

## SECTION 08 71 00 – DOOR HARDWARE

### PART 1 - GENERAL

#### 1.01 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

#### **AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)**

|                  |                                                                                                                                                       |
|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| ASTM E 283       | (1991) Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls and Doors Under Specified Pressure Differences Across the Specimen |
| ASTM E 90 / E413 | Tested Assembly                                                                                                                                       |

#### **BUILDERS HARDWARE MANUFACTURERS ASSOCIATION (BHMA)**

|                             |                                                                  |
|-----------------------------|------------------------------------------------------------------|
| BHMA L & R Directory        | (Effective thru Jun 1999) Directory of Certified Locks & Latches |
| BHMA Closer Directory       | (Effective thru Jul (1999) Directory of Certified Door Closers   |
| BHMA Exit Devices Directory | (Effective thru Aug 1998) Directory of Certified Exit Devices    |
| BHMA A156.1                 | (1997) Butts and Hinges                                          |
| BHMA A156.2                 | (1996) Bored and Preassembled Locks and Latches                  |
| BHMA A156.3                 | (1994) Exit Devices                                              |
| BHMA A156.4                 | (1992) Door Controls - Closers                                   |
| BHMA A156.5                 | (1992) Auxiliary Locks & Associated Products                     |
| BHMA A156.6                 | (1994) Architectural Door Trim                                   |
| BHMA A156.7                 | (1997) Template Hinge Dimensions                                 |
| BHMA A156.8                 | (1994) Door Controls - Overhead Stops and Holders                |
| BHMA A156.15                | (1995) Closer Holder Release Devices                             |
| BHMA A156.16                | (1989) Auxiliary Hardware                                        |
| BHMA A156.18                | (1993) Materials and Finishes                                    |
| BHMA A156.21                | (1996) Thresholds                                                |

#### **DOOR AND HARDWARE INSTITUTE (DHI)**

|                           |                                                                                            |
|---------------------------|--------------------------------------------------------------------------------------------|
| DHI Locations for CSD     | (1997) Recommended Locations for Builders' Hardware for Custom Steel Doors and Frames      |
| DHI Locations for SSD for | (1990) Recommended Locations for Architectural Hardware<br>Standard Steel Doors and Frames |
| DHI ANSI/DHI A115.1G      | (1994) Installation Guide for Doors and Hardware                                           |

DHI ANSI/DHI A115-W (Varies) Wood Door Hardware Standards  
(Incl A115-W1 thru A115-W9)

**NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)**

NFPA 80 (1999) Fire Doors and Fire Windows  
NFPA 101 (1997; Errata 97-1; TIA-97-1) Life Safety Code  
NFPA 105 (1999) Installation of Smoke-Control Door Assemblies

**1.02 SUBMITTALS**

A. Government approval is required for all submittals. The following shall be submitted in accordance with Section 01 33 00 SUBMITTAL PROCEDURES

**1. Hardware Schedule**

- a. Hardware schedule listing all items to be furnished. The schedule shall include for each item:
  - i. the quantities;
  - ii. manufacturer's name and catalog numbers;
  - iii. the ANSI number specified, sizes;
  - iv. detail information and catalog cuts;
  - v. finishes;
  - vi. door and frame size and materials;
  - vii. location and hardware set identification cross-references to drawings;
  - viii. corresponding reference standard type number or function number from manufacturer's catalog if not covered by ANSI or BHMA;
  - ix. and list of abbreviations and template numbers.

**1.03 DELIVERY, STORAGE, AND HANDLING**

- A. Hardware shall be delivered to the project site in the manufacturer's original packages. Each article of hardware shall be individually packaged in the manufacturer's standard commercial carton or container, and shall be properly marked or labeled to be readily identifiable with the approved hardware schedule.
- B. Each change key shall be tagged or otherwise identified with the door for which its cylinder is intended. Where double cylinder functions are used or where it is not obvious which is the key side of a door, appropriate instructions shall be included with the lock and on the hardware schedule.
- C. Manufacturer's printed installation instructions, fasteners, and special tools shall be included in each package.

**1.04 SPECIAL TOOLS**

Special tools, such as those supplied by the manufacturer, unique wrenches, and dogging keys, shall be provided as required to adjust hardware items.

## 1.05 WARRANTY

Manufacturer's standard performance guarantees or warranties that extend beyond a one year period shall be provided.

## 1.06 OPERATION AND MAINTENANCE MANUALS

Three complete copies of maintenance instructions listing routine maintenance procedures, possible breakdowns and repairs, and troubleshooting guides shall be provided.

# PART 2 - PRODUCTS

## 2.01 GENERAL HARDWARE REQUIREMENTS

- A. Hardware shall conform to the requirements specified herein and the DOOR HARDWARE SCHEDULES listed at the end of this section.
- B. All doors shall be operated by curved return lever handles, touch bar exit devices, J407 Pulls or J301/304 Push Plates. Door knobs are NOT acceptable devices.
- C. Manufacturers were selected because each maintains U.S. manufacturing for the product lines named. Country of origin varies by individual product line, finish and options - some SKUs within a domestic manufacturer's catalog are imported. Each supplier must certify country of origin line by line at submittal. The applicable Buy American / Trade Agreements clause is NOT stated in this task order RFP; RFP paragraph 17 incorporates all contract clauses from the respective MACC IDIQ. Confirm the governing clause against the base IDIQ before relying on this list.

## 2.02 TEMPLATES

- A. Requirements for hardware to be mounted on metal doors or metal frames shall be coordinated between hardware manufacturer and door or frame manufacturer by use of templates and other information to establish location, reinforcement required, size of holes, and similar details. Templates of hinges shall conform to BHMA A156.7.

## 2.03 HINGES

Hinges shall conform to BHMA A156.1. Hinges used on metal doors and frames shall also conform to BHMA A156.7.

