

Glass Acoustical Information

The acoustical performance of windows and doors is influenced not only by the glass but also by the framing members and construction of the window assembly. Sound transmission class (STC) and Outdoor/Indoor Transmission Class (OITC) are measured in decibels (dB), and are the standard method for rating sound attenuation characteristics of glass products and window assemblies. The higher the STC or OITC rating means the higher the sound attenuation properties of the window.

The attached STC and OITC data is for glass only and that the final STC rating of the window assembly could vary because of the influence of the acoustical performance of the framing members and the construction of the window assembly. Depending on the tightness and acoustical performance of the window frame, the final STC rating of the window assembly could have no influence to a 3 decibel drop in STC ratings from the base glass STC rating.

To determine the specific STC ratings of glass and a window or door assembly, the following ASTM standards should be used:

- ASTM E 90: Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions
- ASTM E 1425: Standard Practice for Determining the Acoustical Performance of Exterior Windows and Doors.
- ASTM E 1332: Standard Classification for Determination of Outdoor-Indoor Transmission Class

Sound Transmission Class (STC) - The STC rating is a single number value quantifying the ability of a material to resist the transmission of sound. It uses decibel (db) levels measured between frequencies of 125 Hz and 4000 Hz. The higher the STC rating, the more able the material is to resist the transmission of sound.

Outdoor/Indoor Transmission Class (OITC) - The OITC rating is used to measure the sound transfer between outdoor and indoor spaces. It uses decibel (db) levels measured between frequencies of 80 Hz and 4000 Hz, making it a better measure for low sound frequencies such as road noise. As the OITC value increases, the better sound resistant the product is.

Decibel (dB) - Decibel is a measure of the amplitude of sound. The higher the number of decibels signifies the louder the sound. Decibel only quantifies the loudness of sound and does not quantify any other characteristics of sound.

The following table shows insulating glass constructions that meet specific sound level ratings. Data is derived from test reports and published information.

Projected Acoustical Values

Glass	Airspace	Glass	STC	OITC
3 mm	6.5 mm	3 mm	28	26
3 mm	8.0 mm	3 mm	29	26
3 mm	9.8 mm	3 mm	30	26
3 mm	13.0 mm	3 mm	31	26
3 mm	19.5 mm	3 mm	32	26
5 mm	13.0 mm	5 mm	33	27
6 mm	9.8 mm	6 mm	34	27
6 mm	13.0 mm	6 mm	35	28
6 mm	16.0 mm	6 mm	36	29
6 mm	17.5 mm	6 mm	37	30
6 mm	19.5 mm	6 mm	38	31
6 mm	13.0 mm	3mm-0.030"PVB-3mm	39	31
6 mm	11.5 mm	3mm-0.060"PVB-3mm	40	32
6 mm	13.0 mm	3mm-0.060"PVB-3mm	41	32
6 mm	13.0 mm	5mm-0.060"PVB-5mm	42	36
6 mm	16.0 mm	5mm-0.060"PVB-5mm	43	36
6 mm	19.5 mm	5mm-0.060"PVB-5mm	44	36

Influence of Gas Filling - There are no significant acoustical differences between an air and argon filled IG unit.

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