

September 11, 2019
BOARD OF COUNTY COMMISSIONERS
ORANGE COUNTY, FLORIDA
Y20-703-RC / ADDENDUM NO. 2
CONSTRUCTION OF ORANGE COUNTY FIRE STATION #87

THE REVISED BID OPENING DATE IS: September 24, 2019

This addendum is hereby incorporated into the bid documents of the project referenced above. The following items are clarifications, corrections, additions, deletions and/or revisions to, and shall take precedence over, the original documents. Underlining indicates additions, deletions are indicated by ~~strikethrough~~.

A. **The bid opening date has been revised from ~~September 17, 2019~~ to September 24, 2019 at 2:00 p.m.**

B. Revisions

1. Revision #1 Drawings: permit comment responses. Delete in its entirety and replace the following current drawing sheets with Revision #1 sheets: C-100, C-200, C-300, C-301, C-302, C-303, C-304, C-400, C-401, C-500, C-501, 502, C-503, C-504, C-600, C-601, Survey, E-001, E-202, E-701, E-702, E-802, L-1.01, L-3.01, L-4.01, M-201, M-502, P-201, P-301, P-601, P-701.

2. Revision #2 Drawings and Specifications: Pre-bid RFI responses. Delete in its entirety and replace the following current drawing sheets with Revision #2 sheets: A-001, A-601, ID-401. Replace the following current specifications sections with Revision #2 sections: 087100 Door Hardware, 263213 Diesel Generator, 323113 Chain Link Fences and Gates, 323119.13 Decorative Metal Security Fences & Gates

C. Additions: Include new specification section 033660 New Concrete-Dye Stained Colored Mechanically Ground and Polished Concrete.

D. Questions and Answers:

1. **Question:** The TYMETAL gate spec-ed does not meet the clearance requirements necessary for the gate to be a sliding cantilever gate. You will need double the space for clearance, (on side would hit a car in the parking space, the other side would hit the chain link fence). Please provide updated entry gate system.

Answer: Gate to be sliding double gate. See detail 2/A-010. Spec revised.

2. **Question:** There are no dimension and type for the pedestrian gates. The spec page 323133-8 shows a title box for the City of Mirimar, is this correct?

Answer: Pedestrian gates are 143 and 144 on door schedule. Sheet A-001 revised to show gate callouts. 4'-0" wide X 6'-0" high. Disregard box for City of Mirimar. Spec section revised and resubmitted.

3. **Question:** The hardware schedule of doors do not match the door schedule of doors. Please advise. Missing door numbers, added doors numbers, numbers of doors that are not listed on door schedule: 203, 109, 201,204,103,202,206207, 205. Where are door numbers 130,130C,130D, 130E, 137A,139, 140?

Answer: Door Hardware spec 08 71 0 revised. Sheet A-601 revised to add door hardware to door schedule.

4. **Question:** Generator Fuel Tank Capacity - Drawing notes 80 Hour, Spec calls for 24 Hour.

Answer: 80 hour is correct. Revised Specification section 26 32 13 Part 2.4(B)(2).

5. **Question:** Generator Enclosure Required Wind Load Rating: Spec calls for 120 MPH. Usually do not see any requirements below 150 mph for these applications.

Answer: 150 mph rating required. Revised Specification section 26 32 13 Part 2.8(A).

6. **Question:** Spec says fence is 96" tall. Please confirm that fence is to be 8' tall.

Answer: Fence to be 72 inches tall. Spec 32 31 13 revised.

7. **Question:** Spec says chain link is 1 ¾" mesh. C-301 says chain link is 2" mesh. Which one is accurate?

Answer: Chain link to be 2" mesh. Spec 32 31 13 revised.

8. **Question:** Is fencing galvanized or vinyl coated?

Answer: Vinyl coated.

9. **Question:** Does the chain link get PVC privacy slats?

Answer: Yes, privacy slats are required. Spec 32 31 13 revised and resubmitted.

10. **Question:** Written spec says line posts and terminal posts are 2 ½"od. Drawing included with written spec (page 8) says line posts are 2" and terminals are 3". Which is accurate?

Answer: 2 1/2" is correct. Drawing removed and spec re-issued.

11. **Question:** Gate operator basis of design is HySecurity 50VF2. Is this the required gate operator?

Answer: HySecurity is the basis of design. Other gate operators of equal quality will be considered.

12. **Question:** Please provide spec for STSC-1 Stained and Sealed Concrete - Broom Finish. Is this same as the polish finish which I can find spec for 800 grit polishing.

Answer: D-401 revised to call out dyed and polished concrete. New spec 03 36 60 issues for dyed/polished concrete.

13. **Question:** Sheet E-701 Electrical Schedules Panel M1, L1, P1B, P1A, P2, M2 the A.I.C, is missing.

Answer: M1, M2, P1A, P1B are 22KAIC: L1, P2 are 10KAIC. See revised drawings issued in Permit Responses 07.18.19.

14. **Question:** Sheet E-702 Electrical Schedules Panel P2 describe Mains Rating 100A but in Sheet E-501 Electrical One Line Diagram section Panel Feeder Schedule P2 describe Main Size 150.

Answer: Panel P2 main rating to be 150A.

15. **Question:** Sheet E-501 Electrical One Line Diagram section Electrical One Line Diagram, Panel 'M2'Panel'P2' appear two boxes on the side of the panel, Plan Key Note(1) is missing? Or there's no SPD?

Answer: Provide SPD for panels M2 and P2 per panel schedules.

16. **Question:** Sheet E-002 Light Fixture Schedule, Type SLZ, X1, X2 where are its use it?

Answer: All exit signs are to be type X1. Type X2 is not used. One type SLZ is to be installed at each flag pole.

C. All other terms and conditions of the IFB remain the same.

The Bidder/Proposer shall acknowledge receipt of this addendum by completing the applicable section in the solicitation or by completion of the acknowledgement information on the addendum. Either form of acknowledgement must be completed and returned not later than the date and time for receipt of the bid or proposal.

Receipt acknowledged by:

Authorized Signature

Date Signed

Title

Name of Firm

SECTION 03 36 60

NEW CONCRETE - DYE STAINED COLORED MECHANICALLY GROUND AND POLISHED CONCRETE

PART 1 – GENERAL

1.1 SUMMARY

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to Work of this Section.
- B. Section Includes:
 - 1. Dye stained concrete interior floor slabs.
 - 2. Densified & Mechanically Polished Dyed concrete.
 - 3. Water Based Curing Compound
 - 4. Protective Blankets for finished floor.

1.2 SUBMITTALS

- A. Product Data: Submit manufacturer's complete technical data sheets for the following products or equal:
 - 1. Concrete dye stain.
 - 2. Liquid Lithium Silicate Densifier
 - 3. Stain Guard Finish Coat
 - 4. SCOFIELD Duracover Protective Blankets
- B. Samples for Initial Selection: Manufacturer's color charts showing full range of colors available.
- C. Qualification Data: For firms indicated in "Quality Assurance" Article, including list of completed projects.
- D. Submit the following in accordance with Division 01 33 00 Section "Submittal Procedures."
- E. Product data for each grinding machine, including all types of grinding heads, dust extraction system, joint filler, concrete densifying impregnator, penetrating sealer, and any other chemicals used in the process.
- F. Applicators qualification data.

ADG No. 963-16
Orange County Fire Rescue
Station #87

03 36 60 - 1

Dye Mechanically Polished Conc.

September 6, 2019

- G. Polished concrete samples: Size 7x9, for each Polished Concrete finish required.

1.3 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Manufacturer with experience in the production of specified products.
- B. Installer Qualifications: An installer with 5 years experience with work of similar scope and quality..
- C. Obtain each specified material from same source and maintain high degree of consistency in workmanship throughout Project.
- D. Notification of manufacturer's authorized representative shall be given at least 1-week before start of Work.
- E. Pre-installation Conference: Conduct conference at project site to comply with requirements in Division 01 31 00, Section "Project Management and Coordination."
- F. Provide project names, addresses, contact names, phone numbers of at least three (3) projects of similar scope completed by the installer.
- G. Installer/Applicator shall be certified by concrete finish equipment and chemical manufacturer and shall provide adequate number of skilled workmen who are thoroughly trained and experienced in the necessary craft.
- H. Manufacturer's Certification: Provide a letter of acknowledgement from both the equipment and chemical manufacturer stating that the installer is a trained applicator and is familiar with proper procedures and installation requirements recommended by the manufacturer.
- I. Dye Stained Ground and Polished Concrete Mockups:
 - 1. Provide under provisions of Division 1 Section "Quality Control."
 - 2. At location on Project selected by Architect, place and finish 10 ft. by 10 ft.area.
 - 3. Construct mockup using processes and techniques intended for use on permanent work, including curing procedures. Include samples of control, construction, and expansion joints in sample panels. Mockup shall be produced by the individual workers who will perform the work for the Project.

4. Retain samples of cements, sands, aggregates and color additives used in mockup for comparison with materials used in remaining work.
5. Aggregate selected must be tested to ensure it will accept polish.
6. Select from Part 4 – Schedules cut and shine level and finish coat.
7. Edges should be included in mockup.
8. Accepted mockup provides visual standard for work of Section.
9. Mockup shall remain through completion of work for use as a quality standard for finished work.
10. Remove mockup when directed.

J. Environmental Limitations:

1. Comply with manufacturer's written instructions for substrate temperature and moisture content, ambient temperature and humidity, ventilation and other conditions affecting chemical performance.
2. Application of finish and dye system shall take place a minimum of 21 days prior to fixture and trim installation and/or substantial completion.
3. Finish concrete area shall be closed to traffic during finish floor application and after application for the time as recommended by the manufacturer.

1.4 DELIVERY, STORAGE AND HANDLING

- A. Comply with manufacturer's instructions. Deliver dye stain and liquid densifier in original, unopened packaging. Store in dry conditions.

1.5 PRE-JOB CONFERENCE

- A. One week prior to polishing of concrete a meeting will be held to discuss the Project and application materials.
- B. It is suggested that the Architect, General Contractor, Subcontractor, Ready-Mix Concrete Representative, and a Manufacturer's Representative be present.

PART 2 – PRODUCTS

2.1 MANUFACTURER BASIS OF DESIGN

- A. L.M. SCOFIELD COMPANY, Douglasville, GA and Los Angeles, CA) 800-9900

2.2 MATERIALS BASIS OF DESIGN

- A. Pigmented Water Based Curing Compound

ADG No. 963-16 03 36 60 - 3 Dye Mechanically Polished Conc.
Orange County Fire Rescue
Station #87

September 6, 2019

1. SCOFIELD Lithochrome Colorwax
- B. Color Liquid Dye Concentrate, Lithium Silicate Densifier and Finish Coat:
1. SCOFIELD® Formula One™ Liquid Dye Concentrate by L.M. SCOFIELD COMPANY.
 2. SCOFIELD® Formula One-MP™ Lithium Densifier by L.M. SCOFIELD COMPANY.
 3. SCOFIELD® Formula One™ Finish Coat by L.M. SCOFIELD COMPANY.
- C. Concrete Grinding & Polishing Equipment:
1. 3-head or 4-head counter rotating variable speed floor grinding machine with at least 600 pounds down pressure.
 2. Dust extraction system, pre-separator, and squeegee attachments with minimum flow rating of 322 cubic feet per minute.
 3. Grinding heads:
 - a. Metal bonded [25], [50], [75], [100] and [150] grits. (TBD by condition of concrete slab.)
 - b. Resin bonded, phenolic diamonds, [100], [200], [400], [800], [1500] grits. (TBD by condition of concrete slab.)
 4. Grinding pads for edges:
 - a. [50], [100] and [150] grits metal.
 - b. [100], [200], [400], [800], [1500] grits resin.
 5. Hand grinder with dust extraction equipment and pads.
- D. SUBSTITUTIONS: The use of products other than those specified will be considered providing that the Contractor requests its use in writing within 14-days prior to bid date. This request shall be accompanied by the following:
1. A certificate of compliance from material manufacturer stating that proposed products meet or exceed requirements of this Section, including standards ACI 303.1, ASTM C979, ASTM C494 and AASHTO M194.
 2. Documented proof that proposed materials have a 10-year proven record of performance, confirmed by at least 5 local projects that Architect can examine.

2.3 CONCRETE MIX DESIGN

- A. Minimum Cement Content: 5 sacks per cubic yard of concrete.
- B. Concrete fines to be natural sand
- C. No Air Entraining Admixtures shall be used.