- A. Hinges shall be at a minimum, Heavy Weight, 4-1/2" x 4-1/2" ANSI 5111, five knuckle with four ball bearings, NRP at reverse bevel. Base shall be stainless steel or brass for exterior doors.
- B. Manufacturers:
  - 1) Hager (Montgomery AL)
  - 2) McKinney/ASSA ABLOY (Scranton PA)
  - 3) Ives/Allegion | Bommer (Landrum SC)

## 2.04 LEVER HANDLE LOCKSETS & DEADBOLTS

To the maximum extent possible, lever handle locksets and deadbolts, and all components thereof, including cylinders and removable cores, shall be the products of a single manufacturer. Lock fronts for double-acting doors shall be rounded. Strikes for wood doors shall be furnished with wrought boxes.

- A. Lever Handle Cylindrical Locksets - Lever Handle Cylindrical Locksets, and strikes shall be series 4000, and shall conform to BHMA A156.2, Grade 1.
- B. Lever Handle Cylindrical Locksets & Deadbolts shall have adjustable bevel fronts or otherwise conform to the shape of the door. Lever handles shall be Curved Return 14D, Best Series 9K, Grade 1, function ANSI F81 or approved equal.
- C. Tubular Deadbolts - shall conform to BHMA A156.5, Grade 1.
  - 1. 1 in throw minimum, SFIC prep, 48 in AFF.
  - 2. Manufacturers:
    - 1) BEST 83T/85T
    - 2) Schlage B660P/B571
    - 3) Sargent 4870
    - 4) Corbin Russwin DL3000
    - 5) Falcon D241
- D. Lock Cylinders/Interchangeable Key Cores - Lock Cylinders/ Interchangeable Key Cores shall comply with BHMA A156.5.
  - 1. Lock cylinders/Interchangeable Key Cores shall be Best Lock Corp., 7 PIN SCIF interchangeable key core compatible and extend the existing LRAFB BEST A3 system (SOW 2.04.C).
  - 2. Final key cores shall be provided by this contract and be an extension of the existing Best style A3 keying system.
  - 3. Final coded core shall be delivered to LRAFB Locksmith Shop directly from the manufacturer or his designated supplier.
  - 4. Final coded cores will be installed by LRAFB Locksmith Shop.
  - 5. Provide two coded keys with each core.
  - 6. Disassembly of Lever Handle Cylindrical lockset or exit device shall not be required to remove core from lockset.
  - 7. All locksets, and lockable exit devices shall accept and be Best Lock Corp., 7 PIN interchangeable key core compatible.
  - 8. Manufacturers:
    - 1) BEST/dormakaba 7-pin SFIC (Indianapolis IN)
    - 2) Medeco (Salem VA)
    - 3) Arrow/ASSA ABLOY
    - 4) Falcon/Allegion
    - 5) Schlage Everest SFIC

### E. Lock Trim

1. Lock trim shall be cast, forged, or heavy wrought construction of commercial plain design.
2. In addition to meeting the test requirement of BHMA A156.2, lever handles, roses, and escutcheons shall be 0.050 inch thick, if unreinforced. If reinforced, the outer shell shall be 0.035 inch thick and the combined thickness shall be 0.070 inch except that knob shanks shall be 0.060 inch thick.

F. Manufacturers:

- 1) BEST/dormakaba 9K (Indianapolis IN)
- 2) Schlage/Allegion ND (Indianapolis IN)
- 3) Sargent/ASSA ABLOY 10 Line (New Haven CT)
- 4) Corbin Russwin CL3300 (Berlin CT)
- 5) Falcon/Allegion T Series

## 2.05 EXIT DEVICES AND EXIT DEVICE ACCESSORIES

Exit devices and exit device accessories shall conform to BHMA A156.3, Grade 1.

A. Exit Devices and Auxiliary Items

1. Trim shall be of wrought construction and commercial plain design with straight, beveled, or smoothly rounded sides, corners, and edges.
2. Adjustable flush mortise strikes shall be provided vertical rod devices.
3. Open back strikes shall be provided for pairs of doors with mortise and vertical rod devices; except open back strikes shall be used on labeled doors only where specifically provided for in the published listings.
4. Touch bars shall be provided instead of conventional crossbars and arms. Von Duprin Series 99, Precision Hardware Inc/Apex 2000 Series or Hager Company Inc 4500 Series.
5. Fire Exit Hardware label where on labeled assemblies.
6. Manufacturers:
  - a. Von Duprin/Allegion 98/99, 33A/35A (Indianapolis IN)
  - b. Sargent 80 Series (New Haven CT)
  - c. Precision/Apex 2000
  - d. Hager 4500
  - e. Detex (New Braunfels TX)

## 2.06 DOOR CLOSING DEVICES

Door closing devices shall conform to BHMA A156.4, Grade 1. Closing devices shall be products of one manufacturer for each type specified. The opening resistance of closing devices shall not exceed 5 lbs applied at the latch stile. Thru-bolt or sex bolt at exterior doors.

A. Surface Type Closers

Surface type closers shall be Grade 1, Series C02000 Full Cover with options PT-4H, Size 1, and PT-4D with back check position valve. Except as otherwise specified, sizes shall conform to the manufacturer's published recommendations. All closers shall be top jamb (push side) mounted.

B. Manufacturers:

- 1) LCN/Allegion 4040XP-4020 (Princeton IL)
- 2) Norton/ASSA ABLOY 7500 (Monroe NC)
- 3) Sargent 351
- 4) Corbin Russwin DC6000
- 5) Hager 5100

## 2.07 ARCHITECTURAL DOOR TRIM

Architectural door trim shall conform to BHMA A156.6.

A. Door Protection Plates

1. Kick Plates - shall be Type J102 stainless steel.
2. Width of plates shall be 2 inches less than door width for single doors 1 inch less for pairs of doors.
3. Height shall be 10 inches. Edges of metal plates shall be beveled.

B. Push Plates - Push-pull plates shall be Type J301/304, Grade 1, 0.050 inch thick minimum stainless steel beveled four edges.

