

PART 1 - GENERAL

1.01 GENERAL PROVISIONS

- A. Perform work of this Section in accordance with General Conditions, Supplementary General Conditions, and all other requirements of the Contract Documents.

1.02 WORK INCLUDED

- A. Furnish all labor, materials, tools and equipment necessary to completely finish the project. In general, provide hardware of every kind and description to adequately equip all doors and other moveable parts throughout the building including but not limited to the following:
 - 1. Provide all Finish Hardware of every description required for all doors on the Project, except as noted.
 - 2. Furnish all materials, equipment, services, templates, and schedules required, or necessary for, or incidental to, the furnishing and installation of Finish Hardware.
 - 3. Installation, fitting and adjustments of all hardware for hollow metal and wood doors to be performed under Section 062000- Finish Carpentry.
 - 4. Prepare and submit a detailed, door by door hardware schedule for review and approval by the Architect.

1.03 RELATED WORK OF OTHER SECTIONS

- A. The Contractor will be required to coordinate the related work of other Sections with the work of this Section and be responsible for the timely and expeditious performance of same. Related work shall include but is not necessarily limited to the following:
 - 1. Installation of all finish hardware will be as specified under Section 062000.
 - 2. Hollow Metal Doors and Frames- Section 081113.
 - 3. Wood Doors - Section 081416.
 - 4. Hardware for Windows - Section 085413.11.

1.04 COORDINATION

- A. It shall be the responsibility of the Contractor to coordinate the work of this Section with all other trades and/or Sections of this Specification including electro/mechanical divisions and be responsible for the expeditious and proper completion of same.
- B. The Contractor shall be responsible for verifying field dimensions where necessary to the proper fabrication and/or installation of the work.
 - 1. Provide coordination with Related Work Specified Elsewhere.
- C. Hardware Schedule
 - 1. The approved hardware supplier will be required to submit a complete door by door, schedule of Finish Hardware for approval by the Architect, prior to furnishing same.
 - 2. Each item listed shall be in accordance with the Specification and approved samples.
 - 3. List door numbers or other door identification as indicated on plans or Door Schedule.
 - 4. Each set of Hardware shall be identified with an appropriate set number.
 - 5. Identify on schedule, for each opening, the side of door which will receive cylinder (e.g. cylinder on corridor side).
 - 6. The Architect will check the Hardware Schedule for quality and types only: The Contractor shall be responsible for conformance with this Specification. In case of conflict between Hardware Schedule and this Specification, the latter shall take precedence.
 - 7. Supply copies of the approved Hardware Schedule to the Architect, the Contractor and all related trades.
- D. Hardware Requirements (General)

1. Doors, interior and exterior to the structure shall be provided with a lock-set (or latch set) 1 ½ pr. butts, door stop, closer with hold open device - in accordance with approved schedule locking as required by Owner.
2. Provide push and pulls, 1 ½ pr. butts, door stop and kick plates as indicated. Provide latch sets for private toilet rooms.
3. Provide panic devices 1 ½ pr. butts and weatherstripping at exterior metal doors.

1.05 SUBMITTALS

- A. All work of this Section to be coordinated with Section 013300 - SUBMITTALS, for Shop Drawing and sample submission requirements.

1.06 QUALITY ASSURANCE

- A. Standards: All finish hardware shall conform to all of the following standards:
 1. Testing Laboratories: Underwriters Laboratory (UL) and or Warnock Hersey Fire Laboratories Division: All fire rated doors shall have hardware assemblies approved by one of the listed laboratories. Panic hardware UL Listed only.
 2. National Fire Protection Association: NFPA 80 and NFPA 101.
 3. Builders Hardware Manufacturers Association (BHMA).
 4. American National Standards Institute (ANSI).
 5. American Disabilities Act (ADA).
- B. All products specified shall comply with the Buy American Act.
- C. Supplier: Finish hardware shall be furnished by those having a minimum of 5 years of builders hardware experience and shall have in their employ at least one certified Architectural Hardware Consultant (AHC) to correctly interpret the plans, detailed drawings and specifications.

