SECTION 08.11.13
HOLLOW METAL DOORS AND FRAMES

PART 1 GENERAL

1.01 SECTION INCLUDES
A. Non-fire-rated steel doors and frames.
B. Thermally insulated steel doors.
C. Accessories, including glazing.

1.02 RELATED REQUIREMENTS
A. Section 08.71.00 - Door Hardware.
B. Section 08.80.00 - Glazing: Glass for doors and borrowed lites.
C. Section 09.91.13 - EXTERIOR PAINTING: Field painting.
D. Section 09.91.23 - Interior Painting: Field painting.

1.03 REFERENCE STANDARDS
B. ANSI/SDI A250.8 - Specifications for Standard Steel Doors and Frames (SDI-100); 2014.
F. BHMA A156.115 - American National Standard for Hardware Preparation in Steel Doors and Steel Frames; 2014. (ANSI/BHMA A156.115)

1.04 SUBMITTALS
A. See Section 01.30.00 - Administrative Requirements, for submittal procedures.
B. Product Data: Materials and details of design and construction, hardware locations, reinforcement type and locations, anchorage and fastening methods, and finishes.
C. Shop Drawings: Details of each opening, showing elevations, glazing, frame profiles, and identifying location of different finishes, if any.
D. Installation Instructions: Manufacturer's published instructions, including any special installation instructions relating to this project.

CONSTRUCTION DOCUMENTS PACKAGE
31-AUG-15
E. Manufacturer's Certificate: Certification that products meet or exceed specified requirements.

1.05 QUALITY ASSURANCE
A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum 10 years documented experience.
B. Maintain at the project site a copy of all reference standards dealing with installation.

1.06 DELIVERY, STORAGE, AND HANDLING
A. Store in accordance with NAAMM HMMA 840.
B. Protect with resilient packaging; avoid humidity build-up under coverings; prevent corrosion.

PART 2 PRODUCTS

2.01 MANUFACTURERS
A. Steel Doors and Frames:
   4. Substitutions: See Section 01.60.00 - Product Requirements.

2.02 DOORS AND FRAMES
A. Requirements for All Doors and Frames:
   1. Accessibility: Comply with ICC A117.1 and ADA Standards.
   2. Door Top Closures: Flush with top of faces and edges.
   3. Door Edge Profile: Beveled on both edges.
   5. Glazed Lights: Non-removable stops on non-secure side; sizes and configurations as indicated on drawings.
   6. Hardware Preparation: In accordance with BHMA A156.115, with reinforcement welded in place, in addition to other requirements specified in door grade standard.
   7. Galvanizing for Units in Wet Areas: Components hot-dipped zinc-iron alloy-coated (galvannealed) in accordance with ASTM A653/A653M, with manufacturer's standard coating thickness
   8. Finish: Factory primed, for field finishing.
B. Combined Requirements: If a particular door and frame unit is indicated to comply with more than one type of requirement, comply with all the specified requirements for each type; for instance, an exterior door that is also indicated as being sound-rated must comply with the requirements specified for exterior doors and for sound-rated doors; where two requirements conflict, comply with the most stringent.

2.03 STEEL DOORS
A. Exterior Doors:
   1. Grade: ANSI/SDI A250.8 (SDI-100); Level 2 - Heavy-Duty, Physical Performance Level B, Model 2 - Seamless.
   2. Core: Polyurethane.
   5. Insulating Value: U-value of 0.50, when tested in accordance with ASTM C1363.
B. Interior Doors, Non-Fire-Rated:
1. Grade: ANSI/SDI A250.8 (SDI-100); Level 2 - Heavy-Duty, Physical Performance Level B, Model 2 - Seamless.
3. Finish: Factory primed, for field finishing.
C. Panels: Same construction, performance, and finish as doors.

2.04 STEEL FRAMES
A. General:
1. Comply with the requirements of grade specified for corresponding door.
   a. ANSI/SDI A250.8 (SDI-100), Level 2 and 3 Door Frames: 14 gage, 0.067 inch, minimum thickness.
2. Finish: Factory primed, for field finishing.
3. Provide mortar guard boxes for hardware cut-outs in frames to be installed in masonry or to be grouted.
B. Exterior Door Frames: Face welded, seamless with joints filled.
2. Weatherstripping: Separate, see Section 08.71.00.
C. Interior Door Frames, Non-Fire-Rated: Slip-on drywall type, with knockdown type at masonry walls.
1. Finish: Factory primed, for field finishing.

2.05 ACCESSORY MATERIALS
A. Glazing: As specified in Section 08.80.00, factory installed.
B. Removable Stops: Formed sheet steel, shape as indicated on drawings, mitered or butted corners; prepared for countersink style tamper proof screws.
C. Mechanical Fasteners for Concealed Metal-to-Metal Connections: Self-drilling, self-tapping, steel with electroplated zinc finish.
D. Silencers: Resilient rubber, fitted into drilled hole; 3 on strike side of single door, 3 on center mullion of pairs, and 2 on head of pairs without center mullions.
E. Temporary Frame Spreaders: Provide for all factory- or shop-assembled frames.

