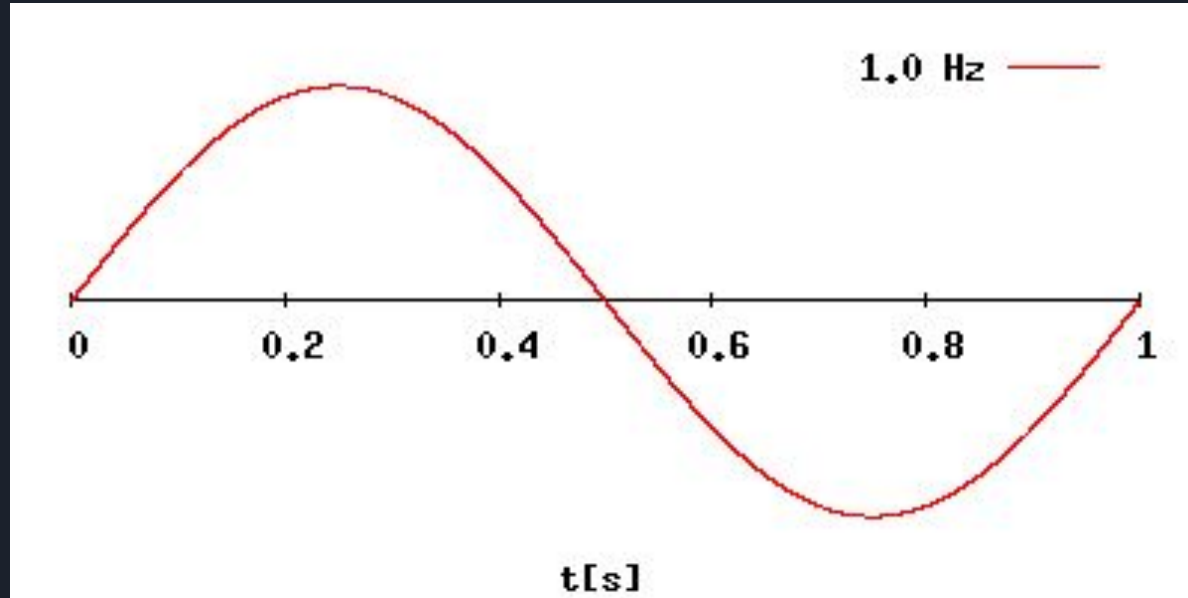




Soundproofing

Basic Acoustics and Soundproofing Techniques

HERTZ (Hz)



Hertz translate to **cycles per second**



FREQUENCIES

High Frequencies:

- Refers to frequency of sine wave. They have a **High Hz** value.

Low Frequencies:

- Have a **Low Hz** value.



STC (Sound Transmission Class)

To measure how effective materials are at soundproofing, a metric known as **Sound Transmission Class (STC)** is used. Hard materials like concrete will have higher STC's, while softer materials such as insulation will have lower ones.

Here's a general guideline of what the numbers mean:

- **20-30 is poor**
- **30-40 is average**
- **40-50 is good**



Bass Traps

Porous absorbers are the *first-line-of-defense* when tackling general problems with room acoustics.

They can be made from a variety of materials such as:

- **acoustic foam**
- **fiberglass**
- **rockwool**



But...

Yet despite their versatility, porous absorbers have one BIG flaw: They can't absorb the *lowest* bass frequencies unless...

1. **They're built super-thick, or...**
2. **They're spaced far off the wall**

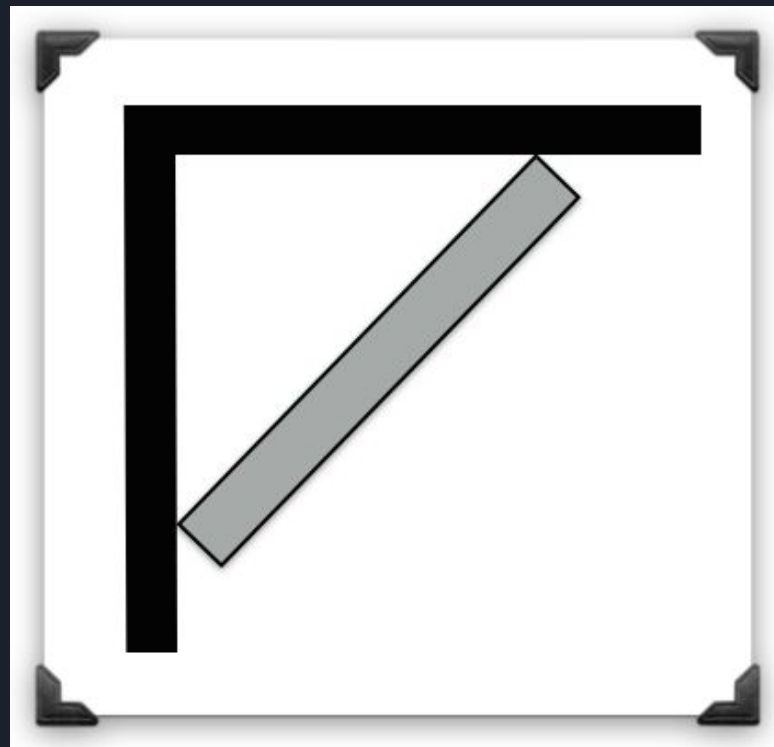
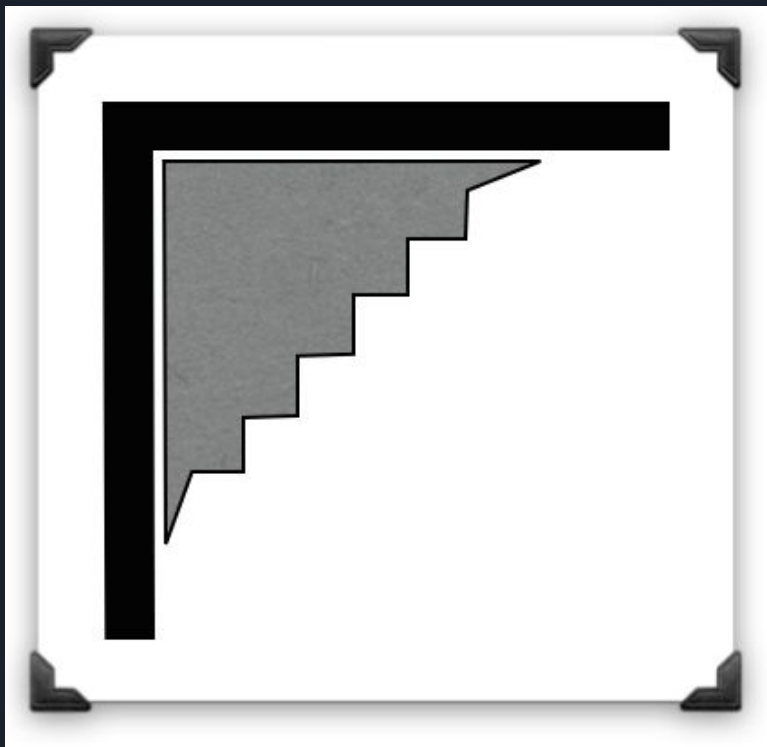


