

**PUBLIC BUILDING COMMISSION OF CHICAGO  
WELLINGTON ELEMENTARY SCHOOL**

**ADDENDUM NO. 05 TO CONTRACT NO. 1513  
FOR**

**WELLINGTON ELEMENTARY SCHOOL  
3000 N. MANGO AVENUE  
RENOVATION  
PROJECT #05801**

DATE: Wednesday, June 2, 2010

**NOTICE OF CHANGES IN CONTRACT DOCUMENTS**

The following changes are hereby made in the Contract Documents.

**QUESTIONS & ANSWERS:**

- Q1.** Drawings A8.1.1-A8.1.4 have several discrepancies between the paper towel holders and hand dryers. In a few locations hand dryers are called out in the plan views, while paper towel dispensers are shown in the elevations. No electrical connections are shown for hand dryers on the electrical drawings. Unless informed otherwise, FHP will assume the elevations are correct and paper towel holders will be provided. Please clarify if this is not correct.
- A1.** All hand dryers are to be deleted from this project. Please provide paper towel dispensers in all instances.
- Q2.** Addendum #4 changed the door hardware sets on doors D101A, D101B and D144 to Sets 43, 44 and 49 respectively; however these hardware sets are listed as not used in the door hardware specification. Please indicate which hardware sets we are to use at these openings.
- A2.** Please see revised Specification Section 08710 for updated hardware sets.

**ATTACHMENTS:**

Revised Specification Section 08710 Door Hardware

**END OF ADDENDUM NO.5**

**SECTION 08710**  
**DOOR HARDWARE**

**PART 1 - GENERAL**

**1.1 SUMMARY**

- A. Section Includes: Finish hardware as required and as specified.

**1.2 SUBMITTALS**

- A. Product Data: Submit manufacturers technical product data for each item of hardware. Include whatever information may be necessary to show compliance with requirements, and include instructions for installation and for maintenance of operating parts and finish.
- B. Hardware Schedule: Submit finish hardware schedule in a vertical format separate from door and frame schedule, conforming to "Sequence and Format for the Hardware Schedule" published by the Door and Hardware Institute (DHI). Horizontal and coded schedules are not acceptable.
1. Finish Hardware Schedule Content: Based on finish hardware indicated, organize hardware schedule into "hardware sets" indicating complete designations of every item required for each door or opening. Schedules not having the following information will be rejected:  
Type, style, function, size and finish of each hardware item.
    - a. Name and manufacturer of each item.
    - b. Fastenings and other pertinent information.
    - c. Location of hardware set cross-referenced to indications on Drawings both on floor plans and in door and frame schedule.
    - d. Explanation of all abbreviations, symbols, codes, etc. contained in schedule.
    - e. Mounting locations for hardware.
    - f. Door and frame sizes and materials.
  2. All hardware for Aluminum doors shall be grouped and segregated from other hardware in the schedule, and may be processed separately. Only the portion of hardware schedule pertaining to Aluminum doors and frames should be forwarded to the aluminum door contractor.
  3. Submit schedule at earliest possible date, particularly where acceptance of hardware schedule must precede fabrication of other work (e.g., hollow metal frames) that is critical in the project construction schedule. Include with schedule the product data, samples, shop drawings of other work affected by finish hardware, and other information essential to the coordinated review of hardware schedule. Review and acceptance by the Owner or Architect does not relieve Contractor of responsibility to fulfill requirements of Contract Documents.
- C. Samples: Prior to submittal of the final hardware schedule and prior to final ordering of finish hardware, submit one sample of each type of exposed hardware unit, finished as required, and tagged with full description for coordination with schedule.
1. Samples may be retrieved by the supplier. Units that are acceptable and remain undamaged through submittal, review and field comparison procedures may, after final check of operation, be used in the work, within limitations of keying coordination requirements.

- D. **Templates:** Furnish hardware templates to each fabricator of doors, frames and other work to be factory-prepared for the installation of hardware. Upon request, check shop drawings of such other work, to confirm that adequate provisions are made for proper location and installation of hardware.
- E. **Keying Schedule:** Submit keying schedule after meeting with Owner's agent for keying instructions.
- F. **Electrified Hardware Coordination:** Where electric strikes, magnetic locks, low energy door operators are listed, provide power supplies by the device manufacturer and wiring diagrams for all items, whether listed in the sets or not. Provide elevations of each system showing locations for each item and description of system operation. Coordinate with electric contractor.

### 1.3 QUALITY ASSURANCE

- A. **Manufacturer:** Obtain each type of hardware (latch and lock sets, hinges, closers, etc.) from only one manufacturer, although several may be indicated as offering products complying with requirements.
- B. **Supplier:** A recognized architectural finish hardware supplier, with warehousing facilities, who has been furnishing hardware in the project's vicinity for a period of not less than 2 years, and who is, or employs an experienced architectural hardware consultant who is available, at reasonable times during the course of the work, for consultation about project's hardware requirements, to Owner, Architect and Contractor.
- C. **Fire-Rated Openings:** Provide hardware for fire-rated openings in compliance with NFPA Standard No. 80 and local building code requirements. Provide only hardware that has been tested and listed by UL or FM or WHI for types and sizes of doors required and complies with requirements of door and door frame labels.
  - 1. **Exit Devices:** Where required on fire-rated doors (with supplementary marking on doors' UL, FM, or WHI labels indicating "Fire Door to be Equipped with Fire Exit Hardware") provide UL, FM, or WHI label on exit devices indicating "Fire Exit Hardware".
  - 2. Fire exit devices and door closers shall be certified to be in compliance with UBC7.2 and UL 10C.

