

SECTION 087100 - FINISH HARDWARE

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Door Hardware.
2. Storefront and entrance door hardware.
3. Power supplies for electric hardware.
4. Low energy door operators plus sensors and actuators.
5. Remote button release hardware.
6. Cabinet locks.
7. Padlocks.
8. Cylinders for doors fabricated with locking hardware.
9. Wiring and riser diagrams for electric hardware.
10. Key cabinets, key management software.

B. Related Sections:

1. Section 06200 - Finish Carpentry: Finish Hardware Installation.
2. Section 07900 - Joint Sealers – exterior thresholds.
3. Section 08100 - Metal Doors and Frames.
4. Section 08200 - Wood and Plastic Doors.
5. Section 08300 - Special Doors.
6. Section 08400 - Entrances and Storefronts.
7. Section 08900 - Glazed Curtain Walls.
8. Section 10650 - Operable Partitions.
9. Section 16722 - Fire/Life-Safety System.
10. Section 16724 - Security Access Systems.
11. Section 08115 - Metal Frame, Door and Impact Exit Device Assemblies.

C. Specific Omissions: Hardware for the following is specified or indicated elsewhere.

1. Windows.
2. Cabinets, including open wall shelving and locks.
3. Signs, except where scheduled.
4. Toilet accessories, including grab bars.
5. Installation.
6. Rough hardware.
7. Folding partitions, except cylinders where detailed.
8. Sliding aluminum doors, except cylinders where detailed.
9. Access doors and panels, except cylinders where detailed.
10. Corner Guards.
11. Wrought Iron railing, gates and supports.
12. Brass rail and drink rail supports.

1.2 REFERENCES:

- A. Use date of standard in effect as of Bid date.
- B. American National Standards Institute – ANSI 156.18 – Materials and Finishes.
- C. ANSI A117.1 – Specifications for making buildings and facilities usable by physically handicapped people.
- D. ADA – Americans with Disabilities Act of 1990
- E. BHMA – Builders Hardware Manufacturers Association

- F. DHI – Door and Hardware Institute
- G. NFPA – National Fire Protection Association
 - 1. NFPA 80 – Fire Doors and Windows
 - 2. NFPA 101 – Life Safety Code
 - 3. NFPA 105 – Smoke and Draft Control Door Assemblies
 - 4. NFPA 252 – Fire Tests of Door Assemblies
- H. UL – Underwriters Laboratories
 - 1. UL10C – Fire Tests of Door Assemblies (Positive Pressure)
 - 2. UL 305 – Panic Hardware
- I. WHI – Warnock Hersey Incorporated
- J. SDI – Steel Door Institute
- K. WDI – Wood Door Institute
- L. AWI – Architectural Woodwork Institute
- M. NAAM – National Association of Architectural Metal Manufacturers

1.3 SUBMITTALS & SUBSTITUTIONS

- A. SUBMITTALS: Submit six copies of schedule per Division 1. Organize vertically formatted schedule into “Hardware Sets” with index of doors and headings, indicating complete designations of every item required for each door or opening. Include following information:
 - 1. Type, style, function, size, quantity and finish of hardware items.
 - 2. Use BHMA Finish codes per ANSI A156.18.
 - 3. Name, part number and manufacturer of each item.
 - 4. Fastenings and other pertinent information.
 - 5. Location of hardware set coordinated with floor plans and door schedule.
 - 6. Explanation of abbreviations, symbols, and codes contained in schedule.
 - 7. Mounting locations for hardware.
 - 8. Door and frame sizes, materials and degrees of swing.
 - 9. List of manufacturers used and their nearest representative with address and phone number.
 - 10. Catalog cuts.
 - 11. Manufacturer’s technical data and installation instructions for electronic hardware.
 - 12. Date of jobsite visit.
- B. Bid and submit manufacturer’s updated/improved item if scheduled item is discontinued.
- C. Make substitution requests in accordance with Division 1. Include product data and indicate benefit to the Project. Furnish operating samples on request.
- D. Items listed with no substitute manufacturers have been requested by Owner to meet existing standard.
- E. Furnish as-built/as-installed schedule with closeout documents, including keying schedule, wiring/riser diagrams, manufacturers’ installation, adjustment and maintenance information, and supplier’s final inspection report.

1.4 QUALITY ASSURANCE:

A. Qualifications:

1. Hardware supplier: direct factory contract supplier who employs a certified architectural hardware consultant (AHC), available at reasonable times during course Work for project hardware consultation to Owner, Architect and Contractor.
 - (1) Responsible for detailing, scheduling and ordering of finish hardware.

B. Hardware: New, free of defects, blemishes and excessive play. Obtain each kind of hardware (latch and locksets, exit devices, hinges and closers) from one manufacturer.

C. Exit Doors: Operable from inside with single motion without the use of a key or special knowledge or effort.

D. Fire-Rated Openings: In compliance with NFPA 80. Hardware UL10C/UBC-7-2 (positive pressure) compliant for given type/size opening and degree of label. Provide proper latching hardware, non-flaming door closers, approved-bearing hinges, plus resilient and required intumescent seals. Furnish openings complete.

1. Note: scheduled seals may exceed selected door manufacturer's requirements. See 2.6.E for clarification.

E. Pre-Installation Meetings: Initiate and conduct with supplier, installer and related trades, coordinate materials and techniques, and sequence complex hardware items and systems installation. Convene at least one week prior to commencement of related work.

1.5 DELIVERY, STORAGE AND HANDLING:

A. Delivery: coordinate delivery to appropriate locations (shop or field).

1. Permanent keys and cores: secured delivery direct to Owner's representative.

B. Acceptance at Site: Items individually packaged in manufacturers' original containers, complete with proper fasteners and related pieces. Clearly mark packages to indicate contents, locations in hardware schedule and door numbers.

C. Storage: Provide locked storage area for hardware, protect from moisture, sunlight, paint, chemicals, etc...

1.6 PROJECT CONDITIONS:

A. Where exact types of hardware specified are not adaptable to finished shape or size of members requiring hardware, provide suitable types having as nearly as practical as the same operation and quality as type specified, subject to Architect's approval.

