



**CONTRACT DOCUMENTS & TECHNICAL SPECIFICATIONS
ADDENDUM NO. 2**

**Department of Natural Resources and Environmental Control
Delaware Mosquito Control Section**

**Delaware Mosquito Control Office and Site Improvements
DNREC Fish and Wildlife Contract No. FW-5-17
DFM Project No. MJ400300002**

ADDENDUM NO. 2

Project Name: Delaware Mosquito Control Section
Office and Site Improvements

DFM Project No.: MJ400300002

Contract No.: FW-5-17

Date of Issue: June 15, 2020

Notice No. 1: Attach this addendum to the Project Manual for this project. It modifies and becomes part of the Bidding Documents. Work or material not specifically mentioned herein is to be as described in the main body of the specifications and as shown on the drawings.

Bids Due: June 23, 2020, 1:15 PM EST

Bids will be received by the State of Delaware, Office of Management and Budget, Division of Facilities Management, by either electronic mail or by mail as follows. Bid submissions submitted by electronic mail must be sent to DFM-BID@delaware.gov and a hard copy of the entire submission shall be sent by mail within five (5) business days of the bid submission deadline.

Sealed bids shall be mailed and addressed to the following:

Division of Facilities Management
Thomas Collins Building,
540 S. DuPont Highway, Suite 1 (Third Floor)
Dover, DE 19901

Sealed bids shall be marked as follows:

OMB/DFM CONTRACT NO. MJ4003000002
(DNREC, Division of Fish and Wildlife Number FW-5-17)
**“DNREC, DIVISION OF FISH AND WILDLIFE MOSQUITO CONTROL
BUILDING SEALED BID - DO NOT OPEN.”**

Important Note: Email submission to DFM must not include “Request Deliver Receipt” or “Request Read Receipt.” Emails with these tracking requests will not be delivered.

Bidder bears the risk of late delivery.



GENERAL:

1. Prevailing wages for Building Construction effective March 13, 2020 apply to the project. Wage rates are included on the State of Delaware Bid Solicitation Directory and are attached herein.
2. The deadline for RFI's will be extended to Wednesday June 17, 2020 at 12:00 noon.
3. Site visits have been scheduled for Monday June 15, 2020. Please follow the schedule in the notification that was provided on Thursday June 11, 2020.

QUESTIONS:

1. **Question:** On Sheet A-102, Finish Schedule, Room 105 thru Room 111 the room names are mislabeled as "Carpet", the floor finishes are called out as "VCT". Will carpet or VCT be required in those offices?
Response: Finish Schedule is revised to include proper room names and floor finishes. See revised drawing A-102, attached.
2. **Question:** Regarding Door 100, the specified door is 2.25" thick and the door schedule indicates 1.75". This will affect the hardware if correct thickness is not picked up.
Response: Door shall be as specified. Door Schedule is revised to include proper thickness at Door 100. See revised drawing A-401, attached.
3. **Question:** In Hardware Set 01, the office lockset and removable mullion are not compatible with each other or something needs added to lock the inactive leaf. Would rim exit devices be required?
Response: Revise hardware set to include rim-type exit devices in lieu of locksets. Both leafs active. See revised Spec Section 08 71 00, attached.
4. **Question:** On Sheet C-1.00, Hazmat Notes #2, Indicates "contractor shall have one responsible person.....". Is that intended to be an employee of the general contractor? Site sub-Contractor?
Response: The contractor shall have 1 responsible person who has successfully completed the OSHA HAZWOPER 40-hour training during intrusive activities. ALL other persons engaged in intrusive activities shall at a minimum, successfully completed the 24-hour HAZWOPER training program. The HAZWOPER training requirement applies to "INTRUSIVE ACTIVITIES".
5. **Question:** Drawing A301 detail 2, calls for vented insulation roof panel R-25 minimum, no manufactures are shown in the specifications, can a manufacture be provided?
Response: Approved manufacturers include the following:
 - Hunter Panels, Cool-Vent
 - GAC, Cornell, ThemaCal 1
 - Kurt Building Materials, TechVent Pro Polyiso
 - Approved Equal



6. **Question:** On Drawing A-102 Room 104 at the stairs, could details and specifications be provided?
Response: Access to equipment mezzanine will be by pre-manufactured ship ladder. Ladder shall have minimum tread depth of 5", maximum riser height of 9-1/2" with handrails at both sides and upper landing with 20" minimum between handrails. Approved manufactures include the following:
- Precision Ladders, LLC
 - O'Keeffe's Inc.
 - FSI Industries
 - Industrial Products
 - Approved Equal
7. **Question:** Drawing A-104 shows office furniture, is this by the owner?
Response: All furniture is by Owner.
8. **Question:** Will owner pick up impact fees, if any?
Response: Contractor shall be responsible for all fees associated with building permits and trade permits.
9. **Question:** Will a Simplex fire alarm system be acceptable as a substitute for the DRNEC Division of Fish and Wildlife Mosquito Control Building Project in Milford, DE?
Response: Simplex is a listed manufacture in Spec Section 28 46 00, and may be supplied, subject to compliance with the requirements of the specification.
10. **Question:** Is the intent to tap the line side of the existing safety witch and add a 400A disconnect by the existing safety switch to feed the new building?
Response: Existing safety switch will not be used. Additional detail is provided. See updated electrical drawings.
11. **Question:** What is the feeder to the deer cooler tying into at the existing disconnect location?
Response: Deer cooler will be fed from panel at new building. See updated electrical drawings.
12. **Question:** Can contact information be provided for the fire alarm vendor specified?
Response: This is a new fire alarm system of the new building.
13. **Question:** No circuit designation or breaker is shown for the grinder pump.
Response: Grinder pump will be fed from panel at new building. See updated electrical drawings.
14. **Question:** Drawing E-500 shows duct bank. Do all underground conduits need to be encased in concrete. If so, does concrete need to be dyed red for electric? Is Verizon conduit to be encased in concrete to pedestal and dyed orange?
Response: All underground conduits need to be encased in concrete. No dyeing is required.
15. **Question:** Drawing EL101 fixture type A says fixture to be recessed, please advise if the fixtures are to be surface mounted with surface mount kits.
Response: Fixture Type A is revised and will be surfaced mounted. See updated electrical drawings.



16. **Question:** Sheet A-101 Foundation Plan, notes both poured concrete walls and CMU walls. All sections and details indicate CMU foundation walls. Can you please clarify?