2.06 FINISH MATERIALS
A. Primer: Rust-inhibiting, complying with ANSI/SDI A250.10, door manufacturer's standard.

PART 3 EXECUTION

3.01 EXAMINATION
A. Verify existing conditions before starting work.
B. Verify that opening sizes and tolerances are acceptable.

3.02 INSTALLATION
A. Install in accordance with the requirements of the specified door grade standard and NAAMM HMMA 840.
B. Coordinate frame anchor placement with wall construction.
C. Coordinate installation of hardware.
D. Coordinate installation of glazing.
3.03 TOLERANCES
   A. Clearances Between Door and Frame: As indicated in ANSI/SDI A250.8 (SDI-100).
   B. Maximum Diagonal Distortion: 1/16 in measured with straight edge, corner to corner.

3.04 ADJUSTING
   A. Adjust for smooth and balanced door movement.

END OF SECTION
SECTION 08.33.23
OVERHEAD COILING DOORS

PART 1 GENERAL

1.01 SECTION INCLUDES
A. Overhead coiling doors, operating hardware, exterior, electric operation.
B. Wiring from electric circuit disconnect to operator to control station.

1.02 RELATED REQUIREMENTS
A. Section 05.50.00 - Metal Fabrications: Support framing.
B. Section 07.92.00 - Joint Sealants: Sealing joints between frames and adjacent construction.
C. Section 08.71.00 - Door Hardware: Cylinder cores and keys.
D. Section 26.05.16 - Conduit: Conduit from electric circuit to operator and from operator to control station.

1.03 REFERENCE STANDARDS
E. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum); National Electrical Manufacturers Association; 2014.
G. NEMA MG 1 - Motors and Generators; National Electrical Manufacturers Association; 2011.
K. UL 325 - Standard for Door, Drapery, Gate, Louver, and Window Operators and Systems; Current Edition, Including All Revisions.

1.04 SUBMITTALS
A. See Section 01.30.00 - Administrative Requirements, for submittal procedures.
B. Product Data: Provide general construction, electrical equipment, and component connections and details.
C. Shop Drawings: Indicate pertinent dimensioning, anchorage methods, hardware locations, and installation details.
D. Samples: Submit two slats, 2 x 6 inch in size illustrating shape, color and finish texture.
E. Maintenance Data: Indicate lubrication requirements and frequency and periodic adjustments required.
1.05 QUALITY ASSURANCE

A. Products Requiring Electrical Connection: Listed and classified by Underwriters Laboratories Inc. as suitable for the purpose specified and indicated.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Overhead Coiling Doors:
   4. Substitutions: See Section 01.60.00 - Product Requirements.

2.02 COILING DOORS

A. Exterior Coiling Doors: Steel slat curtain.
   1. Capable of withstanding positive and negative wind loads of 25 psf, without undue deflection or damage to components.
   2. Sandwich slat construction with insulated core of foamed-in-place polyurethane insulation; minimum R-value of 7.7.
   3. Nominal Slat Size: 3 inches wide x required length.
   4. Finish: Powder Coat finish as selected from full color selections.
   5. Hood Enclosure: Manufacturer's standard; color to match slats.
   7. Mounting: As indicated.

2.03 MATERIALS

A. Curtain Construction: Interlocking slats.
   1. Slat Ends: Each slat fitted with end locks to act as wearing surface in guides and to prevent lateral movement.
   2. Curtain Bottom: Fitted with angles to provide reinforcement and positive contact in closed position.
   3. Weatherstripping: Moisture and rot proof, resilient type, located at jamb edges, bottom of curtain, and where curtain enters hood enclosure of exterior doors.

B. Steel Slats: Minimum thickness, 24 gage, ___ inch; ASTM A653/A653M galvanized steel sheet.

C. Guide Construction: Continuous, of profile to retain door in place with snap-on trim, mounting brackets of same metal.

D. Steel Guides: ASTM A36/A36M steel angles, size as required for wind loading, hot-dip galvanized per ASTM A123/A123M.

E. Hood Enclosure: Internally reinforced to maintain rigidity and shape.
   1. Minimum thickness; 24 gage, ___ inch.
   2. Prime paint.

F. Hardware:
   1. Lock Cylinders: Specified in Section 08.71.00.
   2. Latching: Inside mounted, adjustable keeper, spring activated latch bar with feature to keep in locked or retracted position.
Roller Shaft Counterbalance: Steel pipe and helical steel spring system, capable of producing torque sufficient to ensure smooth operation of curtain from any position and capable of holding position at mid-travel; with adjustable spring tension; requiring 25 lb nominal force to operate.

2.04 ELECTRIC OPERATION

A. Operator, Controls, Actuators, and Safeties: Comply with UL 325; provide products listed by a testing agency acceptable to authorities having jurisdiction.