1.07 PRODUCT HANDLING

- A. Handle, store, distribute, protect and install in accordance with the manufacturers instructions. Deliver packaged material in original containers with seals unbroken and labels intact. Deliver assemblies completely identified and with adequate protection for storage, handling and installation.
- B. Provide secure lock-up for hardware delivered to the project, but not yet installed. Control the handling and installation of hardware which are not immediately replaceable, so that completion of the work will not be delayed by hardware losses; both before and after installation.

1.08 PROJECT CONDITIONS

- A. Coordinate hardware with other work. Tag each item or package separately, with identification related to the final hardware schedule, and include basic installation instructions in the package. Furnish hardware items of proper design for use on doors and frames of the thickness, profile, swing, security and similar requirements indicated and as necessary for proper installation and function. Deliver packaged hardware items to the proper locations for installation.
- B. Furnish hardware templates to each fabricator of doors, frames and other work to be factory prepared for the installation of hardware.

1.09 WARRANTIES

- A. The hardware manufacturers shall provide full replacement warranty as listed below. Replacement warranty shall not include any labor cost.
 1. Surface Closers 5 years

2. Exit Devices	3 years
3. Locksets, etc.	1 year
4. Balance of hardware	1 year

PART 2 - PRODUCTS

2.01 GENERAL REQUIREMENTS

- A. It is intended that the Finish Hardware products and materials specified under this Section will provide the level of quality for all Finish Hardware required for the Project. It shall be the contractor's responsibility to examine the drawings and provide all necessary or additional hardware as required.
- B. Finish Hardware for fire-rated doors and frames shall conform to the applicable requirements of the American Insurance Association and the National Board of Fire Underwriters' Laboratories, Inc., (UL) and other local authorities having jurisdiction, and each such item shall bear a label or mark of the Underwriters' Laboratories, Inc., indicating its conformity with such requirements for use in connection with its specified location.
- C. Hardware shall conform to BHMA A156.2.

2.02 MATERIALS AND FINISHES

- A. Hand of Door: The drawings show the swing or hand of each door leaf. Furnish each item of hardware for proper installation and operation of the door swing shown.
- B. Base Metals: Produce hardware units of the basic metal and forming method indicated, using manufacturer's standard metal alloy, composition, temper and hardness but in no case of lesser quality material.
- C. Fasteners: Manufacture hardware to conform to published templates, generally prepared for machine screw installation. Do not provide hardware which has been prepared to self-tapping sheet metal screws.
- D. Screws: Furnish screws for installation, with each hardware item. Finish exposed screws to match the hardware finish.
- E. Tools for Maintenance: Furnish a complete set of specialized tools as needed, for the Owners continued maintenance, removal and replacement of hardware.
- F. Concealed Fasteners: Provide concealed fasteners for hardware units which are exposed when the door is closed except to the extent no standard manufacturer's units are available with concealed fasteners. Use thru bolts only where necessary to adequately fasten hardware to the door.

2.03 HINGES

- A. All hinges shall be full mortise five knuckle oil impregnated bearing type, template, with non-rising loose pins. Exterior doors and all outswing doors shall have non-removable pins (NRP).
- B. All hinges for 1-3/4" thick doors shall be 4-1/2" wide in the open position. For other thickness doors hinges shall be of a width to permit unobstructed swing of the doors.
- C. Size and weight of hinges shall conform to the following:
 - 1. Door widths Up to 36" 4-1/2" Standard Weight

2. Door widths Over 36" to 48" 5" Extra Heavy Weight
- D. Quantity of hinges shall be provided to conform to the following:
1. Doors up to 60" in height 2 hinges
 2. Doors 60" to 90" in height 3 hinges
 3. Doors 90" and over 1 hinge every 30" in height
- E. All hinges shall be the products of one manufacturer.
- F. Finish shall typically be US26D at non-hollow metal doors and USP at hollow metal doors.

2.04 LOCKSETS, LATCHSETS, ETC.

- A. All locksets and latchsets unless otherwise noted, shall be a cylindrical type conforming to BHMA A156.2 Series 4000, Grade 2, and shall have the following features:
1. Non-handed levers.
 2. Concealed mounting screws.
 3. Six pin cylinder.
 4. U.L. listed for 3 hours.
 5. Interchangeable core.
- B. Lever design shall be Schlage, standard duty commercial ALX Series, Sparta design cylindrical locks. Outside levers of hazardous areas such as electric, janitors, telephone, mechanical rooms etc., shall be knurled.
- C. Finish typically shall be US26D, Satin Chromium plated.