C. Door Pulls and Plate - Door Pull and Plate shall be Category J407 stainless steel, Grade 1.

D. Manufacturers:

- 1) Hager
- 2) Ives/Allegion
- 3) Rockwood/ASSA ABLOY
- 4) Trimco (Los Angeles CA)
- 5) Burns Mfg (Erie PA)

## 2.08 MISCELLANEOUS

A. Metal Thresholds

1. Thresholds shall conform to BHMA A156.21.
2. Thresholds for exterior doors shall be extruded aluminum of the type indicated and shall provide proper clearance and an effective seal with specified weather stripping.
3. Where required, thresholds shall be modified to receive projecting bolts of exit devices.

4. Thresholds shall be beveled with slopes not exceeding 1:2 and with heights not exceeding 1/2 inch.
5. Air leakage rate of weatherstripping shall not exceed 0.5 cubic feet per minute per lineal foot of crack when tested in accordance with ASTM E 283 at standard test conditions. Acoustic gasketing at STC 50 openings.

6. Manufacturers:

- 1) Pemko/ASSA ABLOY (Ventura CA)
- 2) National Guard Products (Memphis TN)
- 3) Zero International (Bronx NY)
- 4) Reese Enterprises (Rosemount MN)
- 5) Hager 400/700

B. Rain Drips

1. Extruded aluminum, not less than 0.07 inch thick, clear anodized aluminum.
2. Door sill rain drips shall be 1-1/2 inches to 1-3/4 inches high by 5/8 inch projection.
3. Overhead rain drips shall be approximately 1-1/2 inches high by 2-1/2 inches projection and shall extend 2 inches on either side of the door opening width.

C. Aluminum Housed Type Weatherseals

1. Weatherseals of the type indicated shall consist of extruded aluminum retainers not less than 0.07 inch wall thickness with TPE inserts.
2. Aluminum shall be clear anodized.
3. Weatherseal material shall be of an industrial/commercial grade. Seals shall remain functional through all weather and temperature conditions.
4. Air leakage rate of weatherstripping shall not exceed 0.5 cubic feet per minute per lineal foot of crack when tested in accordance with ASTM E 283 at standard test conditions.

D. Door Stops

1. Wall stops, floor stops and combination stop and holders shall conform to BHMA A156.16.

E. Door Viewer

1. Shall conform to BHMA A156.16
2. 180-degree, UL listed. Dual viewers at ABA units.
3. Manufacturers:
  - a. Ives/Allegion
  - b. Rockwood/ASSA ABLOY
  - c. Hager
  - d. Trimco

F. Electrified Hardware and access control interface

1. Shall conform to UL 294, BHMA as applicable.
2. Provide card readers, door position sensors, electric latch retraction, power transfer as identified in the hardware sets.
3. Manufacturers:
  - a. Von Duprin/Allegion
  - b. Sargent/ASSA ABLOY
  - c. HES/ASSA ABLOY (Phoenix AZ)
  - d. Securitron/ASSA ABLOY
  - e. SDC (Camarillo CA)
  - f. Command Access (Fenton MI)

G. Fire Rated and sightproof louvers

1. Conform to UL 1784 / NFPA 80.
2. Provide at mechanical/electrical rooms where transfer air is required.
3. Manufacturers:
  - a. Air Louvers/Activar (Bloomington MN)
  - b. Anemostat (Scranton PA)
  - c. Controlled Air (Kansas City MO)

## 2.09 FASTENINGS

Fastenings of proper type, size, quantity, and finish shall be supplied with each article of hardware.

1. Machine screws and expansion shields shall be used for attaching hardware to concrete or masonry.
2. Fastenings exposed to the weather in the finished work shall be of brass, bronze, or stainless steel.
3. Sex bolts, through bolts, or machine screws and grommet nuts, where used on reverse-bevel exterior doors equipped with half-surface or full-surface hinges, shall employ one-way screws or other approved tamperproof screws.
4. Screws for the jamb leaf of half-mortise and full-surface hinges attached to structural steel frames shall be one-way or other approved tamperproof type.

## 2.10 FINISHES

Unless otherwise specified, finishes shall conform to those identified in BHMA A156.18. All finishes shall be Satin Chromium Plated unless otherwise noted.

## 2.11 HARDWARE FOR FIRE DOORS

Hardware for fire doors shall conform to the requirements of NFPA 80 and NFPA 101.

### PART 3 - EXECUTION

#### 3.01 APPLICATION

Hardware shall be located in accordance with DHI Locations for CSD and DHI Locations for SSD, except that deadlocks shall be mounted 48 inches above finish floor. When approved, slight variations in locations or dimensions will be permitted. Application shall be in accordance with DHI ANSI/DHI A115.1G or DHI ANSI/DHI A115-W. Door control devices for exterior doors such as closers and holders, shall be attached to doors with thru bolts and nuts or sex bolts. Alternate fastening methods may be approved by the Contracting Officer's Representative when manufacturers' documentation is submitted to verify that the fastening devices and door reinforcements are adequate to resist wind induced stresses.

##### A. Hardware for Fire Doors and Smoke-Control Door Assemblies

Hardware for fire doors shall be installed in accordance with the requirements of NFPA 80. Exit devices installed on fire doors shall have a visible label bearing the marking "Fire Exit Hardware". Other hardware installed on fire doors, such as locksets, closers, and hinges shall have a visible label or stamp indicating that the hardware items have been approved by an approved testing agency for installation on fire-rated doors. Hardware for smoke-control door assemblies shall be installed in accordance with NFPA 105.

##### B. Door-Closing Devices

Door-closing devices shall be installed and adjusted in accordance with the templates and printed instructions supplied by the manufacturer of the devices. All doors shall have the closer mounted on the push side of the door.

##### C. Kick Plates and Mop Plates

Kick plates shall be installed on the push side of single-acting doors and on both sides of double-acting doors. Mop plates shall be installed on the pull side of the single acting doors.

