

SPECIAL SPECIFICATION

SECTION 08710S

FINISH HARDWARE – MicroFab/CUB-1

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CONSTRUCTION STANDARD SPECIFICATION

SECTION 08710S

FINISH HARDWARE– MICROFAB/CUB-1

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

Section includes furnishing and installing finish hardware as scheduled and/or as called for on Contract Documents. It does not include hardware for aluminum entrance doors.

1.02 REFERENCES

- A. American National Standards Institute (ANSI)
 - ANSI A115 SET STEEL Steel Door and Frame Preparation for Hardware
 - ANSI A115 SETWOOD Wood Door Hardware Standards
 - ANSI A156.19 Specification for Power Assist and Low Energy Power Operated Doors
 - ANSI A156.21 Specification for Thresholds
 - ANSI A156.22 Specification for Door Gasketing Systems
 - ANSI A250.6 Hardware on Steel Doors (Reinforcement-Application)
- B. American National Standards Institute/Builders Hardware Manufacturer's Association (ANSI/BHMA)
 - ANSI A156.2 Bored and Preassembles Locks and Latches, same as BHMA 601.
- C. Department of Defense (DOD)
- D. Defense Supply Center Philadelphia (DSCP)
- E. Factory Mutual (FM)
- F. International Building Code (IBC)
- G. National Fire Protection Association (NFPA)
 - NFPA 72 National Fire Alarm Code
 - NFPA 80 Fire Doors, Fire Windows

NFPA 101 Life Safety Code

H. Underwriter's Laboratory, Inc. (UL)

1.03 SUBMITTALS

General: Submit the following items in accordance with Conditions of Contract and Division 1, Section "Descriptive Submittals."

- A. Product Data: Submit manufacturer's catalog data for each item of finish hardware, include function descriptions, materials, finishes, dimensions installation and (interface requirements when necessary). Include evidence of UL listing for fire rated hardware.
- B. Quality Certification: Submit manufacturer's written certification that hardware to be used on project is Grade One quality.

1.04 QUALITY ASSURANCE

- A. Qualifications: Finish hardware manufacturer shall have minimum of ten (10) years experience in manufacturing of hardware.
- B. Product Quality: Provide products that have been tested and are in compliance with references listed in Section 1.02 of this specification for required assemblies.
- C. Dial Combination Locks shall be installed by safe and lock companies with minimum of five (5) years experience in installation and service of combination locks.
- D. Warranties: Provide ten (10) year warranty on closers, seven (7) year warranty on cylindrical locks and latchsets and a one (1) year warranty on all other hardware.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Packing and Shipping: Finish hardware shall be packed and shipped to job site in unopened boxes, clearly labeled with manufacturer's name and item description.
- B. Storage and Protection: Store finish hardware in manner to prevent damage until needed for installation.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. General: Manufacturers with capability to meet this specification include the following:
 - 1. Kaba Mas: Spin dial combination locks. (www.kaba-mas.com)
 - 2. Infographics: Electrical pushbutton combination locks. (www.infographics.com)
 - 3. Honeywell: Electro-magnetic door holders. (www.honeywell.com)

4. Horton Automatics or LCN: Low energy, power-operated interior door openers.
Horton: (www.hortondoors.com)
LCN: (www.lcnclosers.com)
 5. National Guard Products (NGP): Thresholds, door sweeps and door bottoms, weather-stripping, smoke seals, astragals. (www.ngpinc.com)
 6. Precision Hardware Inc: Exit devices and key removable mullions (Precision exit devices recommended for use with Securitech electrified trim products.) (www.precisionhardware.com)
 7. Sargent: Locksets, cylinders, padlocks, door closers, mullions, and latchsets. (No substitutions allowed except in the case of door closers.) (www.sargentlock.com)
 8. Securitech: High security locks, electric exit device trim and electric locking hardware. (www.securitech.com)
 9. Simplex: Mechanical push button combination locks.
 10. Stanley: Butt hinges. (www.stanleyworks.com)
 11. Trimco: Silencers, door bumpers, mop plates, kick plates, stops/holders, flush bolts, push/pull latches. (www.trimcobbw.com)
 12. Von Duprin: Exit Devices, electrified exit devices and electrical power transfers. (www.vonduprin.com)
- B. Substitutes: Only approved products may be substituted, except when noted.

2.02 GENERAL HARDWARE SCHEDULE

- A. General: Hardware shall be identified by ANSI as Grade One hardware where applicable. Where applicable, function shall be as noted on Contract Documents, or as chosen at time of Submittals.
- B. Opening Force: Maximum force for pushing or pulling open door shall be 8.5 pounds (3.9 kg) for exterior and 5 pounds (2.3 kg) for interior doors.
- C. Manufactured Units: Unless otherwise indicated in "FINISH HARDWARE SCHEDULE" or elsewhere in Contract Documents, provide the following hardware:
 1. Butt Hinges: 4-1/2 inches (114 mm) x 4-1/2 inches (114 mm), steel, full mortise, five knuckle, ball bearing, flat tip hinges with polished and plated finish. No electric hinges will be allowed.
 - a. Provide heavy weight hinges on exterior doors, airlock entry doors, doors with closers, and toilet room entry doors. Use Stanley FBB 168.

