



Sound Transmittance

The following establishes a simplified procedure that can be followed by a building designer to make a preliminary evaluation of the minimum required glass Sound Transmission Class (STC) needed for exterior windows and/or skylights of a building subject to aircraft, highway traffic, or rail noise. These are the most commonly occurring sources of excessive exterior noise exposure.

Local building codes may regulate construction of buildings with excessive exterior noise exposure, to meet or exceed a STC rating. Unlike other fenestration value requirements, higher glass STC ratings indicated higher performing products. A STC requirement of 35 is common for construction near airports – therefore a STC rating of 35 or greater would qualify.

Theoretically, STC ratings have no upper limit in range; however, logistically there are some limitations. The entire building envelope is normally considered when addressing noise reduction. An STC of 35 would indicate a level of noise reduction such that otherwise loud noises would be reduced to a murmur. A rating of 45 begins ‘sound proofing’ where a majority of all sounds is blocked or greatly reduced. This might be a goal value of an interior wall of a home that features a high-end home theatre system in a particular room. 60 or higher provides superior ‘sound proofing,’ most sounds inaudible.

For perspective, typical interior walls in homes (2 sheets of 1/2" drywall on a wood stud frame) have an STC of about 33. Adding absorptive insulation in the wall cavity increases the STC to 36-39, depending on stud and screw spacing. Concrete and concrete block walls have STCs in the 40s and 50s for 4-8" thicknesses.

There is not a rating program available for the rating of fenestration series; however, STC ratings are known for center of glazing (COG). STC ratings for COG are typically used for windows and skylights as the glazing surface is what is exposed to excessive noise sources.

The following lists STC for COG of insulated glass units commonly used. As always, CrystaLite is available for consultation for specific job requirements not listed here.

Standard Laminate Insulated Glass Units

OA Size	Outside Pane	Air Space	Inside Pane	STC
5/8"	1/8"	1/4"	1/8" 0.030" 1/8"	35
13/16"	3/16"	3/8"	1/8" 0.030" 1/8"	37
15/16"	3/16"	1/2"	1/8" 0.030" 1/8"	39
1"	1/4"	1/2"	1/8" 0.030" 1/8"	39

Note: CrystaLite standard unit skylights featuring Cardinal 272 (Temp / Lam) IG units have a STC rating for COG of 35.