1.7 SEQUENCING AND COORDINATION:

A. Coordinate with concrete.

B. Reinforce walls.

C. Coordinate finish floor materials and floor-mounted hardware.

D. Conduit and raceways as needed for electrical, electronic and electro-pneumatic hardware items. Fire/life-safety system interfacing. Point-to-point wiring diagrams plus riser diagrams to related trades.

E. Furnish manufacturer templates to door and frame fabricators.

F. Use hardware consultant to check Shop Drawings for doors and entrances to confirm that adequate provisions will be made for proper hardware installation.

1. Confirm that door manufacturers furnish necessary UBC-7-2 compliant seal packages.

1.8 WARRANTY:

A. Part of respective manufacturers' regular terms of sale. Provide manufacturers' warranties:

1. Closers: Ten years mechanical, two years electrical.
2. Exit Devices: Three years.
3. Hinges: Life of Building.
4. Other Hardware: Two years.

1.9 COMMISSIONING:

- A. Test door hardware operation with climate control system and stairwell pressurization system both at rest and while in full operation.
- B. Test electrical, electronic and electro-pneumatic hardware systems for satisfactory operation.
- C. Test hardware interfaced with fire/life-safety system for proper operation and release.

PART 2 PRODUCTS

2.1 MANUFACTURERS:

A. Listed acceptable alternate manufacturers: submit for review products with equivalent function and features of scheduled products.

<u>ITEM:</u>	<u>MANUFACTURER:</u>	<u>ACCEPTABLE SUB:</u>
Hinges	(IVE) Ives	Bommer, Stanley
Continuous Hinges	(IVE) Ives	Zero, Stanley
Key System	(SCH)Schlage	Per Sections 2.3 & 2.8
Locks	(SCH)Schlage	Per Section 2.3
Exit Devices	(VD) Von Duprin	Per Sections 2.3 & 2.4
Closers	(LCN) LCN	Sargent 280 series
Flush Bolts	(IVE) Ives	DCI, BBW
Silencers	(IVE) Ives	Rockwood, BBW
Kickplates	(IVE) Ives	Rockwood, BBW
Overhead Stops	(GLY) Glynn-Johnson	Rixson
Thresholds	(NGP) Nat'l Guard	Pemko, Reese
Seals & Bottoms	(NGP) Nat'l Guard	Pemko, Reese

- B. Provide hardware items required to complete the work in accordance with these specifications and manufacturers' instructions.
 1. Include items inadvertently omitted from this specification. Note these items in submittal for review.
 2. Where scheduled item is now obsolete, bid and furnish manufacturers updated item at no additional cost to the project.

2.2 HANGING MEANS:

- A. Conventional Hinges: Hinge open widths minimum, but, of sufficient throw to permit maximum door swing. Steel or stainless steel pins and concealed bearings.
 - 1. Three hinges per leaf to 7 foot, 6 inch height. Add one for each additional 30 inches in height, or any fraction thereof.
 - 2. Extra heavy weight hinges on doors over 3 foot, 5 inches in width.
 - 3. Outswinging exterior doors: non-ferrous with non-removable (NRP) pins.
 - 4. Non-ferrous material exteriors and at doors subject to corrosive atmospheric conditions.
 - 5. Provide shims and shimming instructions for proper door adjustment.

- B. Continuous Hinges: Ives Aluminum Geared Continuous
 - 1. UL 10C listed (90 minutes)
 - 2. ANSI Certified-ANSI 156.25 Grade 2
 - 3. Supports weights up to 450 lbs. 4'0" max. dr. width
 - 4. Material to be extruded aluminum 6063-T6
 - 5. Lengths- 83",85",95", 120"- Custom Lengths available
 - 6. Available Electric Modifications-EPT,TW, TWM, EC
 - 7. All continuous geared hinges to be heavy duty-Amount of bearings varies by size 83", 85"-32 bearings, 95"-36 bearings,120"-47 bearings
 - 8. Finishes Clear (CL)

2.3 LOCKSETS, LATCHSETS, DEADBOLTS:

- A. Locksets and Latchsets: as scheduled.
 - 1. Chassis: cold-rolled steel, handing field-changeable without disassembly.
 - 2. Latchbolts: ¾ inch throw stainless steel anti-friction type.
 - 3. Lever Trim: through-bolted, accessible design, cast lever or solid extruded bar type levers as scheduled. Filled hollow tube design unacceptable.
 - a. Spindles: security design independent break-away. Breakage of outside lever does not allow access to inside lever's hubworks to gain wrongful entry.
 - 4. Thumbturns: accessible design not requiring pinching or twisting motions to operate.
 - 5. Deadbolts: stainless steel 1-inch throw.
 - ~~6. Electric operation: Manufacturer installed continuous duty solenoid.~~
 - 7. Strikes: 16 gage curved steel, bronze or brass with 1 inch deep box construction, lips of sufficient length to clear trim and protect clothing.
 - 8. Scheduled Lock Series and Design: Schlage ND series, 17A design.
 - 9. Certifications:
 - a. ANSI A156.13, 1994, Grade 1 Operational, Grade 1 Security.
 - b. ANSI/ASTM F476-84 Grade 31 UL Listed.
 - 10. Chassis: cold-rolled steel, handing field-changeable without disassembly.
 - 11. Latchbolts: ¾ inch throw stainless steel anti-friction type.Lever Trim: through-bolted, accessible design, cast lever or solid extruded bar type levers as scheduled. Filled hollow tube design unacceptable.
 - 12. Spindles: security design independent break-away. Breakage of outside lever does not allow access to inside lever's hubworks to gain wrongful entry.
 - 13. Thumbturns: accessible design not requiring pinching or twisting motions to operate.
 - 14. Deadbolts: stainless steel 1-inch throw.
 - ~~15. Electric operation: Manufacturer installed continuous duty solenoid.~~
 - 16. Strikes: 16 gage curved steel, bronze or brass with 1 inch deep box construction, lips of sufficient length to clear trim and protect clothing.
 - 17. Scheduled Lock Series and Design: Schlage ND series.
 - 18. Certifications:
 - a. ANSI A156.13, 1994, Grade 1 Operational, Grade 1 Security.
 - b. ANSI/ASTM F476-84 Grade 31 UL Listed.