2.05 KEYS, KEYING, CYLINDERS AND KEY CABINET

- A. Keys: All keys shall be nickel silver. All keys shall have visual key control and words "DO NOT DUPLICATE" embossed on one side. Furnish a quantity of keys as follows:
1. Grandmaster Keys 2
 2. Master Keys 6
 3. Change Keys 2 each per cylinder
 4. Construction Keys 10
- B. Keying: All locks shall be construction keyed and great grand master keyed to a new master key system as directed by the Owner. All master keys shall be hand delivered to the OWNER by the manufacturer or his representative.
- C. Cylinders: Shall be six pin removable core. All cylinders shall have visual key control.
- D. Key Cabinet: Provide a key control system set-up (by hardware supplier) to include envelopes, labels, tags with self-locking key clips, receipt forms, 3 way visible card index, temporary markers, permanent markers and standard metal cabinet with locked access. Capacity for 150% of the number of locks required for this project. Instruct Owners representative on the operation of the key control system.

2.06 SILENCERS

- A. Furnish three (3) each for single doors, two (2) each for pairs of doors. Quality #1337 grey.

2.07 DOOR STOPS

- A. Door stops shall be either floor mounted or wall mounted type, forged metal. Furnish appropriate concealed fasteners as required. Finish shall be US26D. Floor mounted type to be Quality #331 x 332. Wall mounted type to be Quality #307.

2.08 FLUSH BOLTS

- A. Manual Flush Bolts: Shall be Glynn Johnson FB6 series, furnish DP-2 dustproof strikes for all bottom bolts. Top bolts shall be furnished with proper extensions to allow for easy operation. Finish shall be US26D.
- B. Self Latching Flush Bolts: Shall be Glynn Johnson FB9/FB10 series, furnish DP-2 dustproof strikes for all bottom bolts. Furnish wear plates as required. Finish shall be US26D.
- C. Automatic Flush Bolts: Shall be Glynn Johnson FB7/FB8 series, furnish DP-2 dustproof strikes for all bottom bolts. Furnish wear plates as required. Finish shall be US26D.
- D. Coordinators: Shall be Glynn Johnson COR series. Furnish all fillers, mounting brackets, carry bars, and special cutouts for use with exit devices, as required. Finish shall be PC.
- E. All flush bolts and coordinators shall be the products of one manufacturer.

2.09 DOOR CLOSING DEVICES

- A. All surface closers shall be LCN 4040 series, and shall meet BHMA A156.4, Grade 1 requirements, and furnished with:
 - 1. Cast iron closer bodies.
 - 2. Full covers.
 - 3. Non handed, non sized.
 - 4. Full rack and pinion.
 - 5. Furnish PH & DA feature on all closers.
 - 6. Fully adjustable independent control for sweep, latch and backcheck valves.
- B. All closers shall be installed so that closer bodies are positioned on room side of doors to and from corridors, i.e., in-swing doors shall be regular arm. Out-swing doors shall have parallel arm. Regular arm shall be used in connecting doors between rooms.
- C. Finish shall be powder coated chrome.

2.10 EXIT DEVICES

- A. Typically, exit devices shall be the touch bar type as specified, and shall conform to BHMA A156.3, Grade 1, and shall have the following features:
 - 1. Roller strikes for all devices.
 - 2. External security deadlatching.
 - 3. Stainless steel touch bar.
 - 4. Hydraulic sound dampening on all devices.
 - 5. Where lever trim is specified, trim design shall match balance of project.
 - 6. All stairwell touch bars shall be embossed with "CAUTION STAIRWELL" with 1" high raised lettering with braille underneath.
- B. Provide cross bar type exit devices at french doors
- C. All exit devices shall be the product of one manufacturer.

- D. Finish shall be US26D.

2.11 OVERHEAD STOPS AND HOLDERS

- A. All overhead stops and holders for interior hollow metal doors shall be concealed type, Rixson 3 series. All overhead stops and holders for interior wood doors shall be surface type Rixson 33 series. Overhead stops for exterior doors shall be Rixson 1 series with bronze arm and channel.
- B. Finish shall be US26D.

