

08000 - DOORS AND WINDOWS

I. DESIGN

- A. Specify a key cabinet. The cabinet should be designed to accommodate 50% more keys than the current project requirements. The specifications shall require the Contractor to sort, label, and tag all keys (as applicable); set up key cabinet with index; and review it with the Owner.
- B. The Architect shall coordinate keying schedule with the DPWES, Facilities Management Department (FMD) and the using agency. Using agency will sign off on an approved schedule. All changes will be coordinated with FMD.
- C. Provide adequately sized access doors or panels in all walls and ceilings to permit access to all mechanical, plumbing, electrical, or fire alarm equipment which may require maintenance or updating. A minimum access door dimension is 15"; a minimum access door size in ceilings is 24" x 24".
- D. Steel sash windows should not be used. All new or replacement windows shall utilize thermo-pane glass, with thermal break sash and low-E coating. All windows shall have proper flashing (or thru wall flashing, if applicable) and sill receptor if required.
- E. The A/E shall specify field quality control and testing for curtain wall systems. The testing must be conducted by a qualified independent testing and inspections agency and issue test report. The testing shall include air infiltration (ASTM E783), water penetration (ASTM E 1105), and water spray (AAMA 501.2) tests on two or more representative areas of curtain wall conditions to determine compliance of installed system with the specified requirements. Curtain wall shall be repaired or replaced where test results and inspections indicate that it does not comply with specified requirements. Additional testing and inspections at contractor's expense will be performed to determine compliance of replaced or additional work.
- F. All doors within a building, both interior doors and fire rated doors, shall have matching finishes.
- G. Office, meeting, training and data room doors that exceed 7 feet in height require FMD approval.
- H. If possible, industrial use areas (mechanical, shop, electrical, data centers, etc.,) shall have double access doors. A/E shall confirm that door opening allows for all equipment within the space to be taken out of the space for repairs and replacement.
- I. All roof access doors shall have a minimum of 6" height above finished roof or platform level.
- J. All coiling grilles shall be designed with governors. Additional structural support for coiling grilles and overhead doors shall be shown on the plans.

- K. Door numbers in the design documents shall match the final operational door numbers/room numbers so that signage, keying and move-in are made easier.
- L. In areas with drywall partition, all doors shall have floor mounted door stops.
- M. Operable windows are permitted only when approved in writing by DPWES and FMD for specific use type. Locking mechanisms with key must be provided for such windows. Screens must be provided for operable windows when approved.
- N. The maximum recommended clearance for the bottom of any vehicle security gate in county facilities is 6".
- O. Accessible Design
 1. Use automatic door openers on main entry door. Ensure barrier-free access to door opening mechanism. Doors may be push button or automatic sensor operated. Verify with the County Project Manager.
 2. Do not install door closers unless necessary. If necessary, provide delayed action door closers that open freely before the closing cycle begins. If delayed action door closers can not be used, be mindful of closers on heavy doors. The door closing speed and operating pressure must comply with ADAAG.
 3. If accessible corridor is less than 60" wide, provide recessed doors. Recess door design for space and approach must comply with ADAAG.
 4. Dead-end hallways should be designed with sufficient wheelchair turnaround space.
- P. Plans showing all door and hardware locations and a complete hardware schedule detailing all lock manufactures, functions, designs and finishes shall be provided at the start of construction to DPWES and FMD locksmith. A lock cylinder keying meeting with the building users, DPWES, general contractor, lock hardware supplier and the FMD locksmith shall be held at the start of construction. Upon completion of the building and acceptance by the Owner, Fairfax County's permanent Schlage security lock cylinders shall be installed by FMD.
- Q. Electronic Access Control System

The requirement for inclusion and scope of electronic access control system in each facility shall be evaluated with the Owner during design. The County's standard access control system for all facilities (except for Adult Detention Center and the Courthouse) is Northern Computers with Winpak PE software. Adult Detention Center and the Courthouse facilities use TAC America access control system *with INET 7 software* and will continue with this system for any future work. All other facilities must integrate with the County's use of Northern Computers with Winpak PE software. All access control system components must be supplied by the sole source manufacturer to ensure compatibility for networking integration with like systems in other buildings. In

order to interface with the County's main access control system, each facility must be provided with the following components:

1. Controllers:

The controllers are to be specified as Honeywell PRO-3200 Series Controllers. No other products are acceptable.

