SECTION 08710: FINISH HARDWARE

PART 1 - GENERAL

1.1 SUMMARY

A. Work included:
1. Furnish hardware required to complete the work as shown on the drawings and as specified herein;
2. Furnish trim attachments and fastenings, specified or otherwise required, for proper and complete installation.
3. Furnish all items of Finish Hardware specified, scheduled, shown or required herein except those items specifically excluded from this section of the specification.

B. Related work:
1. Division 1 – General Requirements
2. Division 6 – Rough Carpentry
3. Division 6– Finish Carpentry: Installation of Finish Hardware
4. Division 8 – Steel Doors and Frames
5. Division 8 – Wood Doors
6. Division 8 – Special Doors
7. Division 8 – All Glass Entrances and Storefronts
8. Division 8 – Aluminum Framed Entrances and Storefronts
9. Division 16 – Smoke Detection Systems
10. Division 28 – Electronic Safety and Security

C. Specific Omissions: Hardware for the following is specified or indicated elsewhere, unless specifically listed in the hardware sets:
1. Cabinet Hardware.
2. Signs, except as noted.
3. Folding partitions, except cylinders where detailed.
4. Sliding aluminum doors
5. Chain link and wire mesh doors and gates
6. Access doors and panels
7. Overhead and Coiling doors
8. Revolving Doors
9. Hardware provided by Aluminum Door Manufacturer

1.2 CODES AND REFERENCES

A. Comply with the version year adopted by the Authority Having Jurisdiction:
1. ANSI A117.1 - Accessible and Usable Buildings and Facilities.
2. ICC/IBC - International Building Code.
3. NFPA 80 - Fire Doors and Windows.
4. NFPA 101 - Life Safety Code.
5. NFPA 105 - Installation of Smoke Door Assemblies.
6. Current State Building Codes, Local Amendments.

B. 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 DEFINITIONS

A. "Finish Hardware": Items required for swinging, sliding and folding doors, except special types of unique and non-matching hardware specified under door and frame Sections of these Specifications.

1.4 SYSTEM DESCRIPTION

A. Design requirements:
   1. Review of hardware requirements:
      a. Thoroughly review finish hardware schedule, comparing it with the floor plan, door schedule, and door details to verify hardware requirements, quantities, door swings, finishes, and sizes.
      b. If an inconsistency or error in the proposed construction documents is suspected, the hardware supplier is to bring it immediately to the attention of the Architect. If the quantity of items is questioned, for bidding purposes, assume the higher quantity is required and price accordingly.
      c. Architect's review of Submittals is for design concept only, and does not relieve the Contractor of the responsibility to furnish sufficient material and functions required for a complete and code-worthy installation. Determination of all quantities is the responsibility of the Contractor.
      d. Furnish and provide all necessary reinforcements, brackets, fasteners, spacers, shims and fillers to provide complete functioning openings.

B. Performance requirements:
   1. Furnish finish hardware complying with the requirements of laws, codes, ordinances and guidelines of governmental authorities having jurisdiction:
   a. ANSI A117.1 - Accessible and Usable Buildings and Facilities.
   b. ICC/IBC - International Building Code.
   c. NFPA 80 - Fire Doors and Windows.
   d. NFPA 101 - Life Safety Code.
   e. NFPA 105 - Installation of Smoke Door Assemblies.
   f. Current State Building Codes, Local Amendments.

1.5 Submittals:
A. Hardware Schedule
   1. Submit number of Hardware Schedules as directed in Division 1.
   2. Follow guidelines established in Door & Hardware Institute Handbook (DHI) Sequence and Format for the Hardware Schedule unless noted otherwise.
   3. Schedule will include the following:
      a. Door Index including opening numbers and the assigned Finish Hardware set.
      b. Preface sheet listing category only and manufacturer's names of items being furnished as follows:

CATEGORY	**SPECIFIED**	**SCHEDULED**
Hinges	Manufacturer A	Manufacturer B
Lock sets	Manufacturer X	Manufacturer X
Kick Plates	Open	Manufacturer Z

c. Hardware Locations: Refer to Article 3.1 B.2 Locations.
d. Opening Description: Single or pair, number, room locations, hand, active leaf, degree of swing, size, door material, frame material, and UL listing.
e. Hardware Description: Quantity, category, product number, fasteners, and finish.
f. Headings that refer to the specified Hardware Set Numbers.
g. Scheduling Sequence shown in Hardware Sets.
h. Product data of each hardware item, and shop drawings where required, for special conditions and specialty hardware.
i. Electrified Hardware system operation description.
j. "Vertical" scheduling format only. "Horizontal" schedules will be returned "Not Approved."
k. Typed Copy.
l. Double-Spacing.
m. 8 1/2 x 11 inch sheets
n. U.S. Standard Finish symbols or BHMA Finish symbols.

B. Product Data:
1. Submit, in booklet form Manufacturers Catalog cut sheets of scheduled hardware.
2. Submit product data with hardware schedule.

