

February 18, 2003

Nudura Corporation
Attn: Keven Rector
80 Ellis Drive, Unit 1
Barrie, Ontario
L4M 6E7

Re: Acoustical Predictions of Two Wall Assemblies Using 6" Core Nudura

Dear Mr. Rector,

As requested, HGC Engineering has undertaken computer predictions of the sound insulation performance of two wall assemblies incorporating the 6" core Nudura product.

At the time of this analysis, tested acoustical performance data of the base product was not yet available, to allow verification the predicted results. To obtain an estimate of sound insulation, established engineering prediction methods for multi-layer sound transmission were used, in conjunction with information about the basic material properties of the wall elements, generic published test data for acoustical properties of basic building materials (concrete, gypsum wall board, and brick), and the general acoustical characteristics of form-wall products. The results are cited in terms of overall Sound Insulation Class (STC) ratings.

6" Core Nudura with ½" Gypsum Board on One Side

The first assembly under consideration consisted of the 6" core Nudura product, bare on one side, and with ½" thick gypsum wall board screwed directly to other side. From the sample of the 6" core Nudura product forwarded to us, we note that it consists of a nominal 6" deep central cavity, which is filled with concrete during installation, with nominal 2" thick EPS foam on either side, connected with a hinged polypropylene web.

From generic test data for a variety of webbed form-wall products, it is evident that at low frequencies, the acoustical behaviour of these products is essentially similar to that of the concrete core element. However, at higher frequencies the presence of the internal web allows a greater amount sound to transfer through the assembly than does a uniform layer of concrete. To account for this high frequency 'flanking' sound, we have limited our estimate of sound transmission loss to 65 dB at the higher frequencies (with drywall on one side of the 6" core product).

Based on the above methods and assumptions, we estimate a sound insulation performance of STC-51 to STC-61 for the 6" core product with gypsum board on one side.

6" Core Nudura with 1/2" Gypsum Board on One Side and 4" Brick Exterior

The second assembly under consideration was essentially similar to the first, but included a 1" deep air gap and layer of 4" thick brick on the side opposite the gypsum wall board. The prediction results of the first assembly were used in conjunction with generic data for 4" thick brick, to make a coupled prediction of the multi-layer assembly.

The prediction results indicate a sound insulation performance of STC-58 to STC-68 for this assembly.

In general, where test data is available, the established prediction methods are found to be accurate typically within 2 to 3 STC points. This accuracy range pertains to common assemblies such as single- or multi-layer gypsum board partitions, glass windows, and wood-frame floor assemblies, and uniform concrete panel configurations. However, as there is as yet no test acoustical data available for the basic 6" core product, HGC Engineering has no directly relevant test data on file upon which to base a rigorous estimate of prediction accuracy.

We trust that the above information satisfies your current requirements. Please do not hesitate to call if you have any questions or require further information.

Yours truly,

Howe Gastmeier Chapnik Limited


Robert D. Stevens, PEng



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