- b. Provide standard weight hinges on all other doors. Use Stanley FBB 179 or equal.
 - c. Provide manufacturer's heavy-duty non-removable pins at exterior doors, designated vault type room doors, and other doors as designated on Contract Documents.
2. Electrical Power Transfer: Provide one each electrical power transfer on doors where electrified exit devices or other electrified locking hardware is specified elsewhere in Contract Documents. Use only Von Duprin EPT-10.
 3. Cylindrical Lever Locksets: Keyed function locksets and non-keyed function latchsets shall exceed ANSI Grade 1 specifications. Keyed function locksets shall remain secure after withstanding 2400 inch pounds of torque applied to the locked lever. All locksets shall maintain horizontal lever position after two million cycles per ANSI A156.2. All locksets shall be mountable without the use of through bolts and shall fit in a standard 2-1/8" (55MM) bore. Locksets shall fit a minimum door stile width of 4-1/4" (108mm). Lockset levers shall not contain any plastic fillers and shall be made of solid material. Locksets shall have 2-3/4" (70mm) backset, standard. Latchbolt heads shall be one-piece stainless steel, 7/8" (22mm) diameter x 1/2"(13mm) throw, 3/4" (19mm) throw for pairs of doors. All keyed locksets shall be provided with six-pin lock cylinders manufactured by Sargent Manufacturing Company, New Haven, CT with no substitutions. Lock cylinders shall be provided in the Sargent "LA" keyway and shall be "1" bitted. SNL-NM locksmiths will provide proper restricted lock cylinder plugs and keying into the SNL-NM master key system.
 - a. Keyed locksets shall be Sargent 11 Line Series in the following functions:
 - (1) 28-11G04-LL Storeroom Function-for equipment and mechanical chase doors and in electronic access control applications with jamb mounted electric strikes.
 - (2) 28-11G05-LL Entrance Function-provide only when indicated elsewhere in Contract Documents.
 - (3) 28-11G37-LL Classroom Function-provide only when indicated elsewhere in Contract Documents.
 - (4) 28-11G71-LL Electromechanically (fail secure) Function-for use in electronic access control application using through door circuit in conjunction with electrical power transfer.
 - (5) 28-11G17-LL Asylum Function-for roof access doors.
 - b. Latchsets shall be Sargent 11 Line Series with the following functions:
 - (1) 28-11U15LL Passage Function-for all doors, including utility rooms, where keyed locksets, exit devices or other auxiliary locking devices are not specified.
 - (2) 28-11G65-LL Privacy Bathroom Function-for single occupant bathrooms

- c. Multi-Occupant Toilet Room doors, provide auxiliary latchsets.
 - (1) Use Sargent 24-114P x 808 strike.
- 4. Exit Devices: Provide exit device only where specified on Contract Documents. Exit device latch bolts shall be released by depressing actuating push pad.
 - a. For single doors and double doors with removable or fixed center mullion, exit device shall be Sargent 80 Series or Precision 1100 Series reversible rim device. The device shall have, appropriate strike and lever handle trim for application and function.
 - (1) For Hollow Metal or Extruded Aluminum Storefront Non-Fire Rated Doors with a minimum stile width of 4 ¾", provide Sargent Model 888 x ETL with Model 641 strike. Doors with vision lite frames or moldings protruding at device mounting location provide Precision Model 1108 x 39LA with Model 1200-06 strike. At double doors add Precision Model 822 steel removable mullions. Where contract specifies key removable mullion provide Precision Model A-KR822 head cap.
 - (2) For Fire Rated Doors, provide Sargent Model 12-8888 with Model 649 strike. Doors with vision lite frames or moldings protruding at device mounting location provide Precision Model FL-1108 x 39LA with Model 100-78 strike. At double doors add Precision Model FL-822 fire rated steel removable mullions. Where contract specifies key removable mullion provide Precision Model A-FL-KR822 head cap.
 - (3) For Extruded Aluminum Narrow Stile Storefront Doors with a minimum stile width of 1 ¾" provide Sargent 8513 x ETL or Precision 1408 x 29L rim device. For double doors use Precision 815 mullion or Sargent 650A mullion.
 - b. For pair of active doors without center mullion, exit devices on each leaf shall be Sargent 8700 Series or Precision 1200 Series surface vertical rod exit devices. The device shall have appropriate strikes and lever handle trim for application and function.
 - (1) For Hollow Metal or Extruded Aluminum Storefront Non-Fire Rated Doors with a minimum stile width of 4 ¾", provide Sargent Model 8713 x 713-8 ETL with Model 629 top strike and 624 bottom strike. Doors with vision lite frames or molding protruding at device mounting location provide Precision Model 1208 x 39LA with Model 1200-06 top strike and 020-97 bottom strike.
 - (2) For fire rated doors, provide Sargent Model 12-8713 x ETL with Model 629 top strike and 624 bottom strike. Doors with vision lite frames or moldings protruding at device mounting location provide Precision Model FL-1208 x 39LA with Model 1200-06 top strike and 020-97 bottom strike.
 - (3) For Extruded Aluminum Narrow Storefront Doors with a minimum stile width of 1 ¾" provide Sargent 8413 x ETL or Precision 1608 x

29LA concealed vertical rod device. For double doors use Sargent 650A mullion or Precision 815 mullion.