<http://www.security.honeywell.com/me/access/products/co/117787.html>

Each facility must be specified with one of the following:

- Pro32ENC1 Enclosure with 4amp 12VDC power supply.
- Pro32E1PS Power Supply
- Pro32IC Controller Board
- Pro32EN Ethernet Daughter Board
- Pro32R2 Two Reader Board (8 of these Boards can be put on one Controller Board to control up to 16 Doors).
- Pro32BAT1 Battery Back up
- Pro32DCC Daisy Change Cable.
- Pro3200 IC Controller and Ethernet installations manuals.

Each Pro-3200IC controller board can handle up to 32 doors. Quantity of kits must be adjusted based on the number of applicable doors in each project.

A complete ready for operation access control system including but not limited to electronic locks, card readers, reader boards, power supplies, and any other equipment required for the access control system shall be specified. Programming of the system to interface with County's central system will be provided by the Owner.

2. Card Reader Panels:

All access control card readers shall be by HID Corporation multiCLASS™ readers capable of reading the standard 26 bit prox card (HID), MiFare Smart cards, and the FRAC Smart Cards all at the same time. RPK40 is recommended or Approved Equal that is fully compatible with all cards noted above cards and card readers. Proprietary access control system equipment, components and software are not acceptable.

3. Access Cards will be provided by the Fairfax County FMD.

4. Hardware design for Doors with Electronic Access Control

- a. Builders locksets for electric access controlled doors- The preferred lockset shall be a mortise lock with a ¾ inch latch bolt throw, it may be of a standard type (non electric operation) and an electric strike may be used to open the door or it may be an electric operation mortise lock. All locksets used on fire doors shall be fire rated. The trim of the lock shall be a lever handle that returns to the door within ½ of an inch of the door face. All finishes shall be either US 626 or US 32.

- b. Non-acceptable builders locksets for electric access control doors- Cylindrical key in lever locksets shall not be used with electric strikes.
- c. Panic exit hardware devices for electric access controlled doors- The preferred panic exit hardware device shall be a rim mounted latch retraction panic hardware device or a mortise panic hardware device with electric operation. Standard rim mounted panic hardware devices may be used with jamb mounted electric strikes. Panic hardware devices shall be of the standard panic hardware device type or fire exit panic hardware device as required by the Fairfax County VA fire code. The operating trim of any panic hardware device shall be a lever handle that returns to within ½ inch of the door face. All finishes shall be either US 626 or US 32
- d. Non acceptable panic hardware devices for electric access controlled doors- Vertical rod panic hardware devices shall not be used with any electric access controlled door.
- e. Electrical specifications: Voltage of electric access control hardware- Voltage of all electric access control hardware shall be determined by the requirements of the controlled access system. Consult the County Project Manager and FMD for details.
- f. Electrical specifications: Fail secure or fail safe function for electric access hardware- The function of all electric access control hardware shall be as required by the Fairfax County fire code.

II. PRODUCTS

- A. All locksets and hardware shall be compatible with 6 pin tumbler Large Format Interchangeable Core (LFIC) lock cylinders to accommodate Owner's permanent Schlage cylinders. Owner's permanent cylinders for door hardware shall be Schlage cylinders to be purchased by the contractor, and installed by the Owner (FMD). Architect shall note in the Hardware Schedule "Schlage 6 pin Large Format cylinder to be installed by Owner but purchased by contractor" for **each** hardware set (group). Refer to Section III for additional coordination requirements for locksets and hardware.
- B. Construction cores shall be provided by the Contractor on an as needed basis to secure the building. Construction master keys and cylinder core removal keys (control keys) shall be provided to DPWES immediately after installation. Upon completion of the building FMD shall remove all construction cores and FMD shall install owner's permanent lock cylinder cores purchased by contractor. FMD shall retain all construction cores and keys.
- C. All finish hardware with exception of electronic access control doors, exterior accessed mechanical and electrical rooms shall be selected from one of the following manufacturers' list of cylindrical locksets with 6 pin lock cylinders.
 - 1. Schlage ND-Series US 32D or 626 Finish Rhodes Design Lever

