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# Bryant & Stratton Buffalo Buffalo, NY

Revision 4 May 8<sup>th</sup>, 2020

This Revision is issued by the Architect and shall become part of the Contract Documents and is also subject to the terms and conditions set forth in Divisions 0 and 1.

## **Refer to Specificaions**

Item No. 1: DELETE SECTION 08710 – DOOR HARDWARE and REPLACE with the attached SECTION 08710 – DOOR HARDWARE dated 05/08/20. Key changes include:

- 1. Building will have a new key system, there is no existing system to match.
- 2. Mortise locksets changed to grade 1 cylindrical locksets.
- 3. The full access control system shall be provided by the contractor.
- 4. Patented cylinders not required.

**End of Revision** 

#### SECTION 08710 – 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 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, power supplies, back-ups and surge protection.
  - 3. Automatic operators.
  - 4. Cylinders specified for doors in other sections.
- C. Related Sections:
  - 1. Section 06100 Rough Carpentry.
  - 2. Section 06200 Finish Carpentry.
  - 3. Section 08100 Hollow Metal Door Frames.
  - 4. Section 08211 Flush Wood Doors.
  - 5. Section 08800 Glass and Glazing.
  - 6. Section 09900 Painting.
- 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.
  - 3. ASTM E1886 Test Method for Performance of Exterior Windows, Curtin Walls, Doors and Shutters Impacted by Missiles and Exposed to Cyclic Pressure Differentials.
  - 4. ASTM E330 Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure difference.
  - 5. ASTM E1996 Standard specification for performance of exterior windows, curtain walls, doors and storm shutters impacted by Windborne Debris in Hurricanes.
  - 6. FEMA 361 2008 Design and Construction Guidance for Community Safe Rooms.
  - 7. ICC 500 ICC/NSSA Standard for the Design and Construction of Storm Shelters.
  - 8. ICC/IBC International Building Code.
  - 9. NFPA 70 National Electrical Code.
  - 10. NFPA 80 Fire Doors and Windows.
  - 11. NFPA 101 Life Safety Code.
  - 12. NFPA 105 Installation of Smoke Door Assemblies.

- 13. TAS-201-94 Impact Test Procedures.
- 14. TAS-202-94 Criteria for Testing Impact and Non-Impact Resistant Building Envelope Components using Uniform Static Air Pressure.
- 15. TAS-203-94 Criteria for Testing Products Subject to Cyclic Wind Pressure Loading.
- 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.
    - 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.
  - 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. Proof of Certification: Provide copy of manufacturer(s) official certification or accreditation document indicating proof of status as a qualified and authorized provider of the primary Integrated Wiegand Access Control Products.
- D. Keying Schedule: Prepared under the supervision of the Owner, separate schedule detailing final keying instructions for locksets and cylinders in writing. Include keying system explanation, door numbers, key set symbols, hardware set numbers and special

instructions. Owner to approve submitted keying schedule prior to the ordering of permanent cylinders.

- 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. The manual to include the name, address, and contact information of the manufacturers providing the hardware and their nearest service representatives. The final copies delivered after completion of the installation test to include "as built" modifications made during installation, checkout and acceptance.
- F. Warranties and Maintenance: Special warranties and maintenance agreements specified in this Section.

#### 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: Installers, trained by the primary product manufacturers, with a minimum 3 years documented experience installing both standard and electrified builders 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 in good standing 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.

1. Scheduling Responsibility: Preparation of door hardware and keying schedules.

- D. Source Limitations: Obtain each type and variety of Door Hardware specified in this Section from a single source, qualified supplier 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. Regulatory Requirements: Comply with NFPA 70, NFPA 80, NFPA 101 and ANSI A117.1 requirements and guidelines as directed in the model building code including, but not limited to, the following:
  - 1. NFPA 70 "National Electrical Code", including electrical components, devices, and accessories listed and labeled as defined in Article 100 by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
  - 2. Where indicated to comply with accessibility requirements, comply with Americans with Disabilities Act (ADA), "Accessibility Guidelines for Buildings and Facilities (ADAAG)," ANSI A117.1 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 applied perpendicular to door.
  - 2) Fire Doors: Minimum opening force allowable by authorities having jurisdiction.
- c. Thresholds: Not more than 1/2 inch high. Bevel raised thresholds with a slope of not more than 1:2.
- 3. NFPA 101: Comply with the following for means of egress doors:
  - a. Latches, Locks, and Exit Devices: Not more than 15 lbf to release the latch. Locks shall not require the use of a key, tool, or special knowledge for operation.
  - b. Thresholds: Not more than 1/2 inch high.
- 4. 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 (neutral pressure at 40" above sill) or UL-10C.
  - a. Test Pressure: Positive pressure labeling.
- 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, arrange for manufacturers' representatives to hold 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.
  - 5. Review the required inspecting, testing, commissioning and demonstration procedures.