- c. For Single Doors and Double Doors with removable or fixed center mullion, and which are indicated to be unlocked via electric actuation device (e.g., badge reader, key pad), provide VonDuprin EL99 Series or Precision EL 1100 Series exit device with electric latch retraction. The device must be provided with the manufacturers specified power supply, appropriate strike and lever handle trim. All electrical actuated devices actuated via electronic access control systems shall have outside lever trim, which remains in a constant locked position at all times. Key override retracts latch bolt but does not unlock lever.
 - (1) For Hollow Metal or Extruded Aluminum Storefront Non-Fire Rated Doors with a minimum stile width of 4 ¾", provide Von Duprin Model EL99NL x 992L-NL. Doors with vision lite frames or moldings protruding at device mounting location provide Precision Model ELR1103 x 39L with Model 1200-06 strike. At double doors add Precision Model 822 steel removable mullions. Where contract specifies key removable mullion provide Precision Model A-KR822 head cap. Use device manufacturer's specified power supplies and Von Duprin Electric Power Transfer Model EPT-10.
 - (2) At fire rated doors, provide Von Duprin Model 99-F-EL99NL x 992L-NL. At double doors provide Precision Model FL-822 fire rated steel removable mullions. Where contract specifies key removable mullion provide Precision Model A-FL-KR822 head cap. Use device manufacturer's specified power supplies and Von Duprin Electric Power Transfer Model EPT-10.
 - (3) For Extruded Aluminum Narrow Storefront Doors with a minimum stile width of 1 ¾" provide Von Duprin EL33NL x 370L rim device. For double doors use Precision 815 mullion or Sargent 650A mullion. Use device manufacturer's specified power supplies and Von Duprin Electric Power Transfer Model EPT-10.
- d. Vault Type Rooms (VTR): Provide Kaba Mas Model CDX-08 pedestrian door deadbolt with appropriate strike for door and jamb. Provide appropriate signage for concerns with life safety.
 - (1) Refer to requirements for spin dial combination lock specified below.
5. Closers: Closers shall be surface mount type with parallel arms, back check, key control valves, and 50% power adjustments and shall facilitate automatic closure of door.
 - a. Provide Sargent Model EB350 Series closers or equal on exterior doors, interior fire rated doors, doors with electro-magnetic door holders, interior doors with exit devices, push-pull devices, auxiliary latchsets and additional doors indicated on Contract Documents.
6. Spin Dial Combination Locks: Provide spin dial combination locks only when noted in Contract Documents.

- a. Provide Kaba Mas Model CDX-08 pedestrian door deadbolt with strike type 1,2,3, or 9. Procure from Defense Supply Center Philadelphia (DSCP), 700 Robbins Avenue, Philadelphia, PA 19111. Ph. 215-737-2218. National Stock Number (NSN) 5340-01-469-5906. If other than #1 strike is needed, call DOD Lock Program Hotline at 800-290-7607.
7. Mechanical Push-Button Combination Locks: Provide mechanical push-button combination locks only when noted in Contract Documents. Provide Simplex Unican L1000-2B with key bypass. Provide uncombined Falcon core 12607A.
8. Electrical Push-Button Combination Locks: Provide electrical push-button combination locks only when noted elsewhere in Contract Documents. Unless otherwise indicated, provide Infographics keypads, controllers, etc. per Contract Documents.
9. Architectural Door Trim: Kick plates shall be of heavy-duty 16-gauge (2 mm) smooth surface metal.
10. Provide Trimco 1024- 12" x 2" (305 mm x 51 mm) LDW on push side of doors scheduled for exit devices, on both sides of doors with push/pull devices or auxiliary latchsets.

Electro-Magnetic Door Holder: Provide electro-magnetic door holder device only when specified in Contract Documents. The device shall be Underwriter's Laboratory (UL) listed and Factory Mutual (FM) approved and shall be fail safe, conforming to NFPA 72, NFPA 80, and NFPA 101. Release device shall be so designed that it may be automatically released by power interruption and manually released by some simple and readily obvious operation.

- a. Provide Honeywell Series S4003 or equal for 120 VAC. Provide appropriate floor mount pedestal where needed for floor mount installation.
 - (1) In new construction, where indicated to be installed on walls, door holder shall be flush mounted.
 - (2) In renovation work, where indicated to be installed on walls, door holder may be surface mounted.
11. Auxiliary Hardware: Auxiliary hardware shall be provided only where specified herein and/or elsewhere on Contract Documents.
 - a. Combination stop and holder device shall be Trimco Model 1224-5 manually operated device.
 - b. Concave wall mount door bumpers shall be provided at doors opening onto adjacent walls. Provide Trimco Model W1276-CCS Series with appropriate fasteners.
 - c. Floor mount door bumpers shall be provided on doors where wall type door bumpers are not provided. Provide Trimco Model W1210ES Series.

