

ABOUT THE PRODUCT

Similar to the VS-Series, the **AD-Series** flush doors are **Steel Stiffened** doors, designed to meet the international requirements for extra heavy duty to maximum duty full flush acoustical sound reduction doors. They are applicable for high frequency and sever traffic openings used for exterior or interior applications, where rigidity and sound attenuation are of high importance.

AD-Series doors are rated by their **STC value** (Sound Transmission Class) and supplied as a complete assembly including door, frame, sound seals and hardware sets as required for the related sound rating.

SOUND TRANSMISSION CLASS

Sound transmission class (STC) is a single-figure rating derived in a prescribed manner from sound transmission loss values. The rating provides an estimate of the performance of the partition in common sound insulating situations.

The difference in sound levels, measured in decibel (dB), when monitored on both sides of a door under test, recorded at several different frequencies over a range of 125 to 400 Hz, determines the transmission loss level.

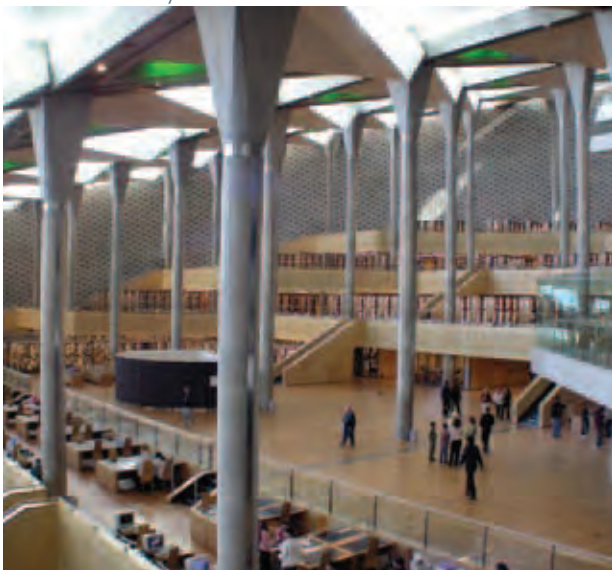
STC is a measure of the extent to which sound is prevented from being transmitted from one area to another. The higher the STC value, the less that sound can be transmitted.

The following chart illustrates the sound retarding performance associated with a range of STC values:

Door STC	Rating	Description	Typical Application
50-60	Excellent	Loud sounds heard faintly or not at all	Band & music rooms.
40-47	Very Good	Loud speech heard faintly, but not understood	Audiovisual, Manufacturing, Conference & Private Office rooms.
35-40	Good	Loud speech heard but hardly intelligible	Classrooms, Cafeterias, Corridors, Hotel Guest Rooms and Lobby Rooms.
30-35	Fair	Loud speech fairly understood	
25-30	Poor	Normal speech understood easily and distinctly	Commercial applications where no acoustic reduction is required.
20-25	Very Poor	Loud speech audible	

Acoustic doors are tested to ASTM E90-90 & ASTM 413-87 standards which comprises of tests at 105 decibels over 18 distinct frequencies.