### 1.4 PREINSTALLATION CONFERENCE:

- A. Conduct preconstruction conference at the project site in compliance with requirements of Division 1 Section "Project Management and Coordination.
- B. Contractor shall notify hardware supplier two weeks prior to beginning of hardware installation to set up pre-installation meeting with installation carpenters. Hardware supplier shall provide a qualified Architectural Hardware Consultant to personally meet with, and instruct installers on job site in proper techniques for installation and adjustment of locks, closers and exit devices, and advise on required wire types and gauges for access control/electrical locking hardware.
  - 1. Lock, Door Closer and Exit Device Manufacturer's representative shall be available for a post installation walk and punch list assistance on behalf of the General Contractor, Architect and Owner.
  - 2. Review electrical roughing-in and preparatory work.
  - 3. Review construction keying and final keying.

## 1.5 DELIVERY, STORAGE AND HANDLING

- A. Tag each item or package separately, with identification related to final hardware schedule, and include basic installation instructions with each item or package.
- B. Inventory hardware jointly with representatives of the hardware supplier and the hardware installer until each is satisfied that the count is correct.
- C. Deliver individually packaged hardware items at the proper times to the proper locations (shop or project site) for installation.
- D. Provide secure lock-up for hardware delivered to the project, but not yet installed. Control handling and installation of hardware items that are not immediately replaceable, so that completion of the work will not be delayed by hardware losses, both before and after installation.

## PART 2 - PRODUCTS

### 2.1 SCHEDULED HARDWARE

- A. Requirements for design, grade, function, finish, size and other distinctive qualities of each type of door hardware item is indicated in the Schedule of Hardware sets.
- B. Manufacturer's Product Designations: A manufacturer's symbol in the hardware sets indicates whose product designation is used in the Schedule of *Hardware Sets* for purposes of establishing minimum requirements. Provide either the product designated, or, where more than one manufacturer is listed, the comparable product of one of the other manufacturers that comply with requirements including those specified elsewhere in this section.
- C. ANSI/BHMA designations used elsewhere in this section or in schedules to describe hardware items or to define quality or function are derived from the following standards. Provide products complying with these standards and requirements specified elsewhere in this section.
  - 1. Butts and Hinges: ANSI/BHMA A156.1
  - 2. Locks & Lock Trim: ANSI/BHMA A156.13
  - 3. Exit Devices: ANSI/BHMA A156.3
  - 4. Door Controls - Closers: ANSI/BHMA A156.4
  - 5. Auxiliary Locks: ANSI/BHMA A 156.5
  - 6. Architectural Door Trim: ANSI/BHMA A156.6
  - 7. Template Hinge Dimensions: ANSI/BHMA A156.7.
  - 8. Door Controls - Overhead Holders: ANSI/BHMA A156.8
  - 9. Closer Holder Release Devices: ANSI/BHMA A156.15
  - 10. Auxiliary Hardware: ANSI/BHMA A156.16
  - 11. Materials & Finishes: ANSI/BHMA A156.18
  - 12. Power Assist and Low Energy Operated Door: ANSI/BHMA 156.19
  - 13. Thresholds: ANSI/BHMA A156.21
  - 14. Door Gasketing Systems: ANSI/BHMA A156.22
  - 15. Continuous Hinges: ANS/BHMA 156.26

## 2.2 MATERIALS AND FABRICATION, GENERAL

- A. Hand of door: Drawings show direction of slide, swing or hand of each door leaf. Furnish each item of hardware for proper installation and operation of door movement shown.
- B. Manufacturer's Name Plate: Do not use manufacturer's products that have manufacturer's name or trade name displayed in a visible location (omit removable nameplates), except in conjunction with required UL labels and as otherwise acceptable to Architect.
- C. Manufacturer's identification will be permitted on rim of lock cylinders, and armor front.
- D. Base Metals: Produce hardware units of basic metal and forming method indicated, using manufacturer's standard metal alloy, composition, temper and hardness, but in no case of lesser quality than specified for the applicable hardware units by applicable ANSI A156 series standard for each type hardware and with ANSI A156.18 for finish designations indicated. Do not furnish "optional" materials or forming methods for those indicated, except as otherwise specified.
- E. Fasteners: Provide hardware manufactured to conform to published templates, generally prepared for machine screw installation. Do not provide hardware that has been prepared for self-tapping sheet metal screws, except as specifically indicated.
- F. Furnish screws for installation, with each hardware item. Provide Phillips flat-head screws except as otherwise indicated. Finish exposed (exposed under any condition) screws to match hardware finish or, if exposed in surfaces of other work, to match finish of such other work as closely as possible, including "prepared for paint" in surfaces to receive painted finish.

## 2.3 HARDWARE FINISHES

- A. Provide matching finishes for hardware units at each door or opening, to the greatest extent possible, and except as otherwise indicated. Reduce differences in color and textures as much as commercially possible where the base metal or metal forming process is different for individual units of hardware exposed at the same door or opening. In general, match items to the manufacturer's standard finish for the latch and lock set (or push-pull units if no latch- lock sets) for color and texture.
- B. Provide finishes that match those established by BHMA as indicated in the hardware schedule or, if none indicated, match the finish to which the item is applied. Standard Hardware Sets number with suffix A to have US10, 612 Finish.
- C. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness and other qualities complying with manufacturer's standards, but in no case less than specified for the applicable units of hardware by referenced standards.
- D. Finish Designations: Scheduled designations refer to ANSI A156.18 "Materials & Finishes Standard", including coordination with the traditional U.S. finishes shown by certain manufacturers for their products.