- d. Provide Trimco Model 1229A neoprene door silencers on non-fire rated doors. Provide three per each door.
 - e. Provide flexible silicone rubber smoke seal on fire rated doors in compliance with ANSI/BHMA A156.22. Use Zero 8144 Series x Door Size.
 - f. Manual flush bolts shall be Trimco 3917 top and bottom.
 - g. Provide weather-stripping, door sweep(s), and threshold at exterior doors in compliance with ANSI/BHMA A156.21 and A156.22.
 - (1) Provide NGP 160 weather-stripping at all non-fire rated exterior doors.
 - (2) Provide NGP 200 NA door sweep at exterior doors.
 - (3) Provide NGP 424E Stainless Steel threshold at exterior doors.
 - h. Door Coordinators: Provide coordinator at all pairs of active doors without center mullion. Use Sargent Model 3487 with Model 3497 carry open bar.
 - i. Astragal:
 - (1) Provide NGP 125 NGA astragal for all other fire rated and non-fire rated double doors without center mullion where security astragal is not specified.
 - (2) Provide security astragal on exterior pairs of doors without center mullions and exit devices. Provide NGP 139SP.
 - j. Automatic door bottoms for both fire rated and non-fire rated doors shall be NGP 420NA. Comply with ANSI/BHMA A156.22.
12. Low Energy Power Operated Door Openers: On specified doors only, provide power operated door opener(s). The power opener shall be low energy, self-contained electric operating mechanism. It shall be powered open with DC motor working through reduction gears. Provide Tormax TTX Series or equal.
- a. The motor shall be off when door is in closing mode.
 - b. The door shall be capable of being manually opened or closed with power on or off without damage to mechanism.
 - c. The opener shall include the following variable adjustments in compliance with ANSI/BHMA A156.19.
 - (1) Opening Speed - three to five seconds
 - (2) Closing Speed - three to five seconds
 - (3) Time Delay Before Closing - five to twenty-five seconds

- d. Opening and closing force, measured 2" (51 mm) out from lock stile of door, shall not exceed 15 pounds (6.8 kg) of force to stop door when operating in either direction.
 - e. The opener shall include means of turning off opening force when door is stopped for one second. After stopping door, it should then close and opener shall reset itself to accept another signal.
 - f. The opener shall be mounted in extruded aluminum cover.
 - g. Provide two (2) 6" (152 mm) round stainless steel push plate control switches marked "Handicapped" on each side of opening, unless otherwise indicated in Contract Documents.
 - h. Furnish 120 VAC, 60 cycle, single phase, 15-amp service to the operator.
13. Electric Strikes: When noted elsewhere in Contract Documents, provide heavy-duty electric strikes fully compatible with door, frame, and hardware specified for intended application. Strike shall have latchbolt monitoring capability.
- D. Fire Rated Door Hardware: Fire rated door hardware shall be listed and labeled by Underwriter's Laboratories (UL) and Factory Mutual (FM) as "Fire Exit Hardware." Exit devices on fire rated doors shall not have dog down capability.
 - E. Finishes: Finish for all hardware shall be US26D, plated, Satin Chrome, unless otherwise specified in Contract Documents.
 - F. Fabrication: Manufacturer's hardware shall conform to published templates prepared for screw installation.
 - G. Fasteners: Furnish screws for installations with each hardware item. Provide concealed fasteners for hardware units which are exposed when door is closed.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine materials on which hardware is to be installed to check for surface defects including warpage, which might impede performance of hardware.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

- A. Steel Doors and Frames: Comply with ANSI/DHI A115-SET STEEL series.
 - 1. Surface-Applied Door Hardware: Drill and tap doors and frames according to ANSI A250.6.
- B. Wood Doors: Comply with ANSI/DHI A115-SET WOOD series.

3.03 INSTALLATION

Install hardware per manufacturer's installation instructions, being careful not to damage finish on hardware.

- A. Butt Hinges: Install minimum of 1-1/2 pair per door on doors no taller than 7 feet 2 inches (2.18 m), otherwise install two (2) pair butt hinges per door.
- B. Lock and Latches: Install locks and latches at 36 inches (914 mm) above bottom of door.
- C. Dial and Push Button Combination Locks: Install per manufacturer's installation instructions at 42 inches (1.07 m) above finish floor.
- D. Push Plate Control Switches: Install 6" (152 mm) round push plate control switches at 9" (229 mm) and 39" (991 mm) above finish floor to center line of round plates. Two (2) plates are required on each side of opening. .
- E. Thresholds: Set thresholds for exterior doors in full bed of sealant complying with requirements specified in Division 7 Section "Joint Sealants."

3.04 ADJUSTMENTS

Hardware shall be adjusted and demonstrated to function properly. Damaged or defective hardware shall be replaced at no cost to Sandia National Laboratories (SNL).

3.05 SCHEDULE

A. MicroFab:

Manufacturer Designations:

ABH	ABH Manufacturing Inc.	847.437.9901
NGP	National Guard Products, Inc.	800.647.7874
PHI	Precision Hardware Inc.	734.326.7500
ROC	Rockwood Mfg. Co.	800.458.2424
RYO	Ryobi	734.595.7200
SAR	Sargent Manufacturing Co.	203.562.2151
SDC	Security Door Controls	805.494.0622
SEL	Select Products Limited	800.423.1174
SSS	Security & Safety Systems	972.713.8501
UNK	UNKNOWN	
ZER	Zero International Inc.	800.635.5335

Finishes:

---	NOT FINISHED
600	Primed For Paint
626	Satin Chromium Plated
628	Satin Aluminum, Clear Anodized
630	Satin Stainless Steel, 300 Series
652	Satin Chromium Plated
689	Aluminum Painted
BLK	Black
GRY	Grey

