R SIPs

SIP No. 2044

Subject: Sound Transmission

Date: November 2007

R-Control SIPs are suitable for designs requiring control of sound transmission.

Sound Transmission is measured by ASTM E 90, Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions. The test measures the sound transmission loss for sound with frequencies from 125-4000 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 in comparing different building systems.

The significance of STC ratings can be seen by a review of the following information on STC ratings.

STC rating

25	Normal speech can be understood quite clearly.
30	Loud speech can be understood fairly 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.

R-Control SIP testing has resulted in four different assemblies:

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. R-Control SIPs are assembled without the common problems associated with site built construction and eliminate many of the openings which reduce sound transmission performance. Reports from R-Control SIP building owners confirm the improved sound control performance of R-Control SIP structures.

R-Control SIP Assembly with STC - 28

R-Control SIP with 1/2" gypsum board attached to one side.

R-Control SIP Assembly with STC - 38

R-Control SIP with two layers 5/8" Type X gypsum board on both sides.

R-Control SIP Assembly with STC - 39

R-Control SIP with 1/2" gypsum board attached to one side using USG RC-1 resilient channel (24" o.c.). Fiberglass (1/2") was placed between the RC-1 channel and the gypsum board.

R-Control SIP Assembly with STC - 51

R-Control SIP with two layers 5/8" Type X gypsum board attached to one side. The opposite side has one layer 5/8" Type X gypsum board, 1-1/2" Z furring channels and 1 USG Sound Attenuating Fiberglass batt, and an additional layer of 5/8" Type X gypsum board.

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