B. Electric Operators:
   1. Mounting: Side mounted.
   2. Motor Enclosure:
      a. Exterior Doors: NEMA MG 1, Type 4; open drip proof.
   4. Motor Voltage: 120 volt, single phase, 60 Hz.
   7. Opening Speed: 12 inches per second.

C. Control Station: Standard three button (OPEN-STOP-CLOSE) momentary control for each operator.
   1. 24 volt circuit.
   2. Surface mounted.

D. Safety Edge: Located at bottom of curtain, full width, electro-mechanical sensitized type, wired to stop operator upon striking object, hollow neoprene covered.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that opening sizes, tolerances and conditions are acceptable.

3.02 INSTALLATION

A. Install units in accordance with manufacturer's instructions.
B. Use anchorage devices to securely fasten assembly to wall construction and building framing without distortion or stress.
C. Securely and rigidly brace components suspended from structure. Secure guides to structural members only.
D. Fit and align assembly including hardware; level and plumb, to provide smooth operation.
E. Coordinate installation of electrical service with Section 26.27.17.
F. Complete wiring from disconnect to unit components.
G. Install perimeter trim and closures.

3.03 TOLERANCES

A. Maintain dimensional tolerances and alignment with adjacent work.
B. Maximum Variation From Plumb: 1/16 inch.
C. Maximum Variation From Level: 1/16 inch.
D. Longitudinal or Diagonal Warp: Plus or minus 1/8 inch per 10 ft straight edge.
3.04 ADJUSTING
   A. Adjust operating assemblies for smooth and noiseless operation.

3.05 CLEANING
   A. Clean installed components.
   B. Remove labels and visible markings.

END OF SECTION
SECTION 08.71.00
DOOR HARDWARE

PART 1 GENERAL

1.01 SECTION INCLUDES
A. Hardware for hollow metal doors.
B. Lock cylinders for doors that hardware is specified in other sections.
C. Thresholds.
D. Weatherstripping, seals and door gaskets.
E. Gate locks.

1.02 RELATED REQUIREMENTS
A. Section 08.11.13 - Hollow Metal Doors and Frames.
B. Section 08.33.23 - Overhead Coiling Doors: Lockable coiling doors.
C. Section 08.71.10 - Basis of Design Door Hardware - Hager.

1.03 REFERENCE STANDARDS
C. BHMA A156.1 - American National Standard for Butts and Hinges; Builders Hardware Manufacturers Association, Inc.; 2013 (ANSI/BHMA A156.1).
D. BHMA A156.2 - American National Standard for Bored and Preassembled Locks & Latches; Builders Hardware Manufacturers Association; 2011 (ANSI/BHMA A156.2).
E. BHMA A156.4 - American National Standard for Door Controls - Closers; Builders Hardware Manufacturers Association, Inc.; 2013 (ANSI/BHMA A156.4).
F. BHMA A156.5 - American National Standard for Cylinders and Input Devices for Locks; Builders Hardware Manufacturers Association; 2014 (ANSI/BHMA A156.5).
G. BHMA A156.6 - American National Standard for Architectural Door Trim; Builders Hardware Manufacturers Association; 2010 (ANSI/BHMA A156.6).
H. BHMA A156.7 - American National Standard for Template Hinge Dimensions; Builders Hardware Manufacturers Association; 2014 (ANSI/BHMA A156.7).
I. BHMA A156.8 - American National Standard for Door Controls - Overhead Stops and Holders; Builders Hardware Manufacturers Association, Inc.; 2010 (ANSI/BHMA A156.8).
J. BHMA A156.13 - American National Standard for Mortise Locks & Latches Series 1000; Builders Hardware Manufacturers Association; 2012 (ANSI/BHMA A156.13).
K. BHMA A156.18 - American National Standard for Materials and Finishes; Builders Hardware Manufacturers Association, Inc.; 2012 (ANSI/BHMA A156.18).
L. BHMA A156.21 - American National Standard for Thresholds; Builders Hardware Manufacturers Association; 2014 (ANSI/BHMA A156.21).
M. BHMA A156.22 - American National Standard for Door Gasketing and Edge Seal Systems, Builders Hardware Manufacturers Association; 2012 (ANSI/BHMA A156.22).
N. BHMA A156.115 - American National Standard for Hardware Preparation in Steel Doors and Steel Frames; 2014 (ANSI/BHMA A156.115).
O. DHI (LOCS) - Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames; Door and Hardware Institute; 2004.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordinate the manufacture, fabrication, and installation of products that door hardware will be installed upon.
B. Furnish templates for door and frame preparation to manufacturers and fabricators of products requiring internal reinforcement for door hardware.
C. Convey Owner's keying requirements to manufacturers.
D. Preinstallation Meeting: Convene a preinstallation meeting one week prior to commencing work of this section; require attendance by all affected installers.
E. Sequence installation to ensure utility connections are achieved in an orderly and expeditious manner.