C. Samples:
1. Prior to submittal of the final hardware schedule and prior to final ordering of finish hardware, submit one sample, if required, of each type of exposed hardware unit, finished as required and tagged with full description for coordination with schedule.
2. Samples will be returned to the supplier. Units, which are acceptable and remain undamaged through submittal, review and field comparison procedures, may, after final check of operation, be used in the work, within limitations of keying coordination requirements.

D. Key Schedule:
1. Submit detailed schedule indicating clearly how the Owner's final keying instructions have been followed.
2. Submit as a separate schedule.

E. Submit to General Contractor/Construction Manager, the factory order acknowledgement numbers for the various hardware items to be used on the project. The factory order acknowledgement numbers shall help to facilitate and expedite any service that may be required on a particular hardware item. General Contractor/Construction Manager shall keep these order acknowledgement numbers on file in the construction trailer.

1.6 QUALITY ASSURANCE

A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the requirements and the methods needed for proper performance of the work of this Section.
B. Supplier qualifications:
1. A recognized architectural finish hardware supplier.
2. Continuously in business of finish hardware supply for not less than 5 years.

C. Provide the service of an Architectural Hardware Consultant to:
1. Be available for consultation with the Architect at no additional cost to the Owner during progress of construction, and:
a. Inspect installation of all finish hardware items.

b. Make all minor adjustments required; and
c. Report to the Architect on completeness of the installation.
2. The hardware consultant may be an employee of the supplier.

D. Installer qualifications: Employ a competent hardware installer with at least five (5) years experience installing commercial grade hardware similar to that proposed for the Work.

E. Source limitations: Obtain each type of hardware (latch and lock sets, hinges, closers, etc.) from a single manufacturer, although several may be indicated as offering products complying with requirements.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Comply with pertinent provisions of Section 16000.

B. Product identification:
1. Tag and mark each item separately in manufacturers unopened package, identifying it by product number and architectural opening number, as listed in the approved Finish Hardware Schedule.
2. Include instructions, templates, and fasteners needed for installation.

C. Deliver individually packaged hardware items on a vehicle operated by a direct employee of the Hardware Supplier. Contractor shall immediately, and in the presence of the Hardware Supplier, inventory the contents of the delivery.

D. Hardware supplier: Furnish finish hardware items directly to the factory or mill for factory-installation, where required.

1.8 PROJECT CONDITIONS

A. Provide a secure, well lit, dry storage area for the sole purpose of storing finish hardware. Prohibit access to all jobsite personnel, except those employed by the installing contractor.

1.9 WARRANTY

A. Manufacturer's warranty:
1. Standard manufacturer's warranties apply for products listed in Part 2 products.
2. Refer to Division 1 for further warranty requirements.

B. During the warranty period, replace defective work, including labor, materials and other costs incidental to the work. Replace work found to be defective as defined in the General Conditions.
C. Failures due to defective materials or workmanship to include, but not to be limited to:
1. Failures in operation of any operating component;
2. Defects which contribute to unsightly appearance,
potential safety hazard, or potential untimely failure of the products furnished under this Section.

PART 2 - PRODUCTS

2.0 GENERAL

A. Requirements for design, grade, function, finish, size, and other distinctive qualities of each finish hardware item is indicated in the Finish Hardware Schedule at the end of this Section.

B. ANSI/BHMA designations:
   1. Used to describe hardware items, or to define quality or function. Provide products complying with these standards in addition to additional requirements of this Section.

C. Hand of door: Drawings show direction of slide, swing (“hand”) of door leafs.

D. Hardware: Use hardware manufactured to conform to published templates and, generally, prepared for machine screw installation. Do not provide hardware which has been prepared for self-tapping sheet metal screws, except as specifically indicated.

2.1 MATERIALS

A. Base metals:
   1. Manufacturer's standard metal alloy, composition, temper and hardness, but in no case of lesser (commercially-recognized) quality than that specified for applicable hardware units by applicable ANSI A156 series standard for each type hardware item and with ANSI A156.18 for finish designations indicated.
   2. Do not furnish "optional" materials for those indicated, except as otherwise specified.

B. Fasteners:
   1. Furnish Phillips flat-head screws with each hardware item, unless otherwise indicated.
   2. Exposed screws: Match finish of hardware (even where noted to be "prepared for paint").
   3. Use concealed fasteners for hardware units which are exposed when door is closed, except where no standard units of type specified are available with concealed fasteners.
   4. Do not use thru-bolts where bolt head or nut on opposite face would be exposed.
   5. Where adequate reinforcement is not feasible, thru-bolting would only be acceptable if through sleeves, or if sex-screw fasteners are used.

C. Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance, and removal and replacement of finish hardware.