## 2.4 HINGES, BUTTS

- A. Templates: Except for hinges and pivots to be installed entirely (both leaves) into wood doors and frames, provide only template- produced units.

- B. Screws: Furnish Phillips flat-head or machine screws for installation of units, except furnish Phillips flat-head or wood screws for installation of units into wood. Finish screw heads to match surface of hinges or pivots.
- C. Hinge Pins: Except as otherwise indicated in the hardware schedule, provide hinge pins as follows:
  - 1. Material: Stainless steel pins.
  - 2. Exterior Doors: Non-removable pins (NRP).
  - 3. Interior Doors: Non-removable pins (NRP).
  - 4. Tips: Flat button and matching plug, finished to match leaves.
  - 5. Number of Hinges: Provide number of hinges indicated but not less than 3 hinges for door leaf for doors 90 inches or less in height and one additional hinge for each 30 inches of additional height.
  - 6. All hinges shall be ball bearing type.
  - 7. Provide safety stud and locking hole for hinges where scheduled.
- D. Manufacturer, (Butts): Subject to compliance with requirements, provide products of one of the following:
  - 1. Butts and Hinges:
    - a. Bommer Industries.
    - b. Hager Hinge Co.
    - c. Ives; Ingersoll-Rand Co.
    - d. McKinney Mfg. Co.; Assa Abloy Co.
    - e. PBB, Inc.
    - f. Stanley Hardware
- E. Manufacturer, (Geared Continuous Hinges): Provide products having UL listed units equal to or better than the rating of the opening of one of the following manufacturers:
  - 1. ABH, Inc. 4240HD series
  - 2. Hager/Roton 780-224-HD series
  - 3. Pemko FMHD series
  - 4. Select Products SL-24-HD series
  - 5. Stanley 520 series
  - 6. Zero 914DB series

## 2.5 LOCK CYLINDERS AND KEYING

- A. General: Supplier shall meet with Owner to finalize keying requirements and obtain final instructions in writing. Comply with Owner's instructions for master keying and except as otherwise indicated, provide individual change key for each lock which is not designed to be keyed alike with a group of related locks.
- B. Standard System: Except as otherwise indicated, provide new master key system for project. The following is standard system for keying hierarchy per CPS MASTER KEY ORGANIZATION.
  - 1. Great grand master
  - 2. Grand master: Principal and Building Engineer.
  - 3. Sub Master for the following areas and conditions:
    - a. Exterior doors
    - b. Special Rooms: Including rooms such auditorium, gymnasium and special use classrooms.
    - c. Single User Keys: Teacher's classroom key

- C. All cylinder cores shall be keyed at the factory by the cylinder manufacturer where records will be established and maintained.
- D. All cylinders shall be not less than six (6) pin interchangeable core keyed to the existing (insert manufacturer) registered Grand master Key system.
- E. Permanent keys shall be stamped with the key system symbol (VKC). Do not mark the keys with the cylinder biting. Permanent cores shall be marked with the key system symbol in such a manner that the mark is not visible when the core is installed in the cylinder (CVKC).
- F. Except where otherwise specified, locksets, cylinders and cores shall be by the same manufacturer, to assure proper operations.
- G. During construction, all cylinder cores shall be keyed alike. The Contractor shall receive three (3) copies of this key. Under no circumstances shall the Contractor receive any of the permanent building master keys or changes keys. The construction master key shall operate on no less than six (6) pins.
  - 1. Quantity of Keys:
    - a. 3 Great Grand Master
    - b. 3 Grand Master Keys
    - c. 3 Master Keys
    - d. 3 Keys per lock or cylinder
    - e. 50 key blanks
    - f. 3 Control keys
- H. Provide two key control systems, including envelopes, labels, tags with self locking key clips, receipt forms, 3-way visible card index, temporary markers and standard metal cabinet, all as recommended by system manufacturer with capacity for 150% of the number of locks required for the project.
  - 1. The hardware supplier shall set up complete cross index system and place keys on markers and hooks in the cabinet as determined by the final key schedule.
- I. Provide two hinges type wall mounted key cabinets for the above system to be installed as directed by the Owner.

## 2.6 LOCKS, LATCHES AND BOLTS

- A. Strikes: Provide manufacturer's standard wrought box strike for each latch or lock bolt, with curved lip extended to protect frame, finished to match hardware set.
  - 1. Foot Bolts: Provide dust-proof strikes, except where special threshold construction provides non-recessed strike for bolt.
  - 2. Roller Strikes: Provide where recommended by manufacturer of the latch and lock units.
  - 3. Pair of doors with over lapping astragal provide a strike with a 7/8 inch lip to center (LTC).
- B. Mortise Locks:
  - 1. Locks shall have all functions available in one size case, manufactured from heavy gauge steel, minimum thickness 3/32 inch, completely chrome plated for corrosion resistance and lubricity of parts. Cases shall be closed on all sides to protect internal parts. Locks shall have adjustable, beveled and armored fronts, secured with spanner head security screws. Standard 2-3/4 inch backset convertible from one function to another, with a full 3/4 inch throw two-piece, or approved one-piece anti-friction latch bolt and 1" throw dead bolt with hardened steel

