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WEBINAR SERIES

Building Acoustics: Sound Isolation

Presented by:

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Question	Answer
Does the Soundbook have exterior wall assembly sound data? If not, is there a good resource for exterior wall assembly data, preferably with octave band transmission loss?	If the walls have exterior gyp sheathing, yes. We don't have testing for wood sheathing plus siding or have data for doors and windows which would have lower STC than the walls.
Does National Gypsum have Fire rating also	Yes, we have a large portfolio of UL fire-rated assemblies. Let us know if you have specific questions. https://www.nationalgypsum.com/expert-connection
How can we obtain the manuals you mentioned in the beginning of the webinar?	Go to https://www.nationalgypsum.com/expert-connection There you can find your local Construction Design Manager. He or She will be happy to provide those to you.
What year is this shown IBC language from? CBC (based on IBC) has had very confusing language throughout recent years...	This language is from the 2021 IBC.
Previous years for IBC list these in section 1207.	The 2018 IBC had Sound Transmission in section 1206. The 2015 IBC had Sound Transmission in section 1207.
Is the min. NNIC requirement for meeting rooms in a corporate office also NNIC45? Similar to sleeping units? Or does IBC defines any specific requirement for the meeting rooms?	There are no code requirements for sound isolation for corporate offices or meeting rooms.

What software do you recommend for modeling STC? We use INSUL, but commonly run into needing to make custom elements to match the project assembly.	We use INSUL as well as lab measurement test reports. Canada's NRC has done a lot of testing.
How does the thickness of the stud actually matter for sound isolation..?	Not so much. Typical wood studs are 2x4 and typical metal studs are 3 5/8". Going up to 6" studs only increases the ratings by about 1 STC point.
What year is this shown IBC language from? CBC (based on IBC) has had very confusing language throughout recent years...	The language is from the 2021 IBC.
Is this an HSW CE credit?	No, but National Gypsum offers a different presentation on acoustics and is AIA LU HSW. Connect with us and we are happy to give this to your office. https://www.nationalgypsum.com/expert-connection or email me amyh@nationalgypsum.com and I can direct you to the right contact at NGC.
Do you find differences in resilience channel manufactures STC help? and do you recommend using Boosts to eliminate short circuits?	The Clark Dietrich RC Deluxe is the channel used in many lab test reports, and there are some studies showing differences in channel performance between different models. There are products from several manufacturers meant to either improve the performance of the resilient channels or to prevent screwing through the resilient channels and short-circuiting them. The PAC International Boost is one of these products. Keene Cylent Assurance is another.
What is the thickness of the wood or metal studs?	2x4 wood studs and 3 5/8" metal studs
Where can we find the documented CLT performances?	woodworks.org
Is there a companion document for the Sound book that has full frequency TL data?	No companion document available to the public however if there is one or two assemblies you would like to see, reach out to your Construction Design Manager at https://www.nationalgypsum.com/expert-connection
Do you think that the STC 50 is good enough or just the bare minimum? We usually recommend that floor ceiling assemblies should be at least in the 60's.	We agree that STC 50 is the minimum you need to meet in residential construction. We would prefer STC and IIC performance in the high 50s or 60s. It is more difficult to get high IIC ratings than STC ratings.
The use of neoprene in the walls to isolated transmission seems to be a great idea. Just curious if there have been any reported problems such as degradation of the material.	None that we know of.
Double gypsum board partitions are a good solution for sound insulation. What about the impact of Gypsum board on room acoustics parameters as RT and C50 .. etc.	Gypsum board is a reflective material, so if you need to reduce RT in a room, acoustically absorptive materials are necessary.
Dispelling myths series is great! For future presentations, I suggest add "NOT" on the REALITY slides for the myths, e.g. "Putting curtains on windows will NOT decrease..."	Good suggestion!
What is recommended for the floor/wall intersection??	To reduce flanking, it is highly recommended that the gypsum board is sealed on both sides of a wall to all floor,