##### D. Thresholds

Thresholds shall be secured with a minimum of three fasteners per single door width and six fasteners per double door width with a maximum spacing of 12 inches. Exterior thresholds shall be installed in a bed of sealant with expansion anchors and stainless steel screws, except that bronze or anodized bronze thresholds shall be installed with expansion anchors with brass screws. Minimum screw size shall be No. 10 length, dependent on job conditions, with a minimum of 3/4 inch thread engagement into the floor or anchoring device used.

##### E. Rain Drips

Door sill rain drips shall align with the bottom edge of the door. Overhead rain drips shall align with bottom edge of door frame rabbet. Drips shall be set in sealant and fastened with stainless steel screws.

##### F. Weatherseals

Weatherseals shall be located as indicated, snug to door face and fastened in place with color matched metal screws after door and frames have been finish painted. Screw spacing shall be as recommended by manufacturer.

### 3.02 OPERATIONAL TESTS

Prior to acceptance of any electrical hardware system, an operational test shall be performed to determine if devices are operating as intended by the specifications. Wiring shall be tested for correct voltage, current carrying capacity, and proper grounding. Stray voltages in lock wiring shall be eliminated to prevent locking devices from releasing in critical situations.

### 3.03 FIELD QUALITY CONTROL

Contractor shall inspect the completed installation and certify that the hardware has been furnished and installed in accordance with the manufacturers' instructions and as specified. The inspection report shall identify any malfunctioning items and recommend adjustment or replacement as appropriate.

### 3.04 HARDWARE SETS

Contractor shall provide and install door hardware as indicated on the following door hardware schedules. All door hardware shall be Grade 1. All door hardware shall be Builder Hardware Manufacturers Association (BHMA) Satin Chromium Plated, Brass, Bronze or Steel material unless otherwise noted to be Satin stainless steel (SS), brushed aluminum (A) or clear aluminum (X). Only items used within the conditioned building envelope will be allowed to be plated steel.

## HARDWARE SET 1

| QTY                                                                                                                                                                                                         | ITEM                                      | ANSI / BHMA STANDARD        | FUNCTION / TYPE                                            | GRADE | FINISH                |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|-----------------------------|------------------------------------------------------------|-------|-----------------------|
| <b>DORMITORY ROOM ENTRY - TYPICAL (72 doors)   Exterior, opens to open-air balcony   STC 50 assembly   PASSAGE LEVER + SEPARATE DEADBOLT per 19 CES Dorm Management 35% review comment 13 and SOW 3.3.8</b> |                                           |                             |                                                            |       |                       |
| 1-1/2 pr                                                                                                                                                                                                    | Hinges, full mortise                      | BHMA A156.1 / A156.7, A5111 | Heavy weight, 5-knuckle, 4 ball bearings, NRP, button tip  | 1     | 630 satin stainless   |
| 1                                                                                                                                                                                                           | Passage latch set, cylindrical lever      | BHMA A156.2, Series 4000    | ANSI F75 Passage - NO LOCK IN THE LEVER                    | 1     | 630 satin stainless   |
| 1                                                                                                                                                                                                           | Deadbolt, single cylinder                 | BHMA A156.5                 | ANSI E2151, 1 in throw, SFIC prep, interior thumbturn      | 1     | 630 satin stainless   |
| 2                                                                                                                                                                                                           | Interchangeable core, 7-pin SFIC          | BHMA A156.5                 | Small format interchangeable core                          | 1     | 626 / 630             |
| 1                                                                                                                                                                                                           | Door viewer (peephole)                    | BHMA A156.16                | 180-degree, UL listed                                      | 1     | 630 satin stainless   |
| 1                                                                                                                                                                                                           | Surface closer                            | BHMA A156.4                 | Grade 1, full cover, adjustable, back-check                | 1     | 689/630 to match      |
| 1                                                                                                                                                                                                           | Kick plate                                | BHMA A156.6                 | J102, 10 in x 34 in, beveled edges                         | 1     | 630 satin stainless   |
| 1                                                                                                                                                                                                           | Wall or floor stop                        | BHMA A156.16                | Tri-base floor stop or wall bumper                         | 1     | 630 satin stainless   |
| 3                                                                                                                                                                                                           | Silencers                                 | BHMA A156.16                | Rubber or vinyl, not painted                               | -     | -                     |
| 1                                                                                                                                                                                                           | Threshold                                 | BHMA A156.21                | Extruded aluminum, max 1/2 in high, bevel 1:2 max          | -     | Mill / clear anodized |
| 1 set                                                                                                                                                                                                       | Weatherstrip gasketing, head and jambs    | BHMA A156.22                | Adjustable, TPE or silicone bulb                           | -     | Clear anodized        |
| 1                                                                                                                                                                                                           | Door bottom sweep / automatic door bottom | BHMA A156.22                | Nylon brush or automatic drop seal                         | -     | Clear anodized        |
| 1                                                                                                                                                                                                           | Rain drip, overhead                       | -                           | 1-1/2 in high x 2-1/2 in projection, extend 2 in each side | -     | Clear anodized        |

## HARDWARE SET 1A

| QTY                                                                                                                 | ITEM                                 | ANSI / BHMA STANDARD | FUNCTION / TYPE                                             | GRADE | FINISH              |
|---------------------------------------------------------------------------------------------------------------------|--------------------------------------|----------------------|-------------------------------------------------------------|-------|---------------------|
| <b>DORMITORY ROOM ENTRY - ABA ACCESSIBLE (2 doors: Rooms 122 and 124)   Same as HW-1 with the following changes</b> |                                      |                      |                                                             |       |                     |
| -                                                                                                                   | All items per HW-1                   | -                    | -                                                           | -     | -                   |
| 1                                                                                                                   | Passage latch set, cylindrical lever | BHMA A156.2          | ANSI F75 Passage                                            | 1     | 630 satin stainless |
| 1                                                                                                                   | Deadbolt, single cylinder            | BHMA A156.5          | ANSI E2151, ABA lever-style thumbturn                       | 1     | 630 satin stainless |
| 2                                                                                                                   | Door view ers                        | BHMA A156.16         | 180-degree                                                  | 1     | 630 satin           |
| 1                                                                                                                   | Surface closer                       | BHMA A156.4          | Grade 1, adjustable spring size                             | 1     | 689/630             |
| -                                                                                                                   | Clear opening                        | -                    | 32 in min clear; 36 in leaf provides approx 33-1/2 in clear | -     | -                   |