Response: Provide CMU foundation at building as indicated in detail 2A101.

17. **Question:** At the pre-bid meeting there was mention of SB48 being in effect for this project. It is our understanding that this regulation may have gone into effect without a mechanism for contractors to meet the requirement. We also didn't see any language in the bid documents regarding requirements. Can you please clarify?

Response: Requirements of SB48 do not apply to this project.

18. **Question:** Does a firm need to be on the certified contractors list to participate on this contract?

Response: All contractors shall be licensed in the State of Delaware.

DRAWINGS:

Sheet A-101 – FOUNDATION PLAN AND DETAILS (Drawing is not reissued at this time.)

1. Two notes at drawing 1/A-101 indicate a concrete foundation wall. Revise the notes to read as follows:
8" CMU FOUNDATION WALL

Sheet A-102 – FLOOR PLANS (Revised drawing A102 is attached.)

1. Revise floor finish at rooms 105, 106, 107, 108, 109, 110, 111 and 115.

Sheet A-201 – BUILDING ELEVATIONS (Drawing is not reissued at this time.)

1. Revised note at end wall knock-out panels to read as follows:
FRAME OUT END WALL TO ALLOW FOR KNOCKOUT PANEL. PROVIDE PERIMETER FRAMING AROUND KNOCK-OUT PANEL WITH JOINT IN SHEATHING. PROVIDE JOINT AT SIDING WITH BACK-TO-BACK J-TRIM AND SEALANT. ALIGN SIDING JOINT WITH SHEATHING JOINT.

Sheet A-301 – SECTIONS AND DETAILS (Drawing is not reissued at this time.)

1. At BUILDING SECTION 1/A-301 add note at wood truss to read as follows:
TRUSS DESIGNER TO INCORPORATE LATERAL GUARDRAIL LOADING INTO TRUSS DESIGN, INCLUDE A 200LB HORIZONTAL POINT LOAD AT RAILING LOCATIONS.
2. At WALL SECTIONS 2, 2-ALT, 3 and 3-ALT, add note to identify sheathing below the vented insulated roof panel to read as follows:
5/8" EXTERIOR GRADE, T&G PLYWOOD SHEATHING. SCREW TO TRUSSES.

Sheet A-401 – ROOF PLAN, DOOR SCHEDULE AND DETAILS (Revised drawing A-401 is attached.)

1. At DOOR SCHEDULE, revised thickness of door 100 to be 2-1/4".
2. Revise ROOF PLAN 1/A-401 to include additional framing notes.
3. Add the following details:
 - 2/A-401 TYP. GABEL END (TRUSSED ROOF)
 - 3/A-401 TYP. ROOF CONSTRUCTION
 - A/A-401 PERMANENT DIAG. BRACE @ CONTINUOUSE PERIM. LAT. BRACE
 - B/A-401 PERMANENT BOTTOM CHORD BRACING



Sheet E-100 – ELECTRICAL SITE PLAN (Revised drawing E-100 is attached.)

1. Added a partial demolition site plan to show circuit breakers removed from pole next to deer cooler.
2. Added a partial demolition site plan to show panel SEP being removed with wiring retained.
3. Added a partial site plan to show new power and wiring for light pole near chemical storage building. Weather proof light switch added at light pole.
4. Moved duct bank details over from E-500 to E-100. Adjusted conduit sizes in duct bank details and added a third duct bank detail.
5. Changed wire size connecting between panel PLA and PLALC.
6. Added quazite boxes for UG conduit.
7. Added existing panel NP1 and new panel MDP. Changed power to come from MDP instead of safety switch.
8. Adjusted duct bank references.
9. Removed power to deer cooler coming from existing safety switch. Added wire and conduit for deer cooler to come from panel PLALC. Changed disconnect switch size for deer cooler.

Sheet EP101 – ELECTRICAL FLOOR POWER PLAN (Revised drawing EP101 is attached.)

1. At Conference Room 115, revised devices noted to be ceiling mounted to be set at floor and noted the following:
UNDERCARPET WIREWAY SYSTEM INCLUDING ALL COMPONENTS REQUIRED FOR COMPLETE INSTALLATION. CONNECTRAC 2.7 OR EQUAL.

Sheet E-500 – ELECTRICAL DETAILS (Revised drawing E-500 is attached.)

1. Removed duct bank details (now in E-100)
2. Changed grounding detail to have neutral come from new MDP panel instead of existing safety switch. Added note to differentiate grounding detail between panel PLA and panel MDP.

Sheet E-600 – ELECTRICAL SINGLE LINE DIAGRAM AND SCHEDULES (Revised drawing E-600 is attached.)

1. Adjusted and expanded single line diagram to show more detail. New equipment/wiring is bolded to clarify existing versus new. Added note to use existing wires from original panel SEP and connect them to new circuit breakers. Adjusted wire size between panels PLA and PLALC.
2. Added new panel schedule for panel MDP with notes.
3. Adjusted main circuit breaker in panel PLA to 250A.
4. Adjusted KVA rating of AHU's to 4.50 per phase.
5. Added total connected load ratings for panels PLA and PLALC.
6. Adjusted note in panel PLA to proper wire size for panel PLALC.
7. Added new circuit breakers and wire size notes in panel PLALC for the deer cooler, light pole, and grinder pumps.
8. Updated light fixtures "A" in the Lighting Fixture Schedule to be low profile surface mount 2x2 fixtures.



SPECIFICATIONS:

00 73 46 PREVAILING WAGE DETERMINATION (Revised spec section 00 73 36 is attached.)

1. Remove 2019 Wage Rates and insert 2020 Wage Rates.

08 71 00 DOOR HARDWARE (Revised spec section 08 71 00 is attached.)

1. Revise Hardware Set 01.

ADDITIONAL INFORMATION:

None

END

WAGE RATE DETERMINATION SCHEDULE

The Delaware Department of Labor Division of Industrial Affairs has established the category and associated prevailing wage rate for this project. The project approved prevailing wage rate determination schedule follows.

