Sound Absorption

The clear indication of the topic lies within the name, Sound Absorption, meaning to absorb the sound waves with the help of any article and reduce the noise energy.

In the new era market there exist various materials which can be used for Sound Absorption, including Acoustic foams, Sound absorbing curtains, acoustic panels, acoustic partitions, rockwool insulation, fibreglass insulation, Denim insulation and some more.

Sound Absorption Vs Sound Proofing

People often confuse Sound Absorption with Sound proofing, but there exist some difference.

Reducing the echoes and noises within a space is sound absorption, whereas blocking sound from entering a space is Soundproofing.

If a person is wanting reduction in unncessary noises and is willing to go for sound absorption he can check NRC (Noise Reduction Coefficient) ratings, but for Sound Proofing, the materials are given STC (Sound Transmission Class).

Sound Absorption is provided through various options, which includes,

- Fabric Acoustic panel
- Acoustic Foam
- Echo Eliminator
- Sound absorbing curtains etc.

Sound Proofing also provides certains products to use, including,

- Resilient sound isolation clips
- Soundproof Sheetrock
- Green Glue Vibration dampening compound

Sound Absorption Materials

The Material Available for Sound Absorption are,

1. Fibreglass insulation

Fibreglass insulation comes under a type of Fibrous Insulation, where the insulation is composed of very fine fibers of glass and are available in rolls and loose fills. It is also available as rigid boards and duct insulation.

How does it work?

Fibreglass slows down the spread of sound in any structure and thus help in reduction of sound. It also helps in keeping a place hot or cold accordingly, as it limits the air coming into.

How to check which fibreglass is best to install?

R-value helps in determining the best fibreglass to install, which is basically the capacity of an insulating material's resistance to heat flow.

However R-value cannot be completely considered because of the change in climate region of the place.

How is Fibreglass Made?

Is it made of plastic reinforced by tiny glass fibers.

Fiberglass insulation is made from molten glass that is spun or blown into fibers.

Pros and Cons

Pros

• It is affordable.

• Can be used in DIY insultion

• Helps in keeping a space warmer or cooler according to climate.

Cons

• If inhaled, it can cause coughing, nose bleeding etc.

• Small glass particles can harmfully cause irritattion, rashes and cuts while making.

• High precautions are required during the making of Fibreglass and during insulation

• During Installation or removal, it can release particulars into air and cause issues.

2. Acoustic Curtains

Quite similar yet different to normal curtains, acoustic curtains are widely used in spaces which requires Sound free environment, for example in Studios, Dance Rooms, Theaters, Confrence Halls, Churches, Schools, Hospitals, Commercial spaces, Restaurants etc.

Acoustic Curtains not only helps in reducing the noise but also are great for control of UV rays & black outs.

What is it made of?

These acoustical curtains feature a core material of naturally fire-resistant wool fabric that is sandwiched between a decorative fabric and a blackout liner.

The material used to make Acoustic Curtains usually are,

• Velvet

• Polyester

• Suede etc

Pros and Cons

Pros

• Excellent sound absorption

• Control thermal energy

• Helps to reduce harmful UV rays

• Available according to needs.

• Easy Installation

• Light Blocking

Cons

• Cannot be used for Sound Blocking or Soundproofing.

• It can make the room too dark at times.

• Heavy and thick

Concluding, Acoustic Curtains are really a considerable choice for Sound absorption and improvement of rooms in less budget, but a big No for anyone looking for sound blocker.

3. Acoustic Panel

Acoustic panels also knowns as sound panels, acoustic boards, or acoustic baffles.

Acoustic Panel is a panel used to absorb and reduce sound waves and echoes in a space.

The application of Acoustic panles are based on certain factors, such as type of room, size of room, activity of the space, furniture which already exists therein, materials used in the given space.

These panels comes in both Vertical and Horizontal panel shape to be used in walls, ceilings, and floors and can be used according to need, for example in a smaller room wall mounted panels can be used, where as bigger and spacious rooms, horizontal ceiling can be used.

What is Acoustic Panel made of?

Most Panels are made of wooden frame filled with sound absorption material such as fibreglass, cellulose, wool, open cell foam Perforated wood or is wrapped in fabric.

<u>Pros and Cons</u>

Pros

• Provides Clear, and enjoyable sound by reducing unncessary noise and echo.

• Attractive designs and appearance

Cons

• Does not block Sound

• Little on expensive side

Types of Acoustic Panels Available in market,

- **Art Acoustic Panel**

Great in design and looks and without comprising any style one can even customize it according to the space.

- **Perforated Acoustic Wood Panel**

Amazing sound absorption in addition to privacy and sound quality this panels include dents to help absorb and centralize soundwaves and can be hung from ceilings to reduce noise levels and echoing.

- **Fabric strapped Acoustic Panel**

Available in many fabrics, size, color and designs this panel are perfect for style and productivity.

The panels can be mounted to a wall or ceiling with ease, helping in time-consuming installation process.

Types of Acoustic panels for Interior,

- Panels of Triangular pattern – Geta and Vero
- Angled Pattern (Fila & Haza)
- Striped Panels (Sapa & Kara)
- Modular Panels (Bisa & Toba)

4. Denim Insulation

Stands as the most unique type of sound absorption material, Denim insulation are a form of renewable insulation as these are made of combination of recycled jeans and post-industrial denim and cotton, not just denim alone.

Denim insulation can be used in floors, ceilings, walls and crawl spaces.

How is it made?

The denim is shredded and mixed in boric acid to make it flame resistant, and in addition insect, pest and mildew resistant.

How to check the quality?

R-Value is the criteria to check the properties of Denim insulation. It refers to thermal resistance, or the ability of a material to resist thermal conditions—cold or heat.

Material is classified as better with the increasing R-value.

Pros and Cons

Pros

• Easy to install

• A good way to recycle waste denims

• Environment friendly

• Easy to Handle

• Good for Respiration

Cons

• Comparatively expensive to other materials available for sound reduction

• Not available easily

• Harder to cut

5. Acoustic foam

6. Rockwool Insulation

Buyers Guide…

Choosing the right material for your space to reduce unnecessary sounds and create a peaceful environment can be confusing and tedious task, but today's market do provide a wide range of good sound absorbing materials to choose from.

To decide the right material, one need to consider certain *factors* before making a decision, which includes.

- **The need of Sound Absorbtion**

For what purpose the person is looking for the material, what is the activity to be performed at such area or what is the need of sound absorption in the space. For example for a recording room the best choices can be, Acoustic Foams, acoustic Panels or sound absorbing curtains. For a residential space, Denim Insulation, Fibreglass insulation could be a good choice.

- **Size of the Space**

Choosing the material can also depends upon the size of the room for which it is required to be purchased. For example for larger rooms, acoustic hanging baffles can be used to control echoe.

- **Type of Space**

For studios, acoustic foams turns great

For theaters Sound absorbing curtains is a good option.

Acoustic Fabric Panels comes to a rescue for home or studios.

Fibreglass insulation for recording rooms or studios.

- **Budget**

Budget plays an important role as sound absorbing materials comes in all ranges. If you are a little tight on budget, fibreglass insulation, acoustic foams, acoustic curtains can be considered. While Denim insulation, Rockwool insulation can be little on the expensive side.

- **Design and Interior**

Different designs, interior, themes can be a factor while choosing the type of material for a space alongside other factors.

Concluding, sound absorbing materials do have a while range and there exist various type of sound absorbing materials, but to choose amongst them according to your comfort and price is the deal.