1.05 SUBMITTALS

A. See Section 01.30.00 - Administrative Requirements, for submittal procedures.
B. Product Data: Manufacturer's catalog literature for each type of hardware, marked to clearly show products to be furnished for this project.
C. Hardware Schedule: Detailed listing of each item of hardware to be installed on each door. Use door numbering scheme as included in the Contract Documents. Identify electrically operated items and include power requirements.
D. Keying Schedule: Submit for approval of Owner.
E. Manufacturer's Installation Instructions: Indicate special procedures, perimeter conditions requiring special attention.
F. Maintenance Data: Include data on operating hardware, lubrication requirements, and inspection procedures related to preventative maintenance.
   1. Submit manufacturer's parts lists and templates.
   2. Bitting List: List of combinations as furnished.
G. Warranty: Submit manufacturer's warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.
H. Project Record Documents: Record actual locations of concealed equipment, services, and conduit.
I. Maintenance Materials and Tools: Furnish the following for Owner's use in maintenance of project.
   1. Extra Lock Cylinders: Ten for each master key group.
   2. Tools: One set of all special wrenches or tools applicable to each different or special hardware component, whether supplied by the hardware component manufacturer or not.

1.06 QUALITY ASSURANCE

A. Standards for Fire-Rated Doors: Maintain one copy of each referenced standard on site, for use by Architect and Contractor.
B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years of documented experience.
C. Hardware Supplier Qualifications: Company specializing in supplying commercial door hardware with three years of experience.
D. Hardware Supplier Personnel: Employ an Architectural Hardware Consultant (AHC) to assist in the work of this section.
1.07 DELIVERY, STORAGE, AND HANDLING
   A. Package hardware items individually; label and identify each package with door opening code to match hardware schedule.

1.08 WARRANTY
   A. See Section 01.78.00 - Closeout Submittals, for additional warranty requirements.
   B. Provide five year warranty for door closers and locksets.

PART 2 PRODUCTS

2.01 MANUFACTURERS
   A. Assa Abylo Brands; Corbin Russwin or McKinney: www.assaabloydss.com.
   D. Substitutions: See Section 01.60.00 - Product Requirements.

2.02 MANUFACTURERS - BASIS OF DESIGN
   A. Hager Companies products as specified in Section 08.71.10, for hinges, locks, closers, and other items specified: www.hagerco.com.

2.03 DOOR HARDWARE - GENERAL
   A. Provide hardware specified or required to make doors fully functional, compliant with applicable codes, and secure to the extent indicated.
   B. Provide items of a single type of the same model by the same manufacturer.
   C. Provide products that comply with the following:
      1. Applicable provisions of federal, state, and local codes.
   D. Function: Lock and latch function numbers and descriptions of manufacturers series as listed in hardware schedule.
   E. Finishes: Provide door hardware of the same finish unless otherwise indicated.
      1. Primary Finish: Satin chrome plated over nickel on brass or bronze, 626 (approx US26D).
      2. Exceptions:
         a. Where base metal is specified to be different, provide finish that is an appearance equivalent according to BHMA A156.18.
         b. Door Closer Covers and Arms: Color to be selected by Architect from manufacturer's standard colors.

2.04 LOCKS AND LATCHES
   A. Locks: Provide a lock for every door, unless specifically indicated as not requiring locking.
      1. Hardware Sets indicate locking functions required for each door.
      2. If no hardware set is indicated for a swinging door provide an office lockset.
      3. Trim: Provide lever handle or pull trim on outside of all locks unless specifically stated to have no outside trim.
      4. Lock Cylinders: Provide key access on outside of all locks unless specifically stated to have no locking or no outside trim.
5. In door sections, where a lock cylinder referenced to this Section is specified, furnish and install a mortise lock cylinder keyed to the building keying system.

B. Lock Cylinders: Manufacturer’s standard tumbler type, seven-pin standard core.
   1. Provide cams and/or tailpieces as required for locking devices required.

C. Keying: Grand master keyed.
   1. Include construction keying.
   2. Key to existing keying system.

D. Latches: Provide a latch for every door that is not required to lock, unless specifically indicated "push/pull" or "not required to latch".

2.05 Hinges

A. Hinges: Provide hinges on every swinging door.
   1. Provide five-knuckle full mortise butt hinges unless otherwise indicated.
   2. Provide ball-bearing hinges at all doors.
   3. Provide hinges in the quantities indicated.
   4. Provide non-removable pins on exterior outswinging doors.
   5. Where electrified hardware is mounted in door leaf, provide power transfer hinges.

B. Butt Hinges: Comply with BHMA A156.1 and A156.7; heavy weight, unless otherwise indicated.
   1. Provide hinge width required to clear surrounding trim.

C. Quantity of Hinges Per Door:
   1. Doors From 60 inches High up to 90 inches High: Three hinges.

D. Manufacturers - Hinges:

2.06 Locks and Latches

A. Locks: Provide a lock for every door, unless specifically indicated as not requiring locking.
   1. Hardware Sets indicate locking functions required for each door.
   2. If no hardware set is indicated for a swinging door provide an office lockset.
   3. Trim: Provide lever handle or pull trim on outside of all locks unless specifically stated to have no outside trim.
   4. Lock Cylinders: Provide key access on outside of all locks unless specifically stated to have no locking or no outside trim.

