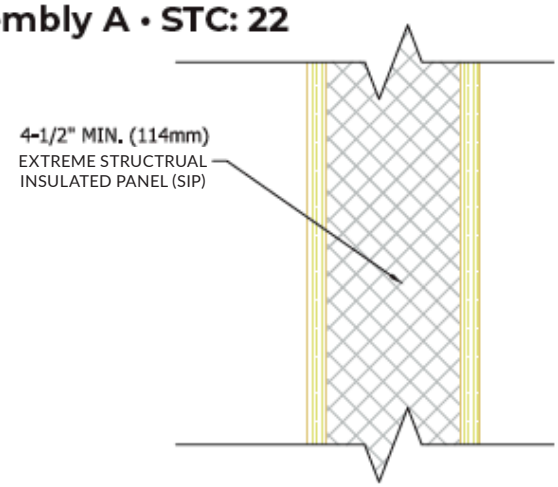
SUBJECT: SOUND TRANSMISSION OF EXTREME SIPS

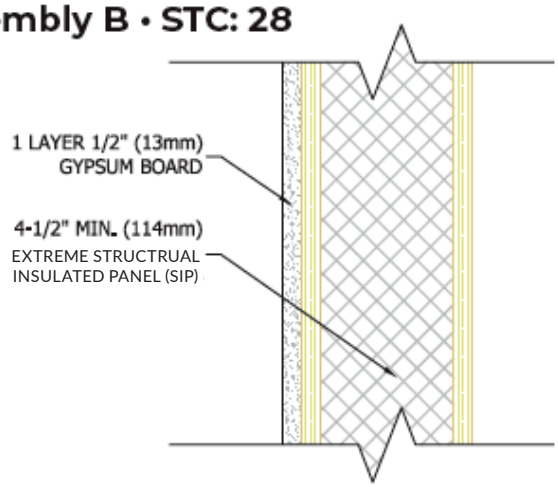
Extreme SIPs have been erected in numerous residential and commercial applications where occupants have expressed great satisfaction with the reduced noise level within their structure due to the SIP construction. While these stories are anecdotal, they indicate that structures built with Extreme SIPs 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 to 4000 Hz. The following are STC values for several Extreme SIPS assemblies with a minimum 4 1/2” thickness, used in standard construction, which were determined through testing at an accredited independent laboratory. These assemblies are for typical residential applications:

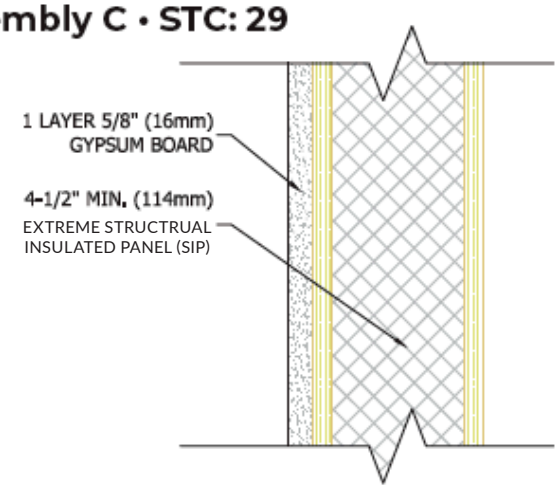
Assembly A • STC: 22



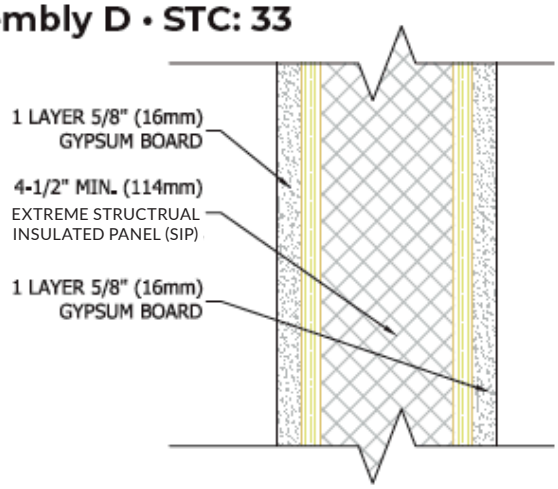
Assembly B • STC: 28



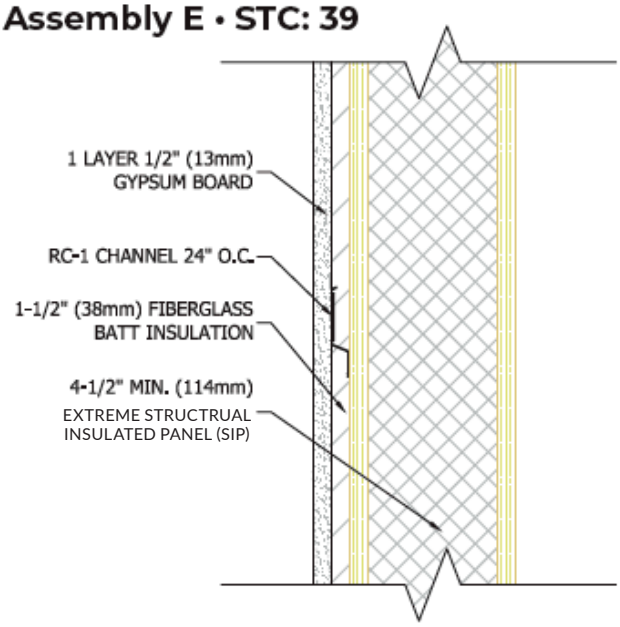
Assembly C • STC: 29



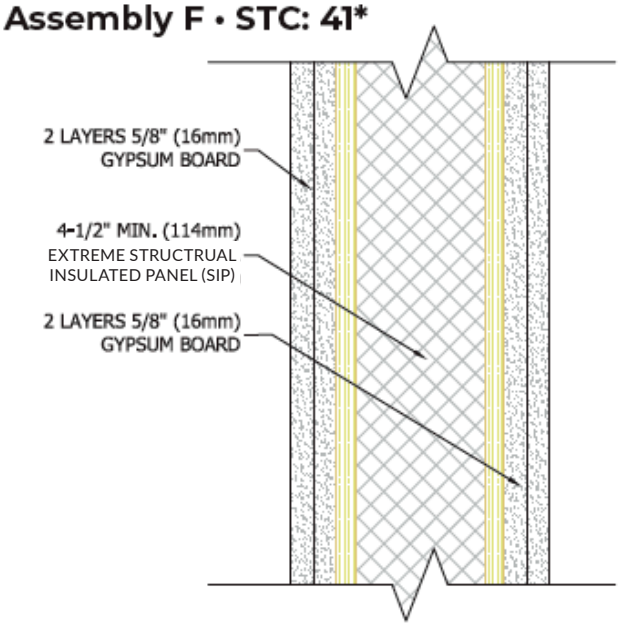
Assembly D • STC: 33



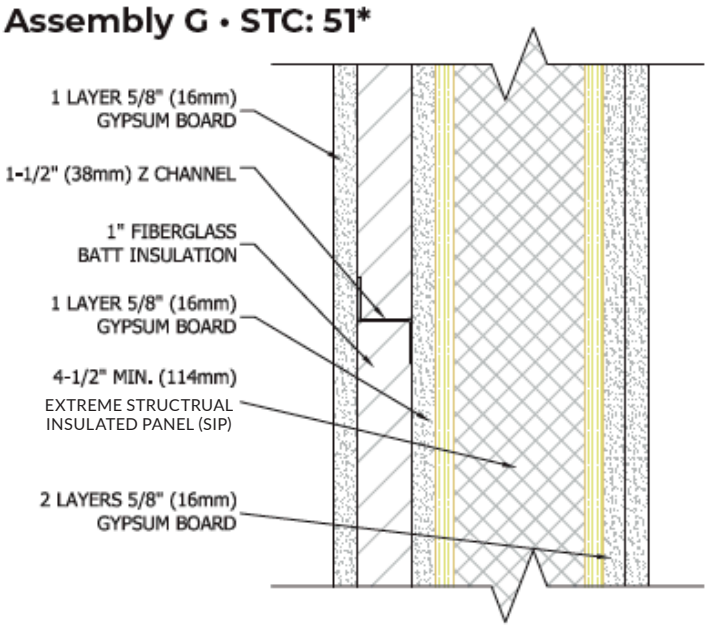
Assembly E • STC: 39



Assembly F • STC: 41*