ADG No. 963-16 03 36 60 - 4 Dye Mechanically Polished Conc.
 Orange County Fire Rescue
 Station #87

September 6, 2019

- D. Slump of concrete shall be consistent throughout Project at 4-inches or less. At no time shall slump exceed 5-inches.
- E. Do not add calcium chloride to mix as it causes mottling and surface discoloration.
- F. Supplemental admixtures shall not be used unless approved by manufacturer.
- G. Do not add water to the mix in the field

2.4 COLORS

- A. Concrete Dye Stain[s]:
 - 1. Formula One Liquid Dye Concentrate by L.M. SCOFIELD COMPANY: See interior finish legend, sheet ID-401

PART 3 – EXECUTION

3.3.1 CONCRETE PLACEMENT AND CURING

- A. Concrete slab to be flat troweled. Do not “burn” the concrete surface.
- A. Concrete to be cured with SCOFIELD Lithochrome Colorwax or equal.

3.3.2 MECHANICALLY POLISHED CONCRETE CUT AND SHINE LEVELS

- A. Cut Level (Depth of cut)
 - 1. Grade 1 – cream finish
 - 2. Grade 2 – light exposure of course aggregate
 - 3. Grade 3 – heavy exposure of course aggregate
- B. Shine Level
 - 1. Class 1 – 400 grit polish
 - 2. Class 2 – 800 grit polish
 - 3. Class 3 – 1500 grit polish
- C. Polished concrete finish coat
 - 1. At a distance of 100 feet, the floor will reflect images from side lighting.
 - 2. Apply two applications of SCOFIELD® Finish Coat.
- D. Specified for project
Grade: 2

ADG No. 963-16
Orange County Fire Rescue
Station #87

03 36 60 - 5

Dye Mechanically Polished Conc.

September 6, 2019

Class: 2
Formula One Finish Coat applications: 2

3.3.3 MECHANICALLY POLISHED CONCRETE APPLICATION

- A. Applicator shall examine the areas and conditions under which work of this section will be provided and the General Contractor shall correct conditions detrimental to the timely and proper completion of the work and the Applicator shall not proceed until unsatisfactory conditions are resolved.
- B. Grind the concrete floor to within 2 – 3 inches of walls with [50], [100] and [150] grit (To be determined by specified Cut Level.) removing construction debris, floor slab imperfections and until there is a uniform scratch pattern and desired concrete aggregate exposure.
- C. Fill construction joints and cracks with filler products as specified in accordance with manufacturer's instructions colored to match (or contrast) with concrete color as specified by architect.
- E. Grind & Polish the floor, to 400 grit, first polishing the edges (if specified) with pads of the same grit and then the field of the floor removing all scratches from the previous grit. After each polish, clean the floor thoroughly using clean water and an auto scrubber or a mop and a wet vacuum.
- F. Apply dye to surface at a rate of 400 – 600 square feet per gallon after 400-resin bond grind. Allow dye to dry to touch.
- G. After the dye has dried, apply densifier at a rate of 300-400 square feet per gallon. Using a broom, work the material into the floor for a minimum of 30 minutes. Tight squeegee the remaining material from the floor without leaving squeegee marks or puddles. Flush floor with clean water and scrub to remove any excess residue. Allow to cure for 12 – 24 hours.
- H. Polish to desired gloss level using 800 resin bond grinds.
- I. Apply Formula One Finish Coat at 500 square feet per gallon. Keep wet on floor for 30 minutes. Extract with Auto Scrubber.
- J. Using a high speed (2400 rpm) burnishing machine equipped with 800 grit diamond impregnated pads, buff the surface to a high shine.
- K. Upon completion, the work shall be ready for final inspection and acceptance by the customer.

PROTECTION

ADG No. 963-16
Orange County Fire Rescue
Station #87

03 36 60 - 6

Dye Mechanically Polished Conc.

September 6, 2019

- A. Finished work to be protected with SCOFIELD Dura Cover Protective Blankets or equal.

3.5 CLEANING

- A. The work area shall be kept clean and free of debris at all times.
- B. Remove slurry and dust from adjoining surfaces as necessary.
- C. Dispose of material containers in accordance with local regulations.
- D. Protect finished work until fully cured per manufacturer's recommendations.

3.6 APPLICATORS

- A. For a list of qualified contractors, contact L.M. Scofield customer service for your local representative (800) 800-9900.

END OF SECTION

SECTION 087100

FINISH HARDWARE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes commercial door hardware for the following:
 - 1. Swinging doors.
 - 2. Sliding doors.
 - 3. Other doors to the extent indicated.
- B. Door hardware includes, but is not necessarily limited to, the following:
 - 1. Mechanical door hardware.
 - 2. Electromechanical door hardware.
 - 3. Cylinders specified for doors in other sections.
- C. Related Sections:
 - 1. Division 08 Section "Operations and Maintenance".
 - 2. Division 08 Section "Door Schedule".
 - 3. Division 08 Section "Door Hardware Schedule".
 - 4. Division 08 Section "Hollow Metal Doors and Frames".
 - 5. Division 08 Section "Flush Wood Doors".
 - 6. Division 08 Section "Aluminum-Framed Entrances and Storefronts".
 - 7. Division 08 Section "Access Control Hardware".
- D. Codes and References: Comply with the version year adopted by the Authority Having Jurisdiction.
 - 1. ANSI A117.1 - Accessible and Usable Buildings and Facilities.
 - 2. ANSI/SDI A250.13 - Testing and Rating of Severe Windstorm Resistant Components for Swing Door Assemblies.

SECTION 087100

FINISH HARDWARE

3. ICC/IBC - International Building Code.
4. NFPA 70 - National Electrical Code.
5. NFPA 80 - Fire Doors and Windows.
6. NFPA 101 - Life Safety Code.
7. NFPA 105 - Installation of Smoke Door Assemblies.
8. State Building Codes, Local Amendments.

E. Standards: All hardware specified herein shall comply with the following industry standards:

1. ANSI/BHMA Certified Product Standards - A156 Series
2. UL10C – Positive Pressure Fire Tests of Door Assemblies

1.3 SUBMITTALS

A. Product Data: Manufacturer's product data sheets including installation details, material descriptions, dimensions of individual components and profiles, operational descriptions and finishes.

B. Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing fabrication and assembly of door hardware, as well as procedures and diagrams. Coordinate the final Door Hardware Schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.

1. Format: Comply with scheduling sequence and vertical format in DHI's "Sequence and Format for the Hardware Schedule."
2. Organization: Organize the Door Hardware Schedule into door hardware sets indicating complete designations of every item required for each door or opening. Organize door hardware sets in same order as in the Door Hardware Sets at the end of Part 3. Submittals that do not follow the same format and order as the Door Hardware Sets will be rejected and subject to resubmission.
3. Content: Include the following information:
 - a. Type, style, function, size, label, hand, and finish of each door hardware item.
 - b. Manufacturer of each item.

SECTION 087100

FINISH HARDWARE

- c. Fastenings and other pertinent information.
 - d. Location of door hardware set, cross-referenced to Drawings, both on floor plans and in door and frame schedule.
 - e. Explanation of abbreviations, symbols, and codes contained in schedule.
 - f. Mounting locations for door hardware.
 - g. Door and frame sizes and materials.
 - h. Warranty information for each product.
4. Submittal Sequence: Submit the final Door Hardware Schedule at earliest possible date, particularly where approval of the Door Hardware Schedule must precede fabrication of other work that is critical in the Project construction schedule. Include Product Data, Samples, Shop Drawings of other work affected by door hardware, and other information essential to the coordinated review of the Door Hardware Schedule.
- C. Keying Schedule: After a keying meeting with the owner has taken place prepare a separate keying schedule detailing final instructions. Submit the keying schedule in electronic format. Include keying system explanation, door numbers, key set symbols, hardware set numbers and special instructions. Owner must approve submitted keying schedule prior to the ordering of permanent cylinders/cores.
- D. Informational Submittals:
1. Hurricane Resistant Openings (State of Florida): Within the State of Florida, provide copy of current State of Florida Product Approval or Metro-Dade County Notice of Acceptance (NOA) as proof of compliance that doors, frames and hardware for exterior opening assemblies have been tested and approved for use at the wind load and design pressure level requirements specified for the Project.
 - a. Hurricane Resistant Components (State of Florida): Within the State of Florida, provide copy of independent, third party certified listing to ANSI A250.13.
 2. Product Test Reports: Indicating compliance with cycle testing requirements, based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified independent testing agency.

SECTION 087100

FINISH HARDWARE

- E. Operating and Maintenance Manuals: Provide manufacturers operating and maintenance manuals for each item comprising the complete door hardware installation in quantity as required in Division 01, Closeout Submittals.

1.4 QUALITY ASSURANCE

- A. Manufacturers Qualifications: Engage qualified manufacturers with a minimum 5 years of documented experience in producing hardware and equipment similar to that indicated for this Project and that have a proven record of successful in-service performance.
- B. Installer Qualifications: A minimum 3 years documented experience installing both standard and electrified door hardware similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.
- C. Door Hardware Supplier Qualifications: Experienced commercial door hardware distributors with a minimum 5 years documented experience supplying both mechanical and electromechanical hardware installations comparable in material, design, and extent to that indicated for this Project. Supplier recognized as a factory direct distributor by the manufacturers of the primary materials with a warehousing facility in Project's vicinity. Supplier to have on staff a certified Architectural Hardware Consultant (AHC) available during the course of the Work to consult with Contractor, Architect, and Owner concerning both standard and electromechanical door hardware and keying.
- D. Source Limitations: Obtain each type and variety of door hardware specified in this section from a single source unless otherwise indicated.
 - 1. Electrified modifications or enhancements made to a source manufacturer's product line by a secondary or third party source will not be accepted.
 - 2. Provide electromechanical door hardware from the same manufacturer as mechanical door hardware, unless otherwise indicated.
- E. Hurricane Resistant Exterior Openings (State of Florida including the High Velocity Hurricane Zone (HVHZ)): Provide exterior door hardware as complete and tested assemblies, or component assemblies, including approved doors and frames specified under Section 081113 "Hollow Metal Doors and Frames", to

SECTION 087100

FINISH HARDWARE

meet the wind loads, design pressures, debris impact resistance, and glass and glazing requirements as detailed in the current State of Florida building code sections applicable to the Project.

1. Each unit to bear third party permanent label in accordance with the Florida Building Code requirements.
- F. Each unit to bear third party permanent label demonstrating compliance with the referenced standards.
- G. Keying Conference: Conduct conference to comply with requirements in Division 01 Section "Project Meetings." Keying conference to incorporate the following criteria into the final keying schedule document:
1. Function of building, purpose of each area and degree of security required.
 2. Plans for existing and future key system expansion.
 3. Requirements for key control storage and software.
 4. Installation of permanent keys, cylinder cores and software.
 5. Address and requirements for delivery of keys.
- H. Pre-Submittal Conference: Conduct coordination conference in compliance with requirements in Division 01 Section "Project Meetings" with attendance by representatives of Supplier(s), Installer(s), and Contractor(s) to review proper methods and the procedures for receiving, handling, and installing door hardware.
1. Prior to installation of door hardware, conduct a project specific training meeting to instruct the installing contractors' personnel on the proper installation and adjustment of their respective products. Product training to be attended by installers of door hardware (including electromechanical hardware) for aluminum, hollow metal and wood doors. Training will include the use of installation manuals, hardware schedules, templates and physical product samples as required.
 2. Inspect and discuss electrical roughing-in, power supply connections, and other preparatory work performed by other trades.
 3. Review sequence of operation narratives for each unique access controlled opening.
 4. Review and finalize construction schedule and verify availability of materials.

SECTION 087100

FINISH HARDWARE

5. Review the required inspecting, testing, commissioning, and demonstration procedures

- I. At completion of installation, provide written documentation that components were applied to manufacturer's instructions and recommendations and according to approved schedule.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Inventory door hardware on receipt and provide secure lock-up and shelving for door hardware delivered to Project site. Do not store electronic access control hardware, software or accessories at Project site without prior authorization.
- B. Tag each item or package separately with identification related to the final Door Hardware Schedule, and include basic installation instructions with each item or package.
- C. Deliver, as applicable, permanent keys, cylinders, cores, access control credentials, software and related accessories directly to Owner via registered mail or overnight package service. Instructions for delivery to the Owner shall be established at the "Keying Conference".

