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**SUBJECT: SOUND TRANSMISSION OF PREMIER SIPS**

Premier SIPS wall assemblies are suitable for designs requiring control of sound transmission. Sound Transmission is determined by conducting testing under ASTM E90, Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions. This test measures the sound transmission loss for sound between frequency ranges from 125 to 4000 Hz. This range is the most important part of the hearing range. The results of the test are further classified into a Sound Transmission Class (STC), which is useful for comparing different building systems and wall assemblies. The significance of STC ratings can be seen in the following STC ratings:

- 25 Normal speech can be understood quite clearly.
- 30 Loud speech can be understood well.
- 35 Loud speech audible, but not intelligible.
- 42 Loud speech audible, as a murmur.
- 45 Must strain to hear loud speech.
- 48 Some loud speech barely audible.
- 50 Loud speech not audible.

As you can see from the list above, the higher the STC rating number, the better the sound blocking performance of the wall assembly.

Premier SIPS are also used in multi-family structures. Premier has conducted ASTM E90 tests on various wall assemblies that produce higher STC Ratings, while meeting fire and clearance requirements for these types of structures. These include:

- STC-45 (Double Wall Assembly-A): 5/8" Gyp, Premier SIP, 5/8" Gyp, 1" air space, 5/8" Gyp, Premier SIP, & 5/8" Gyp.
- STC-47 (Double Wall Assembly-B): 2 layers 5/8" Gyp, Premier SIP, 5/8" Gyp, 1" air space, 5/8" Gyp, Premier SIP, & 5/8" Gyp.
- STC-52 (Double Wall Assembly-C): 2 layers 5/8" Gyp, Premier SIP, 5/8" Gyp, 1" air space, 5/8" Gyp, Premier SIP, & 2 layers 5/8" Gyp.
- STC-54 (Double Wall Assembly-D): 2 layers 5/8" Gyp, Premier SIP, 2 layers 5/8" Gyp, 1" air space, 5/8" Gyp, Premier SIP, & 2 layers 5/8" Gyp.

In all cases, gypsum wallboard was attached using standard screws directly into the face of the SIP. In multiple layer assemblies, the system wall board joints were staggered a minimum of six inches from the joints in the previous layer.

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The above results will be affected using 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 other fenestrations (such as windows and doors), can affect the sound transmission performance of a wall assembly.

NOTE: STC ratings do not include the impact of airborne noise which penetrates common openings in construction. These include poor assembly, heating and ventilation ducts, electrical boxes, and other imperfectly sealed penetrations that allow for building systems to “leak” airborne noise.