2.2 MANUFACTURED UNITS, GENERAL

A. Reference standards:
   1. Comply with ANSI A156 current series for each product type.

B. Hardware finishes:
   1. Materials and Finishes Standard: Comply with ANSI A156.18 Finish designations used in schedules are listed, therein.
   2. Provide matching finishes for hardware units at each door, unless otherwise indicated.
   3. Match the color and texture of hardware items to manufacturer's standard finish for the latchset, lockset, or push-pull unit.
   4. Provide quality of finish, including thickness of plating or coating, composition, hardness, and other qualities complying with manufacturer's standards, but in no case less than that specified or described by referenced standards.

C. Hardware for fire-rated openings:
   1. Comply with NFPA 80
   2. Tested and listed by Underwriters Laboratory (UL), or Factory Mutual (FM) for type, size and use of door, and complying with requirements of door and door frame label.
   3. Provide UL or FM label on door indicating "Fire door to be equipped with fire-exit hardware".
   4. Provide UL or FM label on exit device indicating "Fire Exit Hardware".

2.3 PRODUCTS

1. Hinges:

A. Butt Hinges:
   a. ANSI A156.1 - for commercial quality.
   b. Provide only template-produced units.
   c. All butt hinges to be ball bearing-5 knuckle type as specified.
   d. Hinges at exterior doors shall be of non-ferrous material.
   e. Size hinges 4.5” x 4.5” unless otherwise noted or according to hinge manufacturer’s recommendation for door size and weight.
   g. Provide number of hinges indicated but not less than 3 hinges per door.
   h. Acceptable products: PDQ 35 BB/HB/PL as required

B. Spring Hinges:
   a. ANSI A156.1 - for commercial quality.
   b. Provide only template-produced units.
   c. Spring hinges are adjustable for swing closing speed.
   d. Size hinges 4.5” x 4.5” unless otherwise noted or according to hinge manufacturer’s recommendation for door size and weight.
   d. Non-removable pin with a set screw (3/32" hex) for added security
   f. Designed to meet ANSI K8107-1F
   g. Acceptable products: PDQ 35 SH Series

2. Lock Cylinders and Keying:

1. General:
   a. Supplier shall meet with the owner and provide a completed key schedule. The key schedule shall include keysets, marks and key schedule corresponding to each opening.
2. Cylinders/Cores:
   a. Type: Mortise or rim-type as required by function of locking device.
   b. Provide screw on cams or tail piece as required.
   c. Construct lock cylinder parts from brass/bronze, stainless steel or nickel silver.
   d. Provide solid machined cylinder rings with tension spring to resist wrenching of cylinder. Length, finish and size as required.
   e. Provide cylinder(s) and core(s) as required by function for each locking device.
      i. Small Format Cores:
         - Sidebar mechanism that rests inside the plug of the core making it unnecessary to dismantle to combinate or pin the cylinder
         - PDQ or Best Keyways
         - Acceptable Products: PDQ I5206-7 (6pin Core), I5207 (7pin Core), I5206 (Black Painted SFIC Construction Core)
      ii. Large Format Cores:
         - Utilize the Schlage® format
         - Acceptable Products: PDQ I5206-716, I5206LFIC (Black Painted LFIC construction Core).

3. Keying:
    a. Deliver keys and final cores to the hardware installation Contractor for final installation, when directed by the Owner.
    b. Comply with Owner's instructions for master keying and, except as otherwise indicated, provide individual change key for each lock which is not designated to be keyed alike with a group of related locks.
    c. Key material: Nickel silver
    d. Key quantity:
        (1) Two (2) change keys for each lock.
        (1) Master keys, Construction Keys, Control Keys as needed

3. Mortise Locksets:

A. ANSI/BHMA 156.13 Operational Grade 1 Mortise Locks

a. Mortise locks shall be certified as ANSI A156.13, Grade 1 Operational, Grade 1 Security,
b. Locks are to have a standard 2 3/4" backset with a full 3/4" throw 2-piece stainless steel mechanical anti-friction latch bolt. Deadbolt shall be a full 1" throw, constructed of stainless steel.
c. Lever trim shall be solid brass, bronze, or stainless steel, cast or forged in the design specified, with wrought roses and external lever spring cages. Levers shall be thru-bolted to assure proper alignment, and shall have a 2-piece spindle. Lever trim on the secure side of doors serving rooms considered by the authority having jurisdiction to be hazardous shall have a tactile warning.
d. Lever design to be:_____
e. Acceptable Manufacturer: PDQ MR Series

A. Heavy Duty Mortise Deadbolt

a. UL listed for 3 hours, for single doors up to 4’0”x 8’0”
b. Case: Steel — Dichromated for corrosion resistance
c. Deadbolt: 1" stainless steel throw
d. Thumb turn hub: ADA Compliant
e. Armor front: Brass, bronze, or stainless steel.
f. Strike: 2-1/4” x 1” Stainless Steel.
g. Acceptable Manufacturer: PDQ MJ Series

