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Mohawk Home Rigid Vinyl: STC/ IIC

SOUND TESTING	Floor ceiling assembly	IIC	STC
ASTM E90/E492	6" concrete slab without drop ceiling	53	51
ASTM E90/E492	6" concrete slab with drop ceiling	68	62
ASTM E90/E492	7" concrete slab without drop ceiling	57	55
ASTM E90/E492	8" concrete slab without drop ceiling	57	55

STC / IIC Defined:

STC stands for *sound transmission class*. This is the most common rating used in North America for determining airborne sound transmission loss between 125 and 4,000 Hz. This range covers the majority of common noises we hear including speech, television, music, dogs barking, and other similar annoyances. A higher STC rating often shows improved performance. However, the rating is essentially an average over the 16 frequency points tested.

Because of this, a product can perform exceptionally well in one range, poorly in another, and still end up with a better STC rating than a competing product that may have performed better in a frequency range more relevant to your project requirements. This is a pretty common occurrence that should not be ignored when comparing products. Sort through the misleading ratings by gaining access to actual sound test data showing the STC contour line on the transmission loss graph. The performance in relation to the STC contour line will reveal the consistency of the product over the most common frequencies.

The STC rating for a basic insulated 2x4 wall with a single layer of drywall on each side is 35-38. This rating increases to STC 42-45 with steel studs. The STC rating for a basic wood structure floor/ceiling is 40-43. The STC rating for a six-inch concrete sub-floor is 52-55.

A good level of isolation for walls and ceilings is STC 50 plus. **A high level of isolation for walls is STC 60 plus with ceilings at STC 50 plus.**

IIC stands for *impact insulation class*. Acoustic labs conduct the IIC test using a tapping machine with steel faced hammers. These hammers strike a test floor material generating sounds between 125 to 4,000 Hz. The impact creates vibrations that travel through the floor into the receiving side (the room below). The engineer plots the results of each tap on a graph, compares the results to the reference assembly, and determines the IIC rating from comparing these two tests. A higher number shows better performance. The IIC rating does not account for any squeaking or rattling caused by loose wood frame construction. Nor does it account for low frequency footfall noise or structural deflection.

The IIC ratings for basic concrete sub-floor with no resilient underlayment is around 28 to 35 IIC. The IIC ratings for basic wood structure with no resilient underlayment is around 40 to 45 IIC. Without the addition of sound isolation products, the IIC rating of basic wood structures will rate better than concrete structures because they are naturally more resilient.

An IIC rating of 50 and above is most common in building code and HOA requirements.