## HARDWARE SET 2

| QTY                                                                    | ITEM                                | ANSI / BHMA STANDARD     | FUNCTION / TYPE                                 | GRADE | FINISH           |
|------------------------------------------------------------------------|-------------------------------------|--------------------------|-------------------------------------------------|-------|------------------|
| <b>DORMITORY UNIT BATHROOM (74 doors)   Interior, solid core birch</b> |                                     |                          |                                                 |       |                  |
| 1-1/2 pr                                                               | Hinges, full mortise                | BHMA A156.1, A5111       | Heavy weight, ball bearing                      | 1     | 626 satin chrome |
| 1                                                                      | Privacy lock set, cylindrical lever | BHMA A156.2, Series 4000 | ANSI F76 Privacy, w / emergency outside release | 1     | 626 satin chrome |
| 1                                                                      | Wall stop                           | BHMA A156.16             | Concave wall bumper                             | 1     | 626 satin chrome |
| 3                                                                      | Silencers                           | BHMA A156.16             | Rubber or vinyl                                 | -     | -                |
| -                                                                      | Show er enclosure                   | -                        | -                                               | -     | -                |

## HARDWARE SET 2A

| QTY                                                                   | ITEM                                | ANSI / BHMA STANDARD     | FUNCTION / TYPE                                | GRADE | FINISH           |
|-----------------------------------------------------------------------|-------------------------------------|--------------------------|------------------------------------------------|-------|------------------|
| <b>DORMITORY UNIT BATHROOM - ABA ACCESSIBLE (2 doors: 122A, 124A)</b> |                                     |                          |                                                |       |                  |
| 1-1/2 pr                                                              | Hinges, full mortise                | BHMA A156.1, A5111       | Heavy weight, ball bearing                     | 1     | 626 satin chrome |
| 1                                                                     | Privacy lock set, cylindrical lever | BHMA A156.2, Series 4000 | ANSI F76 Privacy, w/ emergency outside release | 1     | 626 satin chrome |
| 1                                                                     | Wall stop                           | BHMA A156.16             | Concave wall bumper                            | 1     | 626 satin chrome |
| 3                                                                     | Silencers                           | BHMA A156.16             | Rubber or vinyl                                | -     | -                |
| -                                                                     | Shower enclosure                    | -                        | -                                              | -     | -                |
| 1                                                                     | Privacy lock set, cylindrical lever | BHMA A156.2              | ANSI F76 Privacy, ABA-compliant turn piece     | 1     | 626 satin chrome |
| 1                                                                     | Push/pull or offset pull            | BHMA A156.6              | J407 pull                                      | 1     | 630              |

## HARDWARE SET 3

| QTY                                     | ITEM                                 | ANSI / BHMA STANDARD | FUNCTION / TYPE            | GRADE | FINISH           |
|-----------------------------------------|--------------------------------------|----------------------|----------------------------|-------|------------------|
| <b>DORMITORY UNIT CLOSET (74 doors)</b> |                                      |                      |                            |       |                  |
| 1-1/2 pr                                | Hinges, full mortise                 | BHMA A156.1, A5111   | Heavy weight, ball bearing | 1     | 626 satin chrome |
| 1                                       | Passage latch set, cylindrical lever | BHMA A156.2          | ANSI F75 Passage           | 1     | 626 satin chrome |
| 1                                       | Wall stop                            | BHMA A156.16         | Concave wall bumper        | 1     | 626 satin chrome |
| 3                                       | Silencers                            | BHMA A156.16         | Rubber or vinyl            | -     | -                |

## HARDWARE SET 4

| QTY                                                             | ITEM                             | ANSI / BHMA STANDARD | FUNCTION / TYPE            | GRADE | FINISH           |
|-----------------------------------------------------------------|----------------------------------|----------------------|----------------------------|-------|------------------|
| COMMON RESTROOM - Room 121   Per SOW 08 71 00 restroom schedule |                                  |                      |                            |       |                  |
| 1-1/2 pr                                                        | Hinges, full mortise             | BHMA A 156.1, A5111  | Heavy weight, ball bearing | 1     | 626 satin chrome |
| 1                                                               | Cylindrical lever lock set       | BHMA A 156.2         | ANSI F81 Office/Entrance   | 1     | 626 satin chrome |
| 1                                                               | Door pull and plate              | BHMA A 156.6         | J407 pull                  | 1     | 630 stainless    |
| 1                                                               | Push plate                       | BHMA A 156.6         | J301 / J304                | 1     | 630 stainless    |
| 2                                                               | Kick plates                      | BHMA A 156.6         | J102, 10 in x 34 in        | 1     | 630 stainless    |
| 1                                                               | Surface closer                   | BHMA A 156.4         | Grade 1, adjustable        | 1     | 689/626          |
| 1                                                               | Floor stop                       | BHMA A 156.16        | Tri-base w / bumper        | 1     | 626              |
| 3                                                               | Silencers                        | BHMA A 156.16        | Rubber or vinyl            | -     | -                |
| 1                                                               | Interchangeable core, 7-pin SFIC | BHMA A 156.5         | SFIC                       | 1     | 626              |