4. Cylindrical Locks

A. ANSI A156.2 Grade 1 Extra Heavy Duty Cylindrical Locksets

a. Heavy duty diecast, investment cast, chromated cold rolled steel and stainless steel mechanism.
b. Billet Steel spindles for locking functions
c. The lock's 3,000 lbf-in lever torque resistance exceeds BHMI/ANSI standards by four times, promising unmatched strength.
d. With a 2:1 latch bolt throw enabling a 41-degree lever rotation, our XGT Cylindrical Lockset delivers superior functionality and longevity for your security needs.
e. This ANSI/BHMA Grade 1 lock is UL 10C listed for 3-hour fire doors, suitable for single doors up to 4' x 8'.

f. Certified to ANSI/BHMA A156.2 Grade 1 standards.
g. Meets California Education Code requirements (Functions XGT135, XGT135LED, XGT145).
h. Approved for Florida's High-Velocity Hurricane Zone (HVHZ) and complies with ADA and ICC/ANSI 117.1 for Accessible and Usable Buildings.
i. Limited Lifetime Warranty
j. Acceptable Manufacturer: PDQ XGT Series

B. ANSI A156.2 Grade 1 Heavy Duty Cylindrical Locksets

a. Provide cylindrical locks conforming to ANSI/BHMA A156.2 Grade 1
b. UL Listed for 3-hour fire doors.
c. Heavy duty diecast, investment cast, chromated cold rolled steel and stainless steel mechanism.
d. Billet Steel spindles for locking functions
e. 3-3/8” DIA wrought rose
f. Provide locks with standard 2-3/4 inches (70 mm) backset, unless noted otherwise.
g. 9/16” throw deadlocking latchbolt
h. Provide independently operating levers with two external return spring cassettes mounted under roses to prevent lever sag.
i. Provide standard ASA strikes unless extended lip strikes are necessary to protect trim.
j. Provide electrified options as scheduled in the hardware sets.
k. Lever Trim: Solid cast levers without plastic inserts, and wrought roses on both sides
l. Acceptable Manufacturer: PDQ GT Series

C. ANSI A156.2 Grade 2 Heavy Duty Cylindrical Locksets

a. Provide cylindrical locks conforming to ANSI/BHMA A156.2 Grade 2
b. UL Listed for 3-hour fire doors.
c. Heavy duty diecast, investment cast, cold rolled steel, stainless steel mechanism
d. 3-3/8” DIA wrought rose
e. Provide locks with standard 2-3/4 inches (70 mm) backset, unless noted otherwise.
f. 9/16” throw deadlocking latchbolt
g. Provide independently operating levers with two external return spring cassettes mounted under roses to prevent lever sag.
h. Provide standard ASA strikes unless extended lip strikes are necessary to protect trim.
i. Provide electrified options as scheduled in the hardware sets.
j. Lever Trim: Solid cast levers without plastic inserts, and wrought roses on both sides
k. Acceptable Manufacturer: PDQ GP Series

D. ANSI A156.2 Grade 2 Standard Duty Cylindrical Locksets

a. Provide cylindrical locks conforming to ANSI/BHMA A156.2 Grade 2
b. UL Listed for 3-hour fire doors.
c. Heavy-gauge cold rolled steel mechanism, Dichromated for corrosion resistance
d. 3-3/8” DIA wrought rose
e. Provide locks with standard 2-3/4 inches (70 mm) backset, unless noted otherwise.
f. ½” throw
g. Provide standard ASA strikes unless extended lip strikes are necessary to protect trim.
h. Lever Trim: Solid diecast levers without plastic inserts, and wrought roses on both sides
i. Acceptable Manufacturer: PDQ SD Series

E. ANSI A156.2 Grade 2 Standard Duty Cylindrical Locksets

a. Certified to ANSI/BHMA 156.2, Grade 2 (fixed backset latch only).
b. UL listed for single doors up to 4’0” x 8’0” when ordered with UL latchbolt
c. Heavy-gauge cold rolled steel mechanism, Dichromated for corrosion resistance
d. 2-9/16” Diameter Round Rose, 2-15/16” Square Rose
e. Adjustable - 2-3/8” - 2-3/4” latch standard for Non-Keyed functions, with optional UL fire-rated 2-3/4” or 2-3/8” fixed backset. Fixed backset 2-3/8” or 2-3/4” latchbolt stantard for Keyed functions.
f. Lever Trim: Solid diecast levers without plastic inserts, and wrought roses on both sides
g. Acceptable Manufacturer: PDQ SF Series

F. ANSI A156.2 Grade 1 Heavy Duty Ball Knob Cylindrical Lock

a. ANSI/BHMA A156.2–2003 Grade 1
b. UL/CUL 10C listed for 3 hrs, for single doors up to 4’0” x 8’0”
c. BAA compliant. Country of origin: Taiwan
d. Steel, Yellow Chromate Plated Case
e. 3” DIA Wrought Rose
f. Stainless steel or wrought brass ball knob
g. Acceptable Manufacturer: PDQ SX Series