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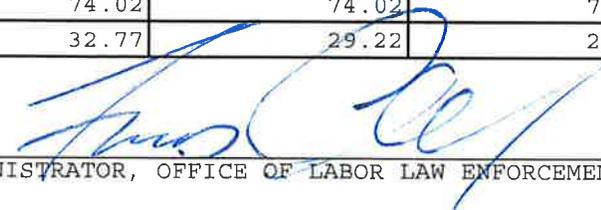
STATE OF DELAWARE
DEPARTMENT OF LABOR
DIVISION OF INDUSTRIAL AFFAIRS
OFFICE OF LABOR LAW ENFORCEMENT
PHONE: (302) 761-8200

Mailing Address:
4425 North Market Street
3rd Floor
Wilmington, DE 19802

Located at:
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3rd Floor
Wilmington, DE 19802

PREVAILING WAGES FOR BUILDING CONSTRUCTION EFFECTIVE MARCH 13, 2020

CLASSIFICATION	NEW CASTLE	KENT	SUSSEX
ASBESTOS WORKERS	24.35	29.99	43.65
BOILERMAKERS	72.91	36.99	54.38
BRICKLAYERS	57.94	57.94	57.94
CARPENTERS	56.46	56.46	44.83
CEMENT FINISHERS	76.91	53.57	23.61
ELECTRICAL LINE WORKERS	48.43	41.53	31.66
ELECTRICIANS	72.49	72.49	72.49
ELEVATOR CONSTRUCTORS	99.43	68.69	34.03
GLAZIERS	77.25	77.25	60.35
INSULATORS	59.68	59.68	59.68
IRON WORKERS	67.70	67.70	67.70
LABORERS	49.20	49.20	49.20
MILLWRIGHTS	76.83	76.83	61.93
PAINTERS	53.71	53.71	53.71
PILEDRIVERS	79.62	41.92	33.90
PLASTERERS	31.79	31.79	23.56
PLUMBERS/PIPEFITTERS/STEAMFITTERS	72.05	56.29	62.21
POWER EQUIPMENT OPERATORS	73.29	73.29	73.29
ROOFERS-COMPOSITION	25.58	25.24	23.05
ROOFERS-SHINGLE/SLATE/TILE	19.59	23.29	18.32
SHEET METAL WORKERS	75.03	75.03	75.03
SOFT FLOOR LAYERS	54.59	54.59	54.59
SPRINKLER FITTERS	61.83	61.83	61.83
TERRAZZO/MARBLE/TILE FNRS	66.75	66.75	66.75
TERRAZZO/MARBLE/TILE STRS	74.02	74.02	74.02
TRUCK DRIVERS	32.77	29.22	22.75

CERTIFIED: 03/25/2020 BY: 
ADMINISTRATOR, OFFICE OF LABOR LAW ENFORCEMENT

NOTE: THESE RATES ARE PROMULGATED AND ENFORCED PURSUANT TO THE PREVAILING WAGE REGULATIONS ADOPTED BY THE DEPARTMENT OF LABOR ON APRIL 3, 1992.

CLASSIFICATIONS OF WORKERS ARE DETERMINED BY THE DEPARTMENT OF LABOR. FOR ASSISTANCE IN CLASSIFYING WORKERS, OR FOR A COPY OF THE REGULATIONS OR CLASSIFICATIONS, PHONE (302) 451-3423.

NON-REGISTERED APPRENTICES MUST BE PAID THE MECHANIC'S RATE.

PROJECT: FW-5-17 Delaware Mosquito Control Section Site Improvements , Kent County

**SECTION 08 71 00
DOOR 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 the following:
 - 1. Commercial door hardware for the following:
 - a. Swinging doors.
- B. Related Sections include the following:
 - 1. Division 8 Section "Steel Doors and Frames"
 - 2. Division 8 Section "Aluminum Entrances and Storefronts"

1.3 SUBMITTALS

- A. See Section 01 30 00 – Administrative Requirements, for submittal procedures.
- B. Qualifications: Submit manufacturer's qualifications.
- C. Product Data: Include installation details, material descriptions, dimensions of individual components and profiles, and finishes.
- D. Shop Drawings: Details of electrified door hardware, indicating the following:
 - 1. Wiring Diagrams: Detail wiring for power, signal, and control systems and differentiate between manufacturer-installed and field-installed wiring. Include the following:
 - a. System schematic.
 - b. Point-to-point wiring diagram.
 - c. Riser diagram.
 - d. Elevation of each door.
 - 2. Detail interface between electrified door hardware and access fire alarm, control, and security building control system.
- E. Samples for Initial Selection: Manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available for each type of door hardware indicated.
 - 1. Samples will be returned to Contractor. Units that are acceptable and remain undamaged through submittal, review, and field comparison process may, after final

check of operation, be incorporated into the Work, within limitations of keying requirements.

- F. 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.
 - a. Organize door hardware sets in same order as in the Door Hardware Schedule at the end of Part 3.
 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.
 - c. Fastenings and other pertinent information.
 - d. Location of each 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. Description of each electrified door hardware function, including location, sequence of operation, and interface with other building control systems.
 - 1) Sequence of Operation: Include description of component functions that occur in the following situations: authorized person wants to enter; authorized person wants to exit; unauthorized person wants to enter; unauthorized person wants to exit.
 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.
 5. Submittal Sequence: Submit initial draft of final schedule along with essential Product Data to facilitate the fabrication of other work that is critical in the Project construction schedule. Submit the final Door Hardware Schedule after Samples, Product Data, coordination with Shop Drawings of other work, delivery schedules, and similar information has been completed and accepted.
- G. Keying Schedule: Prepared by or under the supervision of supplier, detailing Owner's final keying instructions for locks. Include schematic keying diagram and index each key set to unique door designations.
- H. Product Certificates: Signed by manufacturers of electrified door hardware certifying that products furnished comply with requirements.
1. Certify that door hardware approved for use on types and sizes of labeled fire doors complies with listed fire door assemblies.
- I. Qualification Data: For firms and persons specified in "Quality Assurance" Article.

1. Include lists of completed projects with project names and addresses of architects and owners, and other information specified.
- J. Product Test Reports: Based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified testing agency, indicating current products comply with requirements.
- K. Maintenance Data: For each type of door hardware to include in maintenance manuals specified in Division 1.
- L. Warranties: Special warranties specified in this Section.

