Introduction
Acoustic Materials

DESIGNTEX

Every Material is Acoustic

Acoustics is the science of how sound is produced, transmitted, received, and measured. Materials play a crucial role in this science. Some materials absorb sound, preventing reverberation, while others are porous enough to let sound pass through. When materials reflect sound, they cause lasting reverberation, which we experience as noise.

While building acoustics address how sound enters a space from outside, Designtex focuses on room acoustics, or how sound behaves within spaces, where our materials can have a dampening effect.

Test Method

To produce acoustic ratings for its products, Designtex uses the test method ASTM C423: The Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method.

ASTM C423 has two steps. First, the room is tested without any material to see how sound behaves on its own. Then, the material is added, and the test is repeated. By comparing the two results, we can tell how much sound is absorbed by the material.

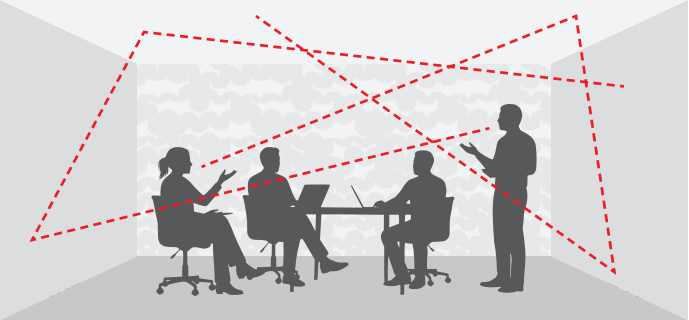
Acoustic Ratings

Results of ASTM C423 testing are expressed by two very similar calculations.

NRC (Noise Reduction Coefficient) averages how much sound is reduced across 4 different frequencies, from low rumbling to high pitched noise.

SAA (Sound Absorption Average) is slightly more precise, providing an average sound absorption across 12 different frequencies within a similar range.

NRC and SAA ratings both range from 0 to 1. A rating of 0 means the material reflects all sound (no absorption), while a rating of 1 means it absorbs all sound. For example, 0.5 means 50% of the sound is being absorbed.



Room Acoustics

Sound Frequencies, Low to High

Mounting Types for Testing

A product's end-use determines its mounting for the ASTM C423 test.

For Designtex wallcovering, the material is glued directly to the test surface, simulating an installation. For wallcovering, the NRC/SAA rating measures the acoustic absorption of the material on its own.

For Designtex drapery, the material is hung in front of the test surface, leaving a gap in between. For drapery, the NRC/SAA rating measures the combined absorption of the material and the air space behind it.

For Designtex panel fabrics, the material is placed on a fiberglass board to simulate a wrapped panel, and the full construction is tested. For panel fabrics, the NRC/SAA rating measures the combined absorption of the fabric and the board, not the fabric alone.

All Designtex acoustical products are considered to be acoustically absorbent, as they all contribute to absorbing sound energy in different ways.

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