5. Interconnected Locks

a. ANSI, Grade 2
b. UL fire rated for 3 hrs, for single doors up to 4’0” x 8’0”
c. Complies with ADA (Americans with Disabilities Act) and ICC/ANSI 117.1 for Accessible and Usable Buildings
d. TAA compliant. Country of origin: KR
e. 2-3/8” Round Rose, 2-15/16” Square Rose
f. 3-3/4”W x 9-3/4”H (Wrought) inside escutcheon
f. 1/2” Throw latchbolt
g. 1” Throw deadbolt
h. Acceptable Manufacturer: PDQ CL Series

6. Deadbolts

A. Extra Heavy Duty Deadbolt

a. UL 10C listed, 3-hour fire rated as auxiliary locks for A label single doors
b. UL 10B listed for neutral pressure doors
c. 1” Throw, Brass Bolt containing two concealed 1/4” case-hardened Steel Roll Pins
d. Wrought Brass Scalp
e. Reinforced Diecast Rose
f. Dust Box Included
g. Acceptable Manufacturer: PDQ KT Series

B. Heavy Duty Deadbolt

a. UL 10C listed, 3-hour fire rated as auxiliary locks for A label single door
b. UL 10B listed for neutral pressure doors
c. Complies with ADA (Americans with Disabilities Act) and ICC/ANSI 117.1 for Accessible and Usable Buildings
d. TAA compliant. Country of origin: KR
e. 1” Throw, Brass Bolt containing one 1/4” case-hardened Steel Roll Pin
f. Stainless Steel or Wrought Brass Scalp

g. Reinforced Diecast Rose
h. Acceptable Manufacturer: PDQ KM Series

C. Commercial Duty Deadbolt

a. UL 10C listed, 3-hour fire rated as auxiliary locks for A label single door
b. UL 10B listed for neutral pressure doors
c. Complies with ADA (Americans with Disabilities Act) and ICC/ANSI 117.1 for Accessible and Usable Buildings
d. TAA compliant. Country of origin: KR
e. 1" Throw, Brass Bolt containing one 1/4" case-hardened Steel Roll Pin
f. Stainless Steel or Wrought Brass Scalp
g. Acceptable Manufacturer: PDQ KV Series

7. Exit devices:

A. ANSI A156.3, Grade 1 Exit Device

a. Certified to ANSI/BHMA A156.3 Grade 1
b. Listed for UL 305 "Panic", listed for UL 10C "Fire Exit Hardware" up to 3 hours, listed for UL 294 "Delayed Egress"
c. Type: Flat, push-bar type with noise deadening.
d. Meets requirements of the BAA as a COTS product manufactured in the United States.
e. Complies with ADA (Americans with Disabilities Act) and ICC/ANSI 117.1 for Accessible and Usable Buildings
f. Provide dead-locking latch bolts.
g. Meets CBC Chapter 11B-309.4 when ordered with 5P option
h. Extruded aluminum rail
i. Rim Device/ Mortise Device: Stainless steel dead locking with 3/4" throw
j. Surface/Concealed Vertical Rod Device: Top - Stainless Steel 3/4" toggle, Bottom - 5/8" Travel Drop Bolt
i. Acceptable products: PDQ 6300/6400 series
k. With Delayed Egress
    i. 24VDC +/-10%, 1A average inrush, 250mA continuous
    ii. Acceptable Products: 6300/6400 DE

B. Commercial Grade Exit Device

a. UL 305 listed for "Panic" , UL listed for "Fire Exit Hardware" labeled for up to 1-1/2 hours, 3'0" x 7'0" Max Size
b. Complies with ADA (Americans with Disabilities Act) and ICC/ANSI 117.1 for Accessible and Usable Buildings
c. TAA compliant. Country of origin: Taiwan
d. Corrosion resistant plated steel chassis
e. Heavy gauge steel or stainless steel rail
f. Sex nuts supplied with all Fire Listed devices
g. 3/4" throw for rim device
h. Surface Vertical Rod Device: Top Latch-Pullman with dead latching 5/8" throw - Bottom Latch- Pullman with 5/8" throw, held retracted during door swing
i. Acceptable Products: PDQ 4200 series

8. Door closers:

A. Description: ANSI/BHMA A156.4 Grade 1 HD Closer

1. General:
   a. ANSI A156.4 - 1986 Grade 1
   b. All closers shall be the products of one manufacturer.
2. Description:
   a. Full rack-and-pinion type
   b. Cast Iron Body
   c. Forged Steel Main Arm
   d. Hydraulic fluid: Non-gumming and non-freezing.
   e. Closer body: Non-handed, multi-size spring power.
   f. With three non-critical V valves and hex key adjustment to independently regulate sweep latch speed and backcheck.
   g. Provide mounting brackets necessary to clear sound seals and weatherstrip.
   h. Enclose in a full, molded cover.
   i. Provide drop plates or special brackets for proper mounting.
   j. Pressure Relief Valves will NOT be accepted on Door Closers.
   k. Provide Barrier Free power setting as required by ANSI A117.1
   l. Where SCS is specified, furnish a Stainless Steel swivel snubber. Stationary snubbers, rubber grommets and studs will not be accepted.
3. Acceptable products: PDQ 7100 series

