

087000 Hardware

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PART I - GENERAL

1.1 GENERAL

- A. DESIGN REQUIREMENTS FOR DISABLED ACCESS: All doors and associated hardware shall comply with the Florida Building Code, Chapter 11 Accessibility Code for Building Construction (Section 11-4.13).
- B. RENOVATIONS: On partial renovation projects, all new door hardware (except locksets and cylinders) shall match existing. Locksets and cylinders shall be upgraded to meet these Standards. Finishes shall be selected to match existing, where practical.
- C. Doors that have access control may require different hardware than that listed in this standard. It is best to consult with the UF Physical Security group and review their hardware standard to ensure the proper hardware is being selected for those doors.

1.2 QUALITY ASSURANCE

- A. MANUFACTURER
 - 1. Single Manufacturer For Each Item: Obtain all hardware of each type (latch and locksets, lock cylinders, hinges, closers) from one manufacturer of that item type, (e.g., all hinges from one manufacturer, all closers from one manufacturer), although several manufacturers may be indicated as offering products complying with requirements.
 - 2. Single Manufacturer for Locksets and Cylinders: In addition to the above requirement, lock cylinders and locksets shall be from the same manufacturer.
- B. SUPPLIER: A builder's hardware supplier who has been furnishing architectural hardware for a period of not less than 2 years and has in employment an experienced hardware consultant who is available for consultation.
- C. DOOR CLOSER INSTALLATION CERTIFICATE: The builder shall furnish a certificate executed by a representative of the manufacturer of the door closers that all closers have been inspected and adjusted, are operating as designed, and have been installed in accordance with the manufacturer's instructions. Refer to the Division 1 section for Operations and Maintenance Manuals and include the certificate with that submittal. Reference Appendix B for additional Florida Accessibility requirements.

1.3 SUBMITTALS

- A. **PRODUCT DATA:** Submit manufacturer's technical information for each item of hardware. Include information to show compliance with requirements, and include instructions for installation and for maintenance of operating parts and finish.
- B. **HARDWARE SCHEDULE:** Hardware schedules are intended for coordination of work and are required for the Facilities Services to prepare a keying schedule. Submit final hardware schedule that complies with the construction progress schedule requirements and includes the information described below:
1. Type, style, function, size and finish of each hardware item.
 2. Name and manufacturer of each item.
 3. Fastenings.
 4. Location of hardware set cross-referenced to indications on Drawings both on floor plans and in door and frame schedule.
 5. Explanation of abbreviations, symbols, and codes contained in schedule.
 6. Mounting locations for hardware.
 7. Door and frame sizes and materials.
- C. **SUBMITTAL SEQUENCE**
1. Submit schedule where acceptance of hardware schedule must precede fabrication of other work (e.g., hollow metal frames), which is critical in the project construction schedule. Include with schedule the product data, samples, shop drawings of work affected by hardware, and information essential to the coordinated review of hardware schedule.
 2. The builder's attention shall be drawn to the lead-time required for delivery of certain hardware items and the required date of Substantial Completion. Extensions of the contract will not be accepted because of the builder's failure to order hardware in a timely manner.
 3. The builder's attention shall also be drawn to the lead-time required for the University to produce a keying schedule after receiving the hardware schedule. Coordinate this process with the Facilities Services allowing sufficient time for timely completion by Facilities Services. Sufficient time shall be a function of the project size. i.e. 3 business days for 2 to 3 new keys, 2 weeks for a floor, 4 weeks for a new building. (more than 50 cylinders on main campus or 25 cylinders at HSC buildings, need 8 weeks for order time and pinning time)
- D. **OPERATIONS AND MAINTENANCE MANUALS:** Refer to Division 1 section for Operations and Maintenance Manuals; include technical information, templates, installation instructions, as-built wiring diagrams, door closer installation certificate, and any special details.

1.4 KEYING

A. GENERAL

1. All door lock installations shall be compatible with the University's restricted keyway systems. All other door hardware shall be compatible as well.
 - a. Sliding Glass doors shall either be not keyed or shall accept the University approved cylinder without the cylinder protruding from the door.
2. All non-standard door locking mechanisms shall have key-operated by-pass using a University approved restricted keyway.
3. The Facilities Services will key all entrance (exterior) doors to a building separately from the building's interior doors.