1.4 QUALITY ASSURANCE

- A. Architectural Hardware Consultant Qualifications: A person who is currently certified by the Door and Hardware Institute as an Architectural Hardware Consultant and who is experienced in providing consulting services for door hardware installations that are comparable in material, design, and extent to that indicated for this Project.
 1. Electrified Door Hardware Qualifications: Experienced in providing consulting services for electrified door hardware installations.
- B. Source Limitations: Obtain each type and variety of door hardware from a single manufacturer, unless otherwise indicated.
 1. Provide electrified door hardware from same manufacturer as mechanical door hardware, unless otherwise indicated. Manufacturers that are listed to perform electrical modifications, by a testing and inspecting agency acceptable to authorities having jurisdiction, are acceptable.
- C. Regulatory Requirements: Comply with provisions of the following:
 1. Where indicated to comply with accessibility requirements, comply with Americans with Disabilities Act (ADA), "Accessibility Guidelines for Buildings and Facilities (ADAAG)," ANSI A117.1, FED-STD-795, "Uniform Federal Accessibility Standards," as follows:
 - a. Handles, Pulls, Latches, Locks, and other Operating Devices: Shape that is easy to grasp with one hand and does not require tight grasping, tight pinching, or twisting of the wrist.
 - b. Door Closers: Comply with the following maximum opening-force requirements indicated:
 - 1) Interior Hinged Doors: 5 lbf (22.2 N) applied perpendicular to door.
 - 2) Sliding or Folding Doors: 5 lbf (22.2 N) applied parallel to door at latch.
 - 3) Fire Doors: Minimum opening force allowable by authorities having jurisdiction.
 - c. Thresholds: Not more than 1/2 inch (13 mm) high, Not more than 3/4 inch (19 mm) high for exterior sliding doors. Bevel raised thresholds with a slope of not more than 1:2.
 2. NFPA 101: Comply with the following for means of egress doors:
 - a. Latches, Locks, and Exit Devices: Not more than 15 lbf (67 N) to release the latch. Locks shall not require the use of a key, tool, or special knowledge for operation.

- b. Delayed-Egress Locks: Lock releases within 15 seconds after applying a force not more than 15 lbf (67 N) for not more than 3 seconds.
 - c. Door Closers: Not more than 30 lbf (133 N) to set door in motion and not more than 15 lbf (67 N) to open door to minimum required width.
 - d. Thresholds: Not more than 1/2 inch (13 mm) high.
 3. Electrified Door Hardware: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction.
 - D. Fire-Rated Door Assemblies: Provide door hardware for 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 NFPA 252.
 1. Test Pressure: Test at atmospheric pressure.
 - E. Keying Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Meetings." Incorporate keying conference decisions into final keying schedule after reviewing door hardware keying system including, but not limited to, the following:
 1. Function of building, flow of traffic, purpose of each area, degree of security required, and plans for future expansion.
 2. Preliminary key system schematic diagram.
 3. Requirements for key control system.
 4. Address for delivery of keys.
 - F. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Meetings."
 - G. All Electric Door Hardware shall be furnished and installed by the General Contractor. All Electric Door Hardware shall be wired by the Electrical Contractor. Both the Electrical & General Contractor shall meet and coordinate all work before proceeding.
 - H. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Meetings." Review methods and procedures related to electrified door hardware including, but not limited to, the following:
 1. Inspect and discuss electrical roughing-in and other preparatory work performed by other trades.
 2. Review sequence of operation for each type of electrified door hardware.
 3. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
 4. Review required testing, inspecting, and certifying procedures.
- 1.5 DELIVERY, STORAGE, AND HANDLING
 - A. Inventory door hardware on receipt and provide secure lock-up for door hardware delivered to Project site.
 - B. Tag each item with Door Number related to the final Approved Door Hardware Schedule, and include basic installation instructions with each item or package.
 - C. Deliver keys to manufacturer of key control system, or Owner as Directed.
 - D. Deliver keys to Owner by registered mail or overnight package service.

1.6 COORDINATION

- A. Coordinate layout and installation of recessed pivots and closers with floor construction. Cast anchoring inserts into concrete. Concrete, reinforcement, and formwork requirements are specified in Division 3 Section "Cast-in-Place Concrete."
- B. Templates: Obtain and distribute to the parties involved templates for doors, frames, and other work specified to be factory prepared for installing door hardware. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.
- C. Electrical System Roughing-in: Coordinate layout and installation of electrified door hardware with connections to power supplies, fire alarm system and detection devices, access control system, security system, and building control system.

1.7 WARRANTY

- A. General Warranty: 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. Special Warranty: Written warranty, executed by manufacturer agreeing to repair or replace components of door hardware that fail in materials or workmanship within specified warranty period. Failures include, but are not limited to, the following:
 - 1. Structural failures including excessive deflection, cracking, or breakage.
 - 2. Faulty operation of operators and door hardware.
 - 3. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
- C. Warranty Period for Locksets: Three, (3) years from date of Substantial Completion, unless otherwise indicated.
- D. Warranty Period for Manual Closers: Ten, (10) years from date of Substantial Completion, unless otherwise indicated.
- E. Warranty Period for Exit Devices: Three, (3) years from date of Substantial Completion, unless otherwise indicated.

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.
- B. Maintenance Service: Beginning at Substantial Completion, provide six months' full maintenance by skilled employees of door hardware Installer. Include quarterly preventive maintenance, repair or replacement of worn or defective components, lubrication, cleaning, and adjusting as required for proper door hardware operation. Provide parts and supplies as used in the manufacture and installation of original products.
- C. Engage a factory authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain door hardware and door hardware finishes.

PART 2 - PRODUCTS

2.1 SCHEDULED DOOR HARDWARE

- A. General: Provide door hardware for each door to comply with requirements in this Section, door hardware sets indicated in door and frame schedule, and the Door Hardware Schedule at the end of Part 3.
 - 1. Door Hardware Sets: Provide quantity, item, size, finish or color indicated, and named manufacturer's products. Retain subparagraph below for electrified door hardware.
 - 2. Sequence of Operation: Provide electrified door hardware function, sequence of operation, and interface with other building control systems indicated.
- B. Designations: Requirements for design, grade, function, finish, size, and other distinctive qualities of each type of door hardware are indicated in the Door Hardware Schedule 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 minimum requirements. Manufacturers' names are abbreviated in the Door Hardware Schedule.
 - 2. References to BHMA Standards: Provide products complying with these standards and requirements for description, quality, and function.