B. Description: ANSI/BHMA A156.4 Grade 1 Institutional Closer

   a. Full rack-and-pinion type
   b. Cast High Strength Aluminum Alloy Body.
   c. Hardened steel, 1-1/2” diameter pinion
   d. Adjustable sized 1 through 6
   e. Hydraulic fluid: Non-gumming and non-freezing.
   f. Closer body: Non-handed, multi-size spring power.
   g. With three non-critical V valves and hex key adjustment to independently regulate sweep latch speed and backcheck.
   h. Provide mounting brackets necessary to clear sound seals and weatherstrip.
   i. Enclose in a full, molded cover.
   j. Provide drop plates or special brackets for proper mounting.
   k. Pressure Relief Valves will NOT be accepted on Door Closers.
   l. Provide Barrier Free power setting as required by ANSI A117.1
   m. Where SCS is specified, furnish a Stainless Steel swivel snubber. Stationary snubbers, rubber grommets and studs will not be accepted.
   n. Acceptable products: PDQ 5100 series

C. Description: ANSI/BHMA A156.4 Grade 1 Commercial Closer

   a. Full rack-and-pinion type
   b. Cast High Strength Aluminum Alloy Body.
   c. Hydraulic fluid: Non-gumming and non-freezing.
   d. Closer body: Non-handed, multi-size spring power.
   e. With three non-critical V valves and hex key adjustment to independently regulate sweep latch speed and backcheck.

f. Provide mounting brackets necessary to clear sound seals and weatherstrip.
g. Enclose in a full, molded cover.
h. Provide drop plates or special brackets for proper mounting.
i. Pressure Relief Valves will NOT be accepted on Door Closers.
j. Provide Barrier Free power setting as required by ANSI A117.1
k. Where SCS is specified, furnish a Stainless Steel swivel snubber. Stationary snubbers, rubber grommets and studs will not be accepted.
l. Adjustable sized BF through 6
m. Acceptable products: PDQ 5500 series (full cover), PDQ 5300 series (Slim cover)

D. Description: ANSI/BHMA A156.4 Grade 1 Light Commercial Closer

a. Full rack-and-pinion type
b. Cast High Strength Aluminum Alloy Body.
c. Hydraulic fluid: Non-gumming and non-freezing.
d. Closer body: Non-handed, multi-size spring power.
e. With three non-critical V valves and hex key adjustment to independently regulate sweep latch speed and backcheck.
f. Provide mounting brackets necessary to clear sound seals and weatherstrip.
g. Streamline plastic cover optional
h. Provide drop plates or special brackets for proper mounting.
i. Pressure Relief Valves will NOT be accepted on Door Closers.
j. Provide Barrier Free power setting as required by ANSI A117.1
k. Where SCS is specified, furnish a Stainless Steel swivel snubber. Stationary snubbers, rubber grommets and studs will not be accepted.
l. Adjustable sized BF through 6
m. Acceptable products: PDQ 3100 series, BF through 4 (3101), 3 - 6 (3100)

9. ELECTRIFIED ACCESSORIES

A. Electric Power Transfers
a. (12) 24 AWG wires with Industry Standard Molex Connectors (ISMC)
b. Max Rating: 24 VDC, 1A
c. Mortises into door and frame and is completely concealed when door is closed
d. UL / ULC Listed for fire doors
e. Acceptable Products: PDQ EPT100

B. Power Supplies
a. Filtered/Regulated 24 Volts DC • Overload, Over Voltage and Short Circuit Protection
b. Accepts 120VAC
c. Controls Fail Safe or Fail Secure Locking Devices
d. Interface Relay Isolates Locking Device Current from Control Switch
e. Auxiliary 24VDC Constant Voltage Output for Powering Stand Alone Devices, Such as, Keypads, Motion Detectors and Status Indicators (Model PS220B only)
f. Surge Suppression on Fail Safe and Fail Secure Outputs
g. UL Listed and Tested to 294 Standard for Access Control System Units
h. BAA Compliant
j. Acceptable Products: PDQ PS series

C. Electric Strikes
A. Electric Strikes for Cylindrical and Mortise Locks
a. Input voltage:12-24 VDC
b. Field changeable from FAIL SECURE to FAIL SAFE
c. Factory tested to 1,000,000 cycle
d. 0.28A @ 12 VDC
e. 0.14A @ 24 VDC

f. Acceptable Products: PDQ 85001 (Cylindrical Locks), 85003 (Mortise Locks)