Alexandria Library - Inside View

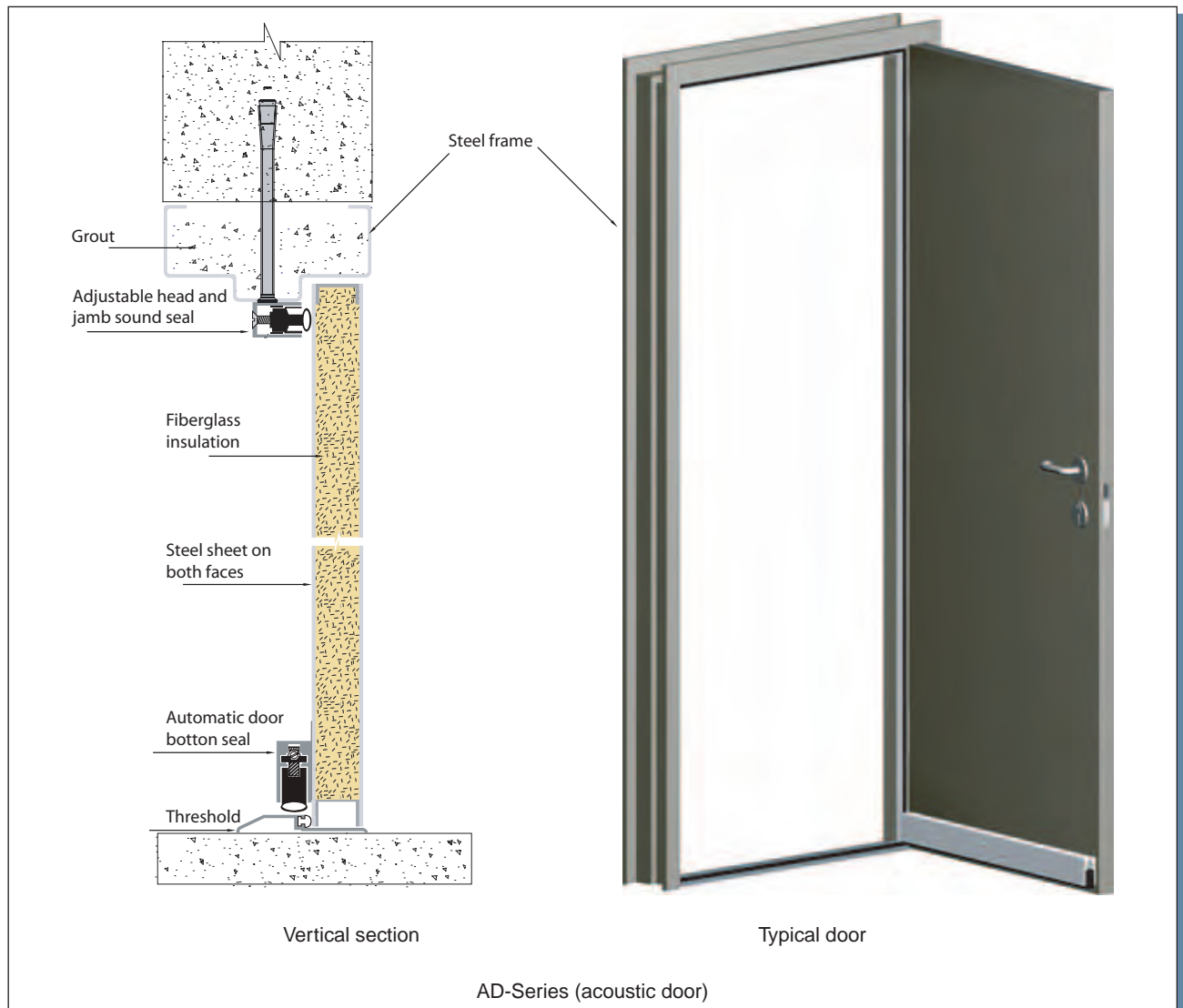


Alexandria Library - Outside view



SPECIFICATIONS OF COMPLIANCE

- ▶ **AD-Series** doors are tested in accordance with the American Society for Testing and Materials designation ASTM E90-90, "Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions" and classified in accordance with ASTM E413-87, "Classification for Rating Sound Insulation" and ASTM E1332-90 entitled, "Standard Classification for Determination of Outdoor-Indoor Transmission Class".
- ▶ **Fire Rating:** listed and labeled by **Intertek-Warnock Hersey** according to UL 10C, UL 10B, UBC 7-2-1994/1997, NFPA 252-1995, ASTM E152-81a, CAN4-1980, and BS 476. Rating of door sets as such:
 - ▶▶ **STC-31:** 1219 x 2743 mm Door Height for single swing door rated up to 3 Hrs. 2438 x 2793 mm Door Height for pair of doors swinging in both directions rated up to 1 1/2 Hrs. 2438 x 2438 mm Door Height for pairs of doors swinging in both directions rated up to 3 Hrs.
 - ▶▶ **STC-38 up to STC-42:** 1219 x 3048 mm Door Height for single swing door rated up to 3 Hrs. 1219 x 2743 mm Door Height for pair of doors swinging in both directions rated up to 1 1/2 Hrs.
 - ▶▶ **STC-47:** Non Fire Rated.



AD-Series (acoustic door)

CORE & LEAF CONSTRUCTION

STC-31:

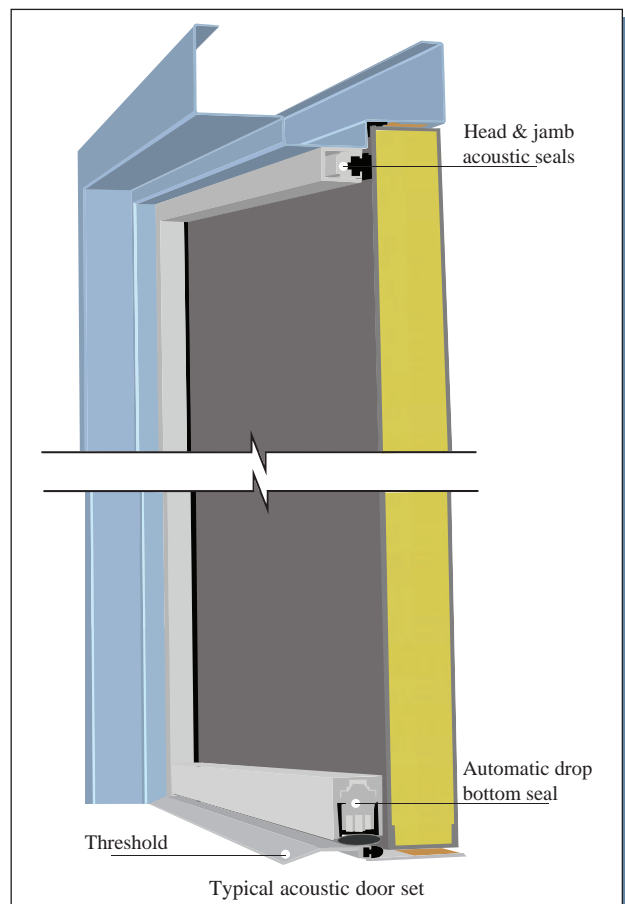
- ▶ 45 mm (1 3/4") thick full flush construction fabricated from 1.2 mm (GA 18), thick steel sheets (commercial quality cold rolled/ASTM 366 or galvanized/ASTM A653-95, CQ).
- ▶ 1.50 mm (16 GA) thick steel top and bottom channels welded to both face sheets.
- ▶ Mechanically interlocked, hemmed vertical edge seams for added strength and rigidity.
- ▶ Foam-in-place polyurethane thermal insulation core, of thickness 43 mm and nominal density 47 Kg/m³ (DIN 53420).
- ▶ Thermal Resistance: R-Factor = 12.80 hr.ft². °F/Btu. (ASTM C518-63T).
- ▶ Hollow Metal Frame made of 1.50 mm steel sheet thickness.



▲ Generator Rooms - Lebanese American University Campus

STC-38, STC-39 AND STC-42:

- ▶ 45 mm (1 3/4") thick full flush construction fabricated from 1.2 mm (GA 18), thick steel sheets (commercial quality Cold Rolled/ASTM 366 or galvanized/ASTM A653-95, CQ).
- ▶ Face sheets are stiffened by vertical 0.8 mm (GA 22) steel stiffeners, spaced 190 mm on centers and welded to face sheets at 100 mm on centers. Hat stiffeners separated with fiberglass insulated 6 mm gap.
- ▶ Spaces between stiffeners are insulated with fiberglass to the full height of the door. Standard infill thickness 50 mm of nominal density 24 Kg/m³.
- ▶ Thermal Resistance: R-Factor = 8.11 hr.ft². °F/Btu. (ASTM C518-63T).
- ▶ Mechanically interlocked, hemmed vertical edge seams for added strength and rigidity.
- ▶ 1.50 mm (16 GA) thick steel top and bottom channels welded to both face sheets on 150 mm centers.
- ▶ Hollow metal frame made of 1.50 mm steel sheet thickness.



STC-47:

- ▶ 45 mm (1 3/4") thick full flush construction fabricated from 2.0 mm (GA 14), thick steel sheets on both sides (commercial quality cold rolled/ASTM 366 or galvanized/ASTM A653-95, CQ).
- ▶ Face sheets are stiffened by vertical 1.2 mm (GA 18) steel hat stiffeners, spaced 190 mm on centers and welded to face sheets at 100 mm on centers.
- ▶ Spaces between stiffeners are insulated with fiberglass at 40 Kg/m³ to the full height of the door.
- ▶ The inner and outer skins are permanently bonded to a special acoustic core consisting of lead sheets and gypsum board.
- ▶ 2.0 mm (14 GA) thick steel top, bottom and side channels welded to both face sheets on 150 mm centers.
- ▶ Hollow Metal Frame made of 2.0 mm steel sheet thickness.

TECHNICAL NOTES - OPTIONS

- ▶ Door sets are supplied with appropriate acoustic seals. All sealing, as threshold, head & jamb seals, automatic drop bottom, meeting stile astragal and others should be tested and certified to the proper sound rating.
- ▶ Undercut 8.0 mm to be maintained.
- ▶ Frames to be fully grouted.
- ▶ Sound rating is applicable to doors with vision panels as long as it is provided with the correct required acoustic glass.
- ▶ Doors with fixed transom panel and bar are also applicable provided panels used are of identical construction as the door leaves and proper acoustic seals are used.
- ▶ Full four sided frames are available.
- ▶ Supplied with factory applied epoxy prime base coat alkyd or polyurethane RAL color paint finish (factory applied) is optional.
- ▶ 5.0 mm steel hinge reinforcement.

SPECIAL DESIGN CONSIDERATIONS

According to SDI 128-97 (Steel Door Institute), the following notes should be taken into consideration:

Performance: The proper function of acoustical doors relies on a combination of factors which are under the control of various firms, trades, specifiers, suppliers, or designers. Without the cooperation of all concerned, the installed opening may not function as intended.

Design: Room design should create a full enclosure equal to or greater than the door's capability.

Lebanese American University