2.2 HINGES

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Butt Hinges:
 - a. Stanley Commercial Hardware
 - b. Hager Hinge Company, Inc.
 - c. Bommer Hinge Company, Inc.
 - 2. Continuous Hinges:
 - a. Hager Hinge Company, Inc. (Roton #780-224HD)
 - b. Marker Hinge Company, Inc. (#FM2011)
 - c. McKinney Hinge Company, Inc. (#MCK_24HD)
- B. Standards: Comply with the following:
 - 1. Hinges ANSI/BHMA Standard A156.1 Grade 1
 - 2. Continuous Hinges ANSI/BHMA Standard A156.26 Grade 1
- C. Template Requirements: Except for hinges and pivots to be installed entirely (both leaves) into wood doors and frames, provide only template-produced units.
- D. Concealed bearings are made from engineered polymer material with PTFE and Aramid fiber; bearing is maintenance free, no oil, no grease.
- E. Butt hinges equipped with easily seated, non-rising pin. Hole in bottom of pin enables quick pin removal for ease of installation.
- F. Continuous hinge material to be 14 gauge, 304 stainless steel
- G. Continuous hinge steel pin to be .25 diameter, 304 stainless steel

- H. Continuous hinge exterior barrel diameter .438 (7/16)
- I. Continuous hinge knuckle to be 2", including split nylon bearing at each separation for a quiet, smooth, self-lubricating operation
- J. All hinges to carry Warnock Hersey Int. or UL for fire rated doors and frames up to 3 hours
- K. Continuous hinges to have Symmetrically templated hole pattern
- L. Continuous hinge to have a 10 year Warranty
- M. Hinge Weight: Unless otherwise indicated, provide the following:
 - 1. Supports weights up to 600lbs.
- N. Hinge Base Metal: Unless otherwise indicated, provide the following:
 - 1. Exterior Continuous Hinges: Stainless steel, with stainless-steel pin,
 - 2. Interior Continuous Hinges: Stainless steel, with stainless-steel pin.
 - 3. Continuous Hinges for Fire-Rated Assemblies: Stainless steel, with stainless-steel pin.
 - 4. Exterior Butt Hinges: Stainless Steel or Brass or Bronze
 - 5. Interior Butt Hinges: Steel or Brass or Bronze
- O. Hinge Options: Comply with the following where indicated in the Door Hardware Schedule or on Drawings:
 - 1. Hospital Tips: Slope ends of hinge barrel.
 - 2. Maximum Security Pin: Fix pin in hinge barrel after it is inserted.
 - 3. Nonremovable 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 following applications:
 - a. Outswinging exterior doors.
 - b. Outswinging corridor doors with locks.
- P. Continuous-Geared Aluminum Hinges: Minimum 0.120-inch- (3.0-mm-) thick, hinge leaves with minimum overall width of 4 inches (100 mm); fabricated to full height of door and frame. Finish components after milling and drilling are complete. Fabricate hinges to template screw locations.
- Q. All geared hinges to be heavy-gauge aluminum alloy with solid support blocks of self-lubricating DELRIN.
- R. All geared hinges to meet Dynamic and static load test for compliance with ANSI A156.1, (BHMA) for 350,000 cycles at 15 cycles per minute.
- S. Fasteners: Comply with the following:
 - 1. Machine Screws: For metal doors and frames. Install into drilled and tapped holes.
 - 2. Wood Screws: For wood doors and frames.
 - 3. Threaded-to-the-Head Wood Screws: For fire-rated wood doors.
 - 4. Screws: Phillips flat-head screws; machine screws drilled and tapped holes for metal doors, wood screws for wood doors and frames. Finish screw heads to match surface of hinges.

2.3 LOCKS AND LATCHES

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Mechanical Locks and Latches:
 - a. Assa / Abloy Sargent 10-Line x LP Trim.
- B. Standards: Comply with the following:
 - 1. Bored Locks and Latches: BHMA A156.2.
- C. Bored Locks: ANSI A156.2, BHMA Series 4000, Grade 1, and is UL Listed.
- D. Certified Products: Provide door hardware listed in the following BHMA directories:
 - 1. Mechanical Locks and Latches: BHMA's "Directory of Certified Locks & Latches."
- E. Lock Trim: Comply with the following:
 - 1. Lever: Cylindrical Locks & Latches, Zinc material with a minimum wall thickness of .060
 - 2. Dummy Trim: Match lever lock trim and escutcheons.
- F. Lock Functions: Function numbers and descriptions indicated in the Door Hardware Schedule comply with the following:
 - 1. Bored Locks: BHMA A156.2.
- G. Lock Throw: Comply with testing requirements for length of bolts to comply with labeled fire door requirements, and as follows:
 - 1. Bored Locks: Minimum 9/16-inch latch bolt throw.
 - 2. Deadbolts: Minimum 1-inch bolt throw.
- H. Backset: 2-3/4 inches (70 mm), unless otherwise indicated.
- I. Cylindrical Locks & Latches to have solid shank with no opening for access to keyed lever keeper.

2.4 DOOR BOLTS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Flush Bolts:
 - a. Burns Manufacturing Company, Inc.
 - b. Triangle Brass Manufacturing Company, Inc.
- B. Standards: Comply with the following:
 - 1. Automatic and Self-Latching Flush Bolts: BHMA A156.3.
 - 2. Manual Flush Bolts: BHMA A156.16.
- C. Flush Bolts: BHMA Grade 1, designed for mortising into door edge.

- D. Bolt Throw: Comply with testing requirements for length of bolts to comply with labeled fire door requirements, and as follows:

- 1. Mortise Flush Bolts: Minimum 3/4-inch (19-mm) throw.

2.5 EXIT DEVICES

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Von Duprin, Inc. 98-Series
 - 2. Assa / Abloy Sargent 80- Series
 - 3. Assa / Abloy Yale 7000 - Series
- B. Standard: BHMA A156.3.
 - 1. BHMA Grade: Grade 1
- C. Certified Products: Provide exit devices listed in BHMA's "Directory of Certified Exit Devices."
- D. Panic Exit Devices: Listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for panic protection, based on testing according to UL 305.
- E. Fire Exit Devices: Complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire and panic protection, based on testing according to UL 305 and NFPA 252.
- F. Warranty: Exit device to have published Five (5) Year Warranty.
- G. Exit device shall be "touch pad" type with a touch pad that shall extend a minimum of one half (1/2) of the door width.
- H. Exit device shall have a one-quarter (1/4) gap between the face of the door and the touch bar channel eliminating the need for shims or cutting away the glass molding.
- I. Exit device lock stile chassis shall be investment cast steel. Stamped steel units will not be accepted. All device latch bolts shall be stainless steel and shall be deadlocking type.
- J. Exit device strikes shall be adjustable type investment cast stainless steel.
- K. Exit device shall include sound reduction dampening for both depression and extension of the touch pad.
- L. Exit device end cap shall be all metal and secured with a bracket that interlocks both at the touch bar channel base and hinge side filler to prevent end cap "peel-back".
- M. All exposed surfaces of the exit device housing shall be no less than 14 gauge brass or bronze; or no less than 16 gauge stainless steel. Aluminum housing type exit devices are not acceptable.
- N. Dummy Push Bar: Nonfunctioning push bar matching functional push bar.
 - 1. Operation: Rigid

- O. Outside Trim: Lever, Lever with cylinder, Pull, Pull with cylinder, material and finish to match locksets, unless otherwise indicated.
 - 1. Match design for locksets and latchsets, unless otherwise indicated.