## HARDWARE SET 5

| QTY                                                                                                 | ITEM                                  | ANSI / BHMA STANDARD | FUNCTION / TYPE                                                                                | GRADE | FINISH                        |
|-----------------------------------------------------------------------------------------------------|---------------------------------------|----------------------|------------------------------------------------------------------------------------------------|-------|-------------------------------|
| <b>STOREROOM - MECHANICAL / ELECTRICAL / STORAGE (Rooms 115, 116, 117, 120, 218, 315, 316, 318)</b> |                                       |                      |                                                                                                |       |                               |
| 1-1/2 pr                                                                                            | Hinges, full mortise                  | BHMA A156.1, A5111   | Heavy weight, ball bearing, NRP where reverse bevel                                            | 1     | 626 / 630 if exterior-exposed |
| 1                                                                                                   | Storeroom lock set, cylindrical lever | BHMA A156.2          | ANSI F86 Storeroom - outside lever always locked, key retracts latch, inside lever always free | 1     | 626 satin chrome              |
| 1                                                                                                   | Deadbolt, single cylinder             | BHMA A156.5          | ANSI E2151, SFIC prep                                                                          | 1     | 626                           |
| 2                                                                                                   | Interchangeable core, 7-pin SFIC      | BHMA A156.5          | SFIC                                                                                           | 1     | 626                           |
| 1                                                                                                   | Surface closer                        | BHMA A156.4          | Grade 1, thru-bolted, adjustable                                                               | 1     | 689                           |
| 1                                                                                                   | Kick plate                            | BHMA A156.6          | J102, 10 in x 34 in                                                                            | 1     | 630                           |
| 1                                                                                                   | Floor or wall stop                    | BHMA A156.16         | Tri-base or bumper                                                                             | 1     | 626                           |
| 3                                                                                                   | Silencers                             | BHMA A156.16         | Rubber or vinyl                                                                                | -     | -                             |
| A/R                                                                                                 | Door louver                           | -                    | Sightproof, fire-rated where required                                                          | -     | Match door                    |

## HARDWARE SET 6

| QTY                                  | ITEM                                  | ANSI / BHMA STANDARD | FUNCTION / TYPE                                                                                | GRADE | FINISH                        |
|--------------------------------------|---------------------------------------|----------------------|------------------------------------------------------------------------------------------------|-------|-------------------------------|
| JANITOR CLOSET (Rooms 118, 220, 320) |                                       |                      |                                                                                                |       |                               |
| 1-1/2 pr                             | Hinges, full mortise                  | BHMA A156.1, A5111   | Heavy weight, ball bearing, NRP where reverse bevel                                            | 1     | 626 / 630 if exterior-exposed |
| 1                                    | Storeroom lock set, cylindrical lever | BHMA A156.2          | ANSI F86 Storeroom - outside lever always locked, key retracts latch, inside lever always free | 1     | 626 satin chrome              |
| 1                                    | Deadbolt, single cylinder             | BHMA A156.5          | ANSI E2151, SFIC prep                                                                          | 1     | 626                           |
| 2                                    | Interchangeable core, 7-pin SFIC      | BHMA A156.5          | SFIC                                                                                           | 1     | 626                           |
| 1                                    | Surface closer                        | BHMA A156.4          | Grade 1, thru-bolted, adjustable                                                               | 1     | 689                           |
| 1                                    | Kick plate                            | BHMA A156.6          | J102, 10 in x 34 in                                                                            | 1     | 630                           |
| 1                                    | Floor or wall stop                    | BHMA A156.16         | Tri-base or bumper                                                                             | 1     | 626                           |
| 3                                    | Silencers                             | BHMA A156.16         | Rubber or vinyl                                                                                | -     | -                             |
| A/R                                  | Door louver                           | -                    | Sightproof, fire-rated where required                                                          | -     | Match door                    |
| 1                                    | Mop plate                             | BHMA A156.6          | J103, 4 in x 34 in                                                                             | 1     | 630                           |

## HARDWARE SET 7

| QTY                           | ITEM                                  | ANSI / BHMA STANDARD | FUNCTION / TYPE            | GRADE | FINISH    |
|-------------------------------|---------------------------------------|----------------------|----------------------------|-------|-----------|
| LAUNDRY (Rooms 119, 217, 317) |                                       |                      |                            |       |           |
| 1-1/2 pr                      | Hinges, full mortise                  | BHMA A156.1, A5111   | Heavy weight, ball bearing | 1     | 626 / 630 |
| 1                             | Storeroom lock set, cylindrical lever | BHMA A156.2          | ANSI F86 Storeroom         | 1     | 626       |
| 2                             | Interchangeable core, 7-pin SFIC      | BHMA A156.5          | SFIC                       | 1     | 626       |
| 1                             | Surface closer                        | BHMA A156.4          | Grade 1, adjustable        | 1     | 689       |
| 2                             | Kick plates                           | BHMA A156.6          | J102, 10 in x 34 in        | 1     | 630       |
| 1                             | Floor stop                            | BHMA A156.16         | Tri-base w / bumper        | 1     | 626       |
| 3                             | Silencers                             | BHMA A156.16         | Rubber or vinyl            | -     | -         |

## HARDWARE SET 8

| QTY                                                                                                     | ITEM                                  | ANSI / BHMA STANDARD  | FUNCTION / TYPE                                       | GRADE | FINISH |
|---------------------------------------------------------------------------------------------------------|---------------------------------------|-----------------------|-------------------------------------------------------|-------|--------|
| UTILITY CORRIDOR - 45 MINUTE LABELED (Rooms 114, 158, 214, 234, 314, 334)   1-HOUR RATED WALL per G-002 |                                       |                       |                                                       |       |        |
| 1-1/2 pr                                                                                                | Hinges, full mortise                  | BHMA A156.1, A5111    | Heavy weight, ball bearing, labeled for fire door use | 1     | 630    |
| 1                                                                                                       | Storeroom lock set, cylindrical lever | BHMA A156.2           | ANSI F86 Storeroom, fire-rated label                  | 1     | 626    |
| 2                                                                                                       | Interchangeable core, 7-pin SFIC      | BHMA A156.5           | SFIC                                                  | 1     | 626    |
| 1                                                                                                       | Surface closer                        | BHMA A156.4           | Grade 1, thru-bolted, self-closing                    | 1     | 689    |
| 1                                                                                                       | Kick plate                            | BHMA A156.6           | J102, 10 in x 34 in                                   | 1     | 630    |
| 1                                                                                                       | Wall stop                             | BHMA A156.16          | Concave bumper                                        | 1     | 626    |
| 1 set                                                                                                   | Smoke gasketing                       | BHMA A156.22 / UL1784 | Intumescent / smoke seal, head and jambs              | -     | -      |
| 3                                                                                                       | Silencers                             | BHMA A156.16          | Rubber or vinyl                                       | -     | -      |
| -                                                                                                       | LABEL                                 | -                     | -                                                     | -     | -      |