HW1	65 68 85 88 65B L1500 L1540			
	EACH OPENING TO RECEIVE:			
3 EA.	HINGE	ZBB 961 4.5 x 4.5	652	ZER
1 EA.	EXIT DEVICE	FL-ELR-DSS-1308 x V39L	630	PHI
1 EA.	MORTISE CYLINDER	AS REQUIRED	626	SAR
1 EA.	POWER SUPPLY	ELR-151	600	PHI
1 EA.	CARD READER	BY OTHERS	---	UNK
1 EA.	POWER SUPPLY	BY OTHERS	---	UNK
1 EA.	CLOSER	350	689	SAR
1 EA.	KICK PLATE	8x2 LDW FH-CSK .050	630	ROC
1 SET	GASKETING	2525B	BLK	NGP
1 EA.	AUTOMATIC DOOR BOTTOM	522N	628	NGP
HW2	B809			
	EACH OPENING TO RECEIVE:			
6 EA.	HINGE	ZBB 961 4.5 x 4.5	652	ZER
1 EA.	MANUAL FLUSH BOLTS	555	626	ROC
1 EA.	DUST PROOF STRIKE	570	626	ROC
1 EA.	STOREROOM LOCKSET	11-04-LL	626	SAR
2 EA.	CLOSER	350	689	SAR
1 SET	GASKETING	2525B	BLK	NGP
2 EA.	AUTOMATIC DOOR BOTTOM	522N	628	NGP
HW3	B813 1975B			
	EACH OPENING TO RECEIVE:			
1 EA.	PADLOCK	AS REQUIRED	---	UNK
1 EA.	DOOR POSITION SWITCH	BY OTHERS	---	UNK
HW4	1972 1998A 1998B 1990 1999			
	EACH OPENING TO RECEIVE:			
2 EA.	CONTINUOUS HINGE	SL24	628	SEL
1 EA.	MANUAL FLUSH BOLTS	555	626	ROC
1 EA.	DUST PROOF STRIKE	570	626	ROC
1 EA.	DEADLOCK - DOUBLE CYLINDER	4874	626	SAR
2 EA.	FLUSH PULL	94C	626	ROC
2 EA.	CLOSER	350DA	689	SAR
1 EA.	THRESHOLD	513S	630	NGP
1 EA.	ASTRAGAL	158NA	628	NGP
1 SET	GASKETING	172NA	628	NGP
2 EA.	DOOR POSITION SWITCH	BY OTHERS	---	UNK
HW5	81B 61B 61E			
	EACH OPENING TO RECEIVE:			
1 EA.	CONTINUOUS HINGE	SL24 ETW	628	SEL
1 EA.	EXIT DEVICE	ELR-1403 x DSS	630	PHI
1 EA.	RIM CYLINDER	AS REQUIRED	626	SAR
1 EA.	POWER SUPPLY	ELR-151	600	PHI
1 EA.	CARD READER	BY OTHERS	---	UNK
1 EA.	POWER SUPPLY	BY OTHERS	---	UNK

1	EA.	PULL	BF157	628	ROC
1	EA.	CLOSER	350TJ	689	SAR
1	EA.	OVERHEAD STOP	1000	630	ABH
1	EA.	THRESHOLD	513S	630	NGP
1	SET	GASKETING	BY DOOR MANUFACTURER	---	UNK
1	EA.	SWEEP	101VA	628	NGP
1	EA.	DOOR POSITION SWITCH	BY OTHERS	---	UNK
1	EA.	TERMINAL INTERFACE BOX	TIE1000	---	SSS

HW6 82B 85B 88C 81G 65C 68C L154 L1040 L1500A

EACH OPENING TO RECEIVE:

1	EA.	CONTINUOUS HINGE	SL24 ETW	628	SEL
1	EA.	EXIT DEVICE	ELR-1303 x DSS	630	PHI
1	EA.	RIM CYLINDER	AS REQUIRED	626	SAR
1	EA.	POWER SUPPLY	ELR-151	600	PHI
1	EA.	CARD READER	BY OTHERS	---	UNK
1	EA.	POWER SUPPLY	BY OTHERS	---	UNK
1	EA.	PULL	BF157	628	ROC
1	EA.	CLOSER	350TJ	689	SAR
1	EA.	OVERHEAD STOP	1000	630	ABH
1	EA.	THRESHOLD	513S	630	NGP
1	EA.	SWEEP	101VA	628	NGP
1	SET	GASKETING	172NA	628	NGP
1	EA.	DOOR POSITION SWITCH	BY OTHERS	---	UNK
1	EA.	TERMINAL INTERFACE BOX	TIE1000	---	SSS

HW7 1971 1983 1984 1981 1982

EACH OPENING TO RECEIVE:

2	EA.	CONTINUOUS HINGE	SL24	628	SEL
1	EA.	MANUAL FLUSH BOLTS	555	626	ROC
1	EA.	DUST PROOF STRIKE	570	626	ROC
1	EA.	EXIT DEVICE	1303	630	PHI
1	EA.	MORTISE CYLINDER	AS REQUIRED	626	SAR
2	EA.	FLUSH PULL	94C	626	ROC
2	EA.	CLOSER	350-DA	689	SAR
1	EA.	THRESHOLD	513S	630	NGP
1	SET	GASKETING	172NA	628	NGP
2	EA.	SWEEP	101VA	628	NGP
1	EA.	ASTRAGAL	158NA	628	NGP
2	EA.	DOOR POSITION SWITCH	BY OTHERS	---	UNK

NOTE: DOORS TO SWING OUT.