B. Lock Cylinders: Manufacturer’s standard tumbler type, seven-pin standard core.
   1. Provide cams and/or tailpieces as required for locking devices required.

C. Keying: Grand master keyed.

D. Latches: Provide a latch for every door that is not required to lock, unless specifically indicated "push/pull" or "not required to latch".

2.07 Cylindrical Locksets

A. Locking Functions: As defined in BHMA A156.2, and as follows.
   1. Passage: No locking, always free entry and exit.
   2. Privacy: F76, emergency tool unlocks.
   3. Office: F82 Grade 1, key not required to lock, unlocks upon exit.
   4. Exit Only: F89, may not be left unlocked.

B. Manufacturers - Cylindrical Locksets:
   1. Assa Abloy Brands; Corbin Russwin or Yale: www.assaabloydss.com.
2.08 CLOSERS
A. Closers: Complying with BHMA A156.4.
   1. Provide surface-mounted, door-mounted closers unless otherwise indicated.
   2. Provide a door closer on every exterior door.
   3. Provide a door closer on every fire- and smoke-rated door. Spring hinges are not an acceptable self-closing device unless specifically so indicated.
   4. On pairs of swinging doors, if an overlapping astragal is present, provide coordinator to ensure the leaves close in proper order.
   5. At outswinging exterior doors, mount closer in inside of door.
B. Manufacturers - Surface Mounted Closers:

2.09 STOPS AND HOLDERS
A. Stops: Complying with BHMA A156.8; provide a stop for every swinging door, unless otherwise indicated.
   1. Provide wall stops, unless otherwise indicated.
   2. If wall stops are not practical, due to configuration of room or furnishings, provide overhead stop.
   3. Stop is not required if positive stop feature is specified for door closer; positive stop feature of door closer is not an acceptable substitute for a stop unless specifically so stated.
B. Manufacturers - Wall and Floor Stops/holders:

2.10 GASKETING AND THRESHOLDS
A. Gaskets: Complying with BHMA A156.22.
   1. On each door in smoke partition, provide smoke gaskets; top, sides, and meeting stile of pairs. If fire/smoke partitions are not indicated on drawings, provide smoke gaskets on each door identified as a "smoke door" and 20-minute rated fire doors.
   2. On wood doors with fire rating more than 20-minutes, provide frame-applied intumescent gaskets.
   3. On each exterior door, provide weatherstripping gaskets, unless otherwise indicated; top, sides, and meeting stiles of pairs.
      a. Where exterior door is also required to have fire or smoke rating, provide gaskets functioning as both smoke and weather seals.
   4. On each exterior door, provide door bottom sweep, unless otherwise indicated.
B. Thresholds: Complying with BHMA A156.21.
   1. At each exterior door, provide a threshold unless otherwise indicated.
   2. Field cut threshold to frame for tight fit.
C. Fasteners At Exterior Locations: Non-corroding.
D. Manufacturers - Gasketing and Thresholds:
PART 3 EXECUTION

3.01 EXAMINATION
   A. Verify that doors and frames are ready to receive work; labeled, fire-rated doors and frames are present and properly installed, and dimensions are as indicated on shop drawings.
   B. Verify that electric power is available to power operated devices and of the correct characteristics.

3.02 INSTALLATION
   A. Install hardware in accordance with manufacturer's instructions and applicable codes.
   B. Use templates provided by hardware item manufacturer.
   C. Do not install surface mounted items until finishes applied to substrate are complete.
   D. Mounting heights for hardware from finished floor to center line of hardware item.
      1. For steel doors and frames: Comply with DHI "Recommended Locations for Architectural Hardware for Steel Doors and Frames."
   E. Set exterior door thresholds with full-width bead of elastomeric sealant on each point of contact with floor providing a continuous weather seal; anchor thresholds with stainless steel countersunk screws.

3.03 FIELD QUALITY CONTROL
   A. Provide an Architectural Hardware Consultant to inspect installation and certify that hardware and installation has been furnished and installed in accordance with manufacturer's instructions and as specified.

3.04 ADJUSTING
   A. Adjust hardware for smooth operation.
   B. Adjust gasketing for complete, continuous seal; replace if unable to make complete seal.

3.05 CLEANING
   A. Clean adjacent surfaces soiled by hardware installation. Clean finished hardware per manufacturer's instructions after final adjustments has been made. Replace items that cannot be cleaned to manufacturer's level of finish quality at no additional cost.

3.06 PROTECTION
   A. Do not permit adjacent work to damage hardware or finish.

HARDWARE SETS

4.01 HARDWARE SETS - GENERAL
   A. These Hardware Sets indicate requirements for single doors of that type, with conditional requirements for pairs and other situations.
   B. HW-CYL: Doors Whose Hardware is Specified in Other Sections But Which Must Be Keyed To Building System:
      1. Lock Cylinder, Mortise, keyed to building system.