B. DOOR KEYING

1. When project documents are complete and the Contractor has been given the notice to proceed At the start of the Project, the Architect through the UF Project Manager shall provide Facilities Services with the following:
 - a) A Work Order that identifies the UF Project Manager, the building number and floor, and the customer's name and phone number.
 - b) A set of plans with a hardware schedule that includes the University-assigned room and door numbers, the manufacturer of locks, the manufacturer's lock number, the hand of locks, the type of trim, and the lock finish.
 - c) Work Orders submitted without a set of plans or a hardware schedule shall be required to provide the UF-assigned room numbers, the manufacturer of locks, the manufacturer's lock number, the hand of locks, the type of trim, and the lock finish.
 - d) On all projects, a current University small scale (usually 1"= 20') floor plan with UF-approved room numbers. Coordinate this requirement with the UF Project Manager.
2. Upon receipt of a Work Order and a sufficiently detailed hardware schedule, Facilities Services shall meet with the Users and develop a keying schedule for the project. The keying schedule shall be completed and provided to the UF Project Manager in a timely manner. Timely manner shall be a function of the project size. i.e. 3 business days for 2 to 3 new keys, 2 weeks for a floor, 4 weeks for a new building. (more than 50 cylinders on main campus or 25 cylinders at HSC buildings, need 8 weeks for order time and pinning time)
3. The builder shall purchase the cylinders, through the Facilities Services Work Order system only from Facilities Services. These cylinders must be signed for and picked up at the Facilities key shop and shall be installed by the contractor.
4. Builder's keys shall be signed out (borrowed) from Facilities Services, and returned at the end of the project. Failure to return borrowed keys may result in the re-keying of an entire project at the builder's expense.

5. The builder shall provide any “temporary or construction” cylinders and keying required during construction.

C. ACCESS PANELS

1. For new construction all installed access panels (plumbing, ceiling, HVAC, etc) shall be keyed alike.
2. For renovations, all added access panels (plumbing, ceiling, HVAC, etc) shall be keyed alike and be keyed the same as other similar panels in the building.

1.5 PRODUCT HANDLING

- A. **HARDWARE PACKAGING:** Packaging of hardware, on a set-by-set basis, is the responsibility of the supplier. As material is received by the hardware supplier from the various manufacturers, sort and repackage in containers marked with the hardware set number. Two or more identical sets may be packed in the same container.
- B. **VERIFICATION OF INVENTORY:** Inventory hardware jointly with representative of the hardware supplier and the hardware installer until each is satisfied that the count is correct.
- C. **JOB SITE SECURITY:** Provide secure lock-up for hardware delivered to the project, but not yet installed. Control, handle, and install hardware so that completion of the work will not be delayed by hardware losses before or after installation.

1.6 JOB CONDITIONS

- A. **COORDINATION:** 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 for use on doors and frames of the thicknesses, profile, swing, and security indicated on the drawings and specified herein for installation and function. Deliver individually packaged hardware items to the shop or project site for installation.
- B. **TEMPLATES:** Furnish hardware templates to each fabricator of doors, frames and work to be factory-prepared for the installation of hardware. Upon request, check the shop drawings of such other work, to confirm that provisions are made for the installation of hardware.

1.7 WARRANTIES

- A. **DOOR CLOSERS:** Provide warranty on door closers against failure due to defective materials and workmanship for a period of five (5) years, beginning on date of Certificate of Substantial Completion. Closers judged defective during this period shall be replaced or repaired at no cost to the Owner.
- B. **EXIT/PANIC DEVICES:** Provide warranty on exit devices against failure due to defective materials and workmanship for a period of three (3) years, beginning on date of Certificate of Substantial Completion.