## 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: Related Division 08 Sections (Steel, Aluminum and Wood) doors and corresponding frames are to be prepared, reinforced and pre-wired (if applicable) to receive the installation of 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. Ten years for manual door closers.

## 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. Continuing Service: Beginning at Substantial Completion, and running concurrent with the specified warranty period, provide continuous (6) months full maintenance including repair and replacement of worn or defective components, lubrication, cleaning, and adjusting as required for proper door opening operation. Provide parts and supplies as used in the manufacture and installation of original products.

## 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.
  - 1. 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:
    - a. 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.
  - 2. Products furnished, but not installed, under this Section include the following. Coordinating, purchasing, delivering, and scheduling remain requirements of this Section.
    - a. Permanent cylinders, cores and keys to be installed by Owner.
- B. 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 as specified in the Door Hardware Sets.
  - 1. Quantity: Provide the following hinge quantity, unless otherwise indicated:
    - 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.
  - 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 hinges.
  - b. Interior Doors: Standard weight, steel, ball bearing hinges.
- 4. Hinge Options: Comply with the following where indicated in the Hardware Sets or on Drawings:
  - 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 following applications:
    - 1) Out-swinging exterior doors.
    - 2) Out-swinging access-controlled doors.
- 5. Acceptable Manufacturers:
  - a. Hager Companies (HA).
  - b. McKinney Products (MK).
  - c. Stanley Hardware (ST).
- B. Continuous Geared Hinges: ANSI/BHMA A156.26 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. Provide concealed flush mount (with or without inset), full surface, or half surface, in standard and heavy duty models, as specified in the Hardware Sets. Concealed continuous hinges to be U.L. listed for use on up to and including 90 minute rated door installations and U.L. listed for windstorm components where applicable. Factory cut hinges for door size and provide with removable service power transfer panel where indicated at electrified openings.
  - 1. Acceptable Manufacturers:
    - a. McKinney Products (MK).
    - b. Pemko Manufacturing (PE).
    - c. Stanley Hardware (ST).

## 2.3 DOOR OPERATING TRIM

- A. Door Push Plates and Pulls: ANS/BHMA A156.6 certified door pushes and pulls of type and design specified below or 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, 4-inches wide by 16-inches high, with square corners and beveled edges, secured with exposed screws unless otherwise indicated.
  - 2. Straight Pull Design: Minimum 1-inch round diameter stainless steel bar or tube stock pulls with 2 1/2-inch projection from face of door unless otherwise indicated.
  - 3. Offset Pull Design: Minimum 1-inch round diameter stainless steel bar or tube stock pulls with 2 1/2-inch projection and offset of 90 degrees unless otherwise indicated.
  - 4. Push Bars: Minimum 1-inch round diameter horizontal push bars with minimum clearance of 2 1/2-inch projection from face of door unless otherwise indicated.
  - 5. Fasteners: Provide manufacturer's designated fastener type as indicated in Hardware Sets.
    - a. Acceptable Manufacturers:
      - 1) McKinney Architectural Hardware (MK).
      - 2) Rockwood Manufacturing (RO).

