materials and systems in proper relation with adjacent construction. Coordinate with other work.
- E. Comply with manufacturer's requirements for cutting, handling, fastening and working treated materials.
- F. Restore damaged components. Protect work from damage.

END OF SECTION

SECTION 06130

HEAVY TIMBER CONSTRUCTION

PART 1 - GENERAL

1.1 SUMMARY

- A. Provide heavy timber construction for structural framing:
 - 1. Beams, girders, and purlins.
 - 2. Columns including posts and standards.
 - 3. Solid wood roof decking.
 - 4. Solid wood floor decking.

1.2 SUBMITTALS

- A. Product Data: Submit manufacturer's product data and installation instructions for each material and product used.
- B. Shop Drawings: Submit shop drawings indicating material characteristics, details of construction, connections, and relationship with adjacent construction.
 - 1. Shop drawings shall be prepared and stamped by a qualified engineer licensed in the jurisdiction of the project.

1.3 QUALITY ASSURANCE

- A. Comply with governing codes and regulations. Provide products of acceptable manufacturers, which have been in satisfactory use in similar service for three years. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.
- B. Standards: AITC 108, Standard for Heavy Timber Construction; AITC 112, Standard for Tongue and Groove Heavy Timber Roof Decking.
- C. Preservative Treatment, Timber Framing: AWPAC2.
- D. Fire-Retardant Treatment, Solid Wood Decking: AWPAC20, flame-spread not higher than 25, UL Test 723.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Timber Framing:
 - 1. Species: Douglas fir-larch.
 - 2. Species: Fabricator's option.
 - 3. Grade: WWPA select structural, dense.
 - 4. Grade: WWPA No. 1, dense.
 - 5. Grade: Suitable for use intended.
 - 6. Stress Rating: Douglas fir or Larch, WWPA No. 1 beams and stringers Fb 1500 psi and E 1,500,000 psi.
 - 7. Stress Rating: Suitable for use intended.
 - 8. Moisture Content: 19 percent S-DRY.

9. Moisture Content: Unseasoned S-GRN.
10. Dressing: Dressed 4 sides.
11. Dressing: Rough sawn.
12. End and Penetrating Sealers: Manufacturer standard.

B. Solid Wood Decking:

1. Pattern and Dressing: Solid matched decking, surfaced top and bottom, sanded on exposed surfaces.
2. Fasteners: AITC recommendations.
3. Preservative Treatment: AWWPA C31 with inorganic boron (SBX) and redry wood.
4. Retain paragraph below if southern pine is specified exclusively; first option is highest grade.
5. Roof Decking:
6. Grade: Commercial.
7. Floor Decking: Matched.
8. Grade: Commercial.
9. Moisture Content: 15 percent.

C. Timber Connectors

1. Stainless Steel Plate And Flat Bars: ASTM A 666, Type 304.
2. Stainless Steel Bars And Shapes: ASTM A 276, Type 304.
3. Stainless Steel Sheet: ASTM A 666, Type 304.
4. Structural-Steel Shapes, Plates, And Flat Bars: ASTM A 36.
5. Round Steel Bars: ASTM A 575, Grade M 1020.
6. Hot-Rolled Steel Sheet: ASTM A 1011, Structural Steel, Type SS, Grade 33.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install materials and systems in accordance with manufacturer's instructions and approved submittals. Install materials and systems in proper relation with adjacent construction and with uniform appearance. Coordinate with work of other sections.
- B. Install wood decking complying with recommendations of AITC 112.
- C. Restore damaged components. Clean and protect work from damage.

END OF SECTION

SECTION 06400
ARCHITECTURAL WOODWORK

PART 1 - GENERAL

1.1 SUMMARY

- A. Provide exterior architectural woodwork:
 - 1. Standing and running trim and rails.
 - 2. Siding.
 - 3. Decks.
 - 4. Ornamental items.
 - 5. Door frames.
 - 6. Shutters.
 - 7. Remodeling of existing exterior architectural woodwork.

1.2 SUBMITTALS

- A. Product Data: Submit manufacturer's product data and installation instructions for each material and product used.
- B. Shop Drawings: Submit shop drawings indicating material characteristics, details of construction, connections, and relationship with adjacent construction.
- C. Samples: Submit two representative samples of each material specified indicating visual characteristics and finish. Include range samples if variation of finish is anticipated.

