

## JAMISON SOUND DOOR SPECIFICATIONS

### PERSONNEL DOOR - STC 57

#### **PART 1 - GENERAL**

1.1 **APPLICABLE PUBLICATIONS:** The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

1.1.1 FEDERAL SPECIFICATION: QQ-Z-325 Plating, Zinc (Electrodeposited), Type I, Class 3.

1.1.2 American Society for Testing and Materials (ASTM), 1916 Race Street, Philadelphia, PA 19103

A36 Structural Steel

A325 High Strength Carbon Steel Bolts for Structural Joints, Including Suitable Nuts and Plain Hardened Washers

E90-85 Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions

E413 Determination of Sound Transmission Class

#### 1.2 **SUBMITTALS:**

1.2.1 **APPROVAL DRAWINGS:** It is intended that approval drawings will not be required for these items and that the manufacturers details, along with this specification, will provide all needed information. If it is determined that more specific details are required, six copies of an approval drawing can be furnished upon request.

1.2.2 **SHOP DRAWINGS:** Shop drawings may be specified when required. If provided, drawings shall be submitted prior to delivery of materials to the jobsite. Drawings shall include detail assembly drawings showing the complete installation, a listing of all materials, surface finishes, fabricating assembly and installation tolerances.

1.2.3 **TEST REPORTS:** Acoustical Test Reports from a laboratory accredited by Department of Commerce, National Voluntary Laboratory Accreditation Program, in accordance with ASTM E90, shall be submitted to assure acoustical performance has previously been attained.

1.3 **GENERAL REQUIREMENTS**

1.3.1 **GENERAL:** Sound reduction doors shall be provided complete with frames, gaskets, fasteners, anchors, hardware, sealing systems, and all other equipment and accessories as indicated, specified and necessary for a complete installation to meet the acoustical performance and operational requirements specified herein.

1.3.2 **QUALIFICATIONS OF MANUFACTURER:** The manufacture of the sound reduction doors shall be performed by a manufacturer who has at least fifteen (15) years of proven successful experience in the design and fabrication of similar acoustical doors. The organization shall be regularly engaged in this type of work and shall have complete facilities, equipment, and technical personnel for the design and fabrication of the complete system.

1.3.3 **PROVISIONS FOR INSTALLATION:** The contractor will employ an organization other than the manufacturer to install the sound reduction doors in the field provided the following requirements are complied with.

- a. The organization shall have trained and skilled mechanics with previous experience in the installation of similar precision fabricated assemblies.
- b. The door manufacturer may have a trained engineer or mechanic at the jobsite supervising the unloading, erection, final adjustments and final checkout of the doors, frames, hardware, and accessories if requested by the contractor.

1.3.4 **ACOUSTICAL PERFORMANCE:** Sound reduction doors shall have a Sound Transmission Class (STC) rating, as indicated and specified herein, conforming to tests performed in accordance with ASTM E90 and classified in accordance with ASTM E413.

1.3.4.1 **DOOR STC RATINGS:** These doors shall have minimum transmission loss values for the STC rating of 57 at each frequency given by the following table:

**TRANSMISSION LOSS TABLE**

FREQ.	100	125	160	200	250	315	400	500	630	800
TL	39	42	45	46	48	53	52	55	57	58
FREQ.	1000	1250	1600	2000	2500	3150	4000	5000		
TL	57	56	58	60	60	62	63	62		

## **PART 2 - PRODUCT**

2.1 GENERAL: Materials and equipment specified hereinafter will establish the minimum requirements for quality and performance.

2.1.1 DOOR PANELS AND FRAMES: Doors and frames shall be fabricated from cold rolled steel and hot rolled pickled and oiled steel. Steel shall not be less than 16 gauge (.0598"). Steel shall be straight and free of twist.

2.1.1.1 Door panels shall have an inner core of non-resonating, fire resistant, inorganic, and acoustically damping material. Face sheets shall be stiffened by steel stiffeners with welds not more than six inches (6") apart. Door panels shall have internal reinforcing for external hardware to adequately stiffen and provide sufficient thickness for tapping to achieve four (4) full thread engagement of bolts. Doors shall be a minimal seven inches (7") thick.

2.1.1.2 Frames shall be constructed of structural steel channel, angles, or of steel plate. Frames shall be knockdown field assembled type or welded unit type frames as required. Frames shall be provided with anchors for adjoining to either masonry or monolithic type walls. Frames shall have adjustable stop angles at the head and fastener side. The sill will have a 1-1/4" x 5/16" half oval for a rigid sill seal at the back of the door. A flush sill is optionally provided upon request.

2.1.2 BOLTED AND SCREWED CONNECTIONS: Bolts shall conform to ASTM A325 or have a minimum strength of 105,000 psi. Bolt holes shall be drilled or punched and at right angles to member. When assembled, all joint surfaces, including those adjacent to bolt heads, nuts or washers, shall be free of burrs, dirt and other foreign material that would prevent solid seating of the parts.

2.1.2.1 All fasteners shall be finished per QQ-Z-325.

2.1.3 SEALS: Door seals shall be provided as indicated herein to achieve the required sound attenuation. Heads and jambs shall be sealed with a double seal providing a gasketed overlap of door against frame. Stops for seals at fastener side jamb and head shall be adjustable. Sill shall be sealed with a fixed seal at the back and a automatic drop sill gasket at the front of the door. The automatic drop sill gasket shall be engaged only during the final 5° of the door swing. Sill seal gasket shall function without dragging.

2.1.4 HARDWARE: Door hardware shall be provided as required to accommodate the design loads and acoustical performance as follows:

- a. Doors shall be reinforced, fitted, drilled and tapped for field application of surface mounted, special purpose hardware.

- b. Hardware shall be of heavy duty, vibration-proof, surface mounted type.
- c. Hinges shall have provisions for perfect door alignment and be provided with surface mounted strap hinge blades. A minimum of two hinges per leaf and butts made of iron castings shall be provided.
- d. Door fastener shall be a slam action type latch consisting of at least two latch points and have provisions for back operation by incorporation of a thru-rod.

### **PART 3 - EXECUTION**

#### 3.1 INSTALLATION:

3.1.1 GENERAL: The installation shall be carefully performed by skilled mechanics. Special care must be exercised to follow the manufacturer's printed instructions including recommended tolerances to achieve required acoustical seal.

3.1.2 Store doors and frames at the building site under cover. Place units well above the ground to prevent rust and damage and to provide room for air circulation. Avoid the use of non-vented plastic or canvas shelters which create humidity chambers.

3.1.3 Install frames plumb, rigid, in true alignment, and fasten them to retain their position and clearance during wall construction. Fill frames in masonry walls with mortar as the wall is laid up.

3.1.4 Install doors plumb and in true alignment. Operate doors and verify that doors open and close smoothly with no binding. Inspect fit of all door seals. Inspect final erection and fit of all assemblies and components.