

***WSDG EDU Webinar Series – 2021***

***Webinar 3 – Noise Off!***

***Hosted by Dirk Noy and Gabe Hauser, June 23,***

 ***2021 - 1:00 pm ET***

**Questions and Responses**

**1. Do you find SoundFlow from AFMG to be accurate?**

We started using WinFlag / NorFlag before SoundFlow came out and don’t have much experience with SoundFlow. 🡪 Maybe Wolfgang Ahnert might chip in?

2. How to isolate the sound from lighting and what material should we use?

Assuming this question relates to mechanical resonances in light fixtures – first step is to specify fixtures that do not exhibit any resonances, second step is to dampen the fixtures by means of mechanical fixations and reinforcements.

3. When you can't make a test in a source room i.e. at the design stage, what is your approach to establishing the sending room sound pressure levels? E.g. for a Dubbing Stage or a Rock Band recording studio?

We use known frequency spectra and max SPL of the sound that will be the loudest in the future sending room (for example a drum set or a full rock band or maybe just a grand piano). The respective third octave band spectrum is then used as sending level.

4. Are you saying two layers of heavy glass is better than three layers of lesser glass?

Correct

5. Please mention the “audibility” of musical sources that are not included in test measurements.

There are two different ways of looking at the quality of sound isolation: 1. The Transmission Loss (TL, STC, Dnt,w) which describes how much the sound gets attenuated for each third octave band between sending and receiving room. 2. The absolute level of sound that arrives in the receiving room when noise is being produced in the sending room. For the second one, it is important to mention the type of noise: If the source is an HVAC unit producing constant noise with no discernable rhythm or melody, the same amount of SPL is less disturbing than if the noise is music (with audible rhythm and/or melody). The commonly used standards specify correction factors to compensate for this effect, up to 6dB penalty for rhythm/melody.

6. Hi, do you recommend green glue or mass loaded vinyl between sheets?

Yes, this can be helpful, specifically in locations with little physical room to spare. The same effect can often be achieved at less cost by adding more layers of material.

7. When looking at the frequency response of recorded ambient noise and the measurement mic has been calibrated to dBSPL, does looking at the dBFS at a certain frequency accurately show the dBSPL at that frequency (and then see how much TL you need) or is there some additional windowing etc required?

If the mic has been calibrated, you can read accurate dBSPL at all frequencies. No windowing needed, you can measure this with a (quality, 1/3rd octave) handheld SPL meter as well.

8. What product do you use for decoupling the floor?

We use isolation devices from a variety of manufacturers, as a function of the actual device required and the local availability and support. Some brands that WSDG specifies frequently are: AMC, CDM, Farrat, Getzner, HBT-Isol, Kinetics, Mason, RRG, Senor. Depending on the required complexity of the buildup, the required isolation and the resonance frequency, these can be 20mm roll-out mats up to >100mm jack-up steel springs.

9. Is rock fiber a good isolating material for the inner layer? (inner room)

Standard drywall acoustic isolation material is used in the airspace between the layers. Usually rock- or glass fibre.

10. Do you have a defined test protocol or some recommendations for impact noise measurements on fitness clubs, mainly on free weight areas where the source of noise is stronger than a tapping machine and is exciting your structure in a different way?

This is a topic that is looked at only recently by standard committees. For a long time we had only protocols for frequencies above 100Hz since this was considered to be the frequency range of interest (humans talking, appliance noise in dwellings etc.). With the success of wood buildings (at least in Europe) along with multiuse dwellings, the frequency range below 100Hz sees significantly more attention. A ‘dropping ball’ approach to testing is being introduced in a certain Swiss standard to better study and specify these types of situations.

11. You mentioned a gypsum floor coating on the floating assembly for the VSL Synchronstage studio project. Can you elaborate on what the material is. Is it a lightweight concrete or some other product?

It is a gypsum based, fibre reinforced material that is shipped as pre-cast plates (so no pouring / drying process required) with a density of about 1500kg/m3.

12. As you said, sound isolation is NOT room acoustics, but do you need to take room acoustics into account to achieve the best isolation? like choosing materials with resonances that are different from room resonances? or do you treat isolation completely separate from whatever the sound content in the source room is?

We treat room acoustics completely different from isolation acoustics. There is one instance where the impact of room acoustical treatment has been proven to be beneficial, and this is in (low isolation criteria) situations with a suspended acoustic ceiling using perforated gypsum board. Gypsum manufacturer Knauf performed a series of tests to show that in an apartment situation with standard ceiling buildup towards the upstairs neighbor, installing a suspended acoustic ceiling (perforated gypsum) slightly improves the sound isolation at certain frequencies.

13. Metal stud or wood? 2x4 or 2x6?

Metal studs are always preferred - less connectivity between wall board layers.  In fact the thinner the metal the better - i.e. higher gauge value).  As for 2x4 vs. 2x6 - again more air usually results in more isolation.  The selection of stud depth is often a structural issue.