1.6 COORDINATION

- A. Templates: Obtain and distribute to the parties involved templates for doors, frames, and other work specified to be factory prepared for installing standard and electrified hardware. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing hardware to comply with indicated requirements.
- B. Door Hardware and Electrical Connections: Coordinate the layout and installation of scheduled electrified door hardware and related access control equipment with required connections to source power junction boxes, low voltage power supplies, detection and monitoring hardware, and fire and detection alarm systems.
- C. Door and Frame Preparation: Doors and corresponding frames are to be prepared, reinforced and pre-wired (if applicable) to receive the installation of

SECTION 087100

FINISH HARDWARE

the specified electrified, monitoring, signaling and access control system hardware without additional in-field modifications.

1.7 WARRANTY

- A. General Warranty: Reference Division 01, General Requirements. Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.
- B. Warranty Period: Written warranty, executed by manufacturer(s), agreeing to repair or replace components of standard and electrified door hardware that fails in materials or workmanship within specified warranty period after final acceptance by the Owner. Failures include, but are not limited to, the following:
 - 1. Structural failures including excessive deflection, cracking, or breakage.
 - 2. Faulty operation of the hardware.
 - 3. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
 - 4. Electrical component defects and failures within the systems operation.
- C. Standard Warranty Period: One year from date of Substantial Completion, unless otherwise indicated.
- D. Special Warranty Periods:
 - 1. Ten years for mortise locks and latches.
 - 2. Five years for exit hardware.
 - 3. Twenty five years for manual surface door closer bodies.
 - 4. Two years for electromechanical door hardware.

1.8 MAINTENANCE SERVICE

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

SECTION 087100

FINISH HARDWARE

PART 2 - PRODUCTS

2.1 SCHEDULED DOOR HARDWARE

- A. General: Provide door hardware for each door to comply with requirements in Door Hardware Sets and each referenced section that products are to be supplied under.
- B. Designations: Requirements for quantity, item, size, finish or color, grade, function, and other distinctive qualities of each type of door hardware are indicated in the Door Hardware Sets at the end of Part 3. Products are identified by using door hardware designations, as follows:
 - 1. Named Manufacturer's Products: Product designation and manufacturer are listed for each door hardware type required for the purpose of establishing requirements. Manufacturers' names are abbreviated in the Door Hardware Schedule.
- C. Substitutions: Requests for substitution and product approval for inclusive mechanical and electromechanical door hardware in compliance with the specifications must be submitted in writing and in accordance with the procedures and time frames outlined in Division 01, Substitution Procedures. Approval of requests is at the discretion of the architect, owner, and their designated consultants.

2.2 HANGING DEVICES

- A. Hinges: ANSI/BHMA A156.1 certified butt hinges with number of hinge knuckles and other options as specified in the Door Hardware Sets.
 - 1. Quantity: Provide the following hinge quantity:
 - a. Two Hinges: For doors with heights up to 60 inches.
 - b. Three Hinges: For doors with heights 61 to 90 inches.
 - c. Four Hinges: For doors with heights 91 to 120 inches.
 - d. For doors with heights more than 120 inches, provide 4 hinges, plus 1 hinge for every 30 inches of door height greater than 120 inches.

SECTION 087100

FINISH HARDWARE

2. Hinge Size: Provide the following, unless otherwise indicated, with hinge widths sized for door thickness and clearances required:
 - a. Widths up to 3'0": 4-1/2" standard or heavy weight as specified.
 - b. Sizes from 3'1" to 4'0": 5" standard or heavy weight as specified.
 3. Hinge Weight and Base Material: Unless otherwise indicated, provide the following:
 - a. Exterior Doors: Heavy weight, non-ferrous, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate standard weight.
 - b. Interior Doors: Standard weight, steel, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate heavy weight.
 4. Hinge Options: Comply with the following:
 - a. Non-removable Pins: Provide set screw in hinge barrel that, when tightened into a groove in hinge pin, prevents removal of pin while door is closed; for the all out-swinging lockable doors.
 5. Manufacturers:
 - a. Hager Companies (HA)
 - b. McKinney Products (MK)
 - c. Stanley Hardware (ST)
- B. Continuous Geared Hinges: ANSI/BHMA A156.26 Grade 1-600 certified continuous geared hinge. with minimum 0.120-inch thick extruded 6060 T6 aluminum alloy hinge leaves and a minimum overall width of 4 inches. Hinges are non-handed, reversible and fabricated to template screw locations. Factory trim hinges to suit door height and prepare for electrical cut-outs.

1. Manufacturers:

SECTION 087100

FINISH HARDWARE

- a. Hager Companies (HA).
- b. McKinney Products (MK).
- c. Pemko Products (PE).

2.3 DOOR OPERATING TRIM

- A. Flush Bolts and Surface Bolts: ANSI/BHMA A156.3 and A156.16, Grade 1, certified.
 1. Flush bolts to be furnished with top rod of sufficient length to allow bolt retraction device location approximately six feet from the floor.
 2. Furnish dust proof strikes for bottom bolts.
 3. Surface bolts to be minimum 8" in length and U.L. listed for labeled fire doors and U.L. listed for windstorm components where applicable.
 4. Provide related accessories (mounting brackets, strikes, coordinators, etc.) as required for appropriate installation and operation.
 5. Manufacturers:
 - a. Ives (IV).
 - b. Rockwood Products; ASSA ABLOY Architectural Door Accessories (RO).
 - c. Trimco (TC).
- B. Door Push Plates and Pulls: ANSI/BHMA A156.6 certified door pushes and pulls of type and design specified in the Hardware Sets. Coordinate and provide proper width and height as required where conflicting hardware dictates.
 1. Push/Pull Plates: Minimum .050 inch thick, size as indicated in hardware sets, with beveled edges, secured with exposed screws unless otherwise indicated.
 2. Door Pull and Push Bar Design: Size, shape, and material as indicated in the hardware sets. Minimum clearance of 2 1/2-inches from face of door unless otherwise indicated.
 3. Offset Pull Design: Size, shape, and material as indicated in the hardware sets. Minimum clearance of 2 1/2-inches from face of door and offset of 90 degrees unless otherwise indicated.
 4. Fasteners: Provide manufacturer's designated fastener type as indicated in Hardware Sets.

SECTION 087100

FINISH HARDWARE

5. Manufacturers:

- a. Ives (IV).
- b. Rockwood Products; ASSA ABLOY Architectural Door Accessories (RO).
- c. Trimco (TC).

2.4 CYLINDERS AND KEYING

- A. General: Cylinder manufacturer to have minimum (10) years experience designing secured master key systems and have on record a published security keying system policy.
- B. Source Limitations: Obtain each type of keyed cylinder and keys from the same source manufacturer as locksets and exit devices, unless otherwise indicated.
 1. Manufacturers:
 - a. Yale Locks and Hardware (YA).
 - b. No Substitution.
- C. Cylinders: Original manufacturer cylinders complying with the following:
 1. Mortise Type: Threaded cylinders with rings and cams to suit hardware application.
 2. Rim Type: Cylinders with back plate, flat-type vertical or horizontal tailpiece, and raised trim ring.
 3. Bored-Lock Type: Cylinders with tailpieces to suit locks.
 4. Mortise and rim cylinder collars to be solid and recessed to allow the cylinder face to be flush and be free spinning with matching finishes.
 5. Keyway: Manufacturer's Standard.
- D. Permanent Cores: Manufacturer's standard; finish face to match lockset; complying with the following:
 1. Interchangeable Cores: Core insert, removable by use of a special key; usable with other manufacturers' cylinders.
- E. Keying System: Each type of lock and cylinders to be factory keyed.

SECTION 087100

FINISH HARDWARE

1. Conduct specified "Keying Conference" to define and document keying system instructions and requirements.
 2. Furnish factory cut, nickel-silver large bow permanently inscribed with a visual key control number as directed by Owner.
 3. New System: Key locks to a new key system as directed by the Owner.
- F. Key Quantity: Provide the following minimum number of keys:
1. Change Keys per Cylinder: Three (3).
 2. Master Keys (per Master Key Level/Group): Five (5).
 3. Construction Keys (where required): Ten (10).
 4. Construction Control Keys (where required): Two (2).
 5. Permanent Control Keys (where required): Two (2).
- G. Construction Keying: Provide temporary keyed construction cores.
- H. Key Control Cabinet: Provide a key control system including envelopes, labels, and tags with self-locking key clips, receipt forms, 3-way visible card index, temporary markers, permanent markers, and standard metal cabinet. Key control cabinet shall have expansion capacity of 150% of the number of locks required for the project.
1. Manufacturers:
 - a. Lund Equipment (LU).
 - b. Telkee (TK).

2.5 MECHANICAL LOCKS AND LATCHING DEVICES

- A. Mortise Locksets, Grade 1 (Heavy Duty): ANSI/BHMA A156.13, Series 1000, Operational Grade 1 certified. Locksets are to be manufactured with a corrosion resistant steel case and be field-reversible for handing without disassembly of the lock body.
1. Manufacturers:
 - a. Schlage (SC) – L9000 Series.
 - b. Yale Locks and Hardware (YA) – 8800FL Series.

SECTION 087100

FINISH HARDWARE

2.6 STAND ALONE ACCESS CONTROL LOCKING DEVICES

- A. Stand Alone Touchscreen Locksets: ANSI A156.2, Series 4000, Grade 1 locking mechanism complete with integrated touchscreen for access and programming. Voice-guided programming with 12-digit PIN code selection and up to 1000 user option. Locks to accept standard, small format interchangeable core, security and patented cylinders. Battery-operated, with low power indicator, or hard-wired (9 Volt external power supply) option.

1. Manufacturers:

- a. Yale Locks and Hardware (YA) - nexTouch Series.

2.7 LOCK AND LATCH STRIKES

- A. Strikes: Provide manufacturer's standard strike with strike box for each latch or lock bolt, with curved lip extended to protect frame, finished to match door hardware set, unless otherwise indicated, and as follows:

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: Provide manufacturer's special strike box fabricated for aluminum framing.
4. Double-lipped strikes: For locks at double acting doors. Furnish with retractable stop for rescue hardware applications.

- B. Standards: Comply with the following:

1. Strikes for Mortise Locks and Latches: BHMA A156.13.
2. Strikes for Bored Locks and Latches: BHMA A156.2.
3. Strikes for Auxiliary Deadlocks: BHMA A156.36.
4. Dustproof Strikes: BHMA A156.16.

2.8 CONVENTIONAL EXIT DEVICES

- A. General Requirements: All exit devices specified herein shall meet or exceed the following criteria:

SECTION 087100

FINISH HARDWARE

1. At doors not requiring a fire rating, provide devices complying with NFPA 101 and listed and labeled for "Panic Hardware" according to UL305. Provide proper fasteners as required by manufacturer including sex nuts and bolts at openings specified in the Hardware Sets.
2. Where exit devices are required on fire rated doors, provide devices complying with NFPA 80 and with UL labeling indicating "Fire Exit Hardware". Provide devices with the proper fasteners for installation as tested and listed by UL. Consult manufacturer's catalog and template book for specific requirements.
3. Except on fire rated doors, provide exit devices with hex key dogging device to hold the pushbar and latch in a retracted position. Provide optional keyed cylinder dogging on devices where specified in Hardware Sets.
4. Devices must fit flat against the door face with no gap that permits unauthorized dogging of the push bar. The addition of filler strips is required in any case where the door light extends behind the device as in a full glass configuration.
5. Lever Operating Trim: Where exit devices require lever trim, furnish manufacturer's heavy duty escutcheon trim with threaded studs for thru-bolts.
 - a. Lock Trim Design: As indicated in Hardware Sets, provide finishes and designs to match that of the specified locksets.
 - b. Where function of exit device requires a cylinder, provide a cylinder (Rim or Mortise) as specified in Hardware Sets.
6. Vertical Rod Exit Devices: Where surface or concealed vertical rod exit devices are used at interior openings, provide as less bottom rod (LBR) unless otherwise indicated. Provide dust proof strikes where thermal pins are required to project into the floor.
7. Narrow Stile Applications: At doors constructed with narrow stiles, or as specified in Hardware Sets, provide devices designed for maximum 2" wide stiles.
8. Dummy Push Bar: Nonfunctioning push bar matching functional push bar.