2. Corbin CL-3300 Series US32D or 626 Finish NZD Design Lever**
3. Sargent 10 Line Series US 32D or 626 Finish LL Trim, L Rose, L Lever**
4. Schlage, Corbin**, or Sargent** (No Equal Products or Substitutions)

** A/E must confirm with manufacturer that lockset accepts and is compatible with the County's standard cylinder (Schlage 6 pin Large Format). If necessary, the contractor's hardware supplier shall get the cylinder body from Schlage directly for installation into their lockset.

D. All finish hardware used on doors for securing exterior accessed mechanical and electrical rooms shall be selected from the following manufactures' list of mortise locksets.

1. Schlage L-Series US 32D or 626 Finish Orbit Knob Trim, Hotel function
2. Corbin ML 2200 Series US 32D or 626 Finish GRC knob design, Hotel function**
3. Sargent 7800 Series US 32D or 626 Finish OB Knob Trim, Hotel function**
4. Schlage, Corbin**, or Sargent ** (No Equal Products or Substitutions)
5. Hotel function is specified as it provides a self-locking storeroom function lockset and a separate deadbolt to provide extra security to exterior accessed mechanical and electric rooms. These mortise locks shall be provided with removable core lock cylinders as section A of this specification indicates.

**A/E must confirm with manufacturer that lockset accepts and is compatible with the County's standard cylinder (Schlage 6 pin Large Format). If necessary, the contractor's hardware supplier shall get the cylinder body from Schlage directly for installation into their lockset.

E. All hardware for electronic access doors shall be selected from one of the following manufactures list of mortise locksets. These locksets shall be furnished with 6 pin tumbler Large Format Interchangeable Core Cylinders (LFIC) for manual key bypass in the event of fire or emergency.

a. Electric mortise locks

1. Schlage L series electrified mortise locks. 06 or ND Rhodes lever design trim
2. Corbin ML20900ECL series electric operation, mortise locksets. Newport NSA/NSB/NSF lever design trim**.
3. Sergeant 8200 series electromechanical series mortise locksets. L lever design trim**.
4. Schlage, Corbin**, or Sargent** (No Equal Products or Substitutions)

**A/E must confirm with manufacturer that lockset accepts and is compatible with the County's standard cylinder (Schlage 6 pin Large Format). If necessary, the contractor's hardware supplier shall get the cylinder body from Schlage directly for installation into their lockset.

b. Non electrical mortise locks to be used with electric strikes

1. Schlage L series mortise locks. 06 or ND Rhodes lever design trim.
2. Corbin ML 2000 series mortise locksets. Newport NSA/NSB/NSF lever design trim.**
3. Sargent 8200 series mortise locks. L lever design trim.**
4. Schlage, Corbin**, or Sargent** (No Equal Products or Substitutions)

**A/E must confirm with manufacturer that lockset accepts and is compatible with the County's standard cylinder (Schlage 6 pin Large Format). If necessary, the contractor's hardware supplier shall get the cylinder body from Schlage directly for installation into their lockset.

c. Electric strikes to be used with non electrical mortise locks

1. Folger Adam 310-2 ¾ series electric strikes
2. Von Duprin 6211 (HM frame) or 6213 (HM, Alum, or Wd retrofit) series electric strikes
3. Hes 4500 series electric strikes

F. All hardware for panic exit devices for electronic access doors shall be selected from one of the following manufactures list of electric operation panic exit hardware. This hardware shall be furnished with 6 pin tumbler Large format interchangeable core cylinders for manual key bypass in the event of fire or emergency.

a. Electric operation panic or fire exit device hardware

1. Corbin ED5200 Series electric rim device
 ED 5600 series electric mortise device w/ Newport design lever trim
2. Sargent 8800 series electric rim device
 8900 series electric mortise device with L design lever trim
3. Von Duprin 99EL series electric rim device
 99E electric mortise E7500 device with 06 lever design trim
4. Schlage (Von Duprin), Corbin, or Sargent (No Equal Products or Substitutions)

b. Electric strikes to be used with non electric operation rim latch panic hardware