1.3 QUALITY ASSURANCE

- A. Comply with governing codes and regulations. Provide products of acceptable manufacturers, which have been in satisfactory use in similar service for three years. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.
- B. Standards: Architectural Woodwork Institute (AWI) "Architectural Woodwork Quality Standards."
- C. Standards: Woodwork Institute of California (WIC) "Manual of Millwork."
- D. Preservative Treatment: Nonpressure method, exterior type, AWPA N1
- E. Fire-Retardant Treatment:
 - 1. Lumber: AWPA C20, non-corrosive type.
 - 2. Plywood: AWPA C27, non-corrosive type.
 - 3. Particleboard: ASTM E 84, flame spread 20 or less.
- F. Wood Products: Comply with the following:
 - 1. Hardboard: AHA A135.4.
 - 2. Medium-Density Fiberboard: ANSI A208.2, Grade MD-Exterior Glue.
 - 3. Particleboard: ANSI A208.1, Grade M-2-Exterior Glue.

4. Softwood Plywood: DOC PS 1, Medium Density Overlay.
 5. Hardwood Plywood and Face Veneers: HPVA HP-1.
- G. Mock-Ups: Provide mock-up as required to demonstrate quality of workmanship of each type of architectural woodwork.

PART 2 - PRODUCTS

2.1 EXTERIOR MATERIALS

- A. Exterior Standing and Running Trim and Rails:
1. Species for Transparent Finish: Teak.
 2. Grade: Premium.
 3. Finish: Opaque stain.
- B. Lumber Siding:
1. Type: Kiln dried solid lumber bevel siding.
 2. Species and Grade: Clear all heart redwood.
 3. Species and Grade: B and Better southern pine.
 4. Species and Grade: Clear vertical grain heart western red cedar.
 5. Type: Bevel Siding
 6. Texture: Smooth.
 7. Finish: Opaque stain.
- C. Plywood Siding:
1. Type: APA 303 series siding.
 2. APA-Rated siding, pressure-preservative treated.
 3. APA-Rated siding, factory coated with exterior acrylic latex stain.
 4. Face Grade: 303-OC (Clear)
 5. Species/Facing: Cedar siding.
 6. Texture: Smooth with selected pattern.
 7. Pattern: Plain.
 8. Finish: Opaque stain.
- D. Hardboard Siding: Primed hardboard, AHA A135.6, with exterior alkyd primer...
1. Type: shiplap-edge panels, channel grooved.
 2. Texture: Smooth.
- E. Siding Auxiliary Materials:
1. Felt Underlayment: Asphalt saturated organic felt, unperforated, ASTM D 226, Type 1, No. 15.
 2. Fasteners: Stainless steel, non-corrosive aluminum, or hot-dip galvanized siding nails.
 3. Horizontal Joint Flashing for Panel Siding: Preformed galvanized steel or aluminum.
- F. Exterior Ornamental Items and Decks:
1. Species for Transparent Finish: Clear fir.
 2. Species for Opaque Finish: Clear heart redwood.
 3. Grade: Premium.
 4. Finish: Opaque stain.
- G. Exterior Door Frames:

1. Species for Transparent Finish: Clear heart redwood, quarter sawn.
2. Species for Opaque Finish: Clear heart redwood.
3. Grade: Premium.
4. Finish: Opaque stain.

H. Shutters:

1. Species for Transparent Finish: Honduras mahogany.
2. Grade: Premium.
3. Finish: Opaque stain.

I. Exterior Decks:

1. Species: Clear fir.
2. Grade: Premium.
3. Finish: Opaque stain.

J. Exterior Fasteners:

1. Nails: Stainless steel, aluminum or hot-dip galvanized siding nails.
2. Screws and Anchors: Noncorrosive, type required for secure anchorage.

2.2 INSTALLATION

- A. Provide work to sizes, shapes, and profiles indicated. Install work to comply with quality standards referenced. Back prime work and install plumb, level and straight with tight joints; scribe work to fit.
- B. [Quality Standard: Install woodwork to comply with AWI Section 1700 for the same grade specified for type of woodwork involved.]
- C. [Quality Standard: Install woodwork to comply with WIC Section 26 for the same grade specified for type of woodwork involved.]
- D. Install materials and systems in accordance with manufacturer's instructions and approved submittals. Install materials and systems in proper relation with adjacent construction. Use non-corrosive fasteners for exterior work. Coordinate with work of other sections.
- E. Comply with manufacturer's requirements for cutting, handling, fastening and working treated materials.
- F. Repair minor damage, clean and protect.