- B. General Requirements : Locks and Exit Device Lever Trim
 - 1. Locksets and Exit Device Trim to meet or exceed ANSI/BHMA A156.25 Grade 1 requirement and be UL Listed.
 - 2. Lockset and Exit Device Trim to be manufactured with open architecture characteristics capable of handling new and existing access control software and credential reading technology. Lockset and Exit Device Trim to be modular in design.
 - 3. Lockset and Exit Device Trim to have the ability to be upgraded in the field from a standalone battery powered solution to a hard wired networked or a wireless solution.

- ~~4. Lockset to have the ability to change credential reader without being removed from door.~~
5. Lockset and Exit Device Trim to have an emergency mechanical key override with the lever having the ability to be compatible with other manufacturer new and existing key systems.
- ~~6. Lockset to have the following standard status switches: Lock/Unlock Status (Clutch Position), Request to Exit Switch, Door Position Switch, Deadbolt Position, Interior Cover Tamper Guard, Battery Status.~~
7. Lockset and Exit Device Trim to have visual tri-colored LED indicators that indicate activation, operational systems status, system error conditions and low power conditions.

2.4 EXIT DEVICES/PANIC HARDWARE

A. General features:

1. Independent lab-tested 1,000,000 cycles.
2. Push-through touch pad design. No exposed touch bar fasteners, no exposed cavities when operated. Return stroke fluid dampeners and rubber bottoming dampeners, plus anti-rattle devices.
3. 3/4" throw deadlocking latchbolts.
4. No exposed screws to show through glass doors.
5. Non-handed basic device design with center case interchangeable with all functions, no extra parts required to effect change of function.
6. Releasable with 32 lb. maximum pressure under 250 lb. load to the door.

B. Specific features:

1. Non-Fire Rated Devices: cylinder dogging.
2. Lever Trim: Breakaway type, forged brass or bronze escutcheon min .130" thickness, match lockset lever design.
3. Rod and latch guards with surface vertical rod devices.
4. Fire-Labeled Devices: UL label indicating "Fire Exit Hardware". Vertical rod devices less bottom rod (LBR) unless otherwise scheduled.
5. Inpact recessed devices:
6. Delayed Egress Devices: Function achieved within single exit device component, including latch, delayed locking device, request-to-exit switch, nuisance alarm, remote alarm, key switch, indicator lamp, relay, internal horn, door position input, external inhibit input plus fire alarm input. NFPA 101 "Special Locking Arrangement" compliant.
7. Electrically Operated Devices: Single manufacturer source for electric latch retraction devices, electrically controlled trim, power transfers, power supplies, monitoring switches and controls.
8. Removable Mullions: Removable with single turn of building key. Securely reinstalled without need for key. Furnish storage brackets for securely stowing the mullion away from the door when removed.

2.5 CLOSERS

A. General: One manufacturer for closer units throughout the Work, including surface closers, high security closers, overhead concealed closers, floor closers, low-energy door operators and electromagnetic hold-open closers.

B. Surface Closers: (4011/4111)

1. Full rack-and-pinion type cylinder with removable non-ferrous cover and cast iron body. Double heat treated pinion shaft, single piece forged piston, chrome-silicon steel spring.
2. ISO 2000 certified. Units stamped with date-of-manufacture code.
3. Independent lab-tested 10,000,000 cycles.
4. Thru-bolts and wood doors unless doors are provided with closer blocking. Non-sized and adjustable. Place closers inside building, stairs and rooms.
5. Plates, brackets and special templating when needed for interface with particular header, door and wall conditions and neighboring hardware.
6. Opening pressure: Exterior doors 8.5 lb., interior doors 5 lb., labeled fire doors 15 lb.
7. Separate adjusting valves for closing speed, latching speed and backcheck, fourth valve for delayed action where scheduled.
8. Extra-duty arms (EDA) at exterior doors scheduled with parallel arm units.
9. Exterior door closers: tested to 100 hours of ASTM B117 salt spray test, furnish data on request.
10. Exterior doors do not require seasonal adjustments in temperatures from 120 degrees F to -30 degrees F, furnish data on request.
11. Non-flaming fluid will not fuel door or floor covering fires.

- C. Automatic Door Operators
 - 1. Basis of design LCN models 9530 and 9540.
120v power, all wiring and mounting devices included
to provide and install a complete operating unit/system.