1. Folger Adams 310-4 series electric strikes
2. Hes 9500 series electric strikes (fire rated doors)
3. Hes 9600 series electric strikes (non fire rated doors)

- G. Where handicap accessibility is not required, surface mounted door closers should be Norton #1603 or #1604 or Approved Equal. Handicap accessible closers should be LCN 1461 or Approved Equal.
- H. Floor type door closers should be Rixson #27 or #28, or Approved Equal. Where handicapped access is required, use Rixson PH27 or PH28, or Approved Equal.
- I. Coordinate panic hardware with ADA requirements to ensure that a minimum of 32" clearance for door opening width, exclusive of hardware, is maintained.
- J. Hydraulic actuators should not be used for accessible door openers.
- K. Hinges at all doors should be ball bearing type.
- L. Fairfax County Fire Prevention Code requires the installation of an approved emergency building entrance system (key box or Knox box) for all buildings with the exception of single-family dwellings. See Fairfax County Fire Prevention Code at <http://www.fairfaxcounty.gov/fr/prevention/fmpublications/crp2009.pdf>
- M. Electric Strikes shall meet Underwriters Laboratories burglary resistance specification UL 1034. The preferred electric strike shall be Folger Adam Series 310. All electric strikes shall be US 626 or US 32D finish. Electric strike voltages and functions shall be compatible with access control system requirements.

- N. For partial renovations, all door hardware shall be specified to match the existing hardware in finish, style and keyway in order to maintain continuity. A propriety or ole source procurement approval must be prepared and identified in the specifications as required.
- O. Door Hardware Functions: The door hardware is to be specified with the following functions. Coordinate with County Project Manger for additional variations:

Door Type	Hardware Function
1. Standard Offices	Push button office or entry function – Allows quick simple locking with no key required.
2. Doors without locking function	Passage lockset- No locking needed just latching.
3. Restroom - Single Fixture Use i.e. family toilet room, unisex toilet rooms)	Bathroom function- Allows privacy but can be opened with any key in emergency.
4. Meeting Rooms, Classrooms in Offices, Group Rooms, Large Suite Public Areas	Classroom lockset- Can only be locked with a key.
5. Storage Room/Mechanical Or Electrical Rooms	Storeroom lockset -Stays locked can only be opened with a key.
6. Public Restrooms- Multi-fixture Use	School house safety deadbolt lock -Can be locked by key only from exterior. Person locked in can release deadbolt but can not lock themselves in, used to lock off bathrooms in case of plumbing problem.
7. Roof Access	Double Sided Storeroom lock- Stays locked on both sides.
8. School Classroom , Child Day Care Centers	Classroom intruder lockset- Always free to exit, locks only by key from inside the classroom, door does not need to be opened to lock from outside as a regular classroom lock.

9. Exterior accessed mechanical and electrical rooms

Hotel function- provides a self-locking storeroom function lockset and a separate deadbolt to provide extra security

Note:

These functions are for standard finish hardware. Electric hardware on electronic access doors stays locked at all times and opens only with a card access or keypad. The key is only to open the door in an emergency like a storeroom lock. Electric locks can be left "open" at all times but are either powered up and unlocked (fail secure is locked with power off) or they are fail safe and not powered (fail safe is unlocked with no power going to the lock).

III. LOCKSETS AND HARDWARE

All locksets and hardware shall be compatible with Schlage full size/large format interchangeable core lock cylinders to accommodate Owner's permanent Schlage cylinders. Owner's permanent Schlage cylinders will be purchased by the Contractor. Permanent full size/large format interchangeable core cylinders in Schlage Classic C, CE, E, EF or F shall be provided by the contractor. Functioning keys and control keys (keys to remove core from lock) shall be provided to Building Security Services/Lockshop immediately after installation. Projects larger than 25 cylinders will require that the contractors order cylinders through Building Security Services/Lockshop at the expense of the contractor, so that the factory can key the new cylinders to the new master key system prior to final installation and turnover of the space to Owner. All perimeter doors and all mechanical doors will be provided with Schlage full size/large format interchangeable cores in Schlage FG keyway.