END OF SECTION

SECTION 08120

INTERIOR ALUMINUM DOOR AND SIDELIGHT FRAMES

PART 1 - GENERAL

1.1 SUMMARY

- A. Provide interior aluminum doors and frames.

1.2 SUBMITTALS

- A. Product Data: Submit manufacturer's product data and installation instructions for each material and product used.
- B. Shop Drawings: Submit shop drawings indicating material characteristics, details of construction, connections, and relationship with adjacent construction.
- C. Samples: Submit two representative samples of each material specified indicating visual characteristics and finish. Include range samples if variation of finish is anticipated.

1.3 QUALITY ASSURANCE

- A. Comply with governing codes and regulations. Provide products of acceptable manufacturers, which have been in satisfactory use in similar service for three years. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.
- B. Source: Provide products of one manufacturer for each type of frame required for the work of this section. Provide secondary materials and products, which are acceptable to the frame manufacturers.
- C. Performance Standards:
 - 1. Fire-Rated Assemblies: NFPA 80, and acceptable testing agency listing.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Aluminum Doors and Sidelight Frames.
 - 1. Aluminum: Extruded aluminum 6063 or 6463-T5 alloy.
 - 2. Frame Type: KD, knock-down type, machined for mortised hardware; field machining and drilling not acceptable.
 - 3. Anchors and Fasteners: Manufacturer's standard units.
 - 4. Finish: Color anodized.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Fabricate work to be rigid, neat, and free from seams, defects, dents, warp, buckle, and exposed fasteners.

- B. Install fire rated frames in compliance with, NFPA 80, and requirements of authorities having jurisdiction.
- C. Prepare doors and frames to receive hardware on final schedule. Provide for 3 silencers on single doorframes; 2 on double doorframes.

END OF SECTION

SECTION 08520
ALUMINUM WINDOWS

PART 1 - GENERAL

1.1 SUMMARY

- A. Provide aluminum windows.

1.2 SUBMITTALS

- A. Product Data: Submit manufacturer's product data and installation instructions for each material and product used.
- B. Shop Drawings: Submit shop drawings indicating material characteristics, details of construction, connections, and relationship with adjacent construction.
- C. Samples: Submit two representative samples of each material specified indicating visual characteristics and finish. Include range samples if variation of finish is anticipated.
- D. Warranty: Submit manufacturer's standard warranty. Include labor and materials to repair or replace defective materials.
 - 1. Warranty Period: 5 years.
- E. Maintenance Data: Submit manufacturer's maintenance data, including maintenance schedule.

1.3 QUALITY ASSURANCE

- A. Comply with governing codes and regulations. Provide products of acceptable manufacturers, which have been in satisfactory use in similar service for three years. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.
- B. Mock-Ups: Provide mock-up as required to demonstrate quality of workmanship.
- C. Performance: Comply with AAMA/NWWDA 101/I.S.2 for grade of window required.

PART 2 - PRODUCTS

2.1 MATERIALS.

- A. Aluminum Windows:
 - 1. Construction: Thermal-break type.
 - 2. Aluminum Window Members: Aluminum extrusions.
 - 3. Anchors, Clips, and Window Accessories: Aluminum, nonmagnetic stainless steel, or galvanized steel.
 - 4. Window Operation: Jalousie windows..
 - 5. Performance Class and Grade:
 - a. Architectural 60.
 - 6. Glazing Color: Clear glass.
 - 7. Aluminum Finish: Color anodized.
- B. Auxiliary Materials:

1. Insect screening.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Fabricate windows to conform to AAMA standards and accept glass specified.
- B. Install materials and systems in accordance with manufacturer's instructions and approved submittals. Install materials and systems in proper relation with adjacent construction and with uniform appearance. Coordinate with work of other sections.
- C. Operation: Provide locking units with manual operation; provide pole for out of reach hardware.
- D. Restore damaged finishes and test for proper operation. Clean and protect work from damage.