2.6 OTHER HARDWARE

- A. Automatic Flush Bolts: Low operating force design, "LBR" type.
- B. Overhead Stops: Stainless steel (450 & 900 series). Non-plastic mechanisms and finished metal end caps. Field-changeable hold-open, friction and stop-only functions.
- C. Kick Plates: Four beveled edges, .050 inches minimum thickness, height and width as scheduled. Sheet-metal screws of bronze or stainless steel to match other hardware.
- D. Door Stops: Provide stops to protect walls, casework or other hardware.
 - 1. Unless otherwise noted in Hardware Sets, provide wall type with appropriate fasteners. Where wall type cannot be used, provide overhead type.
- E. Seals: Finished to match adjacent frame color. Resilient seal material: solid high-grade neoprene. UL label applied to seals on rated doors. Substitute products: certify that the products equal or exceed specified material's thickness and durability. Proposed substitutions: submit for approval.
 - 1. Solid neoprene: MIL Spec. R6855-CL III, Grade 40.
 - 2. Non-corroding fasteners at in-swinging exterior doors.
 - 3. Sound control openings: Use components tested as a system using nationally accepted standards by independent laboratories. Ensure that the door leaves have the necessary sealed-in-place STC ratings. Adhesive mounted components not acceptable. Fasten applies seals over bead of sealant.
 - 4. Fire-rated Doors, Resilient Seals: UL10C/UBC-7-2 compliant. Coordinate with selected door manufacturers and selected frame manufacturer's requirements. Where rigid housed resilient seals are scheduled in this section and the selected door manufacturer only requires an adhesive mounted resilient seal, furnish rigid housed seal at minimum, or both the rigid housed seal and the adhesive applied seal if necessary to fulfill door manufacturer's requirement. Adhesive applied seal alone is deemed insufficient for this project where rigid housed seals are scheduled.
 - 5. Fire-rated Doors, Intumescent Seals: Furnish fire-labeled opening assembly complete and in full compliance with UL10C/UBC-7-2. Furnished by selected door manufacturer, these seals vary in requirement by door type and door manufacture. Adhesive applied intumescent strips are not acceptable, use concealed-in-door-edge type or kerfed-in-frame type. Careful coordination required.
- F. Automatic door bottoms: low operating force units. Doors with automatic door bottoms plus head and jamb seals cannot require more than two pounds operating force to open when closer is disconnected.
- G. Thresholds: As scheduled and per details. Substitute products: certify that the products equal or exceed specified material's thickness. Proposed substitutions: submit for approval.
 - 1. Exteriors: Set in full bed of butyl-rubber or polyisobutylene mastic sealant complying with requirements in Division 7 "Thermal and Moisture Protection". Non-ferrous ¼ inch fasteners and lead expansion shield anchors, or Red-Head #SFS-1420 (or approved equivalent) Flat Head Sleeve Anchors (SS/FHSL).
 - 2. Sound control openings: Set in bed of mastic sealant.
- H. Fasteners: Generally, exposed screws to be Phillips or Robertson drive. Pinned TORX drive at high security areas. Flat head sleeve anchors (FHSL) may be slotted drive. Sheet metal and wood screws: full-thread. Sleeve nuts: full length to prevent door compression.
- I. Silencers: Interior hollow metal frames, 3 for single doors, 4 for pairs of doors. Omit where adhesive mounted seal occurs. Leave no unfilled/uncovered pre-punched silencer holes.
- J. Key Control Software: Same manufacturer as key cylinders, supply to Owner.

2.7 FINISH:

- A. Generally BHMA 626 Satin Chromium

1. Areas using BHMA 626 to have push-plates, pulls and protection plates of BHMA 630, Satin Stainless Steel, unless otherwise noted.
- B. Door closers: factory powder coated to match other hardware,(BHMA 689) unless otherwise noted.
- C. Aluminum items: match predominant adjacent material. Seals to coordinate with frame color.

2.8 KEYING REQUIREMENTS:

- A. Key System: Schlage Everest Primus Level 9 keyway, interchangeable core throughout. Key blanks available only from factory-direct sources, not available from after-market key blank manufacturers. Requires an authorized signature card on the initial order. Requires an original signed Primus facesheet on original order and all subsequent orders. Signature cards and facesheets must be mailed or air expressed to the Schlage factory as directed by the Schlage representative. Faxed copies not permitted. For estimate, use factory GMK charge. Initiate and conduct meeting(s) with the Owner and the Schlage representative to determine system structure. Furnish Owner's written approval of the system. Construction keying: furnish temporary keyed-alike cylinders/cores.
 1. Temporary construction cores to be removed at completion of the job per Owner's instructions. Demonstrate that the construction key is no longer operable. Temporary cores to be returned to hardware supplier and are to remain hardware supplier's property. Permanent cores to be installed by the Owner or the General Contractor (with authorization from the Owner.)
- B. Key Cylinders: utility patented, 6 combining pin solid brass construction.
- C. Cylinders/cores: keyed at factory of lock manufacturer where permanent records are maintained. Locks and cylinders of same manufacturer. Provide visual key control (VKC) w/ stamp key symbol on keys and concealed cylinder stamping (CKC on cylinders).
- D. Permanent keys: secured shipment direct from point of origination to Owner.
 1. For estimate: 3 keys per change combination, 5 master keys per group, 5 grand-masterkeys, 3 control keys.
- E. Key Transcript List: Secured shipment direct from point of origination to Owner upon completion. Requires a letter of authorization form the Owner.

PART 3 EXECUTION

3.1 ACCEPTABLE INSTALLERS:

- A. Factory trained, certified, and carries a factory-issued card certifying that person as a "Certified Installer". Alternative: can demonstrate suitably equivalent competence and experience.

3.2 PREPARATION:

- A. Ensure that walls and frames are square and plumb before hardware installation.
- B. Locate hardware per SDI-100 and applicable building, fire, life-safety, accessibility, and security codes.
 1. Notify Architect of any code conflicts before ordering material.
 2. Where new hardware is to be installed near existing doors/hardware scheduled to remain, match locations of existing hardware.
- C. Existing frames and doors scheduled to receive new hardware: carefully remove existing hardware, tag and bag, and turn over to Owner.
 1. Patch and fill wood frames and doors with solid wood stock or dowel material before cutting for new hardware. Do not reuse existing screw holes - - fill and re-pilot.

2. Metal doors/frames: Weld or fasten with screws: filler pieces in existing hardware cut-outs and mortises not scheduled for re-use by new hardware. Leave surfaces smooth - - no applied patches.

3.3 INSTALLATION

- A. Install hardware per manufacturer's instructions and recommendations. Do not install surface-mounted items until finishes have been completed on substrate. Set units level, plumb and true to line and location. Adjust and reinforce attachment substrate for proper installation and operation.
 1. Gaskets: install jamb-applied gaskets before closers, overhead stops, rim strikes, etc. Install sweeps across bottoms of doors before astragals, cope sweeps around bottom pivots, trim astragals to tops of sweeps.
 2. When hardware is to be attached to existing metal surface and insufficient reinforcement exists, use RivNuts, NutSerts or similar anchoring device for screws.
- B. Locate floor stops not more than 4 inches from the wall.
- C. Drill pilot holes for fasteners in wood doors and/or frames.
- D. Lubricate and adjust existing hardware scheduled to remain. Carefully remove and give to Owner items not scheduled for reuse.