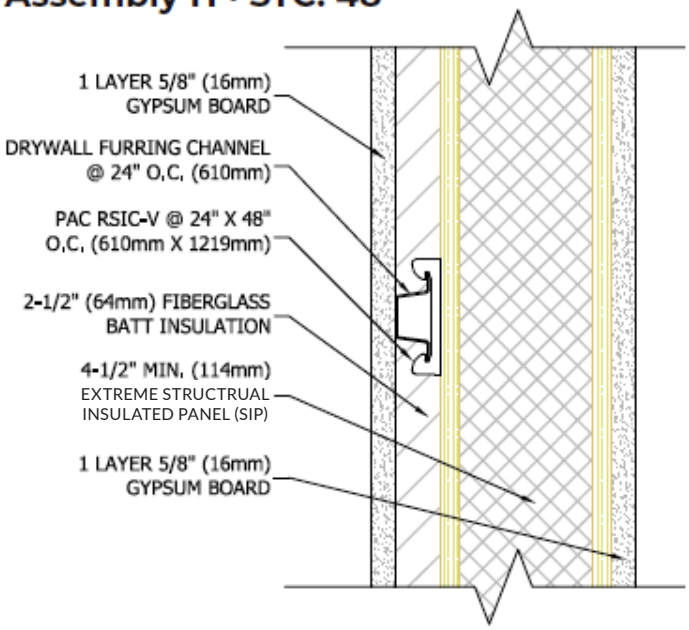
Assembly G • STC: 51*



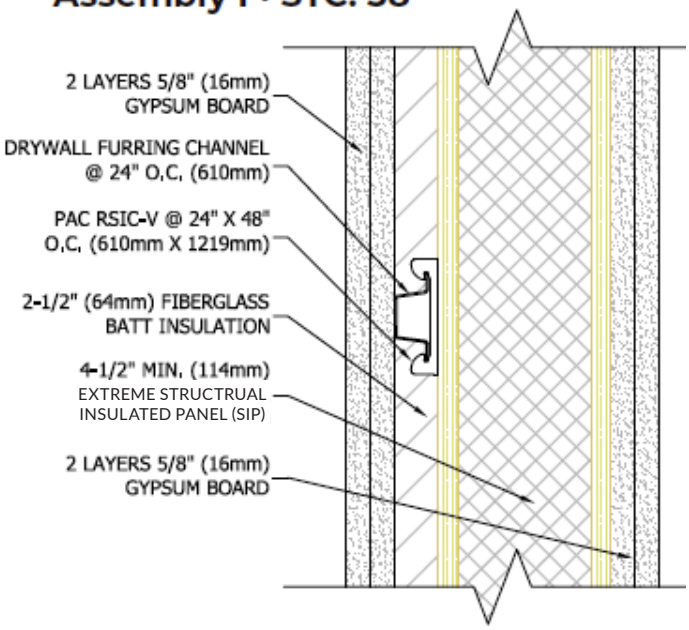
In all of the previously described assemblies, gypsum wallboard was attached using standard screws directly into the face of the SIP or metal channels. In multiple layer assemblies, the joints were offset a minimum of six inches from the joints of the previous layer.