4.02 SWING DOORS -- NOT REQUIRING KEY LOCKING
   A. HW-2: Push/Pull, Non-Fire-Rated:
      1. Closer.
      2. Push/Pull.
B. HW-4: Privacy Lockset, Non-Fire-Rated:
   1. Lockset, Privacy.

4.03 SWING DOORS -- LOCKABLE, MAY BE LEFT UNLOCKED, KEY NOT REQUIRED TO LOCK
A. HW-3: Office, Non-Fire-Rated:
   1. Lockset, Office.

4.04 SWING DOORS -- EXIT ONLY, MAY NOT BE LEFT UNLOCKED
A. HW-1: Self-Closing, Non-Fire-Rated:
   1. Closer.
   2. Lockset, Exit Only.

END OF SECTION
PART 1 GENERAL

1.01 SECTION INCLUDES
   A. Product requirements for certain door hardware, supplementing specifications in Section 08.71.00.

1.02 RELATED REQUIREMENTS
   A. Section 08.71.00 - Door Hardware: General administrative and installation requirements applicable to this Section; descriptions of individual door hardware sets.

PART 2 PRODUCTS

2.01 HINGES
   A. Butt Hinges: Complying with ANSI/BHMA A156.1 and ANSI/BHMA A156.7; square corner five-knuckle design; flat button tips and ball bearings.
      1. Width of Leaves: 4-1/2 inch high, minimum, and as required to clear surrounding trim.
      2. Thickness:
         a. Doors up to 36 inch wide and up to 1-3/4 inch thick; 0.134 inch thick, minimum.
         b. Doors 37 inch to 48 inch wide and 1-3/4 inch thick, and hinges 0.180 inch thick, minimum.
         c. Doors greater than 1-3/4 inch thick: Hinge material 0.180 inch thick, minimum.
   3. Base Material:
      a. Exterior Doors: Stainless steel, Type 304.
      b. Interior Doors: Steel.
      c. Fire Rated Doors: Steel.
   4. Quantity of Hinges Per Door:
      a. Doors From 60 inches High up to 90 inches High: Three hinges.
      b. Doors 90 inches High up to 120 inches High: Four hinges.
   5. Shimming: Where required to correct frame or door irregularities, provide metal shims only.
   6. Products:

2.02 CYLINDERS AND KEYING
   A. Provide products made by a single manufacturer.
   B. Comply with following standards:
      1. ANSI/BHMA A156.5 - Cylinders and Input Devices for Locks.
   C. Cylinders: Standard tumbler type, provide 7-pin small format interchangeable core (SFIC) or conventional core supported by Hager H1 keyway.
   D. Keying:
      1. Provide single 7-pin key to operate small format interchangeable cores or conventional cores.

2.03 LOCKS AND LATCHES
   A. Provide cylindrical locksets, Grade 1 wherever locksets are called for, unless otherwise indicated.
   B. Locksets - General:
      1. On fire-rated and smoke-rated doors, provide products complying with:
         a. UL/cUL Labeled and listed for functions up to 3 hours for “A” label and for single doors up to 48 inches in width and up to 96 inches in height.
         b. UL10C/UBC 7-2 Positive Pressure Rated.
3. Lock and Latch Chassis: Zinc dichromate.
4. Latch Bolts: Stainless steel; 1/2 inch minimum throw and deadlocking.
   b. Faceplate: Adjustable for square door edge or 1/8 inch beveled door edge.
7. Mounting: Through-bolted with no exposed screws.

C. Trim:
   1. Levers: Cast zinc; plated to match finish designation specified in Section 08.71.00.

D. Strikes: 1-1/4 inches x 4-7/8 inches; select lip length to protect surrounding trim.

2.04 CYLINDRICAL LOCKSETS
   A. Cylindrical Locksets: Grade 2; complying with ANSI/BHMA A156.2, Series 4000, Certified to Grade 2.
      1. Single-Swing, Out-Swinging Doors: Provide products tested to ANSI/BHMA A250.13:
         a. Door Assembly Impact Load: 860 lbs.
         b. Door Assembly Design Load: 80 psf.

2.05 PUSH PLATES AND PULL PLATES
   A. Provide products complying with ANSI/BHMA A156.6.
   B. Push Plates and Pull Plates: 0.050 inch thick, aluminum.
      1. Push Plates: Square corner and beveled edges with counter sunk screw holes.
         a. Width and Height: As scheduled.
         b. Products:
            1) Hager Companies: 30S.
            2) Rockwood: 70.
            3) Trimco: 1001.
      2. Pull Plates: Square corner and beveled edges.
         a. Width and Height: As scheduled.
         b. Pull: 3/4 inch diameter; 2-1/2 inch clearance from face of door.
         c. Products:
            1) Hager Companies: H34.
            2) Rockwood: 105 x 70.
            3) Trimco: 1017.

