

# Technical Bulletin #25c

Created: 5-1-03, Revised: 6-15-15



## SOUND TRANSMISSION

Premier SIP panels have been erected in numerous residential and commercial applications where the occupants have expressed great satisfaction with the reduced noise level within their structure due to the SIP construction. While these stories are anecdotal they indicate that structures built with Premier SIP panels do provide a measure of sound attenuation.

Within the building industry, specific tests are used to determine the Sound Transmission Class (STC) of an assembly or component. ASTM E90 “Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements”, subjects a wall assembly to random noises in a frequency range of 125 Hz – 4000 Hz. The following are STC values for several Premier SIP panel assemblies used in standard construction, which were determined through testing at an accredited independent laboratory. These assemblies are for typical residential applications:

Premier SIP Panel (no finish either face)	STC- 22
½” gyp, Premier SIP Panel, no finish on other face	STC- 28
5/8” gyp, Premier SIP Panel, no finish on other face	STC- 29
5/8” gyp, Premier SIP Panel, 5/8” gyp	STC- 33
2-layers 5/8” gyp, Premier SIP Panel, 2-layers 5/8” gyp	STC- 41

Premier SIP panels are also used in town homes and condominiums. Hence, Premier SIPs has also conducted ASTM E90 tests on wall assemblies that produce higher sound attenuation while meeting fire and clearance requirements for these types of structures. These include:

Double Wall Assembly-A 5/8” gyp, Premier SIP panel, 5/8” gyp, 1” air space, 5/8”gyp, Premier SIPs panel, 5/8”gyp	STC-45
Double Wall Assembly-B 2 layers 5/8” gyp, Premier SIP panel, 5/8” gyp, 1” air space, 5/8”gyp, Premier SIPs panel, 5/8”gyp	STC-47
Double Wall Assembly-C 2 layers 5/8” gyp, Premier SIP panel, 5/8” gyp, 1” air space, 5/8”gyp, Premier SIPs panel, 2 layers 5/8”gyp	STC-52
Double Wall Assembly-D 2 layers 5/8” gyp, Premier SIP panel, 2 layers 5/8” gyp, 1” air space, 5/8”gyp, Premier SIPs panel, 2 layers 5/8”gyp	STC-54

In all of the above described cases, gypsum wallboard was attached using standard screws directly into the face of the panel. In multiple layer applications the joints were offset a minimum of six inches from the joints in the previous layer.

The following four assemblies use Premier SIP panels in conjunction with a proprietary patented clip assembly to yield higher STC values that may be beneficial in certain conditions. The assemblies are as follows:

Assembly-1 5/8” gyp, Premier SIP panel, proprietary clip assembly, fiberglass, 5/8”gyp	STC-48
Assembly-2	STC-58

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	2 layers 5/8" gyp, Premier SIP panel, proprietary clip assembly, fiberglass, 2 layers 5/8" gyp	
Assembly-3		STC-52
	5/8" gyp, Premier SIP panel, proprietary clip assembly, fiberglass, 5/8" gyp	
Assembly-4		STC-59
	2 layers 5/8" gyp, Premier SIP panel, proprietary clip assembly, fiberglass, 2 layers 5/8" gyp	

Assemblies 1 through 4 used standard drywall screws to fasten the gypsum to either the SIP panel or the proprietary clip assembly. In the multi layered assemblies the gypsum wall board joints were staggered between layers.

The above results will be affected by the use of additional or different finish materials and are supplied as a reference value. It should also be noted that sound attenuation is dependent on installation practices. Penetrations through the wall assembly for electrical, plumbing and fenestration can affect the sound transmission performance of a wall. Design consideration should be given to any penetrations through a wall requiring a STC value.