END OF SECTION

SECTION 08710
DOOR HARDWARE

PART 1 - GENERAL

1.1 SUMMARY

- A. Provide door hardware.

1.2 SUBMITTALS

- A. Product Data: Submit manufacturer's product data and installation instructions for each material and product used.
- B. Samples: Submit two representative samples of each material specified indicating visual characteristics and finish. Include range samples if variation of finish is anticipated.
- C. Submit for approval hardware schedule proposed for use based on Owner's requirements.

1.3 QUALITY ASSURANCE

- A. Comply with governing codes and regulations. Provide products of acceptable manufacturers, which have been in satisfactory use in similar service for three years. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.
- B. Hardware for Fire-Rated Openings: NFPA 80, and local requirements.
- C. Materials and Application: ANSI A156 series standards.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Door Hardware:
 - 1. Quality Level: Heavy duty commercial.
 - 2. Locksets and Latchsets: Cylinder type.
 - 3. Lock Cylinders: Interchangeable.
 - 4. Keying: Owner's requirements.
 - 5. Keying: Multiple building keying and key control system.
 - 6. Hinges and Butts: Full-mortise type with nonremovable pins at exterior doors.
 - 7. Closers, Door Control, and Exit Devices: Low frequency.
 - 8. Pivots: Offset.
 - 9. Push/Pull Units: Through-bolted type.
 - 10. Hardware Finishes: Satin stainless finish on exposed surfaces.
- B. Auxiliary Materials:
 - 1. Door Trim Units: Kickplates, edge trim, viewers, knockers, and mail drops. and related trim.
 - 2. Stops and overhead door holders.
 - 3. Weatherstripping and thresholds..

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Follow guidelines of DHI "Recommended Locations for Builder's Hardware and hardware manufacturers' instructions.
- B. Install materials and systems in accordance with manufacturer's instructions and approved submittals. Install materials and systems in proper relation with adjacent construction and with uniform appearance. Coordinate with work of other sections.
- C. Adjust operation, clean and protect.

END OF SECTION

SECTION 09910

PAINTING

PART 1 - GENERAL

1.1 SUMMARY

- A. Provide the following:
 - 1. Painting and surface preparation for interior unfinished surfaces as scheduled.
 - 2. Painting and surface preparation for exterior unfinished surfaces as scheduled.
 - 3. Field-painting and surface preparation of exposed mechanical and electrical piping, conduit, ductwork, and equipment.
 - 4. Repainting and surface preparation at areas of remodeling.

1.2 SUBMITTALS

- A. Product Data: Submit manufacturer's product data and installation instructions for each material and product used.
- B. Samples: Submit two representative samples of each material specified indicating visual characteristics and finish. Include range samples if variation of finish is anticipated.
 - 1. Include manufacturer's full range of color and finish options if additional selection is required.
- C. Extra Stock: Submit 2 unopened gallons of each paint and color used in the project.

1.3 QUALITY ASSURANCE

- A. Comply with governing codes and regulations. Provide products of acceptable manufacturers, which have been in satisfactory use in similar service for three years. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.
- B. Regulations: Compliance with VOC and environmental regulations.
- C. Mock-Ups: Provide mock-up as required to demonstrate quality of workmanship.
 - 1. Provide 4 foot x 4 foot mock-ups of each type of surface.

PART 2 - EXECUTION

2.1 INSTALLATION

- A. Inspect surfaces, report unsatisfactory conditions in writing; beginning work means acceptance of substrate.
- B. Comply with manufacturer's instructions and recommendations for preparation, priming and coating work. Coordinate with work of other sections.
- C. At existing areas to be repainted, remove blistered or peeling paint to sound substrates. Remove chalk deposits and mildew and wash all surfaces with mild detergent. Perform related minor preparation including caulk and glazing compounds. Spot prime bare areas before priming and painting as specified.

- D. Match approved mock-ups for color, texture, and pattern. Re-coat or remove and replace work which does not match or shows loss of adhesion. Clean up, touch up and protect work.