HW8 82 88B 68B 85D

EACH OPENING TO RECEIVE:

3	EA.	HINGE	ZBB 961 4.5 x 4.5	652	ZER
1	EA.	EXIT DEVICE	FL1308 x V39L	630	PHI
1	EA.	MORTISE CYLINDER	AS REQUIRED	626	SAR
1	EA.	CLOSER	350	689	SAR
1	EA.	KICK PLATE	8x2 LDW FH-CSK .050	630	ROC
1	EA.	WALL STOP	409	630	ROC

1	SET	GASKETING	2525B	BLK	NGP
1	EA.	AUTOMATIC DOOR BOTTOM	522N	628	NGP
HW9		85C 1997C 1997D 81F 61C 61D L1500B			
		EACH OPENING TO RECEIVE:			
3	EA.	HINGE	ZBB 961 4.5 x 4.5	652	ZER
1	EA.	CLASSROOM LOCKSET	11G-37-LL	626	SAR
1	EA.	CLOSER	350	689	SAR
1	EA.	KICK PLATE	8x2 LDW FH-CSK .050	630	ROC
1	SET	GASKETING	2525B	BLK	NGP
1	EA.	AUTOMATIC DOOR BOTTOM	522N	628	NGP
1	EA.	DOOR POSITION SWITCH	BY OTHERS	---	UNK
HW10		1976 1995 1997B 81H L1513			
		EACH OPENING TO RECEIVE:			
3	EA.	HINGE	ZBB 961 4.5 x 4.5	652	ZER
1	EA.	STOREROOM LOCKSET	11-04-LL	626	SAR
1	EA.	CLOSER	350	689	SAR
1	EA.	WALL STOP	409	630	ROC
1	SET	GASKETING	2525B	BLK	NGP
1	EA.	AUTOMATIC DOOR BOTTOM	522N	628	NGP
HW11		1971B			
		EACH OPENING TO RECEIVE:			
3	EA.	HINGE	ZBB 961 4.5 x 4.5	652	ZER
1	EA.	PASSAGE LATCHSET	11U-15-LL	626	SAR
1	EA.	CLOSER	350	689	SAR
1	EA.	KICK PLATE	8x2 LDW FH-CSK .050	630	ROC
1	SET	GASKETING	2525B	BLK	NGP
1	EA.	AUTOMATIC DOOR BOTTOM	522N	628	NGP
HW12		1970 1996			
		EACH OPENING TO RECEIVE:			
1	EA.	CONTINUOUS HINGE	SL24	628	SEL
1	EA.	DEADLOCK - DOUBLE CYLINDER	4874	626	SAR
1	EA.	FLUSH PULL	94C	626	ROC
1	EA.	CLOSER	350 DA	689	SAR
1	EA.	THRESHOLD	513S	630	NGP
1	SET	GASKETING	172NA	628	NGP
1	EA.	SWEEP	101VA	628	NGP
1	EA.	DOOR POSITION SWITCH	BY OTHERS	---	UNK
HW13		81C 81D 81E			
		EACH OPENING TO RECEIVE:			
2	EA.	CONTINUOUS HINGE	SL24FR	628	SEL
1	EA.	COORDINATOR	1600	600	ROC
1	SET	AUTOMATIC FLUSH BOLTS	1942	626	ROC
1	EA.	DUST PROOF STRIKE	570	626	ROC
1	EA.	STOREROOM LOCKSET	11-04-LL	626	SAR
2	EA.	CLOSER	350	689	SAR

2	EA.	KICK PLATE	8x2 LDW FH-CSK .050	630	ROC
1	SET	GASKETING	30-38NA	628	NGP
1	EA.	CLOSER BRACKET		600	NGP
1	EA.	ASTRAGAL	158NA	628	NGP
2	EA.	AUTOMATIC DOOR BOTTOM	320N	628	NGP

HW14 1977 1975

EACH OPENING TO RECEIVE:

2	EA.	CONTINUOUS HINGE	SL24FR	628	SEL
1	EA.	COORDINATOR	1600	600	ROC
1	SET	AUTOMATIC FLUSH BOLTS	1942	626	ROC
1	EA.	DUST PROOF STRIKE	570	626	ROC
1	EA.	CLASSROOM LOCKSET	11G-37-LL	626	SAR
2	EA.	CLOSER	260	689	SAR
2	EA.	MAGNETIC LOCK	1570	628	SDC
2	EA.	KICK PLATE	15x2 LDW FH-CSK .050	630	ROC
2	EA.	WALL STOP	409	630	ROC
1	EA.	THRESHOLD	513S	630	NGP
1	SET	GASKETING	3038NA	628	NGP
1	EA.	CLOSER BRACKET		600	NGP
1	EA.	ASTRAGAL	158NA	628	NGP
2	EA.	AUTOMATIC DOOR BOTTOM	320N	628	NGP
2	EA.	DOOR POSITION SWITCH	BY OTHERS	---	UNK

NOTE: SECURITY CONTRACTOR TO CONFIGURE MAGNETIC LOCKS FOR AN INTERLOCK SYSTEM.