- insert and available for a minimum door thickness of 1-3/4 inch. Internal parts shall be heavy gauge steel, zinc dichromate-plated and nickel steel hubs.
2. All locksets with latch bolts, regardless of trim, shall be listed by UL for A and lesser labeled doors, single or pairs.
  3. Lock trim shall be solid stainless steel levers with wrought rose, through bolted through the lock case to assure correct alignment.
  4. Lockset shall conform to, and be certified as meeting, ANSI A156.13 Grade 1 requirements.
  5. Subject to compliance with specifications, provide one of the following:
    - a. Corbin Russwin; Assa Abloy Co. ML2000 LSA series
    - b. Dorma; Dorma Co. ML9000 LTB Series
    - c. Sargent; Assa Abloy Co. 8200 LNJseries
    - d. Schlage; Ingersoll-Rand Co. L9000-B03 series
    - e. Yale Security; Assa Abloy Co. CRR 8800FL series
    - f. Falcon Ingersoll Rand M-SG series
- C. Exit Devices:
1. Surface applied rim, mortise and vertical rod exit devices shall be available as a complete series, listed in UL "Accident Equipment List-Panic Hardware" and "Fire Exit Hardware". All devices shall be the modern push type. These devices shall have met Performance Test Requirements in accordance with ANSI Standard A156.3 for Grade 1 exit devices. All exit devices shall be furnished with thru-bolts and sex nuts. Provide cylinder dogging for all devices except "Fire Exit Devices"
  2. Rim exit device for single doors and pairs of doors with fixed or removable mullions shall be equipped with one of the following type of latch bolts, deadlocking, guarded or square bolt with a minimum 3/4 inch throw.
  3. All rim exit devices for pairs of doors with fixed or removable mullion shall have two-piece interlocking stabilizer blocks installed above and below the latch case.
  4. Exit devices shall be the type, function, and design as listed in the schedule of finish hardware sets and shall have a manufacturer's warranty of five (5) years.
  5. Removable Mullions:
    - a. Constructed of 2 inch by 3 inch steel tubing prepared to receive the required strike plates.
    - b. The top mounting shall be self-locking key removable type.
    - c. Provide a wall mounted storage mount for each mullion by the same manufacturer.
    - d. Provide stabilizers above and below each exit device latch case.
    - e. Provide factory applied paint finish conforming to ANSI/BHMA 689.
  6. Subject to compliance with specifications, provide one of the following:
    - a. Dorma; Dorma Co. 9000 Series
    - b. Precision; Precision Hardware (Stanley) Apex 2000 Series
    - c. Sargent; Assa Abloy Co. 80 Series
    - d. Yale Security; Assa Abloy Co. 7000 Series
    - e. Von Duprin; Ingersoll-Rand Co. 98 Series
- D. Multi-Point Lock: Three point lock.
1. Description: Three 1/2 inch x 1 inch solid steel bolts with 3/4 inch throw; 16 gauge galvanized steel case; 12 gauge plated steel strikes; 3 inch backset.
  2. Function: Levers on both sides of lock. Turning lever retracts bolts in unison. Bolts are held retracted and are released when door closes.
  3. Acceptable Product/Manufacturer: Lock 301C; Wm. J. Perkinson Co., Inc.



## 2.7 PUSH/PULL UNITS

- A. Concealed Fasteners: Provide manufacturer's special concealed fastener system for installation; through-bolted for matched pairs, but not for single units. Pulls to have 2-1/2 inch clearance from face of the door to the underside of the pull.
- B. Acceptable Manufacturers: Subject to compliance with requirements, provide products by the following:
  - 1. Rockwood
  - 2. Hager
  - 3. Ives
  - 4. Trimco
  - 5. Hiawatha
  - 6. Von Duprin

## 2.8 CLOSERS AND DOOR CONTROL DEVICES

- A. Closers shall be rack and pinion construction with both rack and pinion of heat treated steel and with a cast iron or cast aluminum case. Closing the door will be controlled by 2 valves, one to control closing speed and one to control latching speed. Closers shall be regularly furnished with fully adjustable backcheck allowing approximate 70 degrees backcheck on both regular and parallel arm closers. Delayed action shall be available. Valves shall be concealed against unauthorized adjustment and non-critical needle valve type. Spring power adjustment shall be standard with an adjustment size 1 to size 6. Closers shall be surface applied with rectangular metal covers, void of manufacturers' trademarks. All door closers intended to be mounted to the door shall be furnished with thru-bolts and sex nuts.
- B. Closers shall be certified as meeting the ANSI A156.4 Grade 1 requirements, be listed by UL for all classes of labeled doors and shall have a manufacturer's warranty of ten (10) years.
- C. Size of units: Except as otherwise specifically indicated, comply with the manufacturers recommendations for size of door control unit depending upon size of door, exposure to weather and anticipated frequency of use.
  - 1. Provide heavy duty arms.
  - 2. Provide spring cushion stops on parallel arm closers.
  - 3. Provide heavy duty dead stop parallel arms on doors equipped with electric hold open/release devices.
  - 4. Provide all necessary plates, brackets, arms and shoes required for proper installation of closer.
- D. Acceptable Manufacturers:
  - 1. Dorma 8900 Series
  - 2. LCN 4040 Series
  - 3. Norton 7500 Series
  - 4. Sargent 281 Series
- E. Door Holder/Release: Provide electric holder/release meeting the requirements of ANSI Standard A156.15.
  - 1. Holder/release: Surface, wall-mounted
  - 2. Door Armature: Cast aluminum furnished with Through-bolted and sex nuts with the projection required for wall and door conditions. Armatures requiring rod or tube extensions

are not acceptable. Where required to make contact, provide shims of the same material and shape as the armature base.