2.6 CYLINDERS AND KEYING

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Cylinders:
 - a. Assa / Abloy Sargent.
- B. Standards: Comply with the following:
 - 1. Cylinders: BHMA A156.5.
- C. Cylinder Grade: BHMA Grade 1, Cylinders: Manufacturer's standard tumbler type, constructed from brass or bronze, stainless steel, or nickel silver, and complying with the following:
 - 1. Number of Pins: Seven.
 - 2. Mortise Type: Threaded cylinders with rings and straight- or clover-type cam.
 - 3. Rim Type: Cylinders with back plate, flat-type vertical or horizontal tailpiece, and raised trim ring.
 - 4. Bored-Lock Type: Cylinders with tailpieces to suit locks.
- D. Permanent Cores: Manufacturer's standard; finish face to match lockset; complying with the following:
 - 1. Removable Cores: Core insert, removable by use of a special key, and for use with only the core manufacturer's locksets.
- E. Construction Keying: Comply with the following:
 - 1. Construction Cores: Provide Brass construction cores in all locksets and cylinders that are replaceable by permanent cores.
 - a. Replace Brass construction cores with permanent cores, as indicated in keying schedule
- F. Keying System: Unless otherwise indicated, provide a factory-registered keying system complying with the following requirements:
 - 1. No Master Key System: Cylinders are operated by change keys only.
 - 2. Master Key System: Cylinders are operated by a change key and a master key.
 - 3. Grand Master Key System: Cylinders are operated by a change key, a master key, and a grand master key.
 - 4. Great-Grand Master Key System: Cylinders are operated by a change key, a master key, a grand master key, and a great-grand master key.
 - 5. Existing System: Master key or grand master key locks to Owner's existing system.
 - 6. Keyed Alike: Key all cylinders to the same change key.

- G. Keys: Provide nickel-silver keys complying with the following:
1. Stamping: Permanently inscribe each key with a visual key control number and include the following notation:
 - a. Notation: **"DO NOT DUPLICATE."**
 2. Quantity: In addition to one extra blank key for each lock, provide the following:
 - a. Cylinder Change Keys: Three.
 - b. Master Keys: Five.
 - c. Grand Master Keys: Five.
 - d. Great-Grand Master Keys: Five.
 - e. Control Keys: Five
 - f. Construction Master Keys: Ten
 - g. Construction Core Control Keys: Five

2.7 STRIKES

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Electric Strikes:
 - a. Security Door Controls Inc.
 - b. Folger Adam Security Inc.
- B. Standards: Comply with the following:
1. Strikes for Bored Locks and Latches: BHMA A156.2.
 2. Strikes for Mortise Locks and Latches: BHMA A156.13.
 3. Strikes for Interconnected Locks and Latches: BHMA A156.12.
 4. Strikes for Auxiliary Deadlocks: BHMA A156.5.
 5. Dustproof Strikes: BHMA A156.16.
 6. Electric Strikes: BHMA A156.5.
- C. 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 latch bolts, 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.
- D. Dustproof Strikes: BHMA Grade 1
- E. Electric Strikes: BHMA Grade 1

2.8 OPERATING TRIM

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Burns Manufacturing Company, Inc.
 - 2. Stanley Commercial Hardware
- B. Standard: Comply with BHMA A156.6.
- C. Materials: Fabricate from aluminum, brass, bronze, stainless steel, unless otherwise indicated.

2.9 ACCESSORIES FOR PAIRS OF DOORS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Coordinators:
 - a. Burns Manufacturing Company, Inc.
 - b. Triangle Brass Manufacturing Company, Inc.
 - 2. Removable Mullions:
 - a. Von-Duprin Inc.
 - b. Assa / Abloy Sargent
 - c. Assa / Abloy Yale
 - 3. Astragals:
 - a. Stanley Commercial Hardware
 - b. Architectural Builders Hardware, Inc.
- B. Standards: Comply with the following:
 - 1. Coordinators: BHMA A156.3.
 - 2. Removable Mullions: BHMA A156.3.
- C. Fire-Exit Removable Mullions: Provide removable mullions for use with fire exit devices complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire and panic protection, based on testing according to UL 305 and NFPA 252. Mullions shall be used only with exit devices for which they have been tested.

2.10 CLOSERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Surface-Mounted Closers:
 - a. LCN Door Controls, Inc. #4040MC Series
 - b. Assa / Abloy Sargent # 281MC Series
 - c. Assa / Abloy Norton # 7500M Series

- B. Standards: Comply with the following:
 - 1. Closers: BHMA A156.4.
- C. Surface Closers: BHMA Grade 1
- D. Certified Products: Provide door closers listed in BHMA's "Directory of Certified Door Closers."
- E. Size of Units: Unless otherwise indicated, comply with manufacturer's written recommendations for size of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Provide factory-sized closers, adjustable to meet field conditions and requirements for opening force.

2.11 PROTECTIVE TRIM UNITS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Metal Protective Trim Units:
 - a. Burns Manufacturing Company, Inc.
 - b. Triangle Brass Manufacturing Company, Inc.
- B. Standard: Comply with BHMA A156.6.
- C. Materials: Fabricate protection plates from the following:
 - 1. Stainless Steel: 0.050 inch (1.3 mm) thick; beveled 4 sides.
- D. Fasteners: Provide manufacturer's standard exposed fasteners for door trim units consisting of either machine or self-tapping screws.
- E. Furnish protection plates sized 2" less than door width on push side and 1" less than door width on pull side, by height specified in Door Hardware Schedule.

