

## SOUND TRANSMISSION

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

Within the building industry, specific tests are used to determine the Sound Transmission Coefficient (STC)-ASTM E90 of an assembly or component. These tests subject a wall assembly to random noises in a frequency range of 125 Hz – 4000 Hz. The following are STC values for several PBS panel assemblies used in standard construction, which were determined through testing at a code recognized independent laboratory. These assemblies are for typical residential applications

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

PBS panels are also used in town homes and condominiums. Hence, PBS 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  | STC-45 |
| 5/8” gyp, PBS panel, 5/8” gyp, 1” air space, 5/8”gyp, PBS panel, 5/8”gyp                            |        |
| Double Wall Assembly-B  | STC-47 |
| 2 layers 5/8” gyp, PBS panel, 5/8” gyp, 1” air space, 5/8”gyp, PBS panel, 5/8”gyp                   |        |
| Double Wall Assembly-C  | STC-52 |
| 2 layers 5/8” gyp, PBS panel, 5/8” gyp, 1” air space, 5/8”gyp, PBS panel, 2 layers 5/8”gyp          |        |
| Double Wall Assembly-D  | STC-54 |
| 2 layers 5/8” gyp, PBS panel, 2 layers 5/8” gyp, 1” air space, 5/8”gyp, PBS panel, 2 layers 5/8”gyp |        |

In all 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 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. Electrical penetrations, plumbing and fenestration all can affect the sound transmission performance of a wall assembly.