2.2 PAINT SCHEDULE

A. Plaster:

- 1. Gloss:
 - a. Flat
- 2. System:
 - a. 1 coat latex primer
 - b. 2 coats latex finish

B. Wood for Painted Finish:

- 1. Gloss:
 - a. Flat
- 2. System:
 - a. 1 coat interior alkyd enamel undercoat
 - b. 2 coats latex enamel

C. Wood for Transparent Finish:

- 1. Gloss:
 - a. Satin
- 2. System:
 - a. 1 coat oil base sealer

D. Wood for Stain Finish:

- 1. Gloss:
 - a. Satin
- 2. System:
 - a. 1 coat oil base wood stain
 - b. 1 coat oil base sealer

E. Exterior Wood for Stain Finish:

- 1. System:
 - a. 2 coats semi-transparent stain, oil or alkyd resin base

F. Exterior Wood for Painted Finish:

- 1. Gloss:
 - a. Flat
- 2. System:
 - a. 1 coat exterior primer
 - b. 2 coats alkyd enamel

G. Concrete Masonry Units:

- 1. Gloss:
 - a. Flat
- 2. System:
 - a. 2 coats latex finish

H. Concrete Walls:

- 1. Gloss:
 - a. Flat
- 2. System:
 - a. 1 coat latex primer
 - b. 2 coats latex finish

I. Ferrous Metals:

1. Gloss:
 - a. Flat
2. System:
 - a. 1 coat rust-inhibiting primer
 - b. 2 coats alkyd enamel

J. Galvanized Metal:

1. Gloss:
 - a. Flat
2. System:
 - a. 1 coat galvanized metal primer
 - b. 2 coats alkyd enamel

END OF SECTION

SECTION 09931
EXTERIOR STAINS

PART 1 - GENERAL

1.1 SUMMARY

- A. Provide exterior stain and surface preparation.

1.2 SUBMITTALS

- A. Product Data: Submit manufacturer's product data and installation instructions for each material and product used.
- B. Samples: Submit two representative samples of each material specified indicating visual characteristics and finish. Include range samples if variation of finish is anticipated.

1.3 QUALITY ASSURANCE

- A. Comply with governing codes and regulations. Provide products of acceptable manufacturers, which have been in satisfactory use in similar service for three years. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.
- B. Regulations: Compliance with VOC and environmental regulations.
- C. Mock-Ups: Provide mock-up as required to demonstrate quality of workmanship.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Manufacturers: First-line commercial-quality products for all stain systems.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Inspect surfaces, report unsatisfactory conditions in writing; beginning work means acceptance of substrate.
- B. Comply with manufacturer's instructions and recommendations for preparation, priming and coating work. Coordinate with work of other sections.
- C. Match approved mock-ups for color, texture, and pattern. Re-coat or remove and replace work which does not match or shows loss of adhesion. Clean up, touch up and protect work.

3.2 EXTERIOR STAIN SCHEDULE

- A. Exterior Wood Siding, Shingles, and Shakes:
 - 1. Clear wood finish and preservative, 2 coats.

- B. Wood Trim:
 - 1. Clear wood finish and preservative, 2 coats.
- C. Wood Soffits and Fascia:
 - 1. Clear wood finish and preservative, 2 coats.
- D. Wood Roofs:
 - 1. Clear wood finish and preservative, 2 coats.
- E. Wood Decks and Fences:
 - 1. Semi-transparent, oil or alkyd resin based stain, 2 coats.

END OF SECTION

SECTION 09960
HIGH-PERFORMANCE COATINGS

PART 1 - GENERAL

1.1 SUMMARY

- A. Provide high performance coatings.

1.2 SUBMITTALS

- A. Product Data: Submit manufacturer's product data and installation instructions for each material and product used.
- B. Samples: Submit two representative samples of each material specified indicating visual characteristics and finish. Include range samples if variation of finish is anticipated.
- C. Extra Stock: Provide 2 unopened gallons of each coating and color used in the project.

1.3 QUALITY ASSURANCE

- A. Comply with governing codes and regulations. Provide products of acceptable manufacturers, which have been in satisfactory use in similar service for three years. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.
- B. Regulations: Compliance with VOC and environmental regulations.
- C. Mock-Ups: Provide mock-up as required to demonstrate quality of workmanship.
 - 1. Provide 4 foot x 4-foot mock-ups of each type of surface.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Provide first-line commercial-quality products for all special coating systems.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Inspect surfaces, report unsatisfactory conditions in writing; beginning work means acceptance of substrate.
- B. Comply with manufacturer's instructions and recommendations for preparation, priming and coating work. Coordinate with work of other sections.
- C. At existing areas to be repainted, remove blistered or peeling paint to sound substrates. Remove chalk deposits and mildew and wash all surfaces with mild detergent. Perform related minor preparation including caulk and glazing compounds. Spot prime bare areas before priming and painting as specified.