# 3) Trimco (TC).

## 2.4 CYLINDERS AND KEYING

- A. General: Cylinder manufacturer to have minimum (10) years of 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.
- C. Cylinders: Original manufacturer cylinders complying with the following:
  - 1. Mortise Type: Threaded cylinders with rings and straight- or clover-type cam.
  - 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.
- D. Standard Cylinders: ANSI/BHMA A156.5, Grade 1, Provide bump resistant, fixed core cylinders as standard with solid recessed cylinder collars.
  - 1. Provide a 6 pin multi-level grand master key system
- E. Keying System: Each type of lock and cylinders to be factory keyed. Conduct specified "Keying Conference" to define and document keying system instructions and requirements. Furnish factory cut, nickel-silver large bow permanently inscribed with a visual key control number as directed by Owner. Confirm keying with Owner. Incorporate decisions made in keying conference, and as follows:
  - 1. Master Key System: Cylinders are operated by a change key and a master key.
  - 2. Grand Master Key System: Cylinders are operated by a change key, a master key, and a grand master key.
  - 3. 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.
  - 4. Existing System: NA
  - 5. Keyed Alike: Key all cylinders to same change key.
- F. Key Quantity: Provide the following minimum number of keys:
  - 1. Top Master Key: One (1)
  - 2. Change Keys per Cylinder: Two (2)
  - 3. Master Keys (per Master Key Group): Two (2)
  - 4. Grand Master Keys (per Grand Master Key Group): Two (2)
  - 5. Construction Control Keys (where required): Two (2)
  - 6. Permanent Control Keys (where required): Two (2)
- G. Construction Keying: Provide construction master keyed cylinders or temporary keyed construction cores where specified. Provide construction master keys in quantity as required by project Contractor. Replace construction cores with permanent cores. Furnish permanent cores for installation as directed under specified "Keying Conference".
- H. Key Registration List: Provide keying transcript list to Owner's representative in the proper format for importing into key control software.

## 2.5 MECHANICAL LOCKS AND LATCHING DEVICES

- A. Bored Locks: BHMA A156.2; Grade 1 ; Series 4000.
  - 1. <u>Manufacturers:</u> Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Corbin Russwin, Inc.; an ASSA ABLOY Group company.
    - b. Hager Companies.
    - c. SARGENT Manufacturing Company; ASSA ABLOY.
    - d. Stanley Commercial Hardware; a division of Stanley Security Solutions.
    - e. Yale Security Inc; an ASSA ABLOY Group company.
- B. Lock Trim Design: Architect to select from manufacturers standard trim options.

#### 2.6 AUXILIARY LOCKS

- A. Mortise Deadlocks, Small Case: ANSI/BHMA A156.5, Grade 1, certified small case mortise type deadlocks constructed of heavy gauge wrought corrosion resistant steel. Steel or stainless steel bolts with a 1" throw and hardened steel roller pins. Deadlocks to be products of the same source manufacturer and keyway as other specified locksets.
  - 1. Acceptable Manufacturers:
    - a. Corbin Russwin Hardware (RU) DL4100 Series.
    - b. Sargent Manufacturing (SA) 4870 Series.
    - c. Yale Locks and Hardware (YA) 350 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.
- 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 A156.5.
  - 4. Dustproof Strikes: BHMA A156.16.

## 2.8 EXIT DEVICES

A. 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. Mounting rails to be formed from smooth stainless steel, brass or bronze architectural materials no less than 0.072" thick, with push rails a minimum of 0.062" thickness. Painted or aluminum metal rails are not acceptable. Exit device latch to be investment cast stainless steel, pullman type, with deadlock feature. Exit devices shall be

electrified where indicated in schedule for rod retraction. Such devices shall be coordinated with and connected to building security system. UL listed.

- 1. Acceptable Manufacturers:
  - a. Corbin Russwin Hardware (RU) ED4000 / ED5000 Series.
  - b. Sargent Manufacturing (SA) 80 Series.
  - c. Yale Locks and Hardware (YA) 7000 Series.
- B. Narrow Stile Exit Devices: Touch pad type finish to match balance of door hardware. Exit Devices shall be of one manufacturer as listed for continuity of design. UL listed. Devices shall be coordinated with and connected to building security system.
  - 1. Standards: Manufacturer to be certified by the following:
    - a. ANSI/BHMA A156.3 Grade 1
  - 2. Touch pad shall extend a minimum of one half-door width.
  - 3. Lock and latch functions: Function numbers and descriptions of manufacturer's series and lever styles indicated in door hardware sets.
  - 4. Mounting: 2" minimum stile width.
  - 5. Acceptable Manufacturers:
    - a. Detex
    - b. Von Duprin
    - c. Sargent

#### 2.9 DOOR CLOSERS

- A. Door Closers, Surface Mounted (Heavy Duty): ANSI/BHMA A156.4, Grade 1 surface mounted, heavy duty 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 and separate non-critical valves for closing sweep and latch speed control. Provide non-handed units and high impact, non-corrosive plastic covers standard complete with appropriate arms.
  - 1. Acceptable Manufacturers:
    - a. Corbin Russwin Hardware (RU) DC8000 Series.
    - b. Sargent Manufacturing (SA) 351 Series.
    - c. Norton Door Controls (NO) 7500 Series.
    - d. Yale Locks and Hardware (YA) 4400 Series.
- B. Door Closers, Surface Mounted (Unitrol): ANSI/BHMA 156.4, Grade 1 certified surface mounted, heavy duty 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. Unitrol arms to have door stop mechanism to absorb dead stop shock on arm and top hinge. Hold-open arms to have a spring loaded mechanism in addition to shock absorber assembly. Arms to be provided with rigid steel main arm and secondary arm lengths proportional to the door width. Provide high impact, non-corrosive plastic covers standard complete with appropriate arms.
  - 1. Acceptable Manufacturers:
    - a. Corbin Russwin Hardware (RU) Unitrol DC8000 Series.
    - b. Norton Door Controls (NO) Unitrol 7500 Series.
    - c. Yale Locks and Hardware (YA) Unitrol 4400 Series.