SECTION 087100

FINISH HARDWARE

9. Rail Sizing: Provide exit device rails factory sized for proper door width application.
 10. Through Bolt Installation: For exit devices and trim as indicated in Door Hardware Sets.
- B. Conventional Push Rail Exit Devices (Heavy Duty): ANSI/BHMA A156.3, Grade 1 certified panic and fire exit hardware devices furnished in the functions specified in the Hardware Sets. Exit device latch to be stainless steel, pullman type, with deadlock feature.
1. Manufacturers:
 - a. Von Duprin (VD) – 99 Series.
 - b. Yale (YA) 7000 Series

2.9 DOOR CLOSERS

- A. All door closers specified herein shall meet or exceed the following criteria:
1. General: Door closers to be from one manufacturer, matching in design and style, with the same type door preparations and templates regardless of application or spring size. Closers to be non-handed with full sized covers including installation and adjusting information on inside of cover.
 2. Standards: Closers to comply with UL-10C for Positive Pressure Fire Test and be U.L. listed for use of fire rated doors.
 3. Size of Units: Comply with manufacturer's written recommendations for sizing of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Where closers are indicated for doors required to be accessible to the physically handicapped, provide units complying with ANSI ICC/A117.1.
 4. Closer Arms: Provide heavy duty, forged steel closer arms unless otherwise indicated in Hardware Sets.
 5. Closers shall not be installed on exterior or corridor side of doors; where possible install closers on door for optimum aesthetics.

SECTION 087100

FINISH HARDWARE

6. Closer Accessories: Provide door closer accessories including custom templates, special mounting brackets, spacers and drop plates as required for proper installation. Provide through-bolt and security type fasteners as specified in the hardware sets.
- B. Door Closers, Surface Mounted (Commercial Duty): ANSI/BHMA 156.4, Grade 1 certified surface mounted, institutional grade door closers with complete spring power adjustment, sizes 1 thru 6; and fully operational adjustable according to door size, frequency of use, and opening force. Closers to be rack and pinion type, one piece cast iron or aluminum alloy body construction, with adjustable backcheck, closing sweep, and latch speed control valves. Provide non-handed units standard.
 1. Manufacturers:
 - a. Corbin Russwin Hardware (RU) - DC6000 Series.
 - b. LCN Closers (LC) – 4040 Series.

2.10 SURFACE MOUNTED CLOSER HOLDERS

- A. Multi-Point Closer Holders with Motion Sensor: ANSI A156.15, Grade 1 certified multi-point, closer holder devices designed to keep doors in a held-open position if presence is detected within the opening. Push side or pull side mounting applications having a maximum opening of 180° (hold open to 175°) and dual voltage input (24V /120V). Voltage to be 24VDC unless otherwise specified. Units are fail safe, closing the door in the event of fire alarm system or electrical power interruption.
 1. Safe Zone Detection: Closer holders units to have an integral motion sensor device monitoring a "zone of safety" at the door opening. Safe zone detection prevents the door from closing in event of movement within the adjustable sensing field. Movement is detectable in both directions with selectable closer hold open time and sensor sensitivity. Provide optional handheld device for programming safe zone sensor settings.
 2. Manufacturers:
 - a. Norton Door Controls (NO) - 7100SZ Series.
 - b. LCN Door Closers (LC) – 4310/4410HSA Series.

SECTION 087100

FINISH HARDWARE

2.11 ARCHITECTURAL TRIM

A. Door Protective Trim

1. General: Door protective trim units to be of type and design as specified below or in the Hardware Sets.
2. Size: Fabricate protection plates (kick, armor, or mop) not more than 2" less than door width (LDW) on stop side of single doors and 1" LDW on stop side of pairs of doors, and not more than 1" less than door width on pull side. Coordinate and provide proper width and height as required where conflicting hardware dictates. Height to be as specified in the Hardware Sets.
3. Where plates are applied to fire rated doors with the top of the plate more than 16" above the bottom of the door, provide plates complying with NFPA 80. Consult manufacturer's catalog and template book for specific requirements for size and applications.
4. Protection Plates: ANSI/BHMA A156.6 certified protection plates (kick, armor, or mop), fabricated from the following:
 - a. Stainless Steel: 300 grade, 050-inch thick.
5. Options and fasteners: Provide manufacturer's designated fastener type as specified in the Hardware Sets. Provide countersunk screw holes.
6. Manufacturers:
 - a. Ives (IV).
 - b. Rockwood Products; ASSA ABLOY Architectural Door Accessories (RO).
 - c. Trimco (TC).

2.12 DOOR STOPS AND HOLDERS

- A. General: Door stops and holders to be of type and design as specified below or in the Hardware Sets.
- B. Door Stops and Bumpers: ANSI/BHMA A156.16, Grade 1 certified door stops and wall bumpers. Provide wall bumpers, either convex or concave types with

SECTION 087100

FINISH HARDWARE

anchorage as indicated, unless floor or other types of door stops are specified in Hardware Sets. Do not mount floor stops where they will impede traffic. Where floor or wall bumpers are not appropriate, provide overhead type stops and holders.

1. Manufacturers:

- a. Ives (IV).
- b. Rockwood Products; ASSA ABLOY Architectural Door Accessories (RO).
- c. Trimco (TC).

C. Overhead Door Stops and Holders: ANSI/BHMA A156.6, Grade 1 certified overhead stops and holders to be surface or concealed types as indicated in Hardware Sets. Track, slide, arm and jamb bracket to be constructed of extruded bronze and shock absorber spring of heavy tempered steel. Provide non-handed design with mounting brackets as required for proper operation and function.

1. Manufacturers:

- a. Glynn Johnson (GJ).
- b. Rixson Door Controls (RF).

2.13 ARCHITECTURAL SEALS

A. General: Thresholds, weatherstripping, and gasket seals to be of type and design as specified below or in the Hardware Sets. Provide continuous weatherstrip gasketing on exterior doors and provide smoke, light, or sound gasketing on interior doors where indicated. At exterior applications provide non-corrosive fasteners and elsewhere where indicated.

B. Smoke Labeled Gasketing: Assemblies complying with NFPA 105 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for smoke control ratings indicated, based on testing according to UL 1784.

1. Provide smoke labeled perimeter gasketing at all smoke labeled openings.

SECTION 087100

FINISH HARDWARE

- C. Fire Labeled Gasketing: Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to UL-10C.
 - 1. Provide intumescent seals as indicated to meet UL10C Standard for Positive Pressure Fire Tests of Door Assemblies, and NPFA 252, Standard Methods of Fire Tests of Door Assemblies.
- D. Sound-Rated Gasketing: Assemblies that are listed and labeled by a testing and inspecting agency, for sound ratings indicated.
- E. Replaceable Seal Strips: Provide only those units where resilient or flexible seal strips are easily replaceable and readily available from stocks maintained by manufacturer.
- F. Manufacturers:
 - 1. National Guard Products (NG).
 - 2. Pemko Products; ASSA ABLOY Architectural Door Accessories (PE).
 - 3. Reese Enterprises, Inc. (RE).

2.14 FABRICATION

- A. Fasteners: Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. Provide screws according to manufacturers recognized installation standards for application intended.

2.15 FINISHES

- A. Standard: Designations used in the Hardware Sets and elsewhere indicate hardware finishes complying with ANSI/BHMA A156.18, including coordination with traditional U.S. finishes indicated by certain manufacturers for their products.
- B. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness, and other qualities complying with manufacturer's standards, but in no case less than specified by referenced standards for the applicable units of hardware

SECTION 087100

FINISH HARDWARE

- C. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine scheduled openings, with Installer present, for compliance with requirements for installation tolerances, labeled fire door assembly construction, wall and floor construction, and other conditions affecting performance.
- B. Notify architect of any discrepancies or conflicts between the door schedule, door types, drawings and scheduled hardware. Proceed only after such discrepancies or conflicts have been resolved in writing.

3.2 PREPARATION

- A. Hollow Metal Doors and Frames: Comply with ANSI/DHI A115 series.
- B. Wood Doors: Comply with ANSI/DHI A115-W series.

3.3 INSTALLATION

- A. Install each item of mechanical and electromechanical hardware and access control equipment to comply with manufacturer's written instructions and according to specifications.
 - 1. Installers are to be trained and certified by the manufacturer on the proper installation and adjustment of fire, life safety, and security products including: hanging devices; locking devices; closing devices; and seals.
- B. Mounting Heights: Mount door hardware units at heights indicated in following applicable publications, unless specifically indicated or required to comply with governing regulations:
 - 1. Standard Steel Doors and Frames: DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."

SECTION 087100

FINISH HARDWARE

2. Wood Doors: DHI WDHS.3, "Recommended Locations for Architectural Hardware for Wood Flush Doors."
 3. Where indicated to comply with accessibility requirements, comply with ANSI A117.1 "Accessibility Guidelines for Buildings and Facilities."
 4. Provide blocking in drywall partitions where wall stops or other wall mounted hardware is located.
- C. Retrofitting: Install door hardware to comply with manufacturer's published templates and 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 specified in Division 9 Sections. Do not install surface-mounted items until finishes have been completed on substrates involved.
- D. Thresholds: Set thresholds for exterior and acoustical doors in full bed of sealant complying with requirements specified in Division 7 Section "Joint Sealants."
- E. Storage: Provide a secure lock up for hardware delivered to the project but not yet installed. Control the handling and installation of hardware items so that the completion of the work will not be delayed by hardware losses before and after installation.

3.4 FIELD QUALITY CONTROL

- A. Field Inspection: Supplier will perform a final inspection of installed door hardware and state in report whether work complies with or deviates from requirements, including whether door hardware is properly installed, operating and adjusted.

3.5 ADJUSTING

- A. Initial Adjustment: 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.

SECTION 087100

FINISH HARDWARE

3.6 CLEANING AND PROTECTION

- A. Protect all hardware stored on construction site in a covered and dry place. Protect exposed hardware installed on doors during the construction phase. Install any and all hardware at the latest possible time frame.
- B. Clean adjacent surfaces soiled by door hardware installation.
- C. Clean operating items as necessary to restore proper finish. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of owner occupancy.

3.7 DEMONSTRATION

- A. Instruct Owner's maintenance personnel to adjust, operate, and maintain mechanical and electromechanical door hardware.

3.8 DOOR HARDWARE SETS

- A. The hardware sets represent the design intent and direction of the owner and architect. They are a guideline only and should not be considered a detailed hardware schedule. Discrepancies, conflicting hardware and missing items should be brought to the attention of the architect with corrections made prior to the bidding process. Omitted items not included in a hardware set should be scheduled with the appropriate additional hardware required for proper application and functionality.
- B. The supplier is responsible for handing and sizing all products and providing the correct option for the appropriate door type and material where more than one is presented in the hardware sets. Quantities listed are for each pair of doors, or for each single door.
- C. Manufacturer's Abbreviations:

- 1. MK - McKinney
- 2. PE - Pemko
- 3. SA - SARGENT
- 4. YA - Yale

SECTION 087100

FINISH HARDWARE

- 5. VD - Von Duprin
- 6. RO - Rockwood
- 7. RF - Rixson
- 8. RU - Corbin Russwin
- 9. NO - Norton
- 10. OT - OTHER

Hardware Sets

Set: 1.0

Doors: 100

Description: Ext-Alum-Entrance

1 Continuous Hinge	CFMxxSLF-HD1		PE
1 Access Control Keypad Lock	CRR NTM615-NR Temp Core-6 pin	626	YA
1 Core	1210	626	YA
1 Closer (surface)	DC6210 A11	689	RU
1 Threshold	2005AV x door width		PE

Notes: -Weather seals to be provided by door manufacturer
-Provide necessary drop plates and fillers for proper installation of door closers
-Exterior doors and hardware to comply with FBC windstorm requirements.

Set: 2.0

Doors: 107

Description: Ext-HM-Pair

ADG No. 963-16
Orange County Fire Rescue
Station #87
Revision 2
September 6, 2019

08 71 00-23

Door Hardware

SECTION 087100

FINISH HARDWARE

6 Hinge (heavy weight)	T4A3386 NRP 4-1/2" x 4-1/2"	US32D	MK
2 Surface Bolt SA	988	Bright Zinc	
1 Access Control Keypad Lock	CRR NTM615-NR Temp Core-6 pin	626	YA
1 Core	1210	626	YA
1 Surface Overhead Stop	9-X36	630	RF
1 Closer (surface)	DC6210 A12	689	RU
2 Kick Plate	K1050 8" x LAR	US32D	RO
1 Threshold	2005AV x door width		PE
1 Rain Guard	346C x door width plus 4"		PE
1 Gasketing	303CS head & jambs		PE
2 Sweep	315CN x door width		PE

Notes: -Exterior doors and hardware to comply with FBC windstorm requirements.
-Astragal included with HM doors

Set: 3.0

Doors: 104, 110, 131A, 137A

Description: Ext-HM-Keypad Lock

3 Hinge (heavy weight)	T4A3386 NRP 4-1/2" x 4-1/2"	US32D	MK
1 Access Control Keypad Lock	CRR NTM615-NR Temp Core-6 pin	626	YA
1 Core	1210	626	YA
1 Closer (surface)	DC6210 A11	689	RU
1 Kick Plate	K1050 8" x LAR	US32D	RO
1 Threshold	2005AV x door width		PE
1 Rain Guard	346C x door width plus 4"		PE
1 Gasketing	303CS head & jambs		PE
1 Sweep	315CN x door width		PE

Notes: -Exterior doors and hardware to comply with FBC windstorm requirements.