2.12 STOPS AND HOLDERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Architectural Builders Hardware Mfg., Inc.
 - 2. Triangle Brass Manufacturing Company, Inc.
- B. Standards: Comply with the following:
 - 1. Stops and Bumpers: BHMA A156.16.
 - 2. Mechanical Door Holders: BHMA A156.16.
 - 3. Electromagnetic Door Holders: BHMA A156.15.
 - 4. Combination Overhead Holders and Stops: BHMA A156.8.
 - 5. Door Silencers: BHMA A156.16.
- C. Stops and Bumpers: BHMA Grade 1
- D. Mechanical Door Holders: BHMA Grade 1
- E. Combination Overhead Stops and Holders: BHMA Grade 1

- F. Electromagnetic Door Holders for Labeled Fire Door Assemblies: Coordinate with fire detectors and interface with fire alarm system.
- G. Silencers for Metal Door Frames: BHMA Grade 1; neoprene or rubber, minimum diameter 1/2 inch (13 mm); fabricated for drilled-in application to frame.

2.13 DOOR GASKETING

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Door Gasketing:
 - a. Reese Manufacturing Co., Inc.
 - b. National Guard Products, Inc.
 - 2. Door Bottoms:
 - a. Reese Manufacturing Co., Inc.
 - b. National Guard Products
- B. Standard: Comply with BHMA A156.22.
- C. General: Provide continuous weather-strip gasketing on exterior doors and provide smoke, light, or sound gasketing on interior doors where indicated or scheduled. Provide noncorrosive fasteners for exterior applications and elsewhere as indicated.
 - 1. Perimeter Gasketing: Apply to head and jamb, forming seal between door and frame.
 - 2. Meeting Stile Gasketing: Fasten to meeting stiles, forming seal when doors are closed.
 - 3. Door Bottoms: Apply to bottom of door, forming seal with threshold when door is closed.
- D. Air Leakage: Not to exceed 0.50 cfm per foot (0.000774 cu. m/s per m) of crack length for gasketing other than for smoke control, as tested according to ASTM E 283.
- E. 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 gasketing on 20-minute-rated doors and on smoke-labeled doors.
- F. 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 10B or NFPA 252.
- G. Sound-Rated Gasketing: Assemblies that are listed and labeled by a testing and inspecting agency, for sound ratings indicated, based on testing according to ASTM E 1408.
- H. Replaceable Seal Strips: Provide only those units where resilient or flexible seal strips are easily replaceable and readily available from stocks maintained by manufacturer.
- I. Gasketing Materials: Comply with ASTM D 2000 and AAMA 701/702.

2.14 THRESHOLDS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Reese Manufacturing Co., Inc.
 - 2. National Guard Products, Inc.
- B. Standard: Comply with BHMA A156.21.

2.15 FABRICATION

- A. Manufacturer's Nameplate: Do not provide manufacturers' products that have manufacturer's name or trade name displayed in a visible location (omit removable nameplates) except in conjunction with required fire-rated labels and as otherwise approved by Architect.
 - 1. Manufacturer's identification will be permitted on rim of lock cylinders only.
- B. Base Metals: Produce door hardware units of base metal, fabricated by forming method indicated, using manufacturer's standard metal alloy, composition, temper, and hardness. Furnish metals of a quality equal to or greater than that of specified door hardware units and BHMA A156.18 for finishes. Do not furnish manufacturer's standard materials or forming methods if different from specified standard.
- C. Fasteners: Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. Provide screws according to commercially recognized industry standards for application intended. Provide Phillips flat-head screws with finished heads to match surface of door hardware, unless otherwise indicated.
 - 1. Concealed Fasteners: For door hardware units that are exposed when door is closed, except for units already specified with concealed fasteners. Do not use through bolts for installation where bolt head or nut on opposite face is exposed unless it is the only means of securely attaching the door hardware. Where through bolts are used on hollow door and frame construction, provide sleeves for each through bolt.
 - 2. Steel Machine or Wood Screws: For the following fire-rated applications:
 - a. Mortise hinges to doors.
 - b. Strike plates to frames.
 - c. Closers to doors and frames.
 - 3. Steel Through Bolts: For the following fire-rated applications, unless door blocking is provided:
 - a. Surface hinges to doors.
 - b. Closers to doors and frames.
 - c. Surface-mounted exit devices.
 - 4. Spacers or Sex Bolts: For through bolting of hollow metal doors.
 - 5. Fasteners for Wood Doors: Comply with requirements of DHI WDHS.2, "Recommended Fasteners for Wood Doors."

2.16 FINISHES

- A. Standard: Comply with BHMA A156.18.
- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.
- D. BHMA Designations: Comply with base material and finish requirements indicated by the following:
 - 1. BHMA 600: Primed for painting, over steel base metal.
 - 2. BHMA 626: Satin chromium plated over nickel, over brass or bronze base metal.
 - 3. BHMA 628: Satin aluminum, clear anodized, over aluminum base metal.
 - 4. BHMA 630: Satin stainless steel, over stainless steel base metal.
 - 5. BHMA 652: Satin chromium plated over nickel, over steel base metal.
 - 6. BHMA 689: Aluminum painted, over any base metal.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine doors and frames, 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. Examine roughing-in for electrical power systems to verify actual locations of wiring connections before electrified door hardware installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Steel Doors and Frames: Comply with DHI A115 series.
 - 1. Surface-Applied Door Hardware: Drill and tap doors and frames according to SDI 107.
- B. Wood Doors: Comply with DHI A115-W series.

3.3 INSTALLATION

- A. 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."

2. Custom Steel Doors and Frames: DHI's "Recommended Locations for Builders' Hardware for Custom Steel Doors and Frames."
 3. Wood Doors: DHI WDHS.3, "Recommended Locations for Architectural Hardware for Wood Flush Doors."
- B. Install each door hardware item to comply with manufacturer's written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work specified in Division 9 Sections. Do not install surface-mounted items until finishes have been completed on substrates involved.
1. Set units level, plumb, and true to line and location. Adjust and reinforce attachment substrates as necessary for proper installation and operation.
 2. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.
- C. Key Control System: Place keys on markers and hooks in key control system cabinet, as determined by final keying schedule. Supply key cabinet with 25% expansion. Factory install keys in cabinet or in field with owner's representative. Key cabinet to be supplied with a "Complete System" equal to the Telkee System.
- D. Boxed Power Supplies: Locate power supplies as indicated or, if not indicated, above accessible ceilings, in equipment room. Verify location with Architect.
1. Configuration: Provide one power supply for each door opening.
 2. Configuration: Provide the least number of power supplies required to adequately serve doors with electrified door hardware.
- E. Thresholds: Set thresholds for exterior and acoustical doors in full bed of sealant complying with requirements specified in Division 7 Section "Joint Sealants."