PART 2 – PRODUCTS

2.1 SCHEDULED HARDWARE

Requirements for design, grade, function, finish, size and other distinctive qualities of each type of hardware is indicated below:

- A. HINGES: Stainless steel (US32D), 4-1/2" x 4-1/2", ball-bearing hinges, unpainted. Exterior hinges shall have non-removable pins.
- B. MECHANICAL ACCESS (LOCKSETS)
1. Type: Locks shall be mortise style locksets and finish given below. Provide solid cast bronze or brass levers. Provide tactile warning at mechanical and hazardous spaces. Specify US 26D or finish compatible with existing locksets during renovations,

Corbin/Ruswin: ML2200 Series with NSN trim
Sargent: 8200 Series with WTL trim
 2. Restrictions: Double-keyed locksets are strictly forbidden from all doors used for egress, and providing two separate locks on any door is also forbidden.
 3. Non-Standard Door Locking Mechanisms
 - a) A key-operated by-pass using a University approved restricted keyway shall be installed with all non-standard door locking mechanisms (e.g. keypad operated locks and card readers).
 - b) For new construction, consideration shall be given to installing conduit at all locations that may require electronic lock systems in the future.
 - c) Intellikey Locks: Facilities Services shall program all keys and locks (after the programming schedule is worked out with the Users).
 - d) All non-standard lock assemblies including magnetic locks shall be approved in writing by Facilities Services and the UF Physical Security group.
 - a. Magnetic locks shall only be installed if approved by Facilities Services and Physical Security and maintained by the using entity.
 - e) All Single Occupancy restrooms, showers and lactation rooms shall have an occupied indicator with green (unlocked or vacant) / red (locked or occupied) status indicator. The preferred sets for this are
 - a. for Main Campus the Sargent 8200 series, keyed input.
 - b. for Health Science Center the Corbin / Ruswin ML2000 series, coin turn input.If installing these locksets requires a deviation from the standard escutcheon plate for these doors only, that is acceptable..
 4. Cylindrical Locksets: Cylindrical locksets are not acceptable.
 5. Keypad Mortise Lock:
 - a) All Campus locations (Main Campus (E&G buildings) and Health Science Center (HSC)) shall use Sargent KP8276 keypads.

- C. CYLINDERS: Cylinders shall be made by the same manufacturer as the locksets and shall be installed by the Contractor.
- D. KEYS: Shall be provided to the user by the PPD Key shop.
- E. EXIT/PANIC DEVICES
1. Exit devices shall be Sargent 80 Series with ETL trim or Von Duprin 98 Series with L trim. Finish to be 26D or 32D.
 2. Exit devices shall have a self-locking function on the exterior side.
 3. Exit devices shall have an interior cylinder that controls the locking and unlocking function. (When this cylinder is locked a key will be needed every time entry is required (night latch function)).
 4. Double doors on Main Campus shall have either a removable mullion or surface mounted vertical rods with a guard over the bottom bracket. Concealed rod exit devices are permitted only on exterior aluminum storefront doors where compliance with the Florida Building Code is not otherwise possible. See Appendix A for HSC requirements.
- F. DOOR CLOSERS
1. Type: Closers shall be set pre-sized #3; Builder shall adjust to meet field conditions. Provide arms and brackets to operate with conditions as detailed on the drawings. All closers shall be supplied with hex nuts and shoulder bolts on labeled wood doors. Mount closers on room side of door. Do not provide hold-open feature.
 2. Acceptable Manufacturers: LCN 4041, LCN 1461 Supersmoothie. Other manufacturers and models may be submitted for approval.
 3. Handing of Closers: Be consistent in the handing of door closers. For renovations and additions, be consistent with handing in existing building(s).
- G. THRESHOLDS: Provide design and materials as listed. Provide proper fasteners to meet job conditions.
1. Provide flat, single piece thresholds. If saddle type is required, rise shall be no more than 1/2".
 2. Set exterior thresholds on a full bed of sealant.
 3. Reference Florida building code requirements on Accessibility for additional requirements regarding thresholds.
 4. Thresholds need to be designed for the anticipated use they will have. i.e. Aluminum thresholds installed where there is fork truck traffic will not last.
- H. POWER OPERATORS: Acceptable manufacturers/models are: LCN 4630 Series Electric (pull side), LCN 4640 Series Electric (push side), Horton 7100 Series or Besam / Assa Abloy.

Other manufacturers and models can be submitted for approval.

- I. HOLD-OPEN DEVICES: Magnetic hold-open devices shall be specified in areas where automatic door closers are required, but traffic patterns force the doors to be normally open. The hold-open devices shall automatically release the doors upon activation of the fire alarm system or power failure.

END OF SECTION