## HARDWARE SET 9

| QTY                                                     | ITEM                             | ANSI / BHMA STANDARD | FUNCTION / TYPE                     | GRADE | FINISH |
|---------------------------------------------------------|----------------------------------|----------------------|-------------------------------------|-------|--------|
| MULTI-USE / DAY ROOM / FOYER (Rooms 101, 201, 300, 301) |                                  |                      |                                     |       |        |
| 1-1/2 pr                                                | Hinges, full mortise             | BHMA A156.1, A5111   | Heavy weight, ball bearing          | 1     | 626    |
| 1                                                       | Classroom or storeroom lock set  | BHMA A156.2          | ANSI F84 Classroom or F86 Storeroom | 1     | 626    |
| 2                                                       | Interchangeable core, 7-pin SFIC | BHMA A156.5          | SFIC                                | 1     | 626    |
| 1                                                       | Surface closer                   | BHMA A156.4          | Grade 1, adjustable                 | 1     | 689    |
| 2                                                       | Kick plates                      | BHMA A156.6          | J102, 10 in x 34 in                 | 1     | 630    |
| 1                                                       | Floor stop                       | BHMA A156.16         | Tri-base w / bumper                 | 1     | 626    |
| 3                                                       | Silencers                        | BHMA A156.16         | Rubber or vinyl                     | -     | -      |

## HARDWARE SET 10

| QTY                   | ITEM                             | ANSI / BHMA STANDARD | FUNCTION / TYPE                                    | GRADE | FINISH |
|-----------------------|----------------------------------|----------------------|----------------------------------------------------|-------|--------|
| BREAK ROOM (Room 216) |                                  |                      |                                                    |       |        |
| 1-1/2 pr              | Hinges, full mortise             | BHMA A156.1, A5111   | Heavy weight, ball bearing                         | 1     | 626    |
| 1                     | Classroom or storeroom lock set  | BHMA A156.2          | ANSI F84 Classroom or F86 Storeroom                | 1     | 626    |
| 2                     | Interchangeable core, 7-pin SFIC | BHMA A156.5          | SFIC                                               | 1     | 626    |
| 1                     | Surface closer                   | BHMA A156.4          | Grade 1, adjustable                                | 1     | 689    |
| 2                     | Kick plates                      | BHMA A156.6          | J102, 10 in x 34 in                                | 1     | 630    |
| 1                     | Floor stop                       | BHMA A156.16         | Tri-base w / bumper                                | 1     | 626    |
| 3                     | Silencers                        | BHMA A156.16         | Rubber or vinyl                                    | -     | -      |
| -                     | All items per HW-9               | -                    | -                                                  | -     | -      |
| 1                     | Passage or classroom lock set    | BHMA A156.2          | ANSI F75 Passage (preferred - resident-accessible) | 1     | 626    |

## HARDWARE SET 11

| QTY                                                                        | ITEM                                        | ANSI / BHMA STANDARD | FUNCTION / TYPE                                                                 | GRADE | FINISH |
|----------------------------------------------------------------------------|---------------------------------------------|----------------------|---------------------------------------------------------------------------------|-------|--------|
| DORM MANAGER OFFICE (Rooms 215, 215A)   Per Dorm Mgmt 35% review comment 1 |                                             |                      |                                                                                 |       |        |
| 1-1/2 pr                                                                   | Hinges, full mortise                        | BHMA A156.1, A5111   | Heavy weight, ball bearing; electric through-wire hinge where access controlled | 1     | 626    |
| 1                                                                          | Office/entrance lock set, cylindrical lever | BHMA A156.2          | ANSI F81 Office/Entrance                                                        | 1     | 626    |
| 1                                                                          | Deadbolt, single cylinder                   | BHMA A156.5          | ANSI E2151, SFIC prep                                                           | 1     | 626    |
| 2                                                                          | Interchangeable core, 7-pin SFIC            | BHMA A156.5          | SFIC                                                                            | 1     | 626    |
| 1                                                                          | Surface closer                              | BHMA A156.4          | Grade 1, adjustable                                                             | 1     | 689    |
| 1                                                                          | Kick plate                                  | BHMA A156.6          | J102, 10 in x 34 in                                                             | 1     | 630    |
| 1                                                                          | Wall stop                                   | BHMA A156.16         | Concave bumper                                                                  | 1     | 626    |
| A/R                                                                        | Door position switch                        | -                    | Concealed, 3/4 in recessed                                                      | -     | -      |