3.4 FIELD QUALITY CONTROL

- A. Independent Architectural Hardware Consultant: Owner or Architect will engage a qualified independent Architectural Hardware Consultant to perform inspections and to prepare inspection reports.
1. Independent Architectural Hardware Consultant will inspect door hardware and state in each report whether installed work complies with or deviates from requirements, including whether door hardware is properly installed 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.
1. Spring Hinges: Adjust to achieve positive latching when door is allowed to close freely from an open position of 30 degrees.
 2. Electric Strikes: Adjust horizontal and vertical alignment of keeper to properly engage lock bolt.
 3. Door Closers: Adjust sweep period so that, from an open position of 70 degrees, the door will take at least 3 seconds to move to a point 3 inches (75 mm) from the latch, measured to the leading edge of the door.

- B. Six-Month Adjustment: Approximately six months after date of Substantial Completion, Installer shall perform the following:
 - 1. Examine and readjust each item of door hardware as necessary to ensure function of doors, door hardware, and electrified door hardware.
 - 2. Consult with and instruct Owner's personnel on recommended maintenance procedures.
 - 3. Replace door hardware items that have deteriorated or failed due to faulty design, materials, or installation of door hardware units.

3.6 CLEANING AND PROTECTION

- A. Clean adjacent surfaces soiled by door hardware installation.
- B. Clean operating items as necessary to restore proper function and finish.
- C. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of Substantial Completion.

3.7 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain door hardware and door hardware finishes.

3.8 DOOR HARDWARE SCHEDULE

- A. Hardware Set 01 – Double Door. Aluminum Door and Frame. Exterior.
Doors: 100
Operation: Passage from inside at all times. Passage from outside by key of when unlocked by key.

Qty	Description	Finish	Mfg
2	CONTINUOUS HINGE 780-224HD x UL x FULL HT	628	ROTON
3 EA	RIM CYLINDER & MORTISE CYLINDER	626	SARGENT
2	RIM EXIT DEVICE 9300CD x YR08C x L x KEY DOGGING	630	DORMAKABA
1	KEYED REMOVABLE MULLION 1340KR-8 x L	600	DORMA KABA
2	DOOR CLOSER 4040XP x SHCUSH x SRI	626	LCN
2	TEAR DROP SEAL 797B x HEAD & JAMBS	BLK	REESE
1	RAIN DRIP R201A x FULL WIDTH + 4"	628	REESE
1	THRESHOLD S483APR x SRS x FHSL x FULL WIDTH	628	REESE

- B. Hardware Set 02 – Single Door. HM Door and HM Frame. Exterior.
Doors: 101A, 112A
Operation: Passage from inside at all times. Passage from outside by key.

Qty	Description	Finish	Mfg
1	CONTINUOUS HINGE 780-224HD x UL x FULL HT	628	ROTON
1	STOREROOM LOCKSET FC-63-64-28-10G04 x LP	626	SARGENT
1	DOOR CLOSER 4040XP x SHCUSH	626	LCN
1	TEAR DROP SEAL 797B x HEAD & JAMBS	BLK	REESE
1	RAIN DRIP R201A x FULL WIDTH + 4"	628	REESE
1	THRESHOLD S483APR x SRS x FHSL x FULL WIDTH	628	REESE
1	DOOR SWEEP 772A x FULL WIDTH	628	REESE

- C. Hardware Set 03 – Single Door. Wood Door and HM Frame. Interior.
Doors: 101, 108, 112, 113
Operation: Passage from inside at all times. Passage from outside by key of when unlocked by key.

Qty	Description	Finish	Mfg
3	HINGE CB168 4.5 x 4.5	652	STANLEY
1	CLASSROOM LOCKSET 63-64-28-10G37 x LP	626	SARGENT
1	WALL STOP 1270WV	630	TRIMCO
3	SILENCERS 1229A	GRAY	TRIMCO

- D. Hardware Set 04 – Single Door. Wood Door and HM Frame. Interior.
Doors: 105, 106, 107, 109, 110, 111
Operation: Passage from inside at all times. Passage from outside by key of when unlocked by key. Push button inside locks outside trim.

Qty	Description	Finish	Mfg
3	HINGE CB168 4.5 x 4.5	652	STANLEY
1	OFFICE LOCKSET 63-64-28-10G05 x LP	626	SARGENT
1	WALL STOP 1270WV	630	TRIMCO
3	SILENCERS 1229A	GRAY	TRIMCO

- E. Hardware Set 05 – Single Door. Wood Door and HM Frame. Interior.
Doors 104, 114, 116, 201
Operation: Passage from inside at all times. Passage from outside by key.

Qty	Description	Finish	Mfg
3	HINGE CB168 4.5 x 4.5	652	STANLEY
1	STOREROOM LOCKSET FC-63-64-28-10G04 x LP	626	SARGENT
1	WALL STOP 1270WV	630	TRIMCO
3	SILENCERS 1229A	GRAY	TRIMCO

- F. Hardware Set 06 – Single Door. Wood Door and HM Frame. Interior.
Doors: 102, 103, 115, 115A
Operation: Passage from inside at all times. Passage from outside at all times.

Qty	Description	Finish	Mfg
3	HINGE CB168 4.5 x 4.5	652	STANLEY
1	PASSAGE LATCHSET 28-10U15 x LP	626	SARGENT
1	WALL STOP 1270WV	630	TRIMCO
3	SILENCERS 1229A	GRAY	TRIMCO

- G. Hardware Set 07 – Single Door. Wood Door and HM Frame. Interior.
Doors: 117, 118
Operation: Passage from inside at all times. Passage from outside by key.

Qty	Description	Finish	Mfg
3	HINGE CB168 4.5 x 4.5	652	STANLEY
1	PRIVACY LATCHSET 28-10U65 x LP	626	SARGENT
1	WALL STOP 1270WV	630	TRIMCO
3	SILENCERS 1229A	GRAY	TRIMCO

END OF SECTION 08 70 00