- D. Match approved mock-ups for color, texture, and pattern. Re-coat or remove and replace work which does not match or shows loss of adhesion. Clean up, touch up and protect work.

3.2 EXTERIOR SPECIAL COATING SCHEDULE

- A. Concrete to Receive 2-Component Polyamide-Epoxy Coating: 1 coat epoxy; total dry film thickness not less than 15 mils.
- B. Concrete Masonry to Receive Moisture-Curing Pigmented Polyurethane Coating: 1 coat concrete masonry block filler, 1 coat moisture-cured polyurethane or chemical-resistant epoxy, 1 coat moisture-curing polyurethane, with dry film thickness of not less than 6 mils.
- C. Wood to Receive 2-Component Polyamide-Epoxy Coating: 1 coat epoxy; total dry film thickness not less than 15 mils.
- D. Ferrous Metal to Receive 2-Component Polyamide-Epoxy Coating: One coat epoxy; total dry film thickness no less than 15 mils.
- E. Ferrous Metal to Receive Heat-Resistant Coating: 2 coats high-performance polyamide epoxy coating, total dry film thickness not less than 4 mils.

3.3 INTERIOR SPECIAL COATING SCHEDULE

- A. Concrete to Receive High Performance Polyamide Epoxy Coating: 2 coats high-performance polyamide epoxy coating; total dry film thickness not less than 4 mils.
- B. Concrete to Receive High-Gloss Polyester Epoxy Coating: 2 coats high-gloss polyester epoxy, total dry film thickness 6-8 mils.
- C. Concrete to Receive Epoxy Emulsion Coating: 1 coat block filler or epoxy emulsion, 1 coat epoxy emulsion.
- D. Concrete Masonry Units to Receive High-Performance, Polyamide Epoxy Coating: 1 coat concrete masonry block filler, 2 coats high-performance polyamide epoxy; total dry film thickness not less than 4 mils over block filler.
- E. Concrete Masonry Units to Receive High-Gloss Polyester Epoxy Coating: 1 coat concrete masonry block filler, 1 coat high-gloss polyester epoxy.
- F. Concrete Masonry Units to Receive Clear Polyurethane Coating: 1 coat concrete masonry block filler, 2 coats polyurethane enamel.
- G. Concrete Masonry Units to Receive 2-Component Epoxy Emulsion Coating With Gloss Finish: 1 coat concrete masonry block filler, 2 coats gloss epoxy emulsion.
- H. Wood to Receive High-Performance Polyamide Epoxy Coating: 2 coats high-performance polyamide epoxy, total dry film thickness not less than 4 mils.
- I. Wood to Receive Pigmented Polyurethane Coating: 1 coat undercoat, 1 coat polyurethane enamel.
- J. Ferrous Metals to Receive High-Performance Polyamide Epoxy Coating: 1 coat metal primer, 2 coats high-performance polyamide epoxy coating.

END OF SECTION

SECTION 09963
ELASTOMERIC COATINGS

PART 1 - GENERAL

1.1 SUMMARY

- A. Provide exterior elastomeric coatings.

1.2 SUBMITTALS

- A. Product Data: Submit manufacturer's product data and installation instructions for each material and product used.
- B. Samples: Submit two representative samples of each material specified indicating visual characteristics and finish. Include range samples if variation of finish is anticipated.
 - 1. Include manufacturer's full range of color and finish options if additional selection is required.
- C. Extra Stock: Provide 2 unopened gallons of each paint used in the project.

1.3 QUALITY ASSURANCE

- A. Comply with governing codes and regulations. Provide products of acceptable manufacturers, which have been in satisfactory use in similar service for three years. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.
- B. Regulations: Compliance with VOC and environmental regulations.
- C. Mock-Ups: Provide mock-up as required to demonstrate quality of workmanship.
 - 1. Provide 4 foot x 4-foot mock-ups of each type of surface.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. First-line commercial-quality products for all elastomeric coating systems.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Inspect surfaces, report unsatisfactory conditions in writing; beginning work means acceptance of substrate.
- B. Comply with manufacturer's instructions and recommendations for preparation, priming and coating work. Coordinate with work of other sections.
- C. At existing areas to be recoated, remove blistered or peeling coating to sound substrates. Remove chalk deposits and mildew and wash all surfaces with mild detergent. Perform related

minor preparation including caulk and glazing compounds. Spot prime bare areas before priming and coating as specified.