3.4 ADJUSTING

- A. Adjust and check for proper operation and function. Replace units, which cannot be adjusted to operate freely and smoothly.
 1. Hardware damaged by improper installation or adjustment methods to be repaired or replaced to Owner's satisfaction.
- B. Inspection: Use hardware supplier. Include suppliers with closeout documents.
- C. Follow-up inspection: Installer to provide letter of agreement to Owner that approximately 6 months after substantial completion, installer will visit Project with representatives of the manufacturers of the locking devices and door closers to accomplish following:
 1. Re-adjust hardware.
 2. Evaluate maintenance procedures and recommend changes or additions, and instruct Owner's personnel.
 3. Identify items that have deteriorated or failed.
 4. Submit written report identifying problems and likely future problems.

3.5 DEMONSTRATION:

- A. Demonstrate electrical, electronic and pneumatic hardware systems, including adjustment and maintenance procedures.

3.6 PROTECTION/CLEANING:

- A. Cover installed hardware, protect from paint, cleaning agents, weathering, carts/barrows, etc. Remove covering materials and clean hardware just prior to substantial completion.
- B. Clean adjacent wall, frame and door surfaces soiled from installation/reinstallation process.

3.7 SCHEDULE OF FINISH HARDWARE

HW SET: 001

3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	CLASSROOM LOCK	ND70TD SPA	626	SCH
1	EA	CORE ONLY	23-030	626	SCH
1	EA	WALL STOP	WS407CCV	626	IVE
3	EA	SILENCER	SR64	GRY	IVE

HW SET: 002

3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	CLASSROOM LOCK	ND70TD SPA	626	SCH
1	EA	CORE ONLY	23-030	626	SCH
1	EA	OVERHEAD HOLDER	450H	652	GLY
3	EA	SILENCER	SR64	GRY	IVE

HW SET: 003

3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	CLASSROOM LOCK	ND70TD SPA	626	SCH
1	EA	CORE ONLY	23-030	626	SCH
1	EA	MOP PLATE	8400 4" X 1" LDW	630	IVE
1	EA	MOP PLATE	8400 4" X 2" LDW	630	IVE
1	EA	WALL STOP	WS407CCV	626	IVE
3	EA	SILENCER	SR64	GRY	IVE

HW SET: 004

6	EA	HINGE	5BB1 4.5 X 4.5 NRP	652	IVE
2	EA	MANUAL FLUSH BOLT	FB358	626	IVE
1	EA	DUST PROOF STRIKE	DP2	626	IVE
1	EA	CLASSROOM LOCK	ND70TD SPA	626	SCH
1	EA	CORE ONLY	23-030	626	SCH
2	EA	OVERHEAD STOP	450S	652	GLY
2	EA	SILENCER	SR64	GRY	IVE

HW SET: 005

3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	PASSAGE SET	ND10S SPA	626	SCH
1	EA	OVERHEAD STOP	450S	652	GLY
1	EA	MOP PLATE	8400 4" X 1" LDW	630	IVE
1	EA	MOP PLATE	8400 4" X 2" LDW	630	IVE
3	EA	SILENCER	SR64	GRY	IVE

HW SET: 006

3	EA	HINGE	5BB1 4.5 X 4.5 NRP	652	IVE
1	EA	CLASSROOM LOCK	ND70TD SPA	626	SCH
1	EA	CORE ONLY	23-030	626	SCH
1	EA	WALL STOP	WS407CCV	626	IVE
3	EA	SILENCER	SR64	GRY	IVE

HW SET: 007

3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	DEADBOLT	B680T	626	SCH
1	EA	CORE ONLY	23-030	626	SCH
1	EA	PASSAGE SET	ND10S SPA	626	SCH
1	EA	OVERHEAD STOP	450S	652	GLY
1	SET	SEALS	5020C	CHA	NGP

HW SET: 008

3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	PASSAGE SET	ND10S SPA	626	SCH
1	EA	MOP PLATE	8400 4" X 1" LDW	630	IVE
1	EA	MOP PLATE	8400 4" X 2" LDW	630	IVE
1	EA	WALL STOP	WS407CCV	626	IVE
3	EA	SILENCER	SR64	GRY	IVE

HW SET: 009

3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	PASSAGE SET	ND10S SPA	626	SCH
1	EA	OVERHEAD STOP	450S	652	GLY
1	EA	MOP PLATE	8400 4" X 1" LDW	630	IVE
3	EA	SILENCER	SR64	GRY	IVE

HW SET: 010

3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	STOREROOM LOCK	ND80TD SPA	626	SCH
1	EA	CORE ONLY	23-030	626	SCH
1	EA	SURFACE CLOSER	4011	689	LCN
1	EA	MOP PLATE	8400 4" X 1" LDW	630	IVE
1	EA	WALL STOP	WS407CCV	626	IVE
3	EA	SILENCER	SR64	GRY	IVE

HW SET: 011

3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	DEADBOLT	B663T	626	SCH
1	EA	CORE ONLY	23-030	626	SCH
1	EA	PUSH PLATE	8200 4" X 16"	630	IVE
1	EA	PULL PLATE	8302-0 4" X 16"	630	IVE
1	EA	SURFACE CLOSER	4011T	689	LCN
1	EA	MOP PLATE	8400 4" X 1" LDW	630	IVE
1	EA	KICK PLATE	8400 8" X 2" LDW	630	IVE
1	EA	WALL STOP	WS407CCV	626	IVE
3	EA	SILENCER	SR64	GRY	IVE

HW SET: 012

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3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	STOREROOM LOCK	ND80TD-SPA-626	626	SCH
1	EA	CORE ONLY	23-030	626	SCH
1	EA	ELECTRIC STRIKE	6211 FSE 24VDC	630	VON
1	EA	SURFACE CLOSER	4011T	689	LCN
1	EA	MOP PLATE	8400 4" X 1" LDW	630	IVE
1	EA	KICK PLATE	8400 8" X 2" LDW	630	IVE
1	EA	WALL STOP	WS407CCV	626	IVE
3	EA	SILENCER	SR64	GRY	IVE
1	EA	POWER SUPPLY	PS861	GRY	VON
1	EA	BUTTON MINI BOX	660-PB		SCE

LOCATION OF REMOTE RELEASE TO BE DETERMINED BY ARCHITECT.