## HARDWARE SET 12

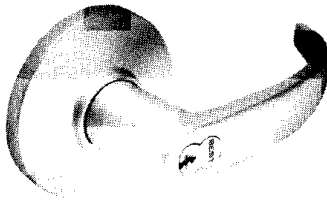
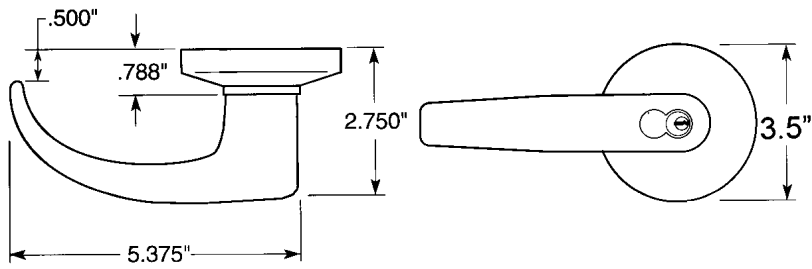
| QTY                                                                         | ITEM                               | ANSI / BHMA STANDARD | FUNCTION / TYPE                                                           | GRADE | FINISH         |
|-----------------------------------------------------------------------------|------------------------------------|----------------------|---------------------------------------------------------------------------|-------|----------------|
| MAIN BUILDING ENTRY - PAIR (Door 100)   Exterior, egress, access controlled |                                    |                      |                                                                           |       |                |
| 3 pr                                                                        | Hinges, full mortise               | BHMA A 156.1, A5111  | Heavy weight, ball bearing, NRP; one electric through-wire hinge per leaf | 1     | 630 stainless  |
| 2                                                                           | Exit devices, touch bar            | BHMA A 156.3         | Grade 1, concealed vertical rod, touch bar, electric latch retraction     | 1     | 630            |
| 2                                                                           | Lever trim                         | BHMA A 156.3         | Night latch / key-retracting lever trim, curved return                    | 1     | 630            |
| 4                                                                           | Flush mortise strikes              | BHMA A 156.3         | Top and bottom, vertical rod                                              | 1     | 630            |
| 2                                                                           | Interchangeable cores, 7-pin SFIC  | BHMA A 156.5         | SFIC                                                                      | 1     | 626/630        |
| 2                                                                           | Surface closers                    | BHMA A 156.4         | Grade 1, thru-bolting, back-check, compensating                           | 1     | 689/630        |
| 2                                                                           | Kick plates                        | BHMA A 156.6         | J102, 10 in x 34 in                                                       | 1     | 630            |
| 1                                                                           | Threshold                          | BHMA A 156.21        | Extruded aluminum, 72 in x 6 in x 1/4 in, modified for vertical rod bolts | -     | Mill/Anodized  |
| 2                                                                           | Door bottom sweeps                 | BHMA A 156.22        | Nylon brush                                                               | -     | Anodized       |
| 2 sets                                                                      | Weatherstrip gasketing             | BHMA A 156.22        | Head and jambs, TPE                                                       | -     | Clear anodized |
| 1 set                                                                       | Astragal                           | BHMA A 156.22        | Full door height, overlapping                                             | -     | Anodized       |
| 2                                                                           | Floor stops                        | BHMA A 156.16        | Tri-base w / bumper                                                       | 1     | 630            |
| 1                                                                           | Rain drip, overhead                | -                    | 1-1/2 in x 2-1/2 in projection                                            | -     | Anodized       |
| 1                                                                           | Card reader + door position switch | -                    | By access control contractor                                              | -     | -              |

## HARDWARE SET 13

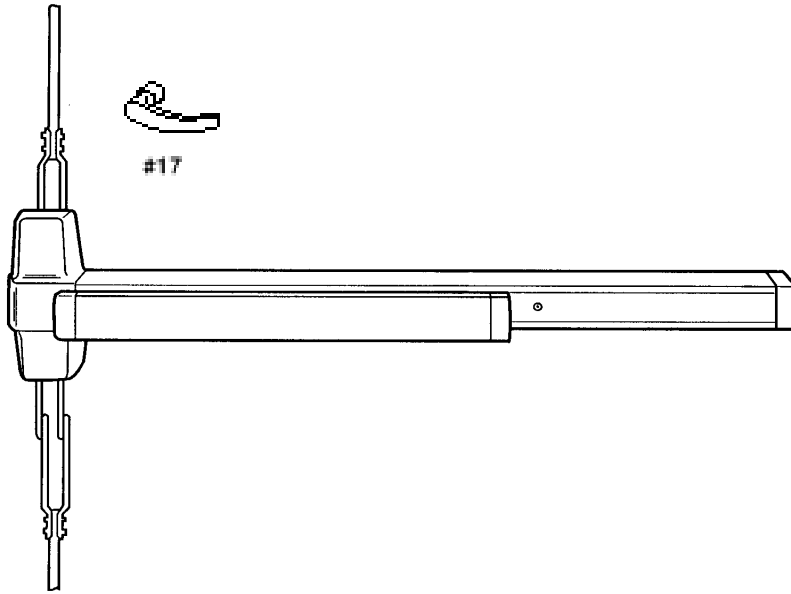
| QTY                                           | ITEM                 | ANSI / BHMA STANDARD | FUNCTION / TYPE                 | GRADE | FINISH        |
|-----------------------------------------------|----------------------|----------------------|---------------------------------|-------|---------------|
| ENTRY VESTIBULE - PAIR (Door 100A)   Interior |                      |                      |                                 |       |               |
| 3 pr                                          | Hinges, full mortise | BHMA A 156.1, A5111  | Heavy weight, ball bearing      | 1     | 630           |
| 2                                             | Push/pull sets       | BHMA A 156.6         | J407 pull, J301/J304 push plate | 1     | 630 stainless |
| 2                                             | Surface closers      | BHMA A 156.4         | Grade 1, adjustable             | 1     | 689/630       |
| 2                                             | Kick plates          | BHMA A 156.6         | J102, 10 in x 34 in             | 1     | 630           |
| 2                                             | Overhead stops       | BHMA A 156.8         | Surface or concealed            | 1     | 630           |
| 6                                             | Silencers            | BHMA A 156.16        | Rubber or vinyl                 | -     | -             |



SMALL FORMAT INTERCHANGABLE CORE – 7 PIN - TYPICAL



CURVED RETURN CYLINDRICAL LEVER HANDLE LOCKSET – TYPICAL



TOUCH BAR EXIT DEVICE WITH CONCEALED VERTICAL RODS, LEVER HANDLE AND FLUSH MORTISE STRIKES

END OF SECTION - DOOR HARDWARE --