B. Electric Strikes for Rim Exit Devices
   a. Completely surface-mounted
   b. Accommodates 1/2" to 3/4" (13mm–19mm) latch projection
   c. Mounting spacer included to provide enhanced latch engagement
   d. Stainless steel ensures superior strength and creates a sleek aesthetic design
   e. Horizontal adjustment ensures proper latch positioning to compensate for door misalignment – up to 1/4" (6.4mm)
   f. Conventional keeper design
   g. Plug-in wire connectors
   h. Lockdown holes for secure mount
   i. HEX socket head cap screws for added support
   j. Installation tool included
   k. Non-handed
   l. 1,500lbf Static
   m. 70 ft-lb Dynamic
   n. 250,000 Cycles
   o. Fail-Secure
   p. 3-Hour Fire Rated
   q. 500mA Field-Selectable 12/24VDC & 12-24VAC (Max at 12VDC)
   r. Acceptable Product: PDQ 9910

C. Key Switches/ Push Buttons
   a. Acceptable Products:
      I. 81310-2MT 62 Key Switch with Lights Maintained
      II. 81310-2MM 62 Key Switch with Lights Momentary
      III. 81310-4MT 62 Key Switch Narrow Maintained
      IV. 81310-4MM 62 Key Switch Narrow Momentary
      V. 81320-1MT 62 Push Button Maintained
      VI. 81320-1MM 62 Push Button Momentary
      VII. 81320-5MT 62 Push Button Mushroom Maintained
      VIII. 81320-5MM 62 Push Button Mushroom Momentary
      IX. 81320-6MT 62 Push Button Narrow Maintained
      X. 81320-6MM 62 Push Button Narrow Momentary

10. Electrified/ Electronic Locks

A. Electrified Mortise Lock
   a. Input voltage: 12-24VDC or 12-24VAC.
   b. Max In-rush current: 1.0A.
   c. Standby current:
      1. 12VAC: 12mA.
      2. 24VAC: 10mA.
      3. 12VDC: 3mA.
      4. 24VDC: 5mA.
   d. Operating voltage at ± 10% of rated voltage.
   e. ANSI/UL10C and CAN/ULC-5104 Listed for "Fire Exit Hardware" up to 3 hours for 4'0" x 8'0" maximum single, 8'0" x 8'0" maximum pairs.
   f. Assembled in the U.S.A. with U.S. and foreign material. Meets requirements of the Buy American Act as a COTS product manufactured in the United States.
   g. Acceptable Products: MR 199A

B. Electrified Cylindrical Lock
   a. Input voltage: 12-24VDC or 12-24VAC.
   b. Max In-rush current: 1.0A.
   c. Standby current:
      – 12VAC: 12mA.

– 24VAC: 10mA.
– 12VDC: 3mA.
– 24VDC: 5mA.

d. 12-24VDC @ < 1A initial surge (1 sec), 5mA standby after 30 sec.
– AC Output Voltage.

e. 12-24VAC (60Hz) @ < 1A initial surge (1 sec),15mA standby after 30 sec

f. Operating voltage at ± 10% of rated voltage.

g. ANSI/UL10C and CAN/ULC-5104 Listed for “Fire Exit Hardware” up to 3 hours for 4’0” x 8’0” maximum single, 8’0” x 8’0” maximum pairs.

h. Assembled in the U.S.A. with U.S. and foreign material. Meets requirements of the Buy American Act as a COTS product manufactured in the United States.

i. Acceptable Product: XGT/GT199A

11. Accessories/ General Hardware

A. ANSI Type 21A Coordinator

a. Mechanism and filler bar completely fill width of opening
b. Suitable for painting to match door and frame finish
c. UL listed for 3 hours for use with a pair of swing doors incorporating an astragal
d. Complies with ANSI/BHMA156.3 Type 21A
e. Acceptable Product PDQ COORD (size to fit)

B. Auto Flush Bolts – Metal Door

a. Easy closing force.
b. UL/CUL 10C listed for hollow labeled hollow metal swing doors, 4’ x 8’, 3-1/2 hrs
c. Complies with ANSI/BHMA A156.16 Type 27 (Formerly included in A156.3)
d. Override feature prevents damage to doors or bolts if bolt heads are blocked from entering strikes.
e. Bolt head rod is adjustable up to 1-1⁄2”.
f. Fusible link automatically locks the inactive door under high heat conditions due to fire
g. PDQ # 909 Dust Proof Strike recommended to prevent dirt from accumulating and clogging the bottom strike (ordered separately)
h. Acceptable Product: PDQ 93101

C. Surface Bolts and Flushbolts:

a. ANSI/BHMA A156
b. Fire-rating: "WHI-listed" and "UL-listed” as necessary.
c. Provide flushbolts with size top bolt and bottom bolt as specified.
a. Use extended length bolts as specified or required.
b. Use the appropriate type of bolt for wood or hollow metal as required.
d. Use dust proof strike as specified with each set of flushbolts.
e. Acceptable manufacturer’s: PDQ 90000 series