HW SET: 012A

3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	STOREROOM LOCK	ND80TD-SPA-626	626	SCH
1	EA	CORE ONLY	23-030	626	SCH
1	EA	ELECTRIC STRIKE	6211 FSE 24VDC	630	VON
1	EA	SURFACE CLOSER	4011T	689	LCN
1	EA	OVERHEAD STOP	450S	652	GLY
1	EA	MOP PLATE	8400 4" X 1" LDW	630	IVE
1	EA	KICK PLATE	8400 8" X 2" LDW	630	IVE
3	EA	SILENCER	SR64	GRY	IVE
1	EA	POWER SUPPLY	PS861	GRY	VON
1	EA	BUTTON MINI BOX	660-PB		SCE

LOCATION OF REMOTE RELEASE TO BE DETERMINED BY ARCHITECT,

HW SET: 013

3	EA	HINGE	5BB1 4.5 X 4.5 NRP	652	IVE
1	EA	STOREROOM LOCK	ND80TD SPA	626	SCH
1	EA	CORE ONLY	23-030	626	SCH
1	EA	SURFACE CLOSER	1461 CUSH FC	689	LCN
1	EA	MOP PLATE	8400 4" X 1" LDW	630	IVE
3	EA	SILENCER	SR64	GRY	IVE

HW SET: 014

3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	PRIVACY SET	ND40S SPA	626	SCH
1	EA	SURFACE CLOSER	4011	689	LCN
1	EA	MOP PLATE	8400 4" X 1" LDW	630	IVE
1	EA	KICK PLATE	8400 8" X 2" LDW	630	IVE
1	EA	WALL STOP	WS407CCV	626	IVE
1	SET	SEALS	5020C	CHA	NGP

HW SET: 015

3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	PRIVACY SET	ND40S SPA	626	SCH
1	EA	MOP PLATE	8400 4" X 1" LDW	630	IVE
1	EA	MOP PLATE	8400 4" X 2" LDW	630	IVE
1	EA	WALL STOP	WS407CCV	626	IVE
1	SET	SEALS	5020C	CHA	NGP

HW SET: 017

3	EA	HINGE	5BB1 4.5 X 4.5 NRP	652	IVE
1	EA	STOREROOM LOCK	ND80TD SPA	626	SCH
1	EA	CORE ONLY	23-030	626	SCH
1	EA	SURFACE CLOSER	4111 CUSH	689	LCN
1	EA	MOP PLATE	8400 4" X 1" LDW	630	IVE
1	SET	SEALS	5020C	CHA	NGP
EXISTING DOOR, FRAME AND HARDWARE TO REMAIN					

HW SET: 018

3	EA	HINGE	5BB1 4.5 X 4.5 NRP	630	IVE
1	EA	INSTITUTION LOCK	ND82TD SPA	626	SCH
2	EA	CORE ONLY	23-030	626	SCH
1	EA	SURFACE CLOSER	4111 CUSH	689	LCN
1	EA	MOP PLATE	8400 4" X 1" LDW	630	IVE
1	EA	DOOR SWEEP	101VA	AL	NGP
1	EA	RAIN DRIP	16A WIDTH + 4"	628	NGP
1	EA	THRESHOLD	896S SIA SSMS/EA	628	NGP
1	SET	SEALS	5020C	CHA	NGP

HW SET: 019

3	EA	HINGE	5BB1 4.5 X 4.5 NRP	652	IVE
1	EA	PASSAGE SET	ND10S SPA	626	SCH
1	EA	SURFACE CLOSER	4011	689	LCN
1	EA	MOP PLATE	8400 4" X 1" LDW	630	IVE
1	EA	WALL STOP	WS407CCV	626	IVE
3	EA	SILENCER	SR64	GRY	IVE

HW SET: 020

3	EA	HINGE	5BB1 4.5 X 4.5 NRP	652	IVE
1	EA	PANIC HARDWARE	98L 996L-BE-17 LEVER	626	VON
1	EA	SURFACE CLOSER	4011	689	LCN
1	EA	KICK PLATE	8400 8" X 2" LDW	630	IVE
1	EA	WALL STOP	WS407CCV	626	IVE
1	SET	SEALS	5020C	CHA	NGP

HW SET: 021

3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	PASSAGE SET	ND10S SPA	626	SCH
1	EA	OVERHEAD STOP	450S	652	GLY
3	EA	SILENCER	SR64	GRY	IVE

HW SET: 022

3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	CLASSROOM LOCK	ND70TD SPA	626	SCH
1	EA	CORE ONLY	23-030	626	SCH
1	EA	OVERHEAD STOP	450S	652	GLY
3	EA	SILENCER	SR64	GRY	IVE

HW SET: 023

3	EA	HINGE	5BB1 4.5 X 4.5 NRP	652	IVE
1	EA	FIRE EXIT HARDWARE	98L-F 996L-BE-17 LEVER	626	VON
1	EA	SURFACE CLOSER	4111 CUSH	689	LCN
1	EA	KICK PLATE	8400 8" X 2" LDW	630	IVE
1	EA	WALL STOP	WS407CCV	626	IVE
1	SET	SEALS	5020C	CHA	NGP

HW SET: 024

3	EA	HINGE	5BB1 4.5 X 4.5 NRP	613	IVE
1	EA	EXIT HARDWARE	98EO	313	VON
1	EA	SURFACE CLOSER	4111 CUSH	695	LCN
1	EA	KICK PLATE	8400 8" X 2" LDW	613	IVE
1	EA	DOOR SWEEP	101VA	AL	NGP
1	EA	RAIN DRIP	16A WIDTH + 4"	313	NGP
1	EA	THRESHOLD	896S SIA SSMS/EA	313	NGP
1	SET	SEALS	5020C	CHA	NGP
1	EA	DOOR POSITION SWITCH	679-05 HM		SCE

HW SET: 100

3	EA	HINGE	5BB1 4.5 X 4.5 NRP	652	IVE
1	EA	ELECTRIC STRIKE	6211 FSE 24VDC	630	VON
1	EA	CYL. LOCK/ STOREROOM	ND80TD-SPA-626	626	SCH
1	EA	PRIMUS CORE ONLY	20-740	626	SCH
1	EA	TEMPARY CORE	23-030T (TO MATCH BALANCE OF TEMP CORES)	626	SCH
1	EA	SURFACE CLOSER	4111 CUSH	689	LCN
1	EA	KICK PLATE	8400 8" X 2" LDW	630	IVE
1	SET	SEALS	5020C	CHA	NGP
1	EA	POWER SUPPLY	PS 861	GRY	VON

ALL CONTRIL WIRING IS TO BE RUN TO A JUNCTION BOX ABOVE THE CEILING.

