STC SOUND CONTROL

STC Acoustic Sleeper™: Frequently-Asked Questions (FAQ's)

Q: What is the Acoustic Sleeper made of?
A: Neoprene, a dense and resilient rubber selected for its ability to isolate vibrations. Color is black.

Q: Why does the Acoustic Sleeper have that particular profile?
A: A critical goal of isolating impact noise is to minimize contact between the finish floor surface and the supporting structure. More than 99.8% of the floor area is isolated from the structure with Acoustic Sleeper installations; continuous mat systems don't do that.

Q: How well does the Acoustic Sleeper perform for Impact Insulation Classification (IIC)?
A: Independent tests per ASTM E 2179 of sleeper pads at 24-inches demonstrate ΔIIC-23, much higher than gypsum cement and acoustical mat systems, rubber mats, and cork.

Q: What configurations are available?
A: Acoustic Sleepers are 1-½" wide, ¼" high, and are available as pads (1-½" square) and strips (44" long). Strips can be easily cut to any length.

Q: Does the Acoustic Sleeper System self-level like gypsum cement?
A: No, it acts like a typical panel on structural members, deflecting for comfort underfoot. With self-levelling underlayments the variable thickness of the cement brings behavior under fire conditions into question; it causes cracking at thin areas; and it stresses structure from additional dead load at thick areas.

Q: How thick is the system?
A: For wood framing the system is 1-½" above structural members – ½" sheathing, ¼" pads, and ¾" subfloor. For concrete deck the system is just the pads and subfloor totaling 1" thick.

Q: How many pads are needed?
A: Quantity depends on structural member spacing and desired spacing of pads for deflection based on loads and panel thickness. Refer to the attached chart.

Area per 100 Pads		
Structural Spacing	Pad Spacing	
	16"	24"
16"	133	200
19.2"	152	229
24"	200	266

Q: Is the Acoustic Sleeper fire rated for use in combustible construction?
A: Yes. The Acoustic Sleeper is part of UL-listed 1-hour and 2-hour fire-rated assemblies in Construction Types III-A and V-A:

- Wood Joists: 1-hour L502, L506, L514; 2-hour L505
- I-Joists: 1-hour L589
- Wood Truss: 1-hour L528, L563, L574; 2-hour L577
- Metal Joists: 1-hour L524
- Light Gauge Metal Truss: 1-hour L560, L565

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Q: What is the construction sequence for the Acoustic Sleeper system in wood construction?

A: Installation of the system is continuous over the entire floor plate by the framing contractor after the sheathing layer and before partitions are installed. This eliminates cutting of the sheets and speeds the process. With a continuous bearing strip of ¼" OSB under load-bearing and shear walls, all studs are precut to the same length. This is the preferred detail.

Q: Why are there two wood panels in frame construction?

A: Typical wood floor construction has a single subfloor/sheathing panel. The Acoustic Sleeper system separates the functions with two panels to provide acoustic isolation and fire resistance without gypsum cement. The sheathing panel is fastened to the structural members to provide diaphragmatic shear resistance. The subfloor panel is supported on top of the sheathing by the Acoustic Sleeper pads or strips, and in line with the structural members. This isolates the transmission of impact vibration while transferring the live loads to the structure. In event of fire, the lower sheathing layer chars and protects the upper subfloor layer so it can continue to carry the structural loads for the required fire resistance.

Q: What about moisture between the two layers?

A: If moisture enters between the two wood panels it wicks to the square-edge joint in the lower sheathing panel by vapor pressure differential and evaporates. This is accelerated since the two panels do not touch, which would cause adhesion and condensation of the vapor. We recommend an open joint of about 1/8" at the sheathing panels between structural members.

Q: Is ½" OSB really enough for the sheathing layer?

A: Shear resistance of ½" OSB is surprisingly higher than ¾" plywood. IBC Table 2305.2(2) shows the values of panel rigidity Gt, and per Equation 23-1, the higher the Gt value per thickness the lower the deflection due to shear. OSB is indicated to have a value of 38,750 for ½" thickness. The best plywood, 5-ply, has a value of 34,875 for ¾" thickness.

Q: Can the Acoustic Sleeper system be used in non-combustible construction with wood panels?

A: Yes. Wood panels are permitted as a "floor covering material" over noncombustible floor/ceiling assemblies per IBC 603.1.5 and IBC 804.1.

Q: Why use the Acoustic Sleeper in non-combustible construction?

A: The Acoustic Sleeper system not only provides an exceptional Impact Insulation Classification for footfalls; it can also provide isolation from other structure-borne sounds between floors when used with a noncombustible panel such as cement-bonded particleboard, magnesia board, or structural cement panels. Building codes require that fire partitions extend from the top of a fire-rated floor/ceiling assembly (IBC 708.4). The Acoustic Sleeper system is an integral part of 2-hour fire-rated UL Design D902, so instead of extending from the concrete deck, partitions can be placed on top of the panels – they are part of the assembly. This provides a break in the sound flanking path that normally sends noise from televisions or speakers mounted on the partition or floor through the studs and concrete to apartments above and below.

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