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All I Want Is Some PEACE & QUIET

Ever have neighbors that were so noisy that you could hear every word of their conversations or loud music? What about the giants that must be living upstairs for which you can hear every thud of their footsteps? A common concern in multi-family buildings is sound transmission either between units or from common areas into units.

Often determining what is too loud is subjective and measured by the sensitivity of our ears. The Building Code requires that demising walls and ceilings meet a Sound Transmission Class (STC) rating of 50 and an Impact Insulation Class (IIC) of 50. STC is related to airborne noise like television, speech, or music. IIC correlates to footfalls or a dog's toenails when they impact a ceramic tile floor. Generally, at an STC rating of 50, loud talking cannot be heard, but loud music can be noticed. The Building Code required STC ratings be no less than 45, before the adoption of the 2000 International Building Code, which increased that level to 50.

Residents in concrete framed buildings usually do not have an issue with noise from upstairs, but they can have concerns with their noisy next-door neighbors. We are often asked to investigate sound transmission concerns in wood framed buildings when the thuds of foot traffic from the resident, or their pet, above are perceived to be excessive. Many condominiums have by-laws related to the percentage of the floor area that must be covered by carpet. Most carpeted floors with a good pad exceed an IIC 50 sound rating, but bare tile and hardwood floors usually do not, and can allow more sound to transmit.

There are some quantitative options available to help evaluate sound transmission between units. A review of available building plans is usually a good place to start, as they can reveal the intended design of the floors/wall/ceilings and their associated sound ratings. If the ratings are not provided on the plans, the construction of the walls/floors/ceilings can be compared to similar assemblies that have been tested to see how they might be expected to perform. A follow-up inspection can be conducted by cutting holes in hidden places to confirm that the actual construction is what the drawings show. Sound testing of residences can be performed by placing a transmitter in one unit and a receiver in another to check for compliance with the building code.

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Manufacturers of products used to construct wall and ceiling assemblies have their materials tested in a laboratory, and then publish the STC rating results for various combinations of framing, drywall, and insulation. Most people are surprised to learn that no insulation was placed inside their interior wall or ceiling and that some assemblies can achieve the required STC rating without insulation. This is possible because much of the sound transmits through the building materials by vibration and not only the air space within the assembly.

Many products are available that can be installed on floors, walls, and ceilings to reduce the offending sound transmission. There are "rubber" mats that help isolate the layers of the walls/ceilings. Some drywall panels include a special polymer coating to dampen sound transmission. Installing additional isolated layers of drywall can also be useful, but will thicken the wall or lower the ceiling. Sometimes some well-placed caulk around electrical outlets or along the base of a wall can make a significant improvement.

Reducing sound transmission can be a very invasive project as it often requires that all surfaces of the shared walls/ceilings within the entire unit be modified, meaning that the residents will have to vacate the unit for a while. As an alternative, installing sound "deadening" materials can be limited to the sleeping areas to save cost and the amount of disruption to a living space and the occupants.

Satisfactory remediation of a sound problem can be difficult, as stopping sound can be more challenging that addressing water intrusion conditions. Our ears will perceive a reduction in noise by one-half when the STC rating is increased by about 10-points. Conversely, anything less than a 5-point change is hard for people to distinguish.

Finally, any expectation that a noisy unit located within a multi-family building will become "sound proof" or resemble a recording studio after remedial work is unrealistic. Therefore, it is imperative that expectations are managed correctly. Absolute peace and quiet may not be achieved, but even the smallest reduction in noise can mean the difference between frustrated neighbors who can hardly stand one another and those who can live peaceably together. If it is evident from the onset that the association and management are working on a compromise solution that is expected to benefit all involved, it is amazing the support that you can receive from the residents. After all, they just want to be heard. Q