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STC

FINO by Muraflex documentation report

NOTE: the values provided in this document are for the FINO demountable partition with framed pivot door. The FINO demountable partition with sliding door values are lesser by 2 STC units.

Sound Transmission Class:

STC is a rating of how well a building partition attenuates airborne sound. In the USA, it is widely used to rate interior partitions, ceilings/floors, doors, windows and exterior wall configurations. The STC rating figures reflect the decibel reduction in noise that a partitionmluce@ksq.design can provide.

Ref: (see ASTM International Classification E413 and E90). Sound Reduction Index (SRI) ISO index or its related indices are used. These are currently defined in the ISO - 140 series of standards.

Wall Construction Comparison STC;

4" Drywall Wall with 5/8" Gypsum Sheets on each side – with insulation 42
4" Face brick, mortared together 45
6" Lightweight concrete block, two coats of paint each side 46.

Muraflex (FINO) product line

Muraflex (FINO) wall product provides a sound-absorbing system in all its multiple configurations. The chart below will indicate in different wall conditions what the STC is represented at Muraflex (FINO) wall product has the ability to block sound transmission that equals or exceeds standard drywall construction.

Muraflex (FINO) STC Values and Configurations;

Single tempered glass panel configurations;

- 3/8” Tempered Glass panel **STC 36**
- 1/2” Tempered Glass panel **STC 38**

Single laminated glass panel configurations;

- 3/8" laminated glass with a .030 P.V.B. **STC 38**
- 3/8" laminated glass with a .060 P.V.B. **STC 39**
- 1/2" laminated glass with a .030 P.V.B. **STC 40**
- 1/2" laminated glass with a .060 P.V.B. **STC 41**

Double glass full-height panel configurations:

- 2 layers of 3/8” Tempered Glass panels with an airspace of 2” **STC 42**
- 2 layers of 1/2" Tempered Glass panels with an airspace of 2” **STC 46**

dB (Decibel Curve Value):

Depending on the configuration selected, most common values vary depending on the logarithmic calculation that has deviations in frequency Hz or pitch, that change the (Rw scale of the dB values)

Here are some blended values at different point tests;

At 400 Hz (Rw 30) holds to a 10 dB (tested under ASTM E90)
At 1,200 Hz (Rw 32) holds to a 9 dB (tested under ASTM E90)

The charts below allow visual definition to better understand the scale process, dB calculations more often hold to better values when the surrounding conditions are well enclosed. Some important features to consider are ceiling, flooring and masking.

			Target STC	54			
1/3-Octave Band [Hz]	Reference Contour [dB]	TL	TL adj	Quiet Glue Deficiency	TL	TL adj	Green Glue Deficiency
125	16	34.9	50.9	3.1	37	53	1
160	13	40.5	53.5	0.5	41.2	54.2	0
200	10	42.4	52.4	1.6	42.6	52.6	1.4
250	7	42.4	49.4	4.6	43.5	50.5	3.5
315	4	46	50	4	44.6	48.6	5.4
400	1	48.2	49.2	4.8	47.1	48.1	5.9
500	0	51.1	51.1	2.9	50.5	50.5	3.5
630	-1	52.3	51.3	2.7	52.1	51.1	2.9
800	-2	53.5	51.5	2.5	53.1	51.1	2.9
1000	-3	54.8	51.8	2.2	54.8	51.8	2.2
1250	-4	55.1	51.1	2.9	56.1	52.1	1.9
1600	-4	56.2	52.2	1.8	56.9	52.9	1.1
2000	-4	56.3	52.3	1.7	53.7	49.7	4.3
2500	-4	60.1	56.1	0	56.2	52.2	1.8
3150	-4	64.5	60.5	0	61.3	57.3	0
4000	-4	69.8	65.8	0	67.3	63.3	0

5502, Notre-Dame Est, Montreal, QC H1N 2C4
t: 450.462.3632 , 1.866.962.3632, f: 450-462-7972 1.866.962.7972
www.muraflex.com