3. Electric boxes, conduit and wiring to be provided under Division 16.
4. Voltage to be as required under Division 16.
5. Acceptable manufacturers:
  - a. LCN SEM7800 Series and SHE Series
  - b. Sargent 1500 Series
  - c. Rixson 900 Series

## 2.9 DOOR TRIM UNITS

- A. Kick Plates, Mop Plates, Armor Plates: Stainless steel, 0.050 inch thick, beveled three sides.
- B. Fasteners: Provide manufacturer's standard exposed fasteners for door trim units (kick plates, edge trim, viewers, knockers, mail drops and similar units); either machine screws or self-tapping screw.

## 2.10 STOP AND HOLDERS

- A. Provide wall mounted door stops and wall mounted door stop and holders as required to protect the wall and door lever.
  1. Wall door stops: BHMA Type L52261
  2. Door Holders, Interior Doors: BHMA Type L1191
  3. Door Holders, Exterior doors: BHMA Type L11271
- B. Acceptable Manufacturers:
  1. Rockwood Mfg. Co.
  2. Hager
  3. Architectural Builders Hardware (ABH)
  4. Trimco
  5. Ives

## 2.11 THRESHOLDS, WEATHER SEALS, RAIN DRIPS AND SOUND SEALS

- A. Provide thresholds and weather seals on all exterior doors as scheduled
- B. Provide Sound Seals where indicated in the Opening Schedules. Pemko is basis of design, other products meeting design criteria will be considered subject to compliance with project requirements.
  1. 30 STC rating:
    - a. Provide a single row of Pemko S88 Gasketing for head and jambs. Door Bottom 234AV and Pemko threshold 271A.
  2. 40 STC rating:
    - a. Provide a double row of Pemko S88 perimeter Gasketing for head and jambs. Door Bottom Pemko 234AV and Pemko threshold 2005AT..
- C. Subject to compliance with the specifications provide products of one of the following manufacturers.:
  1. National Guard Products
  2. Pemko
  3. Hager
  4. Zero

## PART 3 – EXECUTION

### 3.1 INSTALLATION

#### A.

Mounting Locations: As indicated in "Recommended Locations for Builders Hardware for Standard Steel Doors and Frames" by the Door and Hardware Institute, and "ADA Accessibility Guidelines for Buildings and Facilities", except as specifically indicated or required to comply with governing regulations, and except as may be otherwise directed by Architect.

Comment: Added by Shiner 2/8/10

- D. Install each hardware item in compliance with the manufacturer's instructions and recommendations. Wherever cutting and fitting is required to install hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage and reinstallation or application of surface protections with finishing work specified in the Division-9 sections. Do not install surface-mounted items until finishes have been completed on the substrate.
- E. Install door hardware units using fasteners provided by the manufacturer as specified.
  - 1. Hinges: Phillips flat head wood screws into wood Phillips flat head machine screws into metal.
  - 2. Exit devices: Through bolts and sex nuts.
  - 3. Closers Through bolts and sex nuts.
  - 4. Door holder/release; armature mounted with through bolts and sex nuts.
- F. Set units level, plumb and true to line and location. Adjust and reinforce the attachment substrate as necessary for proper installation and operation.
- G. Drill and countersink units that are not factory-prepared for anchorage fasteners. Space fasteners and anchors in accordance with industry standards.
- H. Set thresholds for exterior doors in full bed of butyl- rubber or polyisobutylene mastic sealant. Thresholds shall be notched or coped to fit around removable mullions.
- I. Removable mullion sill brackets shall be secured to the concrete floor with approved fasteners and anchors.
- J. Hardware shall be installed with the fasteners and anchors provided by the manufacturer of that hardware item.

### 2.12 ADJUSTMENT, CLEANING AND KEYING

- A. Adjust and check each operating item of hardware and each door, to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate freely and smoothly as intended for the application made.
- B. Clean adjacent surfaces soiled by hardware installation.
- C. Permanent cores and keys shall be delivered by the hardware supplier directly to the contractor at the keying meeting. The contractor and representative of the hardware supplier shall jointly install the permanent cores in the presence of the Owner's agent who shall receive the keys. Hardware supplier shall return the construction cores and construction keys to the manufacturer.

- D. Tools and instructions: At the time the permanent cylinder cores are delivered, the hardware supplier shall provide a complete set of specialized tools and maintenance instructions and shall instruct the Owners agent in the proper maintenance.
- E. Final Adjustment: Wherever hardware installation is made more than one month prior to acceptance or occupancy of a space or area, return to the work during the week prior to acceptance or occupancy, and make final check and adjustment of all hardware items in such space or area. Clean operating items as necessary to restore proper function and finish of hardware and doors. Adjust door control devices to compensate for final operation of heating and ventilating equipment.
  - 1. Instruct Owner's Personnel in proper adjustment and maintenance of hardware and hardware finishes, during the final adjustment of hardware.
- F. Continued Maintenance Service: Approximately three months after the acceptance of hardware in each area, the Installer, accompanied by the representative of the latch and lock manufacturer, shall return to the project and re-adjust every item of hardware to restore proper function of doors and hardware. Consult with and instruct Owner's personnel in recommended additions to the maintenance procedures. Replace hardware items that have deteriorated or failed due to faulty design, materials or installation of hardware units. Prepare a written report of current and predictable problems (of substantial nature) in the performance of the hardware.