- D. Match approved mock-ups for color, texture, and pattern. Re-coat or remove and replace work, which does not match or shows loss of adhesion. Clean up, touch up and protect work.

3.2 ELASTOMERIC COATING SCHEDULE

- A. Concrete: 1 coat primer, 2 coats acrylic elastomeric coating; total dry film thickness not less than 20 mils.
- B. Concrete Masonry: 1 coat block filler, 1 coat primer, 2 coats acrylic elastomeric coating; dry film thickness not less than 20 mils excluding block filler.
- C. Stucco: 1 coat primer, 2 coats acrylic elastomeric primer; dry film thickness not less than 20 mils.

END OF SECTION

SECTION 10350

FLAGPOLES

PART 1 - GENERAL

1.1 SUMMARY

- A. Provide flagpole systems.

1.2 SUBMITTALS

- A. Product Data: Submit manufacturer's product data and installation instructions for each material and product used.
- B. Shop Drawings: Submit shop drawings indicating material characteristics, details of construction, connections, and relationship with adjacent construction.
 - 1. Shop drawings shall be prepared and stamped by a qualified engineer licensed in the jurisdiction of the project.

1.3 QUALITY ASSURANCE

- A. Comply with governing codes and regulations. Provide products of acceptable manufacturers, which have been in satisfactory use in similar service for three years. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Flagpoles:
 - 1. Shape: Cone tapered.
 - 2. Type: Vertical pole.
 - 3. Mounting: Ground-set.
- B. Steel Flagpoles:
 - 1. Material: ASTM A 53, Type S, Grade B seamless steel pipe.
 - 2. Finish: Powder-Coated.
- C. Aluminum Flagpoles:
 - 1. Material: ASTM B 241, alloy 6063-T6, seamless tubing, minimum wall thickness 3/16 inch.
 - 2. Finish: Clear anodized.
- D. Stainless Steel Flagpoles:
 - 1. Material: AISI Type 304 seamless stainless steel.
 - 2. Finish: No. 4 finish.
- E. Fittings:
 - 1. Materials: Halyard, external, finial ball, trucks and cleats.
- F. Accessories:
 - 1. Lightning protection.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install materials and systems in accordance with manufacturer's instructions and approved submittals. Install materials and systems in proper relation with adjacent construction and with uniform appearance. Coordinate with work of other sections.
- B. Restore damaged finishes and test for proper operation. Clean and protect work from damage.

END OF SECTION

SECTION 10433
EXTERIOR SIGNAGE

PART 1 - GENERAL

1.1 SUMMARY

- A. Provide exterior signage.

1.2 SUBMITTALS

- A. Product Data: Submit manufacturer's product data and installation instructions for each material and product used.
- B. Shop Drawings: Submit shop drawings indicating material characteristics, details of construction, connections, and relationship with adjacent construction.
- C. Samples: Submit two representative samples of each material specified indicating visual characteristics and finish. Include range samples if variation of finish is anticipated.

1.3 QUALITY ASSURANCE

- A. Comply with governing codes and regulations. Provide products of acceptable manufacturers, which have been in satisfactory use in similar service for three years. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Panel Signs, Post Mounted:
 - 1. Type: Unframed single-sheet panels.
 - 2. Copy: Applied.
 - 3. Material: Aluminum, anodized.
 - 4. Frame: Extruded aluminum.
 - 5. Post: Structural aluminum tubing, 6063-T5 alloy.
 - 6. Mounting: Base-plate mounting.
 - 7. Illumination: External.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install materials and systems in accordance with manufacturer's instructions and approved submittals. Install materials and systems in proper relation with adjacent construction and with uniform appearance. Coordinate with work of other sections.
- B. Restore damaged finishes. Clean and protect work from damage.

END OF SECTION

SECTION 10523
FIRE EXTINGUISHERS AND CABINETS

PART 1 - GENERAL

1.1 SUMMARY

- A. Provide fire extinguishers.