Set: 4.0

Doors: 130, 130E

Description: Ext-HM Apparatus Bay

3 Hinge (heavy weight)	T4A3386 NRP 4-1/2" x 4-1/2"	US32D	MK
1 Access Control Keypad Lock	CRR NTM615-NR Temp Core-6 pin	626	YA
1 Core	1210	626	YA
1 Closer (surface)	DC6210 A11	689	RU

ADG No. 963-16

08 71 00-24

Door Hardware

Orange County Fire Rescue

Station #87

Revision 2

September 6, 2019

SECTION 087100

FINISH HARDWARE

1 Kick Plate	K1050 8" x LAR	US32D	RO
1 Door Stop	466-RKW	Black	RO
1 Threshold	2005AV x door width		PE
1 Rain Guard	346C x door width plus 4"		PE
1 Gasketing	303CS head & jambs		PE
1 Sweep	315CN x door width		PE

Notes: -Exterior doors and hardware to comply with FBC windstorm requirements.

Set: 5.0

Doors: 101

Description: Office - no closer

3 Hinge	TA2714 4-1/2" x 4-1/2"	US26D	MK
1 Entrance Lock	CRR 8847FL Temp Core-6 pin	626	YA
1 Core	1210	626	YA
1 Door Stop	442 or 409 as required	US26D	RO
3 Silencer	608		RO

Set: 6.0

Doors: 100A

Description: Corridor w/ Keypad Lock

3 Hinge (heavy weight)	T4A3786xNRP 4-1/2" x 4-1/2"	US26D	MK
1 Access Control Keypad Lock	CRR NTM615-NR Temp Core-6 pin	626	YA
1 Core	1210	626	YA
1 Closer (surface)	DC6210 A3	689	RU
1 Kick Plate	K1050 8" x LAR	US32D	RO
1 Door Stop	442 or 409 as required	US26D	RO
1 Smoke Gasketing	S773D x head and jambs		PE

Set: 7.0

Doors: 106D

Description: LT Office

3 Hinge	TA2714 4-1/2" x 4-1/2"	US26D	MK
1 Entrance Lock	CRR 8847FL Temp Core-6 pin	626	YA
1 Core	1210	626	YA

ADG No. 963-16

Orange County Fire Rescue

Station #87

Revision 2

September 6, 2019

08 71 00-25

Door Hardware

SECTION 087100

FINISH HARDWARE

1 Closer (surface)	DC6210 A3	689	RU
1 Kick Plate	K1050 8" x LAR	US32D	RO
1 Door Stop	442 or 409 as required	US26D	RO
1 Smoke Gasketing	S773D x head and jambs		PE
1 Door Bottom	4131CRL		PE

Set: 8.0

Doors: 130C, 130D

Description: Apparatus Bay From Air Lock

3 Hinge (heavy weight)	T4A3386 NRP 4-1/2" x 4-1/2"	US32D	MK
1 Fire Rated Rim Exit	99L-F 03 996L	US26D	VD
1 Cylinder	As required	626	YA
1 Core	1210	626	YA
1 Elec Closer w/Motion Sensor	7113SZ	689	NO
1 Kick Plate	K1050 8" x LAR	US32D	RO
1 Door Stop	442 or 409 as required	US26D	RO
1 Smoke Gasketing	S773D x head and jambs		PE

Set: 9.0

Doors: 119, 128

Description: Air Lock

3 Hinge (heavy weight)	T4A3786 4-1/2" x 4-1/2"	US26D	MK
1 Fire Rated Rim Exit	99L-BE-F 03 996L-BE	US26D	VD
1 Closer (surface)	DC6210 A3	689	RU
1 Kick Plate	K1050 8" x LAR	US32D	RO
1 Door Stop	442 or 409 as required	US26D	RO
1 Smoke Gasketing	S773D x head and jambs		PE

Set: 10.0

Doors: 129

Description: Physical Agility

3 Hinge	TA2714 4-1/2" x 4-1/2"	US26D	MK
1 Classroom Lock	CRR 8808FL Temp Core-6 pin	626	YA
1 Core	1210	626	YA
1 Closer (surface)	DC6200	689	RU
1 Kick Plate	K1050 8" x LAR	US32D	RO
1 Door Stop	442 or 409 as required	US26D	RO

ADG No. 963-16

08 71 00-26

Door Hardware

Orange County Fire Rescue

Station #87

Revision 2

September 6, 2019

SECTION 087100

FINISH HARDWARE

3 Silencer	608		RO
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Set: 11.0

Doors: 110A

Description: Dayroom

3 Hinge	TA2714 4-1/2" x 4-1/2"	US26D	MK
1 Classroom Lock	CRR 8808FL Temp Core-6 pin	626	YA
1 Core	1210	626	YA
1 Door Stop	442 or 409 as required	US26D	RO

Notes: COORDINATE HARDWARE REQUIREMENTS WITH OPERABLE PARTITION DOOR,
REFER TO MANUFACTURER

Set: 12.0

Doors: 135

Description: Storeroom-Closer

3 Hinge	TA2714 4-1/2" x 4-1/2"	US26D	MK
1 Storeroom Lock	CRR 8805FL Temp Core-6 pin	626	YA
1 Core	1210	626	YA
1 Closer (surface)	DC6200	689	RU
1 Kick Plate	K1050 8" x LAR	US32D	RO
1 Door Stop	442 or 409 as required	US26D	RO
3 Silencer	608		RO

Set: 13.0

Doors: 133, 140

Description: SCBA / Janitor

3 Hinge	TA2714 4-1/2" x 4-1/2"	US26D	MK
1 Classroom Lock	CRR 8808FL Temp Core-6 pin	626	YA
1 Core	1210	626	YA
1 Closer (surface)	DC6200	689	RU
1 Kick Plate	K1050 8" x LAR	US32D	RO
1 Door Stop	442 or 409 as required	US26D	RO
3 Silencer	608		RO

Set: 14.0

Doors: 132

ADG No. 963-16
Orange County Fire Rescue
Station #87
Revision 2
September 6, 2019

08 71 00-27

Door Hardware

SECTION 087100

FINISH HARDWARE

Description: Turnout Gear - Safezone closer

3 Hinge (heavy weight)	T4A3786 4-1/2" x 4-1/2"	US26D	MK
1 Classroom Lock	CRR 8808FL Temp Core-6 pin	626	YA
1 Core	1210	626	YA
1 Elec Closer w/Motion Sensor	7113SZ	689	NO
1 Kick Plate	K1050 8" x LAR	US32D	RO
1 Door Stop	442 or 409 as required	US26D	RO
3 Silencer	608		RO

Set: 15.0

Doors: 102, 118, 121, 127, 136

Description: Toilet-Closer

3 Hinge	TA2714 4-1/2" x 4-1/2"	US26D	MK
1 Privacy Lock	CRR 8802FL IND	626	YA
1 Closer (surface)	DC6200	689	RU
1 Kick Plate	K1050 8" x LAR	US32D	RO
1 Mop Plate	K1050 4" x LAR	US32D	RO
1 Door Stop	442 or 409 as required	US26D	RO
3 Silencer	608		RO

Set: 16.0

Doors: 137, 139

Description: Corr / Decon

3 Hinge (heavy weight)	T4A3786 5" x 4-1/2"	US26D	MK
1 Passage Latch	CRR 8801FL	626	YA
1 Closer (surface)	DC6200	689	RU
1 Kick Plate	K1050 8" x LAR	US32D	RO
1 Door Stop	442 or 409 as required	US26D	RO
3 Silencer	608		RO

Set: 17.0

Doors: 134

Description: Ice Room

3 Hinge (heavy weight)	T4A3786 4-1/2" x 4-1/2"	US26D	MK
1 Push Plate	70C	US32D-MSRO	
1 Pull	RM301	US32D	RO

ADG No. 963-16
 Orange County Fire Rescue
 Station #87
 Revision 2
 September 6, 2019

08 71 00-28

Door Hardware

SECTION 087100

FINISH HARDWARE

1 Closer (surface)	DC6200	689	RU
1 Kick Plate	K1050 8" x LAR	US32D	RO
1 Mop Plate	K1050 4" x LAR	US32D	RO
1 Door Stop	442 or 409 as required	US26D	RO
3 Silencer	608		RO

Set: 18.0

Doors: 115, 117, 120, 122, 123, 124, 125, 126

Description: Bunk

3 Hinge	TA2714 4-1/2" x 4-1/2"	US26D	MK
1 Privacy Lock	CRR 8802FL IND	626	YA
1 Door Stop	442 or 409 as required	US26D	RO
3 Silencer	608		RO

Set: 19.0

Doors: 106A, 106C

Description: Corridor

3 Hinge	TA2714 4-1/2" x 4-1/2"	US26D	MK
1 Passage Latch	CRR 8801FL	626	YA
1 Closer (surface)	DC6210 A3	689	RU
1 Kick Plate	K1050 8" x LAR	US32D	RO
1 Door Stop	442 or 409 as required	US26D	RO
1 Smoke Gasketing	S773D x head and jambs		PE

Set: 20.0

Doors: 105

Description: Telecom

3 Hinge	TA2714 4-1/2" x 4-1/2"	US26D	MK
1 Storeroom Lock	CRR 8805FL Temp Core-6 pin	626	YA
1 Core	1210	626	YA
1 Closer (surface)	DC6210 A4	689	RU
1 Smoke Gasketing	S773D x head and jambs		PE

ADG No. 963-16
 Orange County Fire Rescue
 Station #87
 Revision 2
 September 6, 2019

08 71 00-29

Door Hardware

SECTION 087100

FINISH HARDWARE

Set: 21.0

Doors: 131

Description: Mech/Elec

3 Hinge	TA2714 4-1/2" x 4-1/2"	US26D	MK
1 Storeroom Lock	CRR 8805FL Temp Core-6 pin	626	YA
1 Core	1210	626	YA
1 Closer (surface)	DC6200	689	RU
1 Kick Plate	K1050 8" x LAR	US32D	RO
1 Door Stop	442 or 409 as required	US26D	RO
1 Smoke Gasketing	S773D x head and jambs		PE

Set: 22.0

Doors: 130A, 130B, 130F, 130G

Description: Overhead Door

1 Overhead Drs 00	Hardware furnished by door manufacturer
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Set: 23.0

Doors: 112, 113, 114

Description: Pantry

1 Overhead Drs 00	Hardware furnished by door manufacturer
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Set: 24.0

Doors: 141, 142, 143, 144, 145, 146

Description: Gates

1 Gates OT	All hardware furnished by gate supplier
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ADG No. 963-16
Orange County Fire Rescue
Station #87
Revision 2
September 6, 2019

08 71 00-30

Door Hardware

SECTION 087100

FINISH HARDWARE

END OF SECTION 087100

ADG No. 963-16
Orange County Fire Rescue
Station #87
Revision 2
September 6, 2019

08 71 00-31

Door Hardware

SECTION 26 32 13

PACKAGED STANDBY DIESEL ENGINE GENERATOR

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes packaged engine-generator sets for emergency standby power supply with the following features:
 - 1. Diesel engine.
 - 2. Unit-mounted cooling system.
 - 3. Unit-mounted control and monitoring.
 - 4. Performance requirements for sensitive loads.
 - 5. Load banks.
 - 6. Outdoor enclosure.
- B. Related Sections include the following:
 - 1. Division 26 Section "Transfer Switches" for transfer switches including sensors and relays to initiate automatic-starting and -stopping signals for engine-generator sets.

1.3 DEFINITIONS

- A. Operational Bandwidth: The total variation from the lowest to highest value of a parameter over the range of conditions indicated, expressed as a percentage of the nominal value of the parameter.
- B. LP: Liquid petroleum.

1.4 SUBMITTALS

- A. Product Data: For each type of packaged engine generator indicated. Include rated capacities, operating characteristics, and furnished specialties and accessories. In addition, include the following:
 - 1. Thermal damage curve for generator.
 - 2. Time-current characteristic curves for generator protective device.