2.13 SCHEDULE OF FINISH HARDWARE SETS

- A. Provide finish hardware for each door to comply with requirements of this Section, hardware set numbers indicated on Door Schedule and the schedule of hardware sets on drawings.
- B. Manufacturer's function and catalog numbers used in the hardware sets are identified by the following symbols.
 

1. Hager Hinge Co.	HA
2. Yale Security	Y
3. LCN Closers	L
4. Ives	I
5. Rockwood Mfg. Co	R
6. Architectural Builders Hardware Products	A
7. Von Duprin	V
8. Pemco	P
9. Du Seung	D
- C. Other Abbreviations:
  - 1. LDW - Less Door Width
  - 2. TBS - To Be Selected

FINISH HARDWARE SETS

HARDWARE SET # 1

HINGES	BB1279 4 ½ X 4 ½	HA	652
CLASSROOM LOCK	8808-2FL (F32)	Y	630
CLOSER	4041 EDA	L	689
KICKPLATE	15 INCH X 2 INCH LDW	R	630
WALL DOOR STOP	WS406/407CCV	I	630

HARDWARE SET # 2

HINGES	BB1279 4 ½ X 4 ½	HA	652
STOREOOM LOCK	8805FL (F07)	Y	630
DOOR CLOSER	4041 SPRING-CUSH	L	689

HS #2 NOTE :KNURL OUTSIDE LEVER ON ELECTRICAL/ELEVATOR ROOMS

HARDWARE SET # 3

NOT USED

HARDWARE SET # 4

NOT USED

HARDWARE SET # 5

NOT USED

HARDWARE SET # 6

NOT USED

HARDWARE SET # 7

NOT USED

HARDWARE SET # 8

HINGES	REUSE EXISTING HINGES		
CLASSROOM LOCK	JNSL8808-2FL (F32)	Y	612
DOOR CLOSER	4041 SPRING-CUSH	L	691

HARDWARE SET # 9

HINGES	BB1279 4 ½ X 4 ½	HA	652
CLASSROOM LOCK	8808FL (F05)	Y	630
DOOR CLOSER	4041 SPRING-CUSH	L	689
KICKPLATE	125'' X 2'' LDW	R	630

HARDWARE SET # 10

NOT USED

HARDWARE SET # 11

HINGES	BB1279 4 ½ X 4 ½	HA	652
CLASSROOM LOCK	8808-2FL (F32)	Y	630
DOOR CLOSER	4041 SPRING-CUSH	L	689
KICKPLATE	15'' X 2'' LDW	R	630

HARDWARE SET # 12

HINGES	REUSE EXISTING		
STOREROOM LOCK	JNSL 8808-2FL	Y	612

HARDWARE SET # 13

NOT USED

HARDWARE SET # 14

HINGES	REUSE EXISTING		
FLUSH BOLTS	REUSE EXISTING		
STOREROOM LOCK	JNSL 8808FL (F07)	Y	612
DOOR CLOSERS	4041 SPRING-CUSH	L	691

HARDWARE SET # 15

HINGES	BB1279 4 ½ X 4 ½	H	652
PRIVACY LOCK	8802 FL (F19 OR F22)	Y	630
DOOR CLOSER	4041-ST2795	L	689
KICKPLATE	15'' X 2'' LDW	R	630
WALL DOOR STOP	WS406/407CCV	I	630

HARDWARE SET # 16

NOT USED

HARDWARE SET # 17

HINGES	REUSE EXISTING		
STOREROOM LOCK	JNSL 8805FL (F07)	Y	612
DOOR CLOSER	4041 SPRING-CUSH	L	691

HARDWARE SET # 18

HINGES	REUSE EXISTING		
PRIVACY LOCK	JNSL-8802FL (F19 OR F22)	Y	612

HARDWARE SET # 19

NOT USED

HARDWARE SET # 20

HINGES	REUSE EXISTING		
CLASSROOM LOCK	JNSL8808FL (F05)	Y	612

HARDWARE SET # 21

HINGES	REUSE EXISTING		
EXIT DEVICES	REPAIR AND REUSE		
DOOR CLOSERS	4041 SPRING-CUSH	L	689

HARDWARE SET # 22

GEARED HINGES	780-224-HD-UL-STUD	HA	TBS
EXIT DEVICES	98L-F-994L	V	630
DOOR CLOSERS	4041EDA	L	689
ELEC.HOLDER/RELEASE	SEM 7800 SERIES	L	689
CYLINDERS	AS REQUIRED	Y	626
KICKPLATES	15" X 1" LDW	R	630

HARDWARE SET # 23

GEARED HINGES	780-224-HD-UL-STUD	HA	628
EXIT DEVICES	9827L-F-LBR-994L	V	630
CYLINDERS	AS REQUIRED	Y	626
DOOR CLOSERS	4041 EDA	L	689
ELEC.HOLDER/RELEASE	SEM 7800 SERIES	L	689
KICKPLATES	15" X 1" LDW	R	630
HS#23 NOTE : IF ASTRAGAL IS REQUIRED BY UL RATING FURNISH			
MORTISE DEVICE	9875L-2-F-994L	V	630
VERTICAL ROD DEVICE	9827 EO-F	v	630
COORDINATOR	1600 SERIES W/CLOSER BRACKET	R	600