12. Padlocks

a. Crafted with a US26D plated solid brass body
b. Enhanced with a protective blue bumper
c. Features an anti-cut molybdenum shackle that ensures superior resistance to tampering
d. Backed by a double ball bearing locking mechanism for added security
e. Accepts rekeyable and changeable 6 or 7 pin SFIC cylinders
f. Includes a set screw for easy conversion to key retaining mode
g. Has a patented clever shackle change design that allows hassle-free shackle replacement
h. Available in three shackle diameters 1/4” (PL1), 5/16” (PL2), and 3/8” (PL3)
i. Available in four shackle heights 3/4” (A), 1 1/2” (B), 2” (C), and 4” (D)
j. Available in three body sizes 1 19/32”, 1 3/4”, and 1 31/32”
k. Frangible shackle is available on our (PL1-B) model only
l. Stainless steel shackle is available by special order only
m. Acceptable Product: PDQ PL Series

13. OTHER MATERIALS

A. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the Architect.
B. Acceptable Manufacturer: PDQ or approved manufacturer if not offered by PDQ.

14. HARDWARE FINISHES

A. General:
   1. Provide matching finishes for hardware units at each door or opening, to the greatest extent possible and except as otherwise indicated.
   2. Reduce differences in color and textures as much as commercially possible where the base metal or metal forming process is different for individual units of hardware exposed at the same door or opening.
   3. In general, match items to the manufacturer's standard finish for the latch and lock set (or push/pull units if no latch/lock sets) for color and texture.
   4. Provide finishes matching those established by BHMA or, if none established, match the Architect's sample.
   5. 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 that specified for the applicable units of hardware by referenced standards.
   6. Finish designations used in schedules and elsewhere listed in ANSI A156.18 "Materials and Finishes Standard", including coordination with the traditional U.S. finishes shown by certain manufacturers for their products.

B. Provide the following hardware finishes, unless otherwise scheduled:
   Satin Chrome, Stainless Steel, and Aluminum color pallet.

C. Base material: Manufacturer’s standard high-carbon steel, brass, or bronze.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.2 COORDINATION

A. Coordinate as required with other trades to assure proper and adequate provision in the work of those trades for interface with the work of this Section.

3.3 INSTALLATION

A. General:
   1. Install each item in its proper location firmly anchored into position, level and plumb, and in accordance with the manufacturer's recommendations.
   2. Handing, hardware heights, locations, and degree of opening swing are indicated in the Drawings and Finish Hardware Schedule.
   3. Mount finish hardware units:
      a. At recommended heights and locations as shown in approved finish hardware schedule, complying with requirements of the A.D.A., and pertinent provisions of the Building Code.
      b. To function at proper degree of opening of doors as indicated on approved finish

hardware schedule.
c. By manufacturer's template.
d. Prior to final finishing of the door. Remove hardware to allow finishing of door, and permanently reinstall hardware upon completion of finishing operation.

3. Reinforce, where necessary, the substrate to assure proper attachment.
4. Drill and countersink units which are not factory-prepared for anchorage fasteners.
5. Space fasteners and anchors in accordance with industry standards.
6. Provide hinge filler plates to fill existing hinge preps.
7. Patch and repair any hinge, lock, closer or miscellaneous hardware preps on existing frames prior to hanging door and mounting new hardware.

B. Installing closers:
1. Mount closers per manufacturer's template, and secure the Architect's approval of the closer installation.
2. The Contractor will be required to **REPLACE** doors onto which closers are improperly mounted at no additional cost to the Owner. Repair or patching of such doors will not be acceptable.

C. Installing Stops: Install all wall stops into reinforced wall or stud. Install floor stops out of the way foot traffic at a height high enough to accommodate any ramp or uneven floor condition.

D. Installing thresholds at exterior doors: Set in full bed of butyl-rubber, or polyisobutylene mastic sealant.

E. Installing weatherstrip: Install weatherstrip prior to installing closers, OH Stops or panic hardware. Template closers and panic devices from weatherstrip and install all closer / OH Stop shoe brackets and panic device strikes onto the weatherstrip without notching or cutting the weatherstrip.

F. Installing Sweeps: Install all sweeps on exterior side of opening.

3.4 FIELD QUALITY CONTROL

A. Inspection of final hardware installation: The Contractor, hardware suppliers, and Architectural Hardware Consultant (AHC) shall thoroughly check the quality of the installation and the functionality of each unit of finish hardware at all openings in the Work. The Hardware Supplier shall forward a detailed written report of all operational or installation deficiencies to the Architect and Contractor.

3.5 CLEANING AND ADJUSTING

A. Check and adjust each item of hardware and each door upon completion of final installation. Verify proper function, and replace units which cannot be made to operate freely and smoothly, as intended for the application.

B. Clean adjacent surfaces soiled by hardware installation.