#### 2.10 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 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. Metal Protection Plates: ANSI/BHMA A156.6 certified metal protection plates (kick, armor, or mop), beveled on four edges (B4E), fabricated from the following.
  - a. Stainless Steel: 050-inch thick, with countersunk screw holes (CSK).
  - b. Brass or Bronze: 050-inch thick, with countersunk screw holes (CSK).
  - c. Laminate Plastic or Acrylic: 1/8-inch thick, with countersunk screw holes (CSK).
- 4. Fasteners: Provide manufacturer's designated fastener type as specified in the Hardware Sets.
- 5. Metal Door Edging: Door protection edging fabricated from a minimum .050inch thick metal sheet, formed into an angle or "U" cap shapes, surface or mortised mounted onto edge of door. Provide appropriate leg overlap to account for protection plates as required. Height to be as specified in the Hardware Sets.
- 6. Acceptable Manufacturers:
  - a. McKinney Architectural Hardware (MK).
  - b. Rockwood Manufacturing (RO).

## 2.11 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 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. Acceptable Manufacturers:
    - a. McKinney Architectural Hardware (MK).
    - b. Rockwood Manufacturing (RO).
- 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. Acceptable Manufacturers:
    - a. Rixson Door Controls (RF).
    - b. Rockwood Manufacturing (RO).
    - c. Sargent Manufacturing (SA).

## 2.12 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. Replaceable Seal Strips: Provide only those units where resilient or flexible seal strips are easily replaceable and readily available from stocks maintained by manufacturer.
- C. Acceptable Manufacturers:
  - 1. McKinney Weatherstripping Products (MW).
  - 2. Pemko Manufacturing (PE).

#### 2.13 ELECTROMAGNETIC STOPS AND HOLDERS

- A. Electromagnetic Door Holders: BHMA A156.15, Grade 1; wall-mounted electromagnetic single unit with strike plate attached to swinging door; coordinated with fire detectors and interface with fire-alarm system for labeled fire-rated door assemblies.
  - 1. <u>Manufacturers:</u> Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Hager Companies.
    - b. SARGENT Manufacturing Company; ASSA ABLOY.

#### 2.14 ACCESS CONTROL

A. Full system shall be provided by the Contractor. Contractor to coordinate system requirements with Bryant & Stratton.

# 2.15 ELECTRIC DOOR STRIKES

- A. Electric Strikes: BHMA A156.31; Grade 1 ; with faceplate to suit lock and frame.
  - 1. <u>Manufacturers:</u> Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Adams Rite Manufacturing Co; an ASSA ABLOY Group company.
    - b. Hager Companies.
    - c. Stanley Commercial Hardware; a division of Stanley Security Solutions.

#### 2.17 THRESHOLDS

- A. Secured with lead expansion shields and stainless steel machine screws. Notched in field to fit frame by hardware installer.
- B. Standards: Manufacturer to be certified by the following:
  - 1. Thresholds: ANSI/BHMA A156.21.
  - 2. Americans with Disabilities Act Accessibility Guidelines (ADAAG).
- C. Acceptable Manufactures:
  - 1. Hager Companies
  - 2. Pemko
  - 3. National Guard

## 2.18 ROLLER CATCHES

- A. Spring loaded with nylon roller and adjustable tension. Steel construction.
- B. Acceptable Manufacturers:
  - 1. Stanley Hardware
  - 2. Ives
  - 3. Baldwin Hardware

## 2.19 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.

## 2.20 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.
- C. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- D. All hardware shall be satin nickel (619) or closely matching

## 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."
  - 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. Thresholds: Set thresholds for exterior and acoustical doors in full bed of sealant complying with requirements specified in Division 7 Section "Joint Sealants."
- D. 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.

## 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. and 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 SCHEDULE

- 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. Refer to drawings for schedule.

#### END OF SECTION