HARDWARE SET # 24

HINGES	BB1279 4 1/2 X 4 1/2 BALL TIP	HA	639
DORMITORY LOCK	JNSL 8867 FL	Y	612

DOOR CLOSER 4041 ST2795 L 691

HARDWARE SET # 25

HINGES REUSE EXISTING  
 PRIVACY LOCK JNSL 8802FL (F19 OR F22) Y 612  
 DOOR CLOSER 4041 SPRING-CUSH L 691

HARDWARE SET # 26

FLOOR PIVOTS TO REPLACE FLOOR CLOSERS  
 DOOR CLOSERS 4041 SPRING-CUSH L 689

HARDWARE SET # 27

GEARED HINGES 780-224-UL-STUD HA TBS  
 EXIT DEVICES 9827L-F-994L LBR B 630  
 DOOR CLOSER 4041 EDA RHR L 689  
 DOOR CLOSER 4041 CUSH LHR L 689  
 DOOR HOLDER/RELEASE SEM 7800 SERIES RHR L 689  
 DOOR HOLDER/RELEASE SEH LHR L 689  
 KICKPLATES 15" X 1" LDW R 630  
 CYLINDERS AS REQUIRED Y 626

NOTE : IF ASTRAGAL IS REQUIRED BY UL LISTING PROVIDE

- 1 MORTISE DEVICE 9827EO
- 1 VERTICAL ROD DEVICE 9827EO-F
- 1 COORDINATOR 1600 SERIES W/CLOSER BRACKET

HARDWARE SET # 28

GEARED HINGES 780-224-HD-UL-STUD HA TBS  
 EXIT DEVICES 98L-F-2-994L V 630  
 CYLINDERS AS REUQUIRED Y 626  
 DOOR CLOSERS 4041 SPRING-CUSH L 689  
 KICKPLATES 15" X 1" LDW R 630

HARDWARE SET # 29

HINGES BB1279 4 1/2 X 4 1/2 HA 652  
 STOREROOM LOCK 8805FL (F07) Y 639  
 AUTO FLUSH BOLTS 1842 OR 1942 R 626  
 DOOR CLOSERS 4041 EDA L 689  
 WALL DOOR STOP WS406/407CCV I 630  
 DUST PROOF STRIKE 210 R 626  
 COORDINATOR 1600 SERIES W/CLOSER BRACKET R 600  
 KICKPLATE 15" X 2" LDW R 630

HARDWARE SET # 30



NOT USED

HARDWARE SET # 31

HINGES	BB1279 4 1/2 x 4 1/2	HA	652
INTRUDER LOCK	8812-2FL (F34)	Y	630
DOOR CLOSER	4041 ST2795	L	689
KICKPLATE	15" X 2" LDW	R	630
WALL DOOR STOP	WS406/407CCV	I	630

HARDWARE SET # 32

NOT USED

HARDWARE SET # 33

HINGES	REUSE EXISTING		
STOREROOM LOCK	PB5405LN (F86)	Y	626
DOOR CLOSER	4041 SPRING-CUSH	L	689

HARDWARE SET # 34

HINGES	BB1168 5" X 4 1/2"	HA	632
STOREROOM LOCK	8805FL (F07)	Y	630
DOOR CLOSER	4041 SPRING-CUSH	L	689
KICKPLATE	15" X 2" LDW	R	630

HARDWARE SET # 35

REMOVE EXISTING EXIT DEVICES			
HINGE	REUSE EXISTING		
POWER TRANSFER	EPT SERIES	V	
EXIT DEVICE	EL98NL-697NL	V	630
EXIT DEVICE	CD98DT-697DT	V	630
REMOVABLE MULLION	KR4954	V	689
STABILIZER	154	V	---
STORAGE MOUNT	MT54	V	---
CYLINDERS	AS REQUIRED	--	626
ADA OPERATOR	FURNISHED IN SECTION 08716		
DOOR CLOSERS	4041 SPRING-CUSH	L	689
KICKPLATES	15 " X 1" LDW	R	630
WEATHERSTRIP	2891-S HEAD	P	628
WEATHERSWTRIP	303-S JAMBS	P	628
DOOR SWEEPS	345—NP	P	628

HARDWARE SET # 36

NOT USED

HARDWARE SET # 37

NOT USED

HARDWARE SET # 38

NOT USED

HARDWARE SET # 39

NOT USED

HARDWARE SET # 40

NOT USED

HARDWARE SET # 41

GEARED HINGES	REUSE EXISTING		
EXIT DEVICES	9827L-F5-994 LBR	V	630
CYLINDERS	AS REQUIRED	--	626
DOOR CLOSERS	4041 EDA	L	689
ELEC.HOLDER/RELEASE	SEM 7800 SERIES	L	689
KICKPLATES	15" X 1" LDW	R	630

HARDWARE SET # 42

HINGES	REUSE EXISTING		
CLASSROOM LOCK	P5408LN	Y	626

HARDWARE SET # 43

GEARED HINGES	780-224-HD SERIES	HA	TBS
EXIT DEVICE	CD98NL-697NL	V	630
EXIT DEVICE	CD98EO	V	630
REMOVABLE MULLION	KR4954	V	689
STORAGE MOUNT	164	V	689
STABILIZER SETS	154	V	---
CYLINDERS	AS REQUIRED	Y	626
DOOR CLOSERS	4041 SPRING-CUSH	L	689
KICKPLATES	15" X 2" LDW	R	630
THRESHOLD	627S 5"	HA	---
WEATHERSTRIP	2891 S HEAD	P	TBS