1.2 SUBMITTALS

- A. Product Data: Submit manufacturer's product data and installation instructions for each material and product used.
- B. Shop Drawings: Submit shop drawings indicating material characteristics, details of construction, connections, and relationship with adjacent construction.

1.3 QUALITY ASSURANCE

- A. Comply with governing codes and regulations. Provide products of acceptable manufacturers which have been in satisfactory use in similar service for three years. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.
- B. Standards: UL and FM listed products, NFPA 10.
- C. Regulations: ADAAG.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Fire Extinguishers:
 - 1. Type: Multipurpose dry chemical type.
 - 2. Rating: Sized for project requirements.
 - 3. Service Area Mounting: Metal brackets.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install materials and systems in accordance with manufacturer's instructions and approved submittals. Install materials and systems in proper relation with adjacent construction and with uniform appearance. Coordinate with work of other sections.
- B. Install fire extinguishers in mechanical and service areas with wall-hung brackets at locations and heights indicated and acceptable to authorities having jurisdiction.
- C. Restore damaged finishes. Clean and protect work from damage.

END OF SECTION

SECTION 16000

ELECTRICAL

PART 1 - GENERAL

1.1 SUMMARY

- A. Provide electrical systems including:
 - 1. Power.
 - 2. Lighting.
 - 3. Site lighting.
- B. Include primary service, transformers, distribution center, grounding, power and lighting panels, wiring, outlet boxes, receptacles, lighting fixtures, switches, conduits, and raceways and all accessories.
- C. Modify and extend existing service to accommodate new work. Re-lamp existing fixtures consistent with building standards. Remove existing systems and wiring, which are abandoned.
- D. Coordinate with Owner's room uses to provide adequate system for all contract areas.

1.2 SUBMITTALS

- A. Product Data: Submit manufacturer's product data and installation instructions for each material and product used.
- B. Shop Drawings: Submit shop drawings indicating material characteristics, details of construction, connections, and relationship with adjacent construction.
- C. Operation and Maintenance Data: Submit manufacturer's operation and maintenance data, including operating instructions, list of spare parts and maintenance schedule.

1.3 QUALITY ASSURANCE

- A. Comply with governing codes and regulations. Provide products of acceptable manufacturers, which have been in satisfactory use in similar service for three years. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.
- B. Arrangement of systems indicated on the drawings is diagrammatic and indicates the minimum requirements for electrical work. Site conditions shall determine the actual arrangement of conduits, boxes, and similar items. Take field measurements before fabrication. Be responsible for accuracy of dimensions and layout.
- C. Comply with the National Electrical Code and applicable local regulations.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Conduit: Rigid galvanized metal conduit, intermediate metallic conduit, electrical metallic tubing for concealed interior raceways, flexible metal conduit, and rigid nonmetallic conduit as required.

- B. Conductors and wiring: 600-volt insulation type THWN or THHN copper wiring for branch circuits. Conductors AWG No. 12 shall be solid. Conductors AWG No. 10 and larger stranded. Minimum conductor size AWG No. 12. Green ground conductor in all raceways. Other sizes as required by service intended.
- C. Wiring devices: Receptacles, lighting switches, ground fault receptacles, dimmers, and cover plates as required.
- D. Panelboards as required by National Electrical Code.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install materials and systems in accordance with manufacturer's instructions and approved submittals. Install materials in proper relation with adjacent construction and with uniform appearance for exposed work. Coordinate with work of other sections. Comply with applicable regulations and building code requirements.
- B. Comply with National Electrical Code and building code requirements. Maintain continuity of circuits required to supply new or existing equipment in service.
- C. Install light switches 48" above finished floor. Locate switches within rooms at strike side of door unless noted otherwise.
- D. Gang-mount multiple switching locations. Mount multiple types of controls as close together as possible and in-line with each other at a height of 48" above finished floor.
- E. Group multiple junction boxes, telephone and electrical outlets together on wall not more than 6" apart. Avoid back-to-back box locations.
- F. Mount electrical, data, and telephone outlets vertically, 18" above finished floor unless noted otherwise.
- G. Test all systems for proper operation. Restore damaged finishes. Clean and protect work from damage.
- H. Instruct Owner's personnel in proper operation of systems.

END OF SECTION