

Linear Accelerator Sliding Doors

Division 13091

PART 1 - GENERAL

Furnish all labor, materials, tools and equipment for all linear accelerator room doors as indicated and in accordance with the contract documents.

1.1 ACCEPTABLE MANUFACTURERS

Sliding door shall be manufactured by, and all accessories and parts supplied by Pitts Little Corporation, 800-680-1967, or approved equal manufacturer regularly engaged in the manufacture of radiation shielding doors with at least ten (10) years experience in the production and installation of sliding radiation shielding doors.

1.2 SUBMITTALS

- A. In accordance with conditions of the contract, submit six (6) copies of shop drawings for each type of sliding door unit, including typical unit elevations, sections and details of typical composite members.
- B. Submit six (6) copies of door operating instructions and manufacturer's warranty. The sliding door unit shall be warranted against defects for a period of not less than one (1) year.

1.3 DESIGN

- A. Design sliding door, carrying beam, and structural supports to withstand all design loads that might inhibit operation or impair radiation protection.
- B. Design sliding door to have minimum overlaps to insure sufficient radiation shielding.
- C. Provide lead, 5% borated polyethylene and virgin polyethylene in thickness as specified by the physicist of record. Also, furnish and install any required jamb shielding.
- D. Structural engineering is excluded from the section
- E. The project engineer is to verify all connection points to the structure.

PART 2 - PRODUCTS

2.1 MATERIAL

- A. Steel sheet and strip: commercial quality carbon steel, ASTM A568.
- B. Steel bars and plates: ASTM A36.
- C. Roll formed steel members: ASTM A36.
- D. Inserts, bolts and fasteners: Manufacturer's standard units.
- E. Primer: rust-inhibiting paint suitable as base for specified finish paints.

- F. Lead: fed. spec. QQL-201-F, ASTM B29
- G. Polyethylene: 5% boron content, manufactured specifically for neutron shielding.

2.2 SLIDING DOOR AND STRUCTURAL STEEL SUPPORT SYSTEM

- A. Steel: Type A36. 1" thick steel flatbar around perimeter of door or as required for the weight of the door.
- B. Structural Steel Supports: ASTM 500 rectangular tubing based upon the length, width, thickness, and weight of the door.
- C. Raceway: System consists of single raceway only, multiple rails will not be allowed.

2.3 SLIDING DOOR OPERATORS

The system will be belt driven. Hydraulic, ball screw, chain or lead-screw systems will not be allowed. Pitts Little electric sliding door operating system shall be motor driven. The operator has a slowdown/acceleration speed in both the opening and closing direction. The operator must be equipped with a battery backup system which will allow for the emergency opening during loss of power supply. The operator also must include two sets of buttons. A two button station (OPEN & STOP) and a three button station (OPEN, CLOSED & STOP) on the outside of the vault. A closed button is not allowed in the vault. Also, an E-Stop button must be mounted in clear view of the control area. The leading edge of the door must have a padded safety edge.

Work not included: All conduit and wiring, structural engineering

2.4 SAFETY FEATURES

- A. Standard:
 - Electric Safety Edges
 - Emergency stop
- B. Optional:
 - Presence Sensor
 - Floor Sensor
 - Light curtain

2.5 FABRICATION

Fabricate rigid, neat in appearance and free from defects. Fit and assemble in shop, wherever practical. Assure proper assembly at site. Weld joints continuously, dress exposed joints smooth and flush. Clean off all mill scale and foreign materials and shop prime.

PART 3 - EXECUTION

3.1 PREPARATION

Examine structure, substrates, and conditions under which work is to be installed for conditions detrimental to the correct and timely completion of the project. Installation constitutes acceptance of responsibility for performance.



- 3.2 **INSTALLATION:** Pitts Little Corporation , 800-680-1967
Installation of structural frame and door by Pitts Little
 - A. Touch up prime coat with compatible primer
 - B. Leave smooth for finish painting by others
- 3.3 **OPERATOR**
Electric door operator to be installed and maintained by trained personnel only.
- 3.4 **TESTING**
After equipment has been installed and placed in operating condition, the owner will engage a radiation health physicist to test radiation protection.

PART 4 - OPERATING INSTRUCTIONS

All personnel should read these instructions completely and be trained to the safe operation of this door.

- 4.1 **OPERATION**
 - A. The door is automatically opened by pushing an open button located both inside and outside the vault.
 - B. The door can only be closed from outside the vault by the close button.
 - C. Before operating, the door operating area should be visually inspected to be sure no person or other object is in the vicinity.
 - D. Sequence of Operations
 - 1) Open: When this button is pushed, the door will travel to the full open position.
 - 2) Close: When this button is pushed, the door will travel to the full close position.
 - 3) Stop: When this button is pushed, the door will stop from any current position along its path of travel.
 - 4) PARTIAL OPEN / PARTIAL CLOSE (OPTIONAL): When this button is pushed, the door will travel to the preset partial open position and stop. This partial open switch is designed to be used only for staff to enter the vault.

PART 5 - CAUTION

- 5.1 No attempts should be made at adjusting door operating speed except by authorized operator technicians.
- 5.2 Any attempt to operate at a faster speed will cause premature wear and damage to the operator and void any warranty. Also, liability may occur to anyone operating the door faster than recommended if injuries occur as a result.

5.3 No attempt should ever be made to disengage interlock switches or any safety feature as this could present a serious health risk.

5.4 Objects should be kept clear of door operation area. No objects should ever be placed to keep door in the closed or open position restricting free movement.

PART 6 - STANDARD SAFETY FEATURES

6.1 **Battery Back-up:** In the event of a power failure the battery back-up system will be activated. The emergency battery back-up will open the door during a loss of electric power.

6.2 **Padded Safety Edge:** On the lead edge of the door there is one continuous safety edge. Multiple safety strips with vertical dead spaces will not be allowed. When more than 10 oz. Of pressure is applied to the edge an electronic signal will be sent to the operator to stop the door and then open the door.

6.3 **Emergency Hand Crank:** In the event of power operator failure the hand crank will aid in manually opening the door. The hand crank is to be mounted near the door control box if possible.

PART 7 - OPTIONAL SAFETY FEATURES

7.1 **Interlock or Kill Switch:** If installed by others please reference information supplied by installer or manufacturer.

7.2 **Wall Mounted Safety Bumper:** Mounted to the wall at the leading edge of the door.

7.3 **Emergency Hand Held Motor:** In the event of operator failure the hand held motor can be used to drive the operator. This will aid in manually opening the door.

7.5 **Light Curtain:** electric eye to detect the presence of people or other objects as they pass through the door opening. In the event of detection the door will be signaled to stop.

7.6 **Presence Sensor:** Ceiling mounted device detects people as they pass through the detection field sending a signal to the operator to stop.

PART 8 - SPECIFICATIONS



Since all door systems are custom designed per customer specifications please refer to shop drawings for information. All shielding must be approved by the physicist of record.

PART 9 - SERVICE

Refer to preventive maintenance schedule.

For technical information, product information and service please call 800-680-1967.

PART 10 – WARRANTY

All labor and materials furnished and work performed in conjunction with this project will be free from defects due to defective materials or workmanship for a period of one (1) year from the date of installation.

Should any defect develop during the warranty period due to improper materials or workmanship, the defect will be made good.

The Owner will give Subcontractor written notice of defective work.

Nothing in the above will be deemed to apply to work which has been abused or neglected. The guarantee does not cover defects due to the failure to exercise normal preventive maintenance, nor do we guarantee against the consequence of uses for which this product was not designed.