2.12 PUSH AND PULLS

- A. Push plates shall be 4 x 16 x .050" Quality #40. Finish shall be US26D.
- B. Pulls shall be Quality #1610. Finish shall be US26D.

2.13 WEATHERSTRIPPING AND SADDLES

- A. All weatherstripping shall be Reese #775A at jambs and head.
- B. All astragal seals shall be Reese #195C. Furnish one unit per leaf.
- C. Saddles shall be as specified.

2.14 LIST OF MANUFACTURERS

- A. Items as specified in hardware sets are to be the products of the following manufacturer's. Contractors wishing to substitute equal products, may do so by requesting approval from the Architect prior to the award of the Contract. Contractor must submit catalog cuts and samples of the substituted items for the Architect's written approval. No substitutions will be accepted after award of the contract.

ITEM	APPROVED MANUFACTURER
Hinges, Spring Hinges	McKinney, Stanley, Hager, Ives
Door Bumpers	McKinney, Bommer
Locksets, Latchsets	Schlage, Russwin-Corbin, Best
Keys and Keying	Schlage, Russwin-Corbin, Best
Deadlocks	Adams Rite
Key Cabinet	Telekey, Lund
Flush Bolts, Coordinators	Glynn Johnson, DCI, Ives
Door Closers	LCN, Rixson, Sargent
Overhead Stops	Rixson, Glynn Johnson, Corbin
Pivots	Rixson, Dor-O-Matic
Electromagnetic Closers	Rixson, LCN, Sargent
Exit Devices	Von Duprin, Sargent, Corbin
Door Stops	Quality, Ives, Glynn Johnson
Roller Catches	Quality, Ives, Glynn Johnson
Push & pulls, Protection Plates	Quality, Ives, Glynn Johnson
Weatherstripping & Saddles	Reese, Pemko, National Guard
Astragal Seals	Reese, Pemko, National Guard

2.15 HARDWARE FINISHES

- A. All hardware finishes shall be US26D unless otherwise noted.

PART 3 - EXECUTION

3.01 GENERAL

- A. **Approval:** As soon as practical after award of Contract and before a hardware schedule is prepared, and before any hardware is ordered or delivered to the project, the CONTRACTOR shall submit to the Architect for his written approval, copies of sample list, listing each of the different items of builders hardware and catalog cuts of each item.
- B. **Templates:** As soon as the hardware schedule is approved the hardware supplier shall furnish to the various fabricators, required templates for fabrication purposes. Templates shall be made available not more than 10 days after receipt of the approved hardware schedule.
- C. **Packaging and Marking:** All hardware shall be shipped with proper fastenings for secure application. Each package of hardware shall be legibly marked indicating the part of the work for which it is intended. Markings shall correspond with the item numbers shown on the approved hardware schedule. Keys shall be tagged within each package set and plainly marked on the face of the envelop with the key control number, door designation and all identification as necessary.
- D. **Delivery:** Delivery shall be made to the project site to the attention of the GENERAL CONTRACTOR. Where delivery of special hardware is required at any fabricators plant, the hardware supplier shall make such delivery.

3.02 INSTALLATION

- A. Mount hardware units at heights recommended in "Recommended Locations for Builders Hardware" by BHMA, unless otherwise noted or directed by the Architect.
- B. Install each hardware unit in compliance with the manufacturer's recommendations.

3.03 ADJUST AND CLEAN

- A. Adjust and check each operating item of hardware and each door to ensure proper operation or function of every unit. Lubricate moving parts with type lubrication recommended by manufacturer. Replace units which cannot be adjusted.
- B. Wherever hardware installation is made more than one (1) month prior to acceptance or occupancy of a space or area, return to the work during the week prior to acceptance make a final check, and adjust, all hardware items in such space or area. Adjust door control devices and compensate for final operation of heating and ventilating equipment.
- C. Instruct OWNERS personnel in proper adjustment and maintenance of hardware and hardware finishes, during the final adjustment of hardware.

3.04 HARDWARE SETS

- A. See Door Schedule on drawings for hardware sets.

END OF SECTION