HW15 1991 1992 1993 1994 L1510 L1508 L1506 L1504 L1502

EACH OPENING TO RECEIVE:

3	EA.	HINGE	ZBB 961 4.5 x 4.5	652	ZER
1	EA.	CLASSROOM LOCKSET	11G-37-LL	626	SAR
1	EA.	WALL STOP	409	630	ROC
3	EA.	SILENCERS	608	GRY	ROC

HW16 62

EACH OPENING TO RECEIVE:

2	EA.	CONTINUOUS HINGE	SL24	628	SEL
1	EA.	KEYED MULLION	KR822	600	PHI
1	EA.	MORTISE CYLINDER	AS REQUIRED	626	SAR
2	EA.	EXIT DEVICE	ELR-1103 x DSS	630	PHI
2	EA.	RIM CYLINDER	AS REQUIRED	626	SAR
1	EA.	POWER SUPPLY	ELR-152	600	PHI
1	EA.	CARD READER	BY OTHERS	---	UNK
1	EA.	POWER SUPPLY	BY OTHERS	---	UNK
2	EA.	PULL	BF157	628	ROC
2	EA.	CLOSER	350TJ	689	SAR
2	EA.	OVERHEAD STOP	1000	630	ABH
1	EA.	THRESHOLD	513S	630	NGP
1	SET	GASKETING	BY DOOR MANUFACTURER	---	UNK
2	EA.	SWEEP	101VA	628	NGP
1	EA.	TERMINAL INTERFACE BOX	TIE1000	---	SSS

2	EA.	DOOR POSITION SWITCH	BY OTHERS	---	UNK
HW17		L1538 L1039 EACH OPENING TO RECEIVE:			
3	EA.	HINGE	ZBB 961 4.5 x 4.5	652	ZER
1	EA.	PASSAGE LATCHSET	11U-15-LL	626	SAR
1	EA.	WALL MAGNET	2110	630	ABH
1	EA.	CLOSER	350	689	SAR
1	SET	GASKETING	2525B	BLK	NGP
1	EA.	AUTOMATIC DOOR BOTTOM	522N	628	NGP
HW18		85E EACH OPENING TO RECEIVE:			
1	EA.	CONTINUOUS HINGE	SL24	628	SEL
1	EA.	DOUBLE CYLINDER LOCK	11G-17 LL	626	SAR
1	EA.	CLOSER	350	689	SAR
1	EA.	THRESHOLD	8139 X 8146	628	NGP
1	SET	GASKETING	172NA	628	NGP
1	EA.	SWEEP	101VA	628	NGP
1	EA.	DRIP STRIP	16A	628	NGP
1	EA.	DOOR POSITION SWITCH	BY OTHERS	---	UNK
HW19		88D 2803 2803B 2804 2804B 65D 68D EACH OPENING TO RECEIVE:			
1	EA.	CONTINUOUS HINGE	SL24	628	SEL
1	EA.	STOREROOM LOCKSET	11-04-LL	626	SAR
1	EA.	CLOSER	350	689	SAR
1	SET	GASKETING	2525B	BLK	NGP
1	EA.	AUTOMATIC DOOR BOTTOM	320N	628	NGP
HW20		L1520 EACH OPENING TO RECEIVE:			
3	EA.	HINGE	ZBB 961 4.5 x 4.5	652	ZER
1	EA.	ELECTRONIC LOCKSET STAND-ALONE W/ KEYPAD	4213 LL	626	SAR
1	EA.	CLOSER	350	689	SAR
1	EA.	WALL STOP	409	630	ROC
1	SET	GASKETING	2525B	BLK	NGP
1	EA.	AUTOMATIC DOOR BOTTOM	522N	628	NGP
HW21		1821A EACH OPENING TO RECEIVE:			
2	EA.	CONTINUOUS HINGE	SL24FR	628	SEL
1	SET	AUTOMATIC FLUSH BOLTS	1942	626	ROC
1	EA.	DUST PROOF STRIKE	570	626	ROC
1	EA.	COORDINATOR	1600 x FILLER x BRACKETS	600	ROC
1	EA.	INSTITUTIONAL LOCKSET	11G17 LL	626	SAR
2	EA.	CLOSER	350 DA	689	SAR
1	SET	GASKETING	2525B	BLK	NGP
1	EA.	ASTRAGAL	158NA	628	NGP

