

**Item No. 523  
Floor Access Doors****523.1 Description**

This item shall govern the installation of access doors. This Section covers the labor, materials, equipment and services needed to install access doors, complete as indicated on the Drawings.

**523.2 Quality Assurance/Acceptable Manufacturers:**

- A. Products that comply with the Specifications by the following manufacturers will be acceptable:
1. Halliday Products, Inc.
  2. U.S.F. Fabrication
  3. K&B Steel
  4. EJ

**523.3 Submittals**

The submittal requirements of this specification item shall include:

- A. Shop Drawings.
- B. Operation and Maintenance Manuals.
- C. Structural calculations demonstrating that the door design meets the direct loading requirements listed in 523.7 or 523.8, as applicable, with a minimum fatigue life of 100,000 cycles. The structural calculations shall be signed and sealed by a professional engineer licensed in the state of Texas.

**523.4 Delivery and Storage**

Ship products in protective wood crates. Leave in crates until ready to install. Store on wood platform raised 6 inches above surrounding grade and protect with weather resistant covering.

**523.5 Job Conditions**

Floor access door frames shall be set into forms as concrete is placed. Be sure that frames are set and braced to prevent movement during placement of concrete.

**523.6 Guarantees and Warranty**

Manufacturer shall warrant that the complete system shall be free from defective material and workmanship for a minimum period of 5 years from date of Owner acceptance. The warranty shall be provided in writing starting from the date of acceptance by the Owner.

**523.7 Floor Access Door For Pedestrian Loading (300 PSF)**

- A. Door leaf shall be minimum 1/4-inch aluminum diamond pattern reinforced to support a minimum live load of 300 psf with a maximum deflection of 1/150th of the span.
- B. The frame shall be extruded aluminum with anchor flange around the perimeter.
- C. Door shall have sufficient number of compression spring operators to ensure that 15 lb. or less pull is required to open any single door leaf, and an automatic hold-open arm release handle.
- D. The opening arm for the door leaf shall be lockable with a standard pad lock to control unauthorized entry.
- E. Doors shall be outfitted with hold open arms to keep the covers in their upright, open positions.
- F. Doors shall be outfitted with a recessed lifting handle.
- G. All hardware shall be Type 316 stainless steel.
- H. Bituminous coating shall be applied to the surfaces in contact with concrete.
- I. Use channel frame when there is a concern of water or other liquids entering the access opening. Channel Frames are equipped with a drain port.
  - 1. Channel frames shall be provided with a 1-1/2-inch drainage coupling and shall be located in the corner of the frame.
- J. Door shall be outfitted with nut rail on all four sides for attaching hardware if hardware will be required to hang off access hatch.
- K. Door shall be outfitted with aluminum skirting that makes the overall height of the frame equal to the top slab thickness, for casting into concrete.
- L. For submersible pump applications where the cable penetrates through the hatch:
  - 1. Coordinate closely with pump/hatch manufacturers during design phase and clearly show the location of the notch on the Drawings.
  - 2. Provide a sufficient notch in the leaf plating to allow the submersible pump cable to penetrate the surface. Provide rubber grommet along the cut edge of the hatch leaf to prevent wear on the cables penetrating the opening. Reference drawings for size and location.
- M. Contractor shall verify that proposed equipment will fit through the access door opening and that the location of the doors will allow for easy removal of the equipment. Contractor shall provide the size doors specified if adequate or a larger size as required to remove the equipment from the vault, wet well, or other installation.

**523.8 Floor Access Door For Non-Occasional Traffic Loading (H20-44)**

- A. Door leaf shall be 1/2-inch galvanized steel diamond pattern reinforced to support AASHTO H-20-wheel load with a maximum deflection of 1/150th of the span.

- B. The frame shall be 1/2-inch thick steel with anchor studs welded around the perimeter.
- C. Cover shall be bolted to frame when closed with 316 stainless steel allen-head bolts to allow for direct traffic loading. An allen-head socket with torque wrench shall be provided with the door.
- D. Door shall have sufficient number of compression spring operators to ensure that 45 lb. or less pull is required to open any single door leaf, and an automatic hold-open arm release handle.
- E. The opening arm for the door leaf shall be lockable with a standard pad lock to control unauthorized entry.
- F. Doors shall be outfitted with hold open arms to keep the covers in their upright, open positions.
- G. Doors shall be outfitted with a recessed lifting handle.
- H. All hardware shall be Type 316 stainless steel.
- I. Use channel frame when there is a concern of water or other liquids entering the access opening. It is equipped with a drain port.
  - 1. Channel frames shall be provided with a 1-1/2-inch drainage coupling and shall be located in the corner of the frame.
- J. Door shall be outfitted with nut rail on all four sides for attaching hardware if hardware will be required to hang off access hatch.
- K. Door shall be outfitted with galvanized steel skirting that makes the overall height of the frame equal to the top slab thickness, for casting into concrete.

### **523.9 Safety Grate System**

- A. Provide aluminum safety grate rated at 300 psf.
- B. Safety grate shall be designed to combine covering of the opening, fall through protection per OSHA standard 1910.23 and controlled confine space entry per OSHA standard 1910.146.
- C. The safety grate shall be powder coated safety orange color. The coating shall be a minimum thickness of 4 mils and be shop applied and cured per manufacturer recommendations.
- D. Grate openings shall be a minimum of 4 inches by 6 inches to allow for visual inspection, limited maintenance, and other adjustments while the safety grate is left in place. All hardware including hinges shall be stainless steel.
- E. All hardware including hinges shall be stainless steel.
- F. For H20-44 hatches, the safety grate system shall not bear any loading from the leaf above.

**523.10 Execution**

Floor Access Door Installation

- A. Floor access doors and frames shall be installed in accordance with manufacturer's written instructions. Access door frames shall be cast into concrete structures. Concrete shall be worked around frame to ensure complete embedment of anchors. Frame shall be secured to prevent movement during placement of concrete. Frames shall be level.
- B. Provide copper or PVC drains as necessary for access doors with integral drains. Connect drain piping to drain outlet of channel frame and extend to nearest wall of the structure. Drain shall not be routed across any access ladders or floor walking surfaces.
- C. Floor access door frames shall be set level within 3/32 inch across diagonal corners, unless floor slab is designed to be out of level, then the access door shall be set to same place as floor slab.
- D. Aluminum access door frames in contact with concrete shall be given a heavy coat of bituminous paint prior to installation.
- E. For non-occasional traffic loaded hatches (H20-44), the allen-head bolts must be tightened to 25 foot-pounds of torque and securely fastened using Loctite 242 whenever the cover is closed.

**523.11 Measurement**

"Installation of Access Doors", when included in the contract as a pay item, will be measured per each item successfully installed.

**523.12 Payment**

All work performed by this item will be considered subsidiary to other bid items unless it is included as a separate bid item in the contract documents then all work performed as required herein and measured as provided under "Measurement" will be paid for at the unit bid price. The bid prices shall include full compensation for furnishing all labor; all materials; all royalty and freight involved; all hauling and delivering on the road; and all tools, equipment and incidentals necessary to complete the work. Payment will not be made for unauthorized work.

Payment, when included as a contract pay items, will be made under one of the following:

- Pay Item:** Floor Access Doors Per Each.
- Pay Item:** Vault Access Hatches Per Each.

**End**