Explanation?

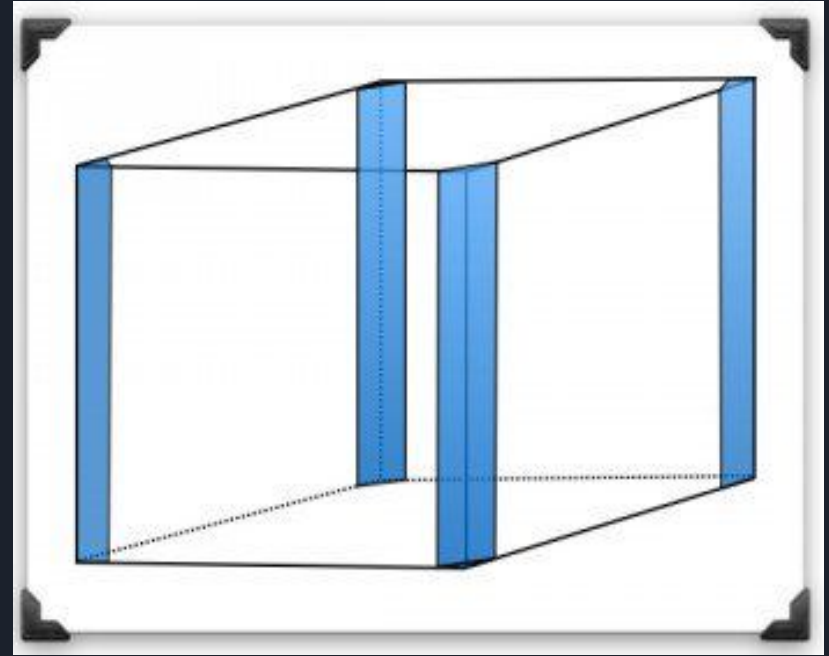
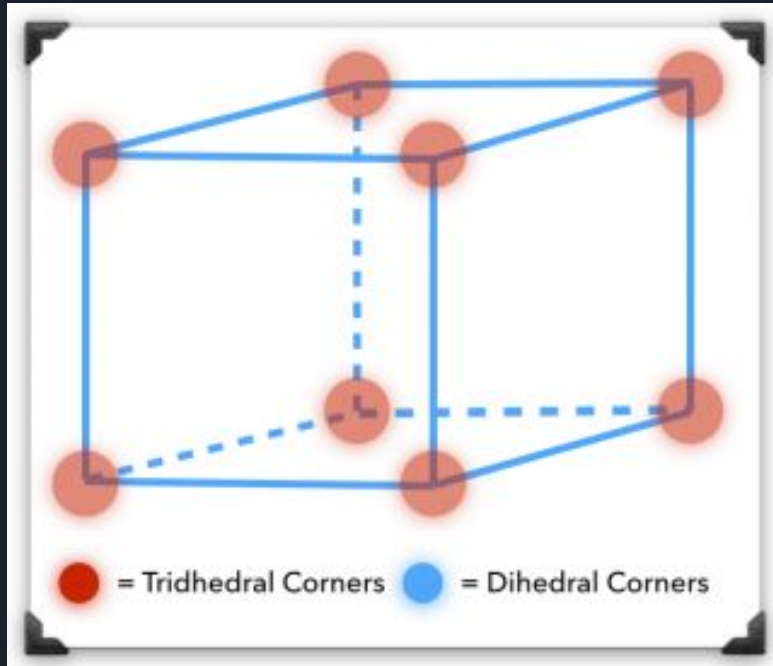
Porous absorption (*aka velocity-based absorption*) works most effectively where a sound wave is at **maximum velocity**, which in your room, is **1/4 wavelength from the wall**.

For example, a 100 Hz wave is 11.3 feet long, so its point of maximum velocity is 2.8 feet off the wall.

How do they work?



Mounting Them





Acoustic Panels

There are two ways of placing acoustic panels: you can either build your own or buy them. When buying these acoustic panels the four features one should look into are: thickness, surface pattern, dimensions/count, and NCR rating.