HW SET: 101

3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	ELECTRIC STRIKE	6211 FSE 24VDC	630	VON
1	EA	CYL. LOCK/STOREROOM	ND80TD-SPA-626	626	SCH
1	EA	PRIMUS CORE ONLY	20-740	626	SCH
1	EA	TEMPARY CORE	23-030T (TO MATCH BALANCE OF TEMP CORES)	626	SCH
1	EA	SURFACE CLOSER	4011	689	LCN
1	EA	KICK PLATE	8400 8" X 2" LDW	630	IVE
1	EA	WALL STOP	WS407CCV	626	IVE
1	SET	SEALS	5020C	CHA	NGP
1	EA	POWER SUPPLY	505-ULAC		SCE

ALL CONTROL WIRING IS TO BE RUN TO A JUNCTION BOX ABOVE THE CEILING.

HW SET: 102

NOT USED

HW SET: 103

1	EA	POWER TRANSFER	EPT-10	313	VON
1	EA	CONTINUOUS HINGE	224HD	313	IVE
1	EA	EXIT HARDWARE	RXEL35A-NL-OP	313	VON
1	EA	RIM CYLINDER	20-057T	613	SCH
1	EA	PRIMUS CORE ONLY	20-740	613	SCH
1	EA	OFFSET DOOR PULL	8190-0-O	613	IVE
1	EA	POWER CLOSER	9540 (push side) X689		LCN
1	EA	PUSH BUTTON	8310-855	695	LCN
1	EA	RAIN DRIP	16A WIDTH + 4"	313	NGP
1	EA	THRESHOLD	896S SIA SSMS/EA	313	NGP
1	EA	POWER SUPPLY	PS873-2	GRY	VON
1	EA	DOOR POSITION SWITCH	679-05 HM		SCE

All control wiring is to be run to a junction box above the ceiling.

HW SET: 104

6	EA	HINGE	5BB1 4.5 X 4.5 NRP	652	IVE
1	EA	MAG LOCK	390+DSM-MBS-628		VON
1	SET	AUTO FLUSH BOLT	FB41P	630	IVE
1	EA	DUST PROOF STRIKE	DP2	626	IVE
1	EA	PRIMUS CORE ONLY	20-740	626	SCH
1	EA	CYL. LOCK/ CLASSROOM	ND70TD-SPA-626	626	SCH
1	EA	COORDINATOR	COR52 X FL20	628	IVE
2	EA	MOUNTING BRACKETS	MB1 OR MB2 AS REQUIRED	628	IVE
2	EA	SURFACE CLOSER	4111 HCUSH	689	LCN
2	EA	KICK PLATE	8400 8" X 1" LDW	630	IVE
2	EA	SILENCER	SR64	GRY	IVE
1	EA	POWER SUPPLY	505-ULAC		SCE
1	EA	PUSH BUTTON	621RDEX	630	ISCE
1	EA	SENSOR	SCAN II-B		

WIRED TO HARDWARE SET 105 TO ALLOW SEQ. VESTIBULE OPERATION

All control wiring is to be run to a junction box above the ceiling.

HW SET: 105

1	EA	CONTINUOUS HINGE	224HD	628	IVE
1	EA	PULL/PUSHBAR	9190-0-NO	630	IVE
1	EA	POWER CLOSER	9530-689	689	LCN
1	EA	PUSH BUTTON	8310-853T	689	LCN

WIRED TO HARDWARE SET 103 TO ALLOW SEQ. VESTIBULE OPERATION

All control wiring is to be run to a junction box above the ceiling.

HW SET: 106

6	EA	HINGE	5BB1 4.5 X 4.5 NRP	652	IVE
1	EA	ELECTROMAG LOCK	392+DSM2-MBS2	628	SCE
2	EA	PUSH PLATE	8200 4" X 16"	630	IVE
2	EA	PULL PLATE	8302-0 4" X 16"	630	IVE
2	EA	SURFACE CLOSER	4111 CUSH	689	LCN
1	EA	POWER SUPPLY	505-ULAC		SCE
1	EA	PUSHBUTTON	621RD EX	630	SCE
2	EA	KICK PLATE	8400 8" X 2" LDW	630	IVE

MUSHROOM BUTTON TO BE ON PUSH SIDE OF DOOR.

HW SET: 107

3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	ELECTRIC STRIKE	6211 FSE 24VDC	630	VON
1	EA	CYL. LOCK/ STOREROOM	ND80TD-SPA-626	626	SCH
1	EA	PRIMUS CORE ONLY	20-740	626	SCH
1	EA	TEMPARY CORE	23-030T (TO MATCH BALANCE OF TEMP CORES)	626	SCH
1	EA	SURFACE CLOSER	4011	689	LCN
1	EA	OVERHEAD STOP	450S	652	GLY
1	EA	KICK PLATE	8400 8" X 2" LDW	630	IVE
1	SET	SEALS	5020C	CHA	NGP
1	EA	POWER SUPPLY	PS861	GRY	VOM

All control wiring is to be run to a junction box above the ceiling

HW SET: 108

2	EA	POWER TRANSFER	EPT-10	313	VON
2	EA	CONTINUOUS HINGE	224HD	313	IVE
1	EA	EXIT DEVICE	RXEL3547EO	313	VON
1	EA	EXIT DEVICE	RXEL3547NL-OP	313	VON
1	EA	RIM CYLINDER	20-057T	613	SCH
1	EA	PRIMUS CORE ONLY	20-740	613	SCH
2	EA	OFFSET DOOR PULL	8190-0-O	613	IVE
1	SET	MTG STILE ASTRAGAL	672A	313	NGP
1	EA	SURFACE CLOSER	4111 CUSH	695	LCN
1	EA	MIUNTING PLATE	4110-18 CUSH	695	LCN
1	EA	CUSH SHOE SUPPORT	4110-30	695	LCN
1	EA	BLADE STOP SPACER	4110-61	695	LCN
1	EA	RAIN DRIP	16A WIDTH + 4"	313	NGP
1	EA	THRESHOLD	896S SIA SSMS/EA	628	NGP
1	SET	SEALS	5020C	CHA	NGP
1	EA	POWER SUPPLY	PS873-2	GRY	VON
2	EA	DOOR POSITION SWITCH	679-05 HM		SCE
1	EA	POWER OPERATOR	9540 X689		LCN
1	EA	PUSH BUTTON	8310-853		SCE

WEATHERSTRIP BY DR.,FR. MFG.

