SECTION 08100
METAL DOORS AND FRAMES

PART 1 - GENERAL

1.1 SUMMARY:

A. Section Includes:

1. Fabricated non-rated and fire-rated rolled steel doors, panels and frames.
2. Interior light, side-light and window frames.

B. Related Sections:

1. Section 04200 - Unit Masonry: Grouting of frames in new masonry construction.
2. Section 08210 - Wood Doors.
3. Section 08710 - Finish Hardware.

1.2 SYSTEM DESCRIPTION:

A. Doors:

1. Exterior Doors: Hollow metal flush doors. A moderate amount of latitude in design will be permitted in main entrance doors.

2. Normal Door Sizes as Follows:

a. Exterior Openings:

1) 3'-0" x 7'-0" for single openings.
2) 6'-0" x 7'-0" for double openings.

b. Interior Doors:

1) Classrooms and Public Assembly Rooms (capacity requirements as...
determined by code): 3'-0" x 7'-0" for single openings and 6'-0" x 7'-0" for double openings.

2) Offices and Secondary Rooms (including Custodial Work Stations): 3'-0" x 7'-0".

3) Toilet Rooms and Service Rooms: 3'-0" x 7'-0".

4) Closets: 2'-8" x 7'-0".

3. Reinforce doors for all required hardware.

B. Frames:

1. Exterior Frames:
   
a. Metal frames, 14 gage minimum. Fully weld frames with corners mitered, reinforced, and continuously welded full depth and width of frame including faces, rabbet or rebate, and fixed stops.

2. Interior Frames:
   
a. Metal frames, 16 gage minimum, heavier if doors are wider than 3'. Continuously weld and grind smooth all corner joints and contact edges once joints are closed tight.

3. Anchoring: Securely anchor all frames to the floor. Minimum three wall anchors on each jamb.

4. Reinforce frames for all required hardware.

5. "Knock-down" type frames are not acceptable except when approved by the university in exceptional situations such as remodeling projects.

6. Grout: Fill with mortar all metal door frames in masonry walls.

C. Clearances:

1. Between doors and frames at head and jamb, 1/8".

2. At sill where no threshold is used, 1/2". Where threshold is used, 1/8" between door and threshold.

3. Between meeting edge of doors in pairs, 1/8".

4. Bevel edges of single acting doors 1/8" in 2".
5. Coordinate door height with floor covering thickness.

1.3 SUBMITTALS

A. Shop Drawings:

1. Submit shop drawings for the fabrication and installation of hollow metal work. Include details of each frame type, elevations of door design types, conditions at openings, details of construction, location and installation requirements of finish hardware and reinforcements, and details of joints and connections tied to a schedule.

B. LEED MRc5: Regional Material
Provide a statement from the manufacturer stating that the materials provided were manufactured within a 500 mile radius of the project. Include location.

C. LEED MRc4: Recycled Content
Provide a statement from the manufacturers including recycled content percentage, by weight, and whether the recycled content is post-industrial or post-consumer.

1.4 QUALITY ASSURANCE:

A. Standards:

1. Conform to SDI 100, grade III or NAAMM Standard HMMA 861 except where more stringent requirements are specified.

B. Fire-Rated Assemblies:

1. Provide fire-rated hollow metal doors and frames that comply with NFPA 80 and tested as a fire door assembly, complete with type of fire door hardware to be used, in accordance with ASTM E152.

2. Identify each fire door and frame with either UL or Warnock Hersey labels, indicating applicable fire rating of both door and frame.

3. Temperature Rise Rating: At stairwell enclosures, provide doors which have a Temperature Rise Rating of not more than 450°F maximum to 30 minutes of fire exposure.

PART 2 - PRODUCTS

2.1 MANUFACTURERS:
A. Gateway.

B. Southwestern Hollow Metal.

C. NCS Manufacturing Co.

D. Rocky Mountain Metals.

E. CECO.

F. Curries.

G. Fenestra.

H. Kewanee.

I. Republic

J. Steelcraft.

K. NCS.

L. Approved substitute.

2.2 MATERIALS:

A. Doors:

1. Face Sheets:

   a. Interior Doors: 18 gage minimum.

   b. Exterior Doors: 16 gage minimum.

2. Sound-Deadening: Manufacturer's standard fiberglass insulation for all hollow metal doors.

3. Internal Stiffeners:

   a. Support surface sheets by 22 gage "Z" or "Hat" channel, or 28 gage continuous truss members spaced 6" o.c. maximum. Spot weld "Z" or "Hat" channel to both surface sheets at 5" o.c. Spot weld continuous truss members to both surface sheets at 3" o.c.

   b. Support edges of doors by 16 gage continuous interior edge channels.
c. Close top of exterior doors flush with continuous 16 gage channel.

d. **LEED MRc4: Recycled Content**
   Material shall contain recycled content.

4. Seamless Construction: No visible seams along face sheets or vertical edges.

5. Glazing Stops:
   
   a. 18 gage stops with all corners mitered and welded.
   
   b. Integral with frame on the exterior side.
   
   c. Interior Glazing: Anchor stops with countersunk oval head screws. For interior doors, locate stops on secure side of door.

6. Thermal-Rated Insulating Assemblies:
   
   a. Exterior locations and elsewhere as required.
   
   b. Hollow metal units fabricated as thermal insulating assemblies and tested in accordance with ASTM C236.
   
   c. Maximum U-factor for thermal-rated assemblies is 0.24 BTU/hr./sq. ft./degree F.

B. Frames:

1. Minimum Gages:
   
   a. All exterior frames and interior frames over 36" wide: 14 gage.
   
   b. All other interior door and window frames: 16 gage.
   
   c. Loose glazing stops: 18 gage.
   
   d. **LEED MRc4: Recycled Content**
      Material shall contain recycled content.

2. Stops:
   
   a. 5/8" deep door and glazing stops.
   
   b. Rolled steel sections for fire-rated openings.

3. Anchors:
a. Fire-Rated Openings: UL rated.


c. Steel or Wood Stud: Minimum 16 gage "Z" shape.

d. Concrete: Minimum 12 gage "4" shape spacer and 1/4" diameter expansion anchors.

2.3 PREPARATION FOR FINISH HARDWARE:

A. Doors and Frames: Spot weld all reinforcement at the factory. Drill and tap for mortise template hardware.

B. Frame Reinforcement (Minimum):

1. Butt Hinges: One piece 7 gage plate 12" long by full width of jamb at each hinge.

2. Closers: 10 gage channel section 12" long and full width of frame trim.

3. Strikes, Flush Bolts, and all Other Surface Mounted Hardware: 12 gage.

4. Reinforce frames in direct proportion to the size and weight of door.

C. Door Reinforcement (Minimum):

1. Butt Hinges: 7 gage plate 9" long welded to 16 gage interior edge channels at each hinge.

2. Surface Applied Closers: 12 gage box section minimum 4" deep and 12" long.


2.4 FINISH:


B. Interior Locations: Zinc coating complying with ASTM A525, G01.

PART 3 - EXECUTION