2.06 CLOSERS
   A. Surface-Mounted, Door-Mounted Closers: Non-handed, comply with ANSI/BHMA A156.4 Grade 1, with aluminum body and full plastic covers.
      1. Comply with the following:
         a. ICC A117.1 and ADA Standards.
      5. Operation: Full rack and pinion.
      6. Adjustment: Separate, staked, adjustable valve screws for latch speed, sweep speed, and backcheck.
      7. Arms and Brackets:
         a. Arm Type: Manufacturer's standard.
b. Mounting Types: Manufacturer's standard "Tri-Pack" of regular arm, top jamb arm and parallel arm.

8. Size: Comply with referenced standard for accessibility, including following maximum opening force requirements.
   a. Interior hinged openings: 5.0 pounds.
   b. Exterior hinged openings: 8.5 pounds.


B. Products: Aluminum Body.

**2.07 STOPS AND HOLDERS**

A. Provide products complying with ANSI/BHMA A156.8 Grade 1.
   1. Provide wall stop/holder unless otherwise indicated.
   2. Provide overhead stop/holder where neither wall or floor type would be appropriate, including where doors open against equipment, casework, sidelights, and other objects.

B. Products: Wall Stops.
   1. Hager Companies: 232W/236W.

**2.08 SILENCERS**

A. Silencers: Gray rubber, shaped for specific door type and application.
   1. Metal Doors: 1/4 inch diameter.
   2. Silencers: Three silencers per single door frame, two per double door frame and four per Dutch door frame where smoke, light, weather or acoustical seals not otherwise required.

B. Products:
   1. Hager Companies: 307D/308D.
   2. Rockwood: 608/609.
   3. Trimco: 1229A/1229B.

**2.09 GASKETING AND THRESHOLDS**

A. Weatherstripping Gaskets:
   1. Hager Companies: 881SN.

B. Door Bottom Sweeps:
   1. Hager Companies: 759SV.

C. Thresholds: Comply with ANSI/BHMA A156.21.
   1. Hager Companies: 413S/520S.

**PART 3 EXECUTION**

**3.01 INSTALLATION**

A. Install in accordance with Hardware Schedule and manufacturer's instructions.
B. See Section 08.71.00 for additional requirements.

END OF SECTION
SECTION 08.80.00
GLAZING

PART 1 GENERAL

1.01 SECTION INCLUDES
A. Glass.
B. Butt Glazed system at Laboratory end walls.
C. Glazing compounds and accessories.

1.02 RELATED REQUIREMENTS
A. Section 06.41.00 - Architectural Wood Casework: Cabinets with requirements for glass shelves.
B. Section 07.25.00 - Weather Barriers.
C. Section 07 90 00 - Joint Sealers: Sealant and back-up material.
D. Section 08.11.13 - Hollow Metal Doors and Frames: Glazed lites in doors and borrowed lites.
E. Section 08.14.16 - Flush Wood Doors: Glazed lites in doors.
F. Section 08.83.00 - Mirrors.
G. Section 10.28.00 - Toilet Room Accessories: Mirrors.

1.03 REFERENCE STANDARDS
H. GANA (GM) - GANA Glazing Manual; Glass Association of North America; 2009.
I. GANA (SM) - GANA Sealant Manual; Glass Association of North America; 2008.

1.04 ADMINISTRATIVE REQUIREMENTS
A. Preinstallation Meeting: Convene a preinstallation meeting one week before starting work of this section; require attendance by all affected installers.

1.05 SUBMITTALS
A. See Section 01.30.00 - Administrative Requirements, for submittal procedures.
B. Product Data on Glass Types: Provide structural, physical and environmental characteristics, size limitations, special handling or installation requirements.
C. Product Data on Glazing Compounds: Provide chemical, functional, and environmental characteristics, limitations, special application requirements. Identify available colors.
D. Samples: Submit two samples __ by __ inch in size of glass and plastic units, showing coloration and design.
E. Certificates: Certify that products meet or exceed specified requirements.
F. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
   1. See Section 01.60.00 - Product Requirements, for additional provisions.
   2. Extra Insulating Glass Units: One of each glass size and each glass type.

1.06 QUALITY ASSURANCE
A. Perform Work in accordance with GANA Glazing Manual and GANA Sealant Manual for glazing installation methods.
B. Installer Qualifications: Company specializing in performing the work of this section with minimum three years documented experience.

1.07 MOCK-UP
A. See Section 01.40.00 - Quality Requirements, for additional mock-up requirements.
B. Provide mock-up of ______ including glass.
C. Locate where directed by Architect.
D. Mock-up may remain as part of the Work.

1.08 FIELD CONDITIONS
A. Do not install glazing when ambient temperature is less than 50 degrees F.
B. Maintain minimum ambient temperature before, during and 24 hours after installation of glazing compounds.

1.09 WARRANTY
A. See Section 01.77.70 - Closeout Procedures, for additional warranty requirements.
B. Sealed Insulating Glass Units: Provide a five (5) year warranty to include coverage for seal failure, interpane dusting or misting, including replacement of failed units.
C. Laminated Glass: Provide a five (5) year warranty to include coverage for delamination, including replacement of failed units.