- B. Shop Drawings: Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
 - 1. Dimensioned outline plan and elevation drawings of engine-generator set and other components specified.
 - 2. Design Calculations: Signed and sealed by a qualified professional engineer. Calculate requirements for selecting vibration isolators and seismic restraints and for designing vibration isolation bases.
 - 3. Vibration Isolation Base Details: Signed and sealed by a qualified professional engineer. Detail fabrication, including anchorages and attachments to structure and to supported equipment. Include base weights.
 - 4. Wiring Diagrams: Power, signal, and control wiring.

- C. Qualification Data: For manufacturer.

- D. Source quality-control test reports.
 - 1. Certified summary of prototype-unit test report.
 - 2. Certified Test Reports: For components and accessories that are equivalent, but not identical, to those tested on prototype unit.
 - 3. Certified Summary of Performance Tests: Certify compliance with specified requirement to meet performance criteria for sensitive loads.
 - 4. Report of factory test on units to be shipped for this Project, showing evidence of compliance with specified requirements.
 - 5. Report of sound generation.
 - 6. Report of exhaust emissions showing compliance with applicable regulations.
 - 7. Certified Torsional Vibration Compatibility: Comply with NFPA 110.

- E. Field quality-control test reports.

- F. Operation and Maintenance Data: For packaged engine generators to include in emergency, operation, and maintenance manuals. In addition to

items specified in Division 1 Section "Operation and Maintenance Data," include the following:

1. List of tools and replacement items recommended to be stored at Project for ready access. Include part and drawing numbers, current unit prices, and source of supply.
- G. Warranty: Special warranty specified in this Section.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of units required for this Project.
1. Maintenance Proximity: Not more than 2 hours normal travel time from Installer's place of business to Project site.
 2. Engineering Responsibility: Preparation of data for vibration isolators and seismic restraints of engine skid mounts, including Shop Drawings, based on testing and engineering analysis of manufacturer's standard units in assemblies similar to those indicated for this Project.
- B. Source Limitations: Obtain packaged generator sets and auxiliary components through one source from a single manufacturer.
- C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- D. Comply with ASME B15.1.
- E. Comply with NFPA 37.
- F. Comply with NFPA 70.
- G. Comply with NFPA 99.
- H. Comply with NFPA 110.
- I. Comply with UL 2200.
- J. Engine Exhaust Emissions: Comply with applicable state and local government requirements.

- K. Noise Emission: Comply with applicable state and local government requirements for maximum noise level at adjacent property boundaries due to sound emitted by generator set including engine, engine exhaust, engine cooling-air intake and discharge, and other components of installation.

1.6 PROJECT CONDITIONS

- A. Environmental Conditions: Engine-generator system shall withstand the following environmental conditions without mechanical or electrical damage or degradation of performance capability:
 - 1. Ambient Temperature: 0 Deg F to 105 Deg F
 - 2. Relative Humidity: 0 to 100 percent.
 - 3. Altitude: Sea level to 1000 Feet.

1.7 COORDINATION

- A. Coordinate size and location of concrete bases for package engine generators. Cast anchor-bolt inserts into bases.
- B. Stub conduits up under the circuit breaker compartment as required by generator manufacturer.

1.8 WARRANTY

- A. Special Warranty: Manufacturer's standard form material and labor warranty in which manufacturer agrees to repair or replace components of packaged engine generators and associated auxiliary components that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period: 3 years from date of Substantial Completion.

1.9 MAINTENANCE SERVICE

- A. Initial Maintenance Service: Beginning at Substantial Completion, provide 24 months full maintenance by skilled employees of manufacturer's designated service organization. Include routine preventive maintenance as recommended by manufacturer and adjusting as required for proper operation. Provide parts and supplies same as those used in the manufacture and installation of original equipment.

1.10 EXTRA MATERIALS

- A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Filters: One set each of lubricating oil, fuel, and combustion-air filters.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Caterpillar; Engine Div.
 - 2. Kohler Co.; Generator Division.
 - 3. Onan/Cummins Power Generation; Industrial Business Group.

2.2 ENGINE-GENERATOR SET

- A. Factory-assembled and -tested, engine-generator set.
- B. Mounting Frame: Maintain alignment of mounted components without depending on concrete foundation; and have lifting attachments.
 - 1. Rigging Diagram: Inscribed on metal plate permanently attached to mounting frame to indicate location and lifting capacity of each lifting attachment and generator-set center of gravity.
- C. Capacities and Characteristics:
 - 1. Power Output Ratings: Nominal ratings as indicated
 - 2. Output Connections: Three-phase, four wire.
 - 3. Nameplates: For each major system component to identify manufacturer's name and address, and model and serial number of component.
- D. Generator-Set Performance:
 - 1. Steady-State Voltage Operational Bandwidth: 3 percent of rated output voltage from no load to full load.

2. Transient Voltage Performance: Not more than 20 percent variation for 50 percent step-load increase or decrease. Voltage shall recover and remain within the steady-state operating band within three seconds.
3. Transient Frequency Performance: Less than 5 percent variation for 50 percent step-load increase or decrease. Frequency shall recover and remain within the steady-state operating band within five seconds.
4. Output Waveform: At no load, harmonic content measured line to line or line to neutral shall not exceed 5 percent total and 3 percent for single harmonics. Telephone influence factor, determined according to NEMA MG 1, shall not exceed 50 percent.
5. Sustained Short-Circuit Current: For a 3-phase, bolted short circuit at system output terminals, system shall supply a minimum of 250 percent of rated full-load current for not less than 10 seconds and then clear the fault automatically, without damage to generator system components.
6. Start Time: Comply with NFPA 110, Type 10, system requirements.

2.3 ENGINE

- A. Fuel: Fuel oil, Grade DF-2
- B. Rated Engine Speed: 1800 rpm.
- C. Maximum Piston Speed for Four-Cycle Engines: 2250 fpm (11.4 m/s).
- D. Lubrication System: The following items are mounted on engine or skid:
 1. Filter and Strainer: Rated to remove 90 percent of particles 5 micrometers and smaller while passing full flow.
 2. Thermostatic Control Valve: Control flow in system to maintain optimum oil temperature. Unit shall be capable of full flow and is designed to be fail-safe.
 3. Crankcase Drain: Arranged for complete gravity drainage to an easily removable container with no disassembly and without use of pumps, siphons, special tools, or appliances.
- E. Engine Fuel System:
 1. Main Fuel Pump: Mounted on engine. Pump ensures adequate primary fuel flow under starting and load conditions.
 2. Relief-Bypass Valve: Automatically regulates pressure in fuel line and returns excess fuel to source.

- F. Coolant Jacket Heater: Electric-immersion type, factory installed in coolant jacket system. Comply with NFPA 110 requirements for Level 1 equipment for heater capacity.
- G. Cooling System: Closed loop, liquid cooled, with radiator factory mounted on engine-generator-set mounting frame and integral engine-driven coolant pump.
- H. Muffler/Silencer: Critical type, sized as recommended by engine manufacturer and selected with exhaust piping system to not exceed engine manufacturer's engine backpressure requirements.
 - 1. Minimum sound attenuation of 25 dB at 500 Hz.
 - 2. Sound level measured at a distance of 10 feet (3 m) from exhaust discharge after installation is complete shall be 85 dBA or less.
- I. Air-Intake Filter: Heavy-duty, engine-mounted air cleaner with replaceable dry-filter element and "blocked filter" indicator.
- J. Starting System: 12-V electric, with negative ground.
 - 1. Components: Sized so they will not be damaged during a full engine-cranking cycle with ambient temperature at maximum specified in Part 1 "Project Conditions" Article.
 - 2. Cranking Motor: Heavy-duty unit that automatically engages and releases from engine flywheel without binding.
 - 3. Battery-Charging Alternator: Factory mounted on engine with solid-state voltage regulation and 35-A minimum continuous rating.
 - 4. Battery Charger: Current-limiting, automatic-equalizing and float-charging type. Unit shall comply with UL 1236 and include the following features:
 - a. Operation: Equalizing-charging rate of 10 A shall be initiated automatically after battery has lost charge until an adjustable equalizing voltage is achieved at battery terminals. Unit shall then be automatically switched to a lower float-charging mode and shall continue to operate in that mode until battery is discharged again.
 - b. Automatic Temperature Compensation: Adjust float and equalize voltages for variations in ambient temperature from minus 40 deg C to plus 60 deg C to prevent overcharging at high temperatures and undercharging at low temperatures.
 - c. Automatic Voltage Regulation: Maintain constant output voltage regardless of input voltage variations up to plus or minus 10 percent.

- d. Ammeter and Voltmeter: Flush mounted in door. Meters shall indicate charging rates.
- e. Safety Functions: Sense abnormally low battery voltage and close contacts providing low battery voltage indication on control and monitoring panel. Sense high battery voltage and loss of ac input or dc output of battery charger. Either condition shall close contacts that provide a battery-charger malfunction indication at system control and monitoring panel.
- f. Enclosure and Mounting: NEMA 250, Type 1, wall-mounted cabinet.

2.4 FUEL OIL STORAGE

- A. Comply with NFPA 30.
- B. Base-Mounted Tank: Comply with UL 142, freestanding, factory-fabricated fuel tank assembly, with integral, float-controlled transfer pump and the following features:
 - 1. Containment: Integral rupture basin with a capacity of 150 percent of nominal capacity of day tank.
 - a. Leak Detector: Locate in rupture basin and connect to provide audible and visual alarm in the event of day-tank leak.
 - 2. Tank Capacity: As recommended by engine manufacturer for an uninterrupted period of **8024** hours operation at 100 percent of rated power output of engine-generator system without being refilled.
 - 3. Pump Capacity: Exceeds maximum flow of fuel drawn by engine-mounted fuel supply pump at 110 percent of rated capacity, including fuel returned from engine.
 - 4. Low-Level Alarm Sensor: Liquid-level device operates alarm contacts at 25 percent of normal fuel level.
 - 5. High-Level Alarm Sensor: Liquid-level device operates alarm and redundant fuel shutoff contacts at midpoint between overflow level and 100 percent of normal fuel level.
 - 6. Piping Connections: Factory-installed fuel supply and return lines from tank to engine; local fuel fill, vent line, overflow line; and tank drain line with shutoff valve.
 - 7. Redundant High-Level Fuel Shutoff: Actuated by high-level alarm sensor in day tank to operate a separate motor device that disconnects day-tank pump motor. Sensor shall signal solenoid valve, located in fuel suction line between fuel storage tank and day tank, to close. Both actions shall remain in shutoff state until manually reset. Shutoff action

shall initiate an alarm signal to control panel but shall not shut down engine-generator set.

2.5 CONTROL AND MONITORING

- A. Automatic Starting System Sequence of Operation: When mode-selector switch on the control and monitoring panel is in the automatic position, remote-control contacts in one or more separate automatic transfer switches initiate starting and stopping of generator set. When mode-selector switch is switched to the on position, generator set starts. The off position of same switch initiates generator-set shutdown. When generator set is running, specified system or equipment failures or derangements automatically shut down generator set and initiate alarms. Operation of a remote emergency-stop switch also shuts down generator set.
- B. Manual Starting System Sequence of Operation: Switching on-off switch on the generator control panel to the on position starts generator set. The off position of same switch initiates generator-set shutdown. When generator set is running, specified system or equipment failures or derangements automatically shut down generator set and initiate alarms. Operation of a remote emergency-stop switch also shuts down generator set.
- C. Configuration: Operating and safety indications, protective devices, basic system controls, and engine gages shall be grouped in a common control and monitoring panel mounted on the generator set. Mounting method shall isolate the control panel from generator-set vibration.
- D. Configuration: Operating and safety indications, protective devices, basic system controls, and engine gages shall be grouped in a common wall-mounted control and monitoring panel.
- E. Configuration: Operating and safety indications, protective devices, basic system controls, engine gages, instrument transformers, generator disconnect switch or circuit breaker, and other indicated components shall be grouped in a combination control and power panel. Control and monitoring section of panel shall be isolated from power sections by steel barriers. Panel features shall include the following:
 - 1. Wall-Mounting Cabinet Construction: Rigid, self-supporting steel unit complying with NEMA ICS 6. Power bus shall be copper. Bus, bus supports, control wiring, and temperature rise shall comply with UL 891.
 - 2. Switchboard Construction: Freestanding unit complying with Division 26 Section "Switchboards."

3. Switchgear Construction: Freestanding unit complying with Division 26 Section "Switchgear."
4. Current and Potential Transformers: Instrument accuracy class.

