

Boston Developers Learn to Get it Right - Solve Condo Floor/Ceiling Noise Code Failure

Wood-Framed Noise Solution Leads to Highest Recorded Acoustic Field Test Results Between Residential Units



Boston developer Michael had been to another condo association meeting where the new owners of his building wanted to talk about noise. Some spoke of hearing neighbors talking on the other side of their kitchen wall, a few mentioned loud plumbing, particularly in the master bath that shared a wall with the neighbor's master bath. But the situation that unified all owners and was particularly vexing was the noise coming through the ceilings, the IIC (Impact Insulation Class) failure. That's the noise of the upstairs neighbors walking around and dragging furniture.

Michael has always sought to obtain the best noise control for his buildings, and over a 20+ year period, he has purchased and installed just about every legacy acoustic product offered that claimed to provide building code required noise separation for the floor/ceilings between dwelling units; expensive cavity insulation, MLV sheeting, specialized gypsum panels, resilient sound isolation decoupling clips with metal hat channel, metal resilient channel (RC) coupled with gypsum concrete, and acoustic padding. No approach provided satisfactory results, installations were very complicated, expensive, and noise still got through.

The HOA, Michael was informed, was speaking with a law firm referred to them by another HOA in the city experiencing similar noise problems. This second group had filed a lawsuit against their developer, hired an engineering firm to field test the acoustic performance of the walls and floor/ceilings of the project, and learned many parts of the building failed to meet required minimum building code standards for noise.

Michael soon learned this was not an isolated situation. While developers and unit owners were reluctant to talk about acoustic failure in their buildings to protect marketability and value, among his associates he soon identified three who were experiencing similar legal threat and were currently struggling to find resolution.

Legal chaos quickly emerged; the HOA sues the developer to correct the code failure, the developer turns to the architect who signed the building plans containing the construction details. The architect, whose defense relies on acoustic product manufacturer's literature, passes the buck to the general contractor claiming lack of installation discipline. The general contractor immediately deflects to the drywall subcontractor who ends up taking the blame but doesn't have the resources to participate in a solution.

That solution involves moving the occupants into temporary quarters (hotels), storing and protecting their possessions, tearing down the existing ceilings, resetting mechanicals and sprinkler heads, installing an improved noise abatement solution, installing new drywall, finish

HushFrame Soundproofing

-TO THE RESCUE-

**A TALE OF TWO OPTIONS:
WOOD OR METAL**

Did you know...

Noise is defined as unwanted sound and sound is simply waves of vibration energy. Control the vibration and you control the noise.

Building codes require control of the noise that travels through the walls and floor/ceilings that separate units in multi-unit housing.

Basic wood-framed wall and floor/ceiling assemblies are incapable of meeting acoustic code requirements without some type of 'decoupling'.

Decoupling occurs where the finish gypsum panels of an assembly are 'disconnected' and held off from the face of structural framing members via some resilient device technology.

This decoupling interrupts the path of travel for noise vibration and adds limits to the transfer.

Until the invention of HushFrame, all legacy decoupling devices have been made from metal components. These outdated products are incongruous with wood-framed construction and fraught with installation inconsistency due to the inherent nature of wood.

Among them, the most ubiquitous metal product in use is resilient channel (RC), a thin metal furring strip developed in the 1970's. No product has caused more trouble for builders, or more litigation.

Reliance on RC is the leading cause of acoustic code and UL fire-resistance rating failure in floor/ceilings of multi-unit residential buildings. The number is staggering, over 80%, per USG, the inventor, who exited the business.

Lawyers for HomeOwners Associations have certainly taken note... lawyer-sponsored acoustic field testing is proliferating and the Jury Is In... Guilty, Total IIC failure. Leading to exorbitant consequences. (see Article)

Manufacturer's misrepresentation of product acoustic performance and installation requirements is out of control, particularly for assemblies requiring UL Fire Resistance rating. This exposes unsuspecting builders to liability and code non-compliance.

and paint. And finally, the most difficult part... compensation for the owners and their lawyers.

And the cause of all this was the ubiquitous reliance on resilient channel metal furring, or RC.

Michael, voicing his frustration to an architect associate, learned about the invention of HushFrame, recently developed locally, and he reached out to us for information. Sharing extensive laboratory and field testing, the HushFrame team was able to confirm for Michael what he had empirically understood... acoustic product marketing was misleading and unreliable, and in fact many products were useless.

Cavity insulation is not what you'd think; rigid and spray foam products are an acoustical nightmare, creating a drum effect in a living space; dense materials like mineral fiber, when packed into framing cavities, create a bridge that noise can walk across. Inexpensive fiberglass batt and blown-in cellulose insulation are stars and top performers in the acoustic testing laboratory.

Old tech MLV (mass loaded vinyl) sheeting provides no added benefit in a resilient decoupled assembly. Putty pads are acoustically useless when installed around electrical boxes. Sandwiching a colored glue between two layers of gypsum panels will have no effect that is perceptible to the human ear. Resilient padding installed under hard-fastened flooring is defeated by short-circuiting from nails and staples. Expensive hybrid gypsum panels offer only minor acoustic benefit, are typically not appropriate for ceiling installation, and also suffer from fastener short-circuiting.



Wood furring decoupled on HushFrame Raft connectors. Simple.

Michael learned that the lab-proven answer for acoustic isolation is decoupling centered on the vibration-eating silicone cores of HushFrame Rafts, under the scientific phenomenon known as 'The Viscous Drag Method of Absorption' where the cores trap the noise vibration and transform it into a small measure of heat, killing it.

Once the province of metal devices, whose time has come and gone; RC, metal hat channel, and resilient clips of various manufacturers have no place in wood-framed buildings. Metal channels are incapable of adjustment or conforming to variations in wood framing surfaces leading to widespread installation failure. Such required flexibility is a cornerstone of HushFrame's ease of installation.

Michael learned that the intentional strategic omission of known facts and testing by manufacturers has compromised the architects, engineers, and acoustic consultants whose role it is to inform developers and guide their builders to effective solutions.

Manufacturers of RC and sound clips that couple with hat channel publish installation patterns and respective STC & IIC values that are unobtainable when requirements for UL fire-rated construction are met, this truth is revealed in field test litigation. And yet the use of these products to date is ubiquitous, installed by the unsuspecting and underinformed.

Michael took this all in and made a decision, for the past few years he has relied only on HushFrame to quiet his buildings. A recent field test of one of his projects revealed the floor/ceilings yielded NISR 59 (IIC) & NNIC 60 (STC) where Code minimum is 45, exceeding ICC G2-2010 Guidelines for Acoustics Grade A criterion of 57 on both, which amazed everyone.



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Fast Facts - HushFrame...

...
The simplest and least expensive,
outperforms every acoustic competitor.

...
Only decoupling device that works with
wood furring.

...
Only UL fire-rated acoustic floor/ceiling
design that allows wood furring.

...
Least expensive UL one-hour floor design,
only 3/4" subfloor, no finish required.

...
Outperforms assemblies with gypsum
concrete and resilient pads, saving cost,
delay, wet/mold.

...
Direct attachment of electrical boxes,
ducts and fans to decoupled wood furring
defeats flanking and short circuiting, not
possible with metal channels.

...
Long-life pure silicone cores outlast
inferior polymers in metal clips.

...
Ease of alignment on deflected wood.