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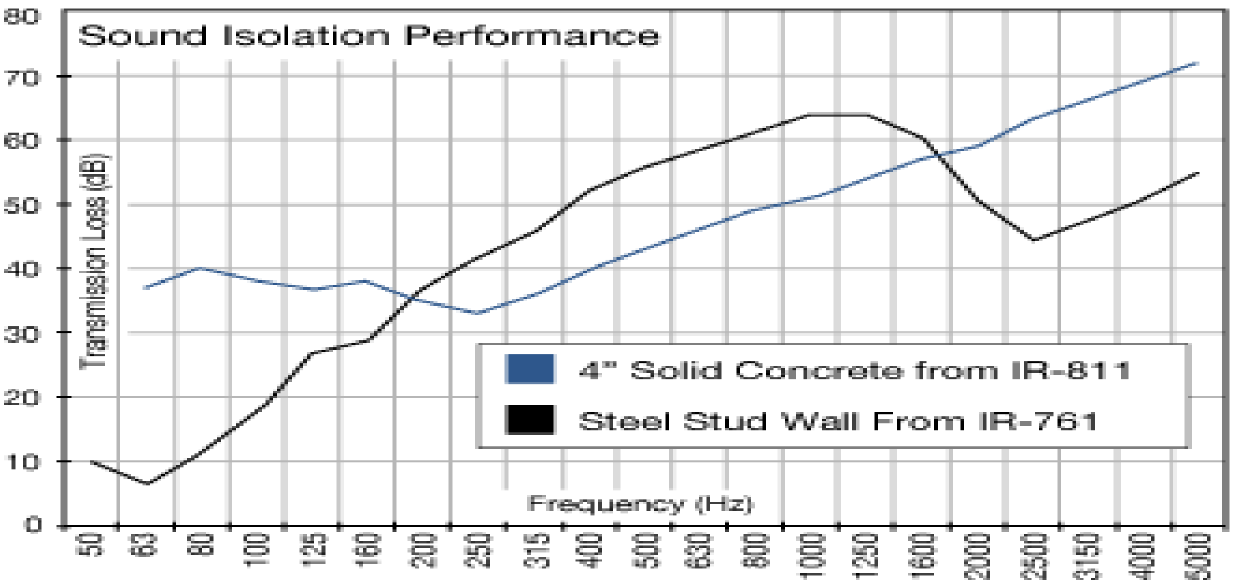

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Decibel Scale

The decibel scale measures the loudness of sound according to the formula

$$\text{loudness} = 10 \log\left(\frac{x}{I_0}\right)$$

where x is the actual intensity of the sound measured in watts per square meter, and $I_0 = 10^{-12}$ watts per square meter (the least intense sound that a human ear can detect). Similar to the previous example, we must use the formula in order to compare the intensity of two sounds.

Example: How many times louder is a 108-decibel sound than a 100-decibel sound?

Solution: Let D_1 be the intensity of the first sound, and D_2 be the intensity of the second sound. Then

$$\frac{108}{10} = \log\left(\frac{D_1}{10^{-12}}\right) \quad \text{and} \quad \frac{100}{10} = \log\left(\frac{D_2}{10^{-12}}\right)$$

Exponentiating both sides of each equation yields

$$10^{10.8} = \frac{D_1}{10^{-12}} \quad \text{and} \quad 10^{10} = \frac{D_2}{10^{-12}}$$

and therefore $D_1 = 10^{10.8}10^{-12}$ and $D_2 = 10^{10}10^{-12}$. Finally, the ratio

$$\frac{D_1}{D_2} = \frac{10^{10.8}}{10^{10}} = 10^{0.8} \approx 6.31$$

Thus, while many people might think that a 108-decibel sound is just a little louder than a 100-decibel sound, in reality the 108-decibel sound is *over six times louder.*

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Increasing Acoustical Conditions:

Glass wall systems carry certain rating and values that will get you where you need to be when absorbing sound, however, always remember that there are many factors that need to be taken into consideration in all workspaces. Listed below are important things to keep in mind on how noise can be reduced.

Remember values can be deflected by many other elements that may affect your space from getting the proper sound blockage. Look for acoustical loss;

Ceiling conditions, noise is often deflected over the ceiling tiles.
Flooring conditions, does your floor amplify sound?
Lighting system, open gaps will transmit sounds into different locations

These conditions are an important element to ensure that sound to be properly absorbed, the quality of your space is important and counts on it.

Additional Resources:

****OSHA Noise and Hearing Conservation*

****ASTM ISO Index*

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