PART 2 PRODUCTS

2.01 GLAZING UNITS
A. Type S-3 - Single Safety Glazing: Non-fire-rated.
   1. Application: Provide this type of glazing in the following locations:
      a. Glazed lites in doors, except fire doors.
   2. Type: Fully tempered float glass as specified.
   3. Tint: Clear.
   4. Thickness: 1/4 inch.
   5. Glazing Method: Gasket glazing.

2.02 EXTERIOR GLAZING ASSEMBLIES
A. Performance Criteria: Select type and thickness of glass to withstand dead and live loads caused by positive and negative wind pressure acting normal to plane of glass.
   1. Glass thicknesses listed are minimum.
B. Air and Vapor Seals: Provide completed assemblies that maintain continuity of building enclosure vapor retarder and air barrier:
   1. In conjunction with vapor retarder and joint sealer materials described in other sections.
2. To maintain a continuous air barrier and vapor retarder throughout the glazed assembly from glass pane to heel bead of glazing sealant.

2.03 GLASS MATERIALS
A. Laminated Glass: Float glass laminated in accordance with ASTM C1172.
   1. Laminated Safety Glass: Comply with 16 CFR 1201 test requirements for Category II.
   2. Plastic Interlayer:
   3. Where fully tempered is specified or required, provide glass that has been tempered by the tong-less horizontal method.

2.04 GLAZING COMPOUNDS
A. Silicone Sealant: Single component; neutral curing; capable of water immersion without loss of properties; non-bleeding, non-staining; ASTM C920, Type S, Grade NS, Class 25, Uses M, A, and G; with cured Shore A hardness range of 15 to 25; color as selected.

2.05 GLAZING ACCESSORIES
A. Setting Blocks: Neoprene, 80 to 90 Shore A durometer hardness; ASTM C864 Option II. Length of 0.1 inch for each square foot of glazing or minimum 4 inch x width of glazing rabbet space minus 1/16 inch x height to suit glazing method and pane weight and area.
B. Glazing Tape, Back Bedding Mastic Type: Preformed, butyl-based, 100 percent solids compound with integral resilient spacer rod applicable to application indicated; hardness range of 5 to 30 cured Shore A durometer; coiled on release paper; black color.
   1. Width: As required for application.
   2. Thickness: As required for application.
C. Glazing Gaskets: Resilient silicone extruded shape to suit glazing channel retaining slot; ASTM C864 Option II; color as selected.

PART 3 EXECUTION
3.01 EXAMINATION
A. Verify that openings for glazing are correctly sized and within tolerance.
B. Verify that surfaces of glazing channels or recesses are clean, free of obstructions that may impede moisture movement, weeps are clear, and ready to receive glazing.

3.02 PREPARATION
A. Clean contact surfaces with solvent and wipe dry.
B. Seal porous glazing channels or recesses with substrate compatible primer or sealer.
C. Prime surfaces scheduled to receive sealant.
D. Install sealants in accordance with ASTM C1193 and GANA Sealant Manual.
E. Install sealants in accordance with manufacturer's instructions.

3.03 GLAZING METHODS
3.04 INSTALLATION - EXTERIOR/INTERIOR DRY METHOD (GASKET GLAZING)
A. Place setting blocks at 1/4 points with edge block no more than 6 inch from corners.
B. Rest glazing on setting blocks and push against fixed stop with sufficient pressure on gasket to attain full contact.
C. Install removable stops without displacing glazing gasket; exert pressure for full continuous contact.

3.05 INSTALLATION - EXTERIOR WET METHOD (SEALANT AND SEALANT)
A. Place setting blocks at 1/4 points and install glazing pane or unit.
B. Install removable stops with glazing centered in space by inserting spacer shims both sides at 24 inch intervals, 1/4 inch below sight line.
C. Fill gaps between glazing and stops with ________ type sealant to depth of bite on glazing, but not more than 3/8 inch below sight line to ensure full contact with glazing and continue the air and vapor seal.
D. Apply sealant to uniform line, flush with sight line. Tool or wipe sealant surface smooth.

3.06 INSTALLATION - INTERIOR DRY METHOD (TAPE AND TAPE)
A. Cut glazing tape to length and set against permanent stops, projecting 1/16 inch above sight line.
B. Place setting blocks at 1/4 points with edge block no more than 6 inch from corners.
C. Rest glazing on setting blocks and push against tape for full contact at perimeter of pane or unit.
D. Place glazing tape on free perimeter of glazing in same manner described above.
E. Install removable stop without displacement of tape. Exert pressure on tape for full continuous contact.
F. Knife trim protruding tape.

3.07 FIELD QUALITY CONTROL
A. Glass and Glazing product manufacturers to provide field surveillance of the installation of their products.
B. Monitor and report installation procedures and unacceptable conditions.

3.08 CLEANING
A. Remove glazing materials from finish surfaces.
B. Remove labels after Work is complete.
C. Clean glass and adjacent surfaces.

3.09 PROTECTION
A. After installation, mark pane with an 'X' by using removable plastic tape or paste; do not mark heat absorbing or reflective glass units.

END OF SECTION