Extreme SIPs are also used in attached multifamily applications such as condominiums and townhomes. Hence, Extreme 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 the following four assemblies using Extreme SIPs in conjunction with two types of PAC International Isolation clips to yield higher STC values. The assemblies are as follows:

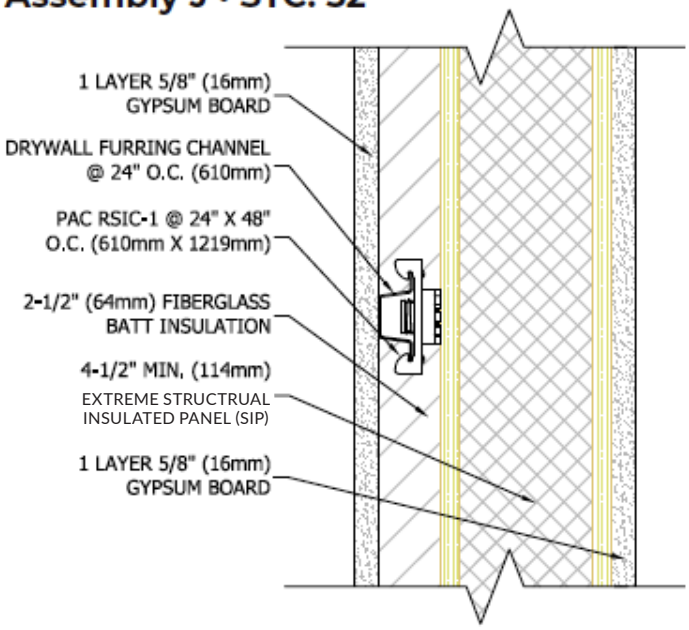
Assembly H • STC: 48



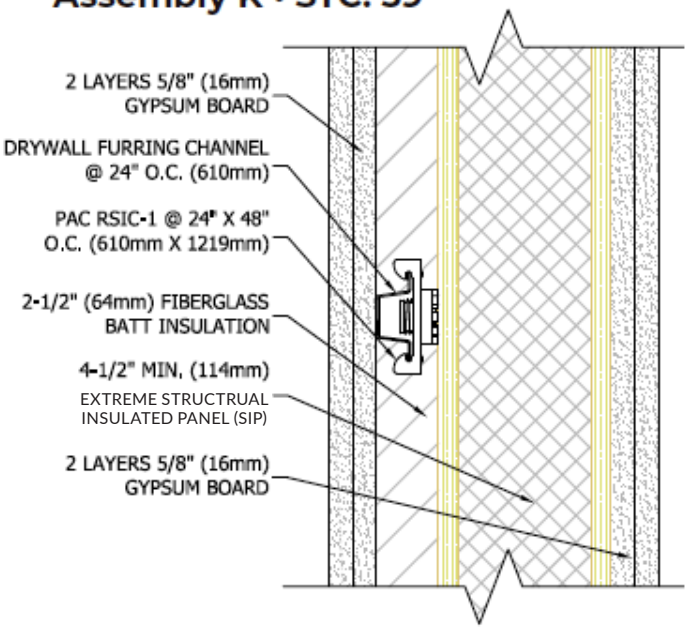
Assembly I • STC: 58*



Assembly J • STC: 52



Assembly K • STC: 59*



Assemblies 1 through 4 used standard drywall screws to fasten the gypsum to drywall furring channels attached to the RSIC-V or RSIC-1 Isolation clip assembly. In the multi-layered assemblies, the gypsum wallboard joints were staggered between layers.

The above results will be affected by the use of additional or different finish materials and are provided as reference values. It should also be noted that sound attenuation depends on installation practices. Penetrations through the wall assembly for electrical, plumbing, and other fenestrations (such as windows and doors) can affect the sound transmission performance of a wall. Design consideration should be given to any penetrations through a wall requiring an STC value.

For more construction details on PAC International isolation clips, visit https://pacinternationalllc.com/pac-products/rsic-1-product/.

These assemblies meet the requirements of UL U524 Bearing Wall Rating - 1 HR.