F. Indicating and Protective Devices and Controls:

1. AC voltmeter.
2. AC ammeter.
3. AC frequency meter.
4. DC voltmeter (alternator battery charging).
5. Engine-coolant temperature gage.
6. Engine lubricating-oil pressure gage.
7. Running-time meter.
8. Ammeter-voltmeter, phase-selector switch(es).
9. Generator-voltage adjusting rheostat.
10. Fuel low-level alarm.
11. Fuel tank high-level shutdown of fuel supply alarm.
12. Generator overload.

G. Indicating and Protective Devices and Controls:

1. AC voltmeter.
2. AC ammeter.
3. AC frequency meter.
4. DC voltmeter (alternator battery charging).
5. Engine-coolant temperature gage.
6. Engine lubricating-oil pressure gage.
7. Running-time meter.
8. Ammeter-voltmeter, phase-selector switch(es).
9. Start-stop switch.
10. Overspeed shutdown device.
11. Coolant high-temperature shutdown device.
12. Coolant low-level shutdown device.
13. Oil low-pressure shutdown device.
14. Fuel tank high-level shutdown of fuel supply alarm.
15. Generator overload.

H. Supporting Items: Include sensors, transducers, terminals, relays, and other devices and include wiring required to support specified items. Locate sensors and other supporting items on engine or generator, unless otherwise indicated.

I. Common Remote Audible Alarm: Signal the occurrence of any events listed below without differentiating between event types. Connect so that after an

alarm is silenced, clearing of initiating condition will reactivate alarm until silencing switch is reset.

1. Engine high-temperature shutdown.
2. Lube-oil, low-pressure shutdown.
3. Overspeed shutdown.
4. Remote emergency-stop shutdown.
5. Engine high-temperature prealarm.
6. Lube-oil, low-pressure prealarm.
7. Fuel tank, low-fuel level.
8. Low coolant level.

- J. Remote Alarm Annunciator: Comply with NFPA 99. An LED labeled with proper alarm conditions shall identify each alarm event and a common audible signal shall sound for each alarm condition. Silencing switch in face of panel shall silence signal without altering visual indication. Connect so that after an alarm is silenced, clearing of initiating condition will reactivate alarm until silencing switch is reset. Cabinet and faceplate are surface- or flush-mounting type to suit mounting conditions indicated.
- K. Remote Emergency-Stop Switch: Flush; wall mounted, unless otherwise indicated; and labeled. Push button shall be protected from accidental operation.

2.6 GENERATOR OVERCURRENT AND FAULT PROTECTION

- A. Generator Circuit Breaker: Molded-case, thermal-magnetic type; 100 percent rated; complying with NEMA AB 1 and UL 489.
1. Tripping Characteristic: Designed specifically for generator protection.
 2. Trip Rating: Matched to generator rating.
 3. Shunt Trip: Connected to trip breaker when generator set is shut down by other protective devices.
 4. Mounting: Adjacent to or integrated with control and monitoring panel.

2.7 GENERATOR, EXCITER, AND VOLTAGE REGULATOR

- A. Comply with NEMA MG 1.
- B. Drive: Generator shaft shall be directly connected to engine shaft. Exciter shall be rotated integrally with generator rotor.
- C. Electrical Insulation: Class H or Class F.

- D. Stator-Winding Leads: Brought out to terminal box to permit future reconnection for other voltages if required.
- E. Construction shall prevent mechanical, electrical, and thermal damage due to vibration, overspeed up to 125 percent of rating, and heat during operation at 110 percent of rated capacity.
- F. Enclosure: Dripproof.
- G. Instrument Transformers: Mounted within generator enclosure.
- H. Voltage Regulator: Solid-state type, separate from exciter, providing performance as specified.
- I. Strip Heater: Thermostatically controlled unit arranged to maintain stator windings above dew point.

2.8 OUTDOOR GENERATOR-SET ENCLOSURE

- A. Description: Vandal-resistant, weatherproof steel housing, wind resistant up to ~~150~~¹²⁰ mph. Multiple panels shall be lockable and provide adequate access to components requiring maintenance. Panels shall be removable by one person without tools. Instruments and control shall be mounted within enclosure. Provide sound attenuated enclosure to allow a maximum of 85DBA.
- B. Engine Cooling Airflow through Enclosure: Maintain temperature rise of system components within required limits when unit operates at 110 percent of rated load for 2 hours with ambient temperature at top of range specified in system service conditions.
 - 1. Louvers: Fixed-engine, cooling-air inlet and discharge. Storm-proof and drainable louvers prevent entry of rain and snow.
 - 2. Automatic Dampers: At engine cooling-air inlet and discharge. Dampers shall be closed to reduce enclosure heat loss in cold weather when unit is not operating.

2.9 VIBRATION ISOLATION DEVICES

- A. Restrained Spring Isolators: Freestanding, steel, open-spring isolators with seismic restraint.
 - 1. Housing: Steel with resilient vertical-limit stops to prevent spring extension due to wind loads or if weight is removed; factory-drilled baseplate

bonded to 1/4-inch- (6-mm-) thick, elastomeric isolator pad attached to baseplate underside; and adjustable equipment mounting and leveling bolt that acts as blocking during installation.

2. Outside Spring Diameter: Not less than 80 percent of compressed height of the spring at rated load.
3. Minimum Additional Travel: 50 percent of required deflection at rated load.
4. Lateral Stiffness: More than 80 percent of rated vertical stiffness.
5. Overload Capacity: Support 200 percent of rated load, fully compressed, without deformation or failure.

2.10 FINISHES

- A. Indoor and Outdoor Enclosures and Components: Manufacturer's standard finish over corrosion-resistant pretreatment and compatible primer.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas, equipment bases, and conditions, with Installer present, for compliance with requirements for installation and other conditions affecting packaged engine-generator performance.
- B. Examine roughing-in of piping systems and electrical connections. Verify actual locations of connections before packaged engine-generator installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Comply with packaged engine-generator manufacturers' written installation and alignment instructions and with NFPA 110.
- B. Install packaged engine generator to provide access, without removing connections or accessories, for periodic maintenance.
- C. Install packaged engine generator with elastomeric isolator pads having a minimum deflection of 1 inch (25 mm). Secure sets to anchor bolts installed in

concrete bases. Concrete base construction shall be in accordance with all manufacturers' recommendations and requirements.

3.3 CONNECTIONS

- A. Ground equipment according to Division 26 Section "Grounding and Bonding."
- B. Connect wiring according to Division 26 Section "Conductors and Cables."

3.4 IDENTIFICATION

- A. Identify system components according to Division 26 Section "Electrical Identification."

3.5 FIELD QUALITY CONTROL

- A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect, test, and adjust components, assemblies, and equipment installations, including connections. Report results in writing.
- B. Coordinate tests with tests for transfer switches and run them concurrently.
- C. Test instruments shall have been calibrated within the last 12 months, traceable to standards of NIST, and adequate for making positive observation of test results. Make calibration records available for examination on request.
- D. Operational Test: After electrical circuitry has been energized, start units to confirm proper motor rotation and unit operation.
- E. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- F. Exhaust Emissions Test: Comply with applicable government test criteria.
- G. Report results of tests and inspections in writing. Record adjustable relay settings and measured insulation resistances, time delays, and other values and observations. Attach a label or tag to each tested component indicating satisfactory completion of tests.
- H. Provide 4 hour load bank test at the site after completed installation. Record test results and provide copy to the Owner. Test shall simulate a 100% generator panel load.

- I. Fill generator with fuel before and after completion of all testing.

3.6 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain packaged engine generators. Refer to Division 1 Section "Demonstration and Training."

END OF SECTION 26 32 13

SECTION 323113

CHAIN LINK FENCES AND GATES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Chain-link fences.
2. Swing gates.

1.2 PREINSTALLATION MEETINGS

- ###### A. Preinstallation Conference: Conduct conference at **Project site location**.

1.3 ACTION SUBMITTALS

- ###### A. Product Data: In the form of manufacturer's technical data, specifications, and installation instructions for fence and gate posts, gates, gate hardware and accessories.
- ###### B. Shop Drawings: Showing location of fence, gates, each post and details of post installation, extension arms, gate swing, hardware and accessories.
1. Include plans, elevations, sections, details, and attachments to other work.
- ###### C. Samples: For each exposed product and for each color and texture specified.
- ###### D. Delegated-Design Submittal: For structural performance of chain-link fence and gate frameworks, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.4 INFORMATIONAL SUBMITTALS

- ###### A. Product certificates.
- ###### B. Product test reports.
- ###### C. Sample warranty.

1.5 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace components of chain-link fences and gates that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period: **15** years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design chain-link fence and gate frameworks.
- B. Structural Performance: Chain-link fence and gate frameworks shall withstand the design wind loads and stresses for fence height(s) and under exposure conditions indicated according to Florida Building Code Section 2224 High Velocity Hurricane Zones-Chain Link Fences.
 - 1. Design Wind Load: As indicated on Drawings.
 - a. Minimum Post Size: Determine according to ASTM F 1043 for post spacing not to exceed 10 feet for Material Group IA, ASTM F 1043, Schedule 40 steel pipe 3" nominal diameter embedded 3' into ground.
 - b. Minimum Post Size and Maximum Spacing: Determine according to CLFMI WLG 2445, based on mesh size and pattern specified.

2.2 FENCE FRAMEWORK

- A. Posts and Rails: ASTM F 1043 for framework, including rails, braces, and line; terminal; and corner posts. Provide members with minimum dimensions and wall thickness according to ASTM F 1043 or ASTM F 1083 based on the following:
 - 1. Fence Height: **72** inches
 - 2. Light-Industrial-Strength Material: Group IC-L, round steel pipe, electric-resistance-welded pipe. (to match existing)
 - a. Line Post: 2.375" in diameter for round pipe (FBC 2010 table 2224), 2.375 inches in diameter for schedule 40 pipe, and section shapes as indicated on drawings.

- b. End, Corner, and Pull Posts: 2.375 inches for round pipes, 2.375 inches for schedule 40 pipes, and section shapes as indicated on drawings.
 - c. Top rail shall be galvanized steel pipe 1 5/8" nominal diameter.
 - d. Bottom rail to be No. 7 tension wire with ties @ 12 " o.c. typ.
3. Heavy-Industrial-Strength Material: Group IA, round steel pipe, Schedule 40 Group IC, round steel pipe, electric-resistance-welded pipe, and section shapes as indicated on drawings. (to match existing).
- a. Line Post: 2.375" in diameter for round pipe (FBC 2010 table 2224), 2.375 inches in diameter for schedule 40 pipe, and section shapes as indicated on drawings.
 - b. End, Corner, and Pull Posts: 2.375 inches for round pipes, 2.375 inches for schedule 40 pipes, and section shapes as indicated on drawings.
 - c. Top rail shall be galvanized steel pipe 1 5/8" nominal diameter.
4. Horizontal Framework Members: Intermediate, top and bottom rails according to ASTM F 1043.
5. Brace Rails: ASTM F 1043.
6. Metallic Coating for Steel Framework:
- a. Type A zinc coating.
 - b. Type B zinc with organic overcoat.
 - c. External, Type B zinc with organic overcoat and internal, Type D zinc-pigmented coating.
 - d. Type C, Zn-5-Al-MM alloy coating.
 - e. Coatings: Any coating above.
7. Polymer coating over metallic coating.
- a. Color: Black, according to ASTM F 934.

2.3 CHAIN LINK FABRIC

- A. 1 3/4" mesh (twisted & barbed). Wire shall be 9 gauge galvanized. Barbs are to be installed upward.

2.4 TENSION WIRE

- A. Metallic-Coated Steel Wire: 0.177-inch in diameter, No.7 Gauge galvanized, marcelled tension wire according to ASTM A 817 or ASTM A 824, with the following metallic coating:
 - 1. Type I: Aluminum coated (aluminized).
 - 2. Type II: Zinc coated (galvanized) with minimum coating weight matching chain-link fabric coating weight.

3. Type III: Zn-5-Al-MM alloy with the following minimum coating weight matching chain-link fabric coating weight.
- B. Polymer-Coated Steel Wire: 0.177-inch-in diameter, tension wire according to ASTM F 1664, Class 2b over zinc coated steel wire.
 1. Color: Black, according to ASTM F 934.
- C. Tie wire and hog rings shall be No. 9 Gauge Galvanized Steel.