All control wiring is to be run to a junction box above the ceiling

HW SET: 109

6	EA	HINGE	5BB1 4.5 X 4.5 NRP	613	IVE
2	EA	OFFSET DOOR PULL	8190-0-O	613	IVE
1	SET	MTG STILE ASTRAGAL	672A	AL	NGP
2	EA	SURFACE CLOSER	4111 CUSH	695	LCN
1	EA	RAIN DRIP	16A WIDTH + 4"	313	NGP
1	EA	THRESHOLD	896S SIA SSMS/EA	313	NGP
1	SET	SEALS	5020C	CHA	NGP
2	EA	DOOR POSITION SWITCH	679-05 HM		SCE
1	EA	ELECTROMAG LOCK	392+DSM2-MBS2	628	SCE
2	EA	PUSH PLATE	8200 4" X 16"	630	IVE
2	EA	PULL PLATE	8302-0 4" X 16"	630	IVE
1	EA	POWER SUPPLY	505-ULAC		SCE
1	EA	PUSHBUTTON	621RD EX	630	SCE

HW SET: 110

3	EA	HINGE	5BB1 4.5 X 4.5 NRP	613	IVE
1	EA	POWER TRANSFER	EPT-10	313	VON
1	EA	EXIT HARDWARE	RXEL98NL-OP	313	VON
1	EA	PRIMUS CORE ONLY	20-740	613	SCH
1	EA	OFFSET DOOR PULL	8190-0-O	613	IVE
1	EA	SURFACE CLOSER	4111 CUSH	695	LCN
1	EA	KICK PLATE	8400 8" X 2" LDW	613	IVE
1	EA	DOOR SWEEP	101VA	AL	NGP
1	EA	RAIN DRIP	16A WIDTH + 4"	313	NGP
1	EA	THRESHOLD	896S SIA SSMS/EA	313	NGP
1	SET	SEALS	5020C	CHA	NGP
1	EA	POWER SUPPLY	PS873-2	GRY	VON
1	EA	DOOR POSITION SWITCH	679-05 HM		SCE

READER TO BE ON THE PULL SIDE OF THE DOOR.

HW SET: 200

2	EA	RIM CYLINDER	20-057T	626	SCH
2	EA	MORTISE CYLINDER	20-061T	626	SCH
2	EA	CORE ONLY	23-030	626	SCH
1		RE-USE BALANCE OF	DRS, FRAMES & HARDWARE		

REPLACE EXISTING CYLINDER FOR LOCK, DEADBOLT OR EXIT DEVICES WITH MORTISE OR RIM CYLINDERS AS REQUIRED..

HW SET: 201

1	EA	RIM CYLINDER	20-057T	613	SCH
1	EA	MORTISE CYLINDER	20-061T	613	SCH
1	EA	PRIMUS CORE ONLY	20-740	613	SCH
1		BALANCE OF HARDWARE BY DOOR MANUFACTURER			

RIM OR MORTISE CYLINDER AS REQUIRED

HW SET: 202

:
1 EXISTING DOOR, FRAME AND HARDWARE TO REMAIN

HW SET: 203

1	EA	CLASSROOM LOCK	ND70TD SPA	626	SCH
1	EA	CORE ONLY	23-030	626	SCH
1		RE-USE BALANCE OF	DRS, FRAMES & HARDWARE		

REPLACE EXISTING LOCK WITH NEW SCHLAGE ND SERIES LOCK. FUNCTION OF LOCKSET TO BE DETERMINED BY ARCHITECT USING EITHER CLASSROOM OR STOREROOM FUNCTIONS

HW SET: 204

1	EA	RIM CYLINDER	20-057T	613	SCH
1	EA	MORTISE CYLINDER	20-061T	613	SCH
1	EA	PRIMUS CORE ONLY	20-740	613	SCH
1		RE-USE BALANCE OF	DRS, FRAMES & HARDWARE		

REPLACE EXISTING CYLINDER WITH NEW SCHLAGE MORTISE OR RIM CYLINDER AS REQUIRED.

HW SET: 205

1	EA	RIM CYLINDER	20-057T	626	SCH
1	EA	MORTISE CYLINDER	20-061T	626	SCH
1	EA	CORE ONLY	23-030	626	SCH
1		RE-USE BALANCE OF	DRS, FRAMES & HARDWARE		

REPLACE EXISTING CYLINDER WITH NEW SCHLAGE MORTISE OR RIM CYLINDER AS REQUIRED.

HW SET: 206

1	EA	STOREROOM LOCK	L9080T 17A	630	SCH
1	EA	STOREROOM LOCK	ND80TD SPA	626	SCH
1	EA	PRIMUS CORE ONLY	20-740	626	SCH
1		RE-USE BALANCE OF	DRS, FRAMES & HARDWARE		

REPLACE EXISTING LOCK WITH NEW SCHLAGE MORTISE OR CYLINDRICAL LOCK AS REQUIRED. AS REQUIRED.

HW SET: 207

1	EA	RIM CYLINDER	20-057T	626	SCH
1	EA	MORTISE CYLINDER	20-061T	626	SCH
1	EA	CORE ONLY	23-030	626	SCH
1		RE-USE BALANCE OF	DRS, FRAMES & HARDWARE		

REPLACE EXISTING CYLINDER WITH NEW SCHLAGE MORTISE OR RIM CYLINDER AS REQUIRED.

END OF SECTION