WEATHERSTRIP	303-P	JAMB	p	TBS
SWEEPS	345-P		P	TBS
DRIP CAP	346		P	TBS

HARDWARE SET # 44

GEARED HINGES	780-224-HD-SERIES		HA	TBS
POWER TRANSFERS	EPT SERIES		V	689
EXIT DEVICES	EL98NL 697NL		V	630
EXIT DEVICE	CD98DT-697DT		V	630
REMOVABLE MULLION	K4854		V	689
STORAGE MOUNT	MT54		V	---
STABILIZER SETS	154		V	---
CYLINDERS	AS REQUIRED		Y	626
LOW ENERGY OPERATOR	FURNISHED IN SECTION 08716		--	---
DOOR CLOSER	4041 SPRING-CUSH		L	689

HS 44 NOTE : THRESHOLDS, WEATHERSTRIPPING AND SWEEPS TO BE FURNISHED BY THE ALUMINUM DOOR AND FRAME MNAUFACTURER.

HARDWARE SET # 45

NOT USED

HARDWARE SET # 46

NOT USED

HARDWARE SET # 47

NOT USED

HARDWARE SET # 48

NOT USED

HARDWARE SET # 49

GEARED HINGES	780-224-HD- SERIES		HA	TBS
DUMMY PUSH BAR	350		V	630
PULL	697DT		V	630
CYLINDERS	AS REQUIRED		Y	TBS

LOW ENERGY OPERATOR FURNISHED IN SECTION 08716

HARDWARE SET # 50

NOT USED

HARDWARE SET # 51

HINGES	REUSE EXISTING		
CLASSROOM LOCK	PB5418LN	Y	626
DOOR CLOSER	4041 SPRING-CUSH	Y	689

HARDWARE SET # 52

GEARED HINGES	780-224-HD-JL-STUD	HA	2004-RI
EXIT DEVICES	98L-F-994L	V	612
DOOR CLOSER	4041 SPRING-CUSH	L	691
KICKPLATE	15" X 2" LDW	R	612

HARDWARE SET # 53

HINGES	REUSE EXISTING		
EXIT DEVICES	REUSE EXISTING REMOVE BOTTOM RODS		
DOOR CLOSER	4041 SPRING-CUSH	L	691
KICKPLATE	15" X 1" LDW	R	612
REMOVE DOOR HOLDERS			

HARDWARE SET # 54

HINGES	REUSE EXISSTING		
REMOVE EXISTING CONCEILED EXIT DEVICES			
EXIT DEVICE	CD98NL-697NL	V	630
EXIT DEVICE	CD98DT-697DT	V	630
REMOVABLE MULLION	KR4954	V	689
STABILIZERS	154	V	---
STORAGE MOUNT	MT54	V	---
CYLINDERS	AS REQUIRED	---	626

HARDWARE SET # 55

GEARED HINGE	780-224-HD-SERIES	HA	628
EXIT DEVICE	CD98NL	V	630
CYLINDER	AS REQUIRED	---	626
STABILIZER KITS	154	V	---
DOOR CLOSER	4041 SPRING-CUSH	L	689
ARMOR PLATE	32" X 2" LDW	R	630
THRESHOLD	627 5"	HA	---
WEATHERSTRIP	2891-S HEAD	P	628
WEATHERSTRIP	303-S JAMB	P	628

DOOR SWEEP	345-NP	P	628
DRIP CAP	346	P	628

HARDWARE SET # 56

HINGES	REUSE EXISTING		
EXIT DEVICES	98L-F-994L-LBR	V	630
CYLINDERS	AS REQUIRED	---	626
DOOR CLOSERS	4041 SPRING-CUSH	L	689
KICKPLATES	15" X 1" LDW	R	630

HARDWARE SET # 57

HINGES	REUSE EXISTING		
EXIT DEVICES	CD98L-994L	V	612
DOOR CLOSER	4041 EDA	L	691
WALL DOOR STOP	WS406/407CCV	I	612

HARDWARE SET # 58

HINGES	REUSE EXISTING		
EXIT DEVICE	98NL-6797NL	V	630
EXIT DEVICE	CD98DT-697DT	V	630
REMOVABLE MULLION	KR4954	V	689
STORAGE MOUNT	MT54	V	689
STABILIZERS	154	V	---
CYLINDERS	AS REQUIRED	--	626
DOOR CLOSERS	4041 SPRING-CUSH	L	689

HARDWARE SET # 59

HINGES	REUSE EXISTING		
EXIT DEVICES	98L-F-994L-LBR	V	612
CYLINDERS	AS REQUIRED	--	626
DOOR CLOSERS	4041 SPRING-CUSH	L	689

HARDWARE SET # 60

HINGES	REUSE EXISTING		
INTRUDER LOCK	JNSL 8812-2FL (F34)	Y	612
DOOR CLOSER	4041 SPRING-CUSH	L	691

HARDWARE SET # 61

HINGES	BB1279 4 1/2 X 4 1/2	HA	639
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CLASSROOM LOCK	JNSL8808FL-718 (F05)	Y	612
DUMMY TRIM	JNSL 838B	Y	612
FLUSH BOLTS	555 12"	R	612
DUST PROOF STRIKE	570	R	612
DOOR CLOSERS	4041 SPRING-CUSH	L	691
KICKPLATES	15" X 1" LDW	R	612

END SECTION 08710