2.5 SWING GATES

- A. General: ASTM F 900 for gate posts, single and double swing gate types.
 1. Gate Leaf Width: As indicated on drawings.
 2. Framework Member Sizes and Strength: Per FBC 2017 - Section 2224 - High Velocity Hurricane Zones - Chain Link Fences; Table 2224 and as indicated on drawings.
- B. Pipe and Tubing:
 1. Zinc-Coated Steel: ASTM F 1043 and ASTM F 1083; manufacturer's standard protective coating and finish, Vinyl.
 2. Gate Posts: Round tubular steel
 3. Gate Frames and Bracing: Round tubular steel
- C. Frame Corner Construction: assembled with corner fittings.
- D. Hardware:
 1. Hinges: 90 degree, as indicated on drawings.
 2. Latch: Permitting operation from both sides of gate with provision for padlocking accessible from both sides of gate.
 3. Padlock and Chain: Keyed, Manufacturer's standard, Galvanized finish.
 4. Closer: Manufacturer's standard
 5. Cane bolt and related hardware for bi-swing gates.

2.6 FITTINGS

- A. Provide fittings according to ASTM F 626.
- B. Stretcher bar: 1/4"x3/4" typical vertically at post.
- C. Finish:

1. Metallic Coating for Pressed Steel or Cast Iron: Not less than 1.2 oz./sq. ft. of zinc.

a. Polymer coating over metallic coating.

D. Vinyl Coated Post Caps typical.

E. Tension bands as required.

2.7 GROUT AND ANCHORING CEMENT

A. Non-shrink, Nonmetallic Grout: Factory-packaged, non-staining, noncorrosive, nongaseous grout complying with ASTM C 1107/C 1107M. Provide grout, recommended in writing by manufacturer, for exterior applications.

B. Anchoring Cement: Factory-packaged, non-shrink, non-staining, hydraulic-controlled expansion cement formulation for mixing with water at Project site to create pourable anchoring, patching, and grouting compound. Provide formulation that is resistant to erosion from water exposure without needing protection by a sealer or waterproof coating, and that is recommended in writing by manufacturer for exterior applications.

2.8 PRIVACY SLATS

A. Fiber-Glass-Reinforced Plastic Slats: UV-light-stabilized fiber-glass-reinforced plastic, not less than 0.06 inch (1.5 mm) thick, sized to fit mesh specified for direction indicated[, with vandal-resistant fasteners and lock strips].

B. Tubular Polyethylene Slats: Minimum 0.023-inch (0.58-mm)-thick tubular polyethylene, manufactured for chain-link fences from virgin polyethylene with UV inhibitor, sized to fit mesh specified for direction indicated, with vandal-resistant fasteners and lock strips.

C. Hedge-Type Slats: UV-light-stabilized, flame-resistant, PVC "needles" woven into braided, galvanized wire core, sized to fit mesh specified for direction indicated.

D. Color: Black.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Do not begin installation before final grading is completed unless otherwise permitted by Architect.

3.2 PREPARATION

- A. Stake locations of fence lines, gates, and terminal posts. Do not exceed intervals of 500 ft. between stakes. Indicate locations of utilities, lawn sprinkler system, underground structures, benchmarks, and property monuments.

3.3 CHAIN-LINK FENCE INSTALLATION

- A. Install chain-link fencing according to ASTM F 567 and more stringent requirements specified
- B. Post Excavation: Drill or hand-excavate holes for posts to diameters and spacings indicated, in firm, undisturbed soil.
- C. Post Setting: Set posts in concrete at indicated spacing into firm, undisturbed soil.
 - 1. Verify that posts are set plumb, aligned, and at correct height and spacing, and hold in position during setting with concrete or mechanical devices.
 - 2. Concrete Fill: Place concrete around posts to dimensions indicated and vibrate or tamp for consolidation. Protect aboveground portion of posts from concrete splatter.
 - a. Exposed Concrete: Extend 2 inches above grade; shape and smooth to shed water.
 - b. Concealed Concrete: Place top of concrete 2 inches below grade to allow covering with surface material.
 - c. Posts Set into Sleeves in Concrete: Use steel pipe sleeves preset and anchored into concrete for installing posts. After posts are inserted into sleeves, fill annular space between post and sleeve with non-shrink, nonmetallic grout or anchoring cement, mixed and placed according to anchoring material manufacturer's written instructions. Finish anchorage joint to slope away from post to drain water.

- d. Posts Set into Holes in Concrete: Form or core drill holes to within 6 inches from bottom of foundation (FBC 2010-section 2224- Note 10) and 3/4 inch larger than OD of post. Clean holes of loose material, insert posts, and fill annular space between post and concrete with non-shrink, nonmetallic grout or anchoring cement, mixed and placed according to anchoring material manufacturer's written instructions. Finish anchorage joint to slope away from post to drain water.
3. Mechanically Driven Posts: Drive into soil to depth of 36 inches. Protect post top to prevent distortion.
- D. Terminal Posts: Install terminal end, corner, and gate posts according to ASTM F 567 and terminal pull posts at changes in horizontal or vertical alignment as indicated on Drawings. For runs exceeding 500 feet, space pull posts an equal distance between corner or end posts.
 - E. Line Posts: Space line posts uniformly at 10 feet o.c. Maximum per FBC 2010 Section 2224, Table 2224.
 - F. Tension Wire: Install according to ASTM F 567, maintaining plumb position and alignment of fence posts. Pull wire taut, without sags. Fasten fabric to tension wire with (No. 9 Gauge) hog rings of same material and finish as fabric wire, spaced a maximum of 24 inches o.c. Install tension wire in locations indicated before stretching fabric. Provide horizontal tension wire at the following locations:
 - 1. Extended along bottom of fence fabric.
 - G. Chain-Link Fabric: Apply fabric to outside of enclosing framework. Leave 1-inch bottom clearance between finish grade and surface and bottom selvage unless otherwise indicated. Pull fabric taut and tie to posts, rails, and tension wires. Anchor to framework so fabric remains under tension after pulling force is released.
- 3.4 ADJUSTING
- A. Gates: Adjust gates to operate smoothly, easily, and quietly, free of binding, warp, excessive deflection, distortion, nonalignment, misplacement, disruption, or malfunction, throughout entire operational range. Confirm that latches and locks engage accurately and securely without forcing or binding.
 - B. Lubricate hardware and other moving parts.

END OF SECTION 323113

SECTION 323119.13

DECORATIVE METAL SECURITY FENCES AND GATES

PART 1 - GENERAL

1.01 SUMMARY

- A. Section includes decorative aluminum gates and gate operators.

1.02 SUBMITTALS

- A. Product Data: For each type of gate indicated and for gate operators.
- B. Shop Drawings: For gates. Include plans, elevations, sections, details, and attachments to other work. Include wiring diagrams for power, signal, and control wiring.
- C. Samples: For fence infill panel material and for each color specified.
- D. Maintenance Data: For gate operators to include in maintenance manuals.

1.03 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. UL Standard: Provide gate operators that comply with UL 325.
- C. Emergency Access Requirements: Comply with requirements of authorities having jurisdiction for automatic gate operators on gates that must provide emergency access.
- D. Delegated Design: Design gate and supporting frame assemblies, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated. Design and fabricate exterior gate and supporting frame assemblies to resist wind load indicated and including large missile impact forces in accordance with the International Building Code and ASCE 7 and be operable after such an event of that magnitude.
 - 1. Gates and support frame assemblies shall be designed as a system with minimum properties and to resist minimum load requirements as indicated.

2. Design of the assemblies shall include associated hardware, connections of the hardware, anchorage components and supporting structural connections.
- E. Coordinate motor sizes and power requirements with electrical subcontractor; coordinate control requirements and equipment sizes with security subcontractor.

PART 2 - PRODUCTS

2.01 ALUMINUM

- A. Extrusions: ASTM B 221 (ASTM B 221M), Alloy 6063-T5.
- B. Tubing: ASTM B 429, Alloy 6063-T6.

2.02 STEEL AND IRON

- A. Plates, Shapes, and Bars: ASTM A 36/A 36M.
- B. Tubing: ASTM A 500, cold formed steel tubing.

2.03 MISCELLANEOUS MATERIALS

- A. Concrete: Normal-weight concrete complying with requirements in Division 3 Section "Cast-in-Place Concrete" with a minimum 28-day compressive strength of 3000 psi, 3-inch slump, and 1-inch maximum aggregate size.
- B. Nonshrink Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107 and specifically recommended by manufacturer for exterior applications.

2.04 GROUNDING MATERIALS

- A. Grounding Conductors: Bare, solid wire for No. 6 AWG and smaller; stranded wire for No. 4 AWG and larger.
 1. Material above Finished Grade: Copper.
 2. Material on or below Finished Grade: Copper.
- B. Grounding Connectors and Grounding Rods: Comply with UL 467.

2.07 DECORATIVE ALUMINUM MOTORIZED SLIDE GATES (Basis of Design)

- A. Characteristics: Horizontal **double**-slide cantilevered type gates fabricated from aluminum extrusions and aluminum pickets.
1. Frames: Square and rectangular extruded tubes.
 2. Type: **double** leaf, cantilever slide with external roller assemblies.
 3. Pickets: 1" x 1" @ 5" O.C.
 4. Fasteners: Manufacturer's standard tamperproof, corrosion-resistant, colorcoated fasteners matching gate components.
 5. Fabrication: Assemble gates by welding, with welded frame corner construction and adjustable truss rods.
 6. Finish: Baked enamel or powder coating; color as scheduled or, in not indicated, custom color as selected by Architect.
- B. Basis-of-Design Manufacturer: Tymetal Corp., 678 Wilbur Avenue, Greenwich, NY 12834 – (800) 328 – 4283. Subject to compliance with requirements specified, provide products by either the named manufacturer or a comparable product by another manufacturer.

2.08 SLIDE GATE OPERATORS

- A. Characteristics: Factory-assembled hydraulic type automatic operating system designed for gate size, type, weight, and operation frequency. Provide operation control system with characteristics suitable for Project conditions, interface inputs for remote-control stations, safety devices, and weatherproof enclosures; coordinate electrical requirements with building electrical system.
1. Provide operator with UL-approved components.
 2. Provide electrical devices and wiring that comply with requirements specified in Division 26 Sections.
 3. Driver: Dual hydraulic motors with direct drive friction wheels.
 4. Gate Speed: Minimum 26 inches per second.
 5. Frequency of Use: 25 cycles per hour.
 6. Duty: Heavy duty, commercial/industrial.
 7. Electrical Power: Coordinate with Electrical building service.
 8. Remote Controls: Coordinate control interface with security access contractor.
 9. Obstruction Detection Devices: Provide each motorized gate with automatic edge safety sensor(s) for full height of gate. Activation

of sensor(s) causes operator to immediately reverse gate in both opening and closing cycles and hold until clear of obstruction.

10. Infrared Sensors: Provide sensor beams on each side of gates. Activation of sensor(s) causes operator to immediately reverse gate in both opening and closing cycles and hold until clear of obstruction.
11. Warning Module: Both audio and visual, ADA/ABA-compliant, strobe-light alarm that activate when obstruction detection devices cause reversing of gate.
12. Instructional, Safety, and Warning Labels and Signs: According to UL 325.

- B. Basis-of-Design Manufacturer/Product: SlideDriver 50VF2 by HySecurity. Subject to compliance with requirements specified, provide either the named product or a comparable product by another manufacturer.

2.09 ALUMINUM FINISHES

- A. Baked-Enamel or Powder-Coat Finish: AAMA 2603 except with a minimum dry film thickness of 2 mils. Color and Gloss: As selected by Architect from manufacturer's full range.

2.10 PEDESTRIAN SWING GATE MANUFACTURERS:

- A. The Pedestrian Swing Gate Systems shall be manufactured by Tymetal Corp., 678 Wilbur Avenue, Greenwich, NY 12834 – (800) 328 – 4283.
- B. Approved substitution – All other pedestrian swing gate systems must be submitted to the design team in accordance with substitution requirements as set forth in the general provisions of the project manual for approval prior to the bid date. Products submitted after the bid date will not be approved.
- C. Gate manufacturer shall provide independent certification as to the use of a documented Welding Procedure Specification and Procedure Qualification Record to insure conformance to the AWS D1.1 / D1.1M Structural Welding Code – Steel. Upon request, Individual Certificates of Welder Qualification documenting successful completion of the requirements of the AWS D1.1 / D1.1M code shall also be provided. See 1.08 A.2.
- D. Store gate frames on building site, in an upright position, under cover, on wood sills or floors, and in a manner that prevents rust or damage. Ventilate canvas or plastic covers to prevent moisture traps.

END OF SECTION