	wall, and ceiling intersections with a resilient, non-hardening caulk.
Example OF LOW FREQUENCY NOISES?	Music with bass, diesel trucks/trains/buses, subwoofers
Do not overfill acoustic batt - there needs to be a little bit of air in the cavity!	Agreed. Do not super-compress dense mineral fiber batt insulation.
Can you talk about acoustical drywall options (SilentFX for example)? I'm working on a current project where this was specified for cost, to reduce the amount of drywall in our acoustical wall assemblies.	SoundBreak XP Wall Board is the National Gypsum product similar to Silent FX. Our construction design manager in your area can help you with the options in the marketplace: https://www.nationalgypsum.com/expert-connection
Can you talk about acoustical drywall options (SilentFX for example)? I'm working on a current project where this was specified for cost, to reduce the amount of drywall in our acoustical wall assemblies.	There are a few options so be sure to reach out to us!
Does it help window sound isolation with double-panes to use different glass thickness? This is attempting to stagger coincidence frequency TL dips.	Yes, this will help reduce the coincidence frequency dip. Laminated glazing can also help reduce this dip.
What are your thoughts on the use of plenum barriers (i.e. Rockfon, etc.)?	For residential construction we prefer closing off the plenum with wall and floor-ceiling constructions. Plenum barriers can be effective in commercial properties where the walls don't go to the underside of the structure.
I usually expect a max of 5 dB improvement on floor assemblies and 15 on ceiling assemblies for AIIIC on wood floors. What do you use?	It differs quite a bit with different assemblies. No rules of thumb apply.
Can you comment on the effectiveness of concrete block walls relative to gypsum framed walls with insulation?	Concrete masonry units (CMU) have more mass compared to gypsum board walls and thus have better low frequency attenuation. An 8" CMU wall has a rating of between STC 45-50 depending on the block weight.
Can you please discuss any caveats with spray foam insulation when they become rigid?	An open cell spray foam is preferable so that it does not bridge both sides of the wall. If it is too rigid, it will reduce the sound isolation of the partition.
There was mention that STC ratings are assessed in most cases in the speech range (i.e. 125 Hz plus). When constructing residential near freeways, noise below 125 Hz is often a huge concern (truck rumbling, etc.). What do you recommend to your clients in modifying their wood frame construction to achieve reduction?	Using more mass, like multiple layers of plywood, resilient connections and insulation is the best way to improve the low frequency transmission loss.
Could I get contact numbers for Felicia and Ben ?	Ben Davenny (bdavenny@acentech.com , 617-499-8039) Felicia Doggett (f.doggett@metro-acoustics.com , 215-248-4352)
Can one typically detect a subjective difference between walking on a floor with and without resilient or isolating elements (can you feel that the floor is somewhat flexible)?	Not really. The benefit is for the occupants underneath.
Michelle, there is a sound insulation text book available to help with your question. Sitting here, I can't recall the title off hand	

<p>What could be the suggestion in terms of stud thickness if the partition has to go till 6m height...? In this case probably the thickness of the studs shall be more for better structural stability..? Because, there would be boards on both sides of the studs..?</p>	<p>Correct. Taller walls will need heavier gauge studs. In this case, you can use resilient isolation clips, resilient channels, or double stud construction to improve the performance.</p>
<p>I'm guessing the Boost they're talking about is PAC's RC-1 Boost that is designed to bridge the performance gap between RC-Deluxe and all the other channel options. Testing has shown that adding RC-1 Boost to other channels matches the performance of RC-Deluxe, especially in floor/ceiling assemblies.</p>	<p>Yes, thanks!</p>
<p>https://www.woodworks.org/resources/inventory-of-acoustically-tested-mass-timber-assemblies/</p>	
<p>Regarding the reduction of transmission through walls I noticed that most of the improvements presented appear to be applied during construction. Supposing one would want to reduce the transmission through an already existing wall, what would be your opinion on applying methods used to reduce floor-ceiling transmission to walls?</p>	<p>The easiest thing to do would be to add additional layers of drywall. For more significant improvement, remove the drywall from one side and either construct a separate stud with drywall on the other room side or attach drywall to the original stud with resilient clips.</p>
<p>Which material has better sound isolation extruded goat rigid insulation or mineral fiber blanket insulation on the wall</p>	<p>Mineral fiber blanket insulation</p>
<p>Do you see much flanking paths through Plumbing and electrical outlets.</p>	<p>For electrical outlets, we prefer that these be staggered in separate stud bays and not back to back. There are putty pads that can reduce the sound transmission through these boxes.</p>
<p>It's also important to check for limitations on batt thickness that are often included in the UL fire-resistive designs. Many assemblies require reducing the channel spacing (RC or hat channel with clips) when you include more than 3.5" of batt insulation.</p>	
<p>A session on commercial buildings would be very useful!</p>	<p>We are looking into that for the next webinar!</p>
<p>For block walls: IR-586 from NRCC:</p>	
<p>https://nrc-publications.canada.ca/eng/view/accepted/?id=cf922a8d-361c-4bd3-a5a3-e9a9a8df742c</p>	
<p>Load tables (wall height limits for studs): https://www.clarkdietrich.com/support/support-docs/load-tables</p>	
<p>Why no mention of CLD panels as a solution to CLD?</p>	<p>I think you are referring to constrained layer damping. There are drywall panels incorporating constrained layer damping including SoundBreak XP by National Gypsum. These are highly effective at mid and high frequencies where conventional drywall has a dip in performance.</p>