

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 enclosed STC and OITC data is for insulating glass constructions only. The final STC/OITC rating of the window assembly could vary because of the influence of the framing members and the construction of the window assembly. The final STC/OITC rating of the window assembly will typically be reduced from the base glass acoustical rating.

To determine the specific STC ratings of glass and a window or door assembly, the following ASTM standards can 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 4,000 Hz. The higher the STC rating, the better resistance to sound transmission.

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 4,000 Hz, making it a better measure for low sound frequencies such as road noise. The higher the OITC rating, the better resistance to sound transmission.

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 tables show estimated acoustical values of insulating glass constructions. All laminate glass constructions utilize standard PVB interlayers. Note that argon filling has no measurable effect on acoustical properties.

Double - Pane				
Glass	Airspace	Glass	STC	OITC
3 mm	6.5 mm	3 mm	28	25
3 mm	13.0 mm	3 mm	31	26
3 mm	19.5 mm	3 mm	33	28
6 mm	6.5 mm	6 mm	32	27
6 mm	13.0 mm	6 mm	35	30
6 mm	19.5 mm	6 mm	38	32
6 mm	6.5 mm	7.0L	37	31
6 mm	13.0 mm	7.0L	40	33
6 mm	19.5 mm	7.0L	42	35
7.0L	6.5 mm	7.0L	39	33
7.0L	13.0 mm	7.0L	42	35
7.0L	19.5 mm	7.0L	44	37
13.6L	6.5 mm	13.6L	41	35
13.6L	13.0 mm	13.6L	44	37
13.6L	19.5 mm	13.6L	46	38

Triple - Pane						
Glass	Airspace	Glass	Airspace	Glass	STC	OITC
3 mm	6.5 mm	3 mm	6.5 mm	3 mm	31	25
3 mm	13.0 mm	3 mm	13.0 mm	3 mm	34	27

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