2	EA.	AUTOMATIC DOOR BOTTOM	320N	628	NGP
HW22 1821B 1621					
EACH OPENING TO RECEIVE:					
1	EA.	CONTINUOUS HINGE	SL24FR x ETW8	628	SEL
1	EA.	ELECTRONIC LOCKSET STAND-ALONE W/ KEYPAD	4213 LL	626	SAR
1	EA.	CLOSER	350	689	SAR
1	EA.	KICK PLATE	8x2 LDW FH-CSK .050	630	ROC
1	SET	GASKETING	2525B	BLK	NGP
1	EA.	AUTOMATIC DOOR BOTTOM	320N	628	NGP
HW23 1821 1831					
EACH OPENING TO RECEIVE:					
1	EA.	CONTINUOUS HINGE	SL24FR	628	SEL
1	EA.	CLASSROOM LOCKSET	11G-37-LL	626	SAR
1	EA.	WALL MAGNET	2110	630	ABH
1	EA.	CLOSER	350	689	SAR
1	SET	GASKETING	2525B	BLK	NGP
1	EA.	AUTOMATIC DOOR BOTTOM	320N	628	NGP
HW24 1818B 1820A 1618B 1620 1621B					
EACH OPENING TO RECEIVE:					
1	EA.	CONTINUOUS HINGE	SL24	628	SEL
1	EA.	CLASSROOM LOCKSET	11G-37-LL	626	SAR
1	EA.	CLOSER	350	689	SAR
1	EA.	KICK PLATE	8x2 LDW FH-CSK .050	630	ROC
1	EA.	MOP PLATE	4x2 LDW FH-CSK .050	630	ROC
1	SET	GASKETING	3038NA	628	NGP
1	EA.	CLOSER BRACKET		600	NGP
1	EA.	AUTOMATIC DOOR BOTTOM	320N	628	NGP
HW25 1818 1817 1617 1618					
EACH OPENING TO RECEIVE:					
3	EA.	HINGE	ZBB 961 4.5 x 4.5	652	ZER
1	EA.	PUSH-PULL	111 x 73 x 73L	630	ROC
1	EA.	CLOSER	350	689	SAR
1	EA.	KICK PLATE	8x2 LDW FH-CSK .050	630	ROC
1	EA.	MOP PLATE	4x2 LDW FH-CSK .050	630	ROC
3	EA.	SILENCERS	608	GRY	ROC
HW26 1820B					
EACH OPENING TO RECEIVE:					
1	EA.	CYLINDER	TO MATCH SYSTEM	626	SAR
HW27 64E 64D 60 61 80 81					
EACH OPENING TO RECEIVE:					
2	EA.	CONTINUOUS HINGE	SL24FR	628	SEL
1	EA.	COORDINATOR	1600	600	ROC
1	EA.	EXIT DEVICE	FL1801	630	PHI

1	EA.	EXIT DEVICE	FL1308 x 39L	630	PHI
1	EA.	MORTISE CYLINDER	AS REQUIRED	626	SAR
2	EA.	CLOSER	350	689	SAR
2	EA.	WALL MAGNET	2110	630	ABH
1	SET	GASKETING	2525B	BLK	NGP
1	EA.	ASTRAGAL	BY DOOR MANUFACTURER	---	UNK
2	EA.	AUTOMATIC DOOR BOTTOM	320N	628	NGP

D. CUB – 1

Manufacturer Designations:

PHI	Precision Hardware Inc.	734.326.7500
NGP	National Guard Products, Inc.	800.647.7874
ROC	Rockwood Mfg. Co.	800.458.2424
RYO	Ryobi	734.595.7200
SAR	Sargent Manufacturing Co.	203.562.2151
SEL	Select Products Limited	800.423.1174
ZER	Zero International Inc.	800.635.5335

Finishes:

---	NOT FINISHED
626	Satin Chromium Plated
628	Satin Aluminum, Clear Anodized
630	Satin Stainless Steel, 300 Series
652	Satin Chromium Plated
689	Aluminum Painted
BLK	Black
DUR	Dark Bronze Anodized
GRY	Grey

HW1	1850 1850D			
	EACH OPENING TO RECEIVE:			
1	EA.	MORTISE CYLINDER	TO MATCH SYSTEM	--- SAR

HW2	1850B 1850C 1850E 1853B EXTERIOR			
	EACH OPENING TO RECEIVE:			
1	EA.	CONTINUOUS HINGE	SL24	628 SEL
1	EA.	EXIT DEVICE	1108 x V39L	630 PHI
1	EA.	RIM CYLINDER	TO MATCH SYSTEM	--- SAR
1	EA.	CLOSER	350	689 SAR
1	EA.	THRESHOLD	513S	630 NGP
1	SET	GASKETING	172NA	628 NGP
1	EA.	SWEEP	101VA	628 NGP
1	EA.	DRIP STRIP		DUR NGP

HW3	1851 1851B			
	EACH OPENING TO RECEIVE:			
3	EA.	HINGE	ZBB 961 4.5 x 4.5	652 ZER
1	EA.	CLASSROOM LOCKSET	11G-37-LL	626 SAR
1	EA.	CLOSER	350HS	689 SAR
1	SET	GASKETING	2525B	628 NGP
1	EA.	AUTOMATIC DOOR BOTTOM	522N	628 NGP

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HW4	1852				
	EACH OPENING TO RECEIVE:				
3	EA.	HINGE	ZBB 961 4.5 x 4.5	652	ZER
1	EA.	PRIVACY LATCHSET	11U-65-LL	626	SAR
1	EA.	WALL STOP	409	630	ROC
3	EA.	SILENCERS	608	GRY	ROC
HW5	1853				
	EACH OPENING TO RECEIVE:				
3	EA.	HINGE	ZBB 961 4.5 x 4.5	652	ZER
1	EA.	EXIT DEVICE	FL1108 x V39L	630	PHI
1	EA.	RIM CYLINDER	TO MATCH SYSTEM	---	SAR
1	EA.	CLOSER	350	689	SAR
1	SET	GASKETING	2525B	BLK	NGP

END OF SECTION