



## Technical Bulletin

5.7.1.1  
May 2002

Summary of STC  
Testing Reports by  
HGC Engineering



# Summary of STC Testing

## Introduction:

Sound reduction is a major benefit of the Arxx Wallsystem. An Arxx wall assembly with its combined high mass layers of expanded polystyrene, concrete and expanded polystyrene acts as a buffer to outside noise, substantially reducing the amount of noise that enters into the structure. This wall assembly also works well for interior walls between rooms.

The accepted measure of sound performance is **Sound Transmission Class**, or **STC**.

Sound transmission is reported on a logarithmic scale. Therefore, an STC rating of 10 corresponds to just over 1/3 of the sound energy passing through the wall, while an STC rating of 20 corresponds to approximately 1/10 of the sound energy..

The following table relates these numbers to the perceptions of all occupants:

<u>STC</u>	<u>AUDIBILITY OF LOUD SPEECH FROM OPPOSITE SIDE OF WALL</u>
25	Easily understood
30	Fairly understood
35	Audible but not intelligible
45	Must strain to hear
48	Barley audible
50	Inaudible

SOURCE: *Insulating Concrete Forms for Residential Design and Construction/Huntsman Chemical*

## Arxx STC Testing

Arxx has contracted the following consulting engineering firm with extensive experience in Acoustical Engineering to evaluate the STC ratings for wall assemblies with an Arxx core:

**Howe Gastmeier Chapnik Limited** (HGC Engineering)  
Mississauga, Ontario  
[www.hgcengineering.com](http://www.hgcengineering.com)

HGC Engineering conducted all the STC testing in accordance with **ASTM E336-90** and **ASTM E413-87**.

(All test reports are stamped by a licensed engineer from HGC Engineering).

## Arxx Summary of STC Ratings

The results in Table 1 are from the HGC Engineering testing reports:

**Table 1 – Arxx Summary of STC Ratings**

<b>4" ARXX FORM TESTING</b>			
<b>STC Rating</b>	<b>Sound Source Side of the Wall</b>	<b>Arxx Form</b>	<b>Receiver Side of Wall</b>
42	1/2" Gypsum Wallboard	4" Arxx form	1/2" Gypsum Wallboard
46	5/8" Type x Gypsum Wallboard 1/2" deep RC-1 resilient channels	4" Arxx form	1/2" Gypsum Wallboard
50	5/8" Type X Gypsum Wallboard 7/8" deep hat channels @ 24" co/c 1" thick acoustical grade fibreglass batt insulation	4" Arxx form	1/2" Gypsum Wallboard
<b>6" ARXX FORM TESTING</b>			
50	1/2" Gypsum Wallboard	6" Arxx form	1/2" Gypsum Wallboard
55	2 layers of 5/8" Type X Gypsum Wallboard	6" Arxx form	1/2" Gypsum Wallboard
71	5/8" Type X Gypsum Wallboard 2-1/2" non-load bearing steel studs @ 24" o/c 2-1/2" quiet zone insulation in stud cavities	6" Arxx form	1/2" Gypsum Wallboard
50	Vinyl Siding	6" Arxx form	1/2" Gypsum Wallboard

To receive a copy of these reports visit our website at [www.arxxbuild.com](http://www.arxxbuild.com) or call technical services at 800-293-3210.