Installation Manual

Sonitus Acoustics Standard
Home Cinema Acoustical Tuning System

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Introduction

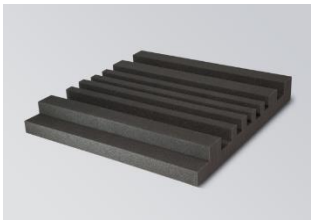
Every home cinema is affected by room acoustics. That's because more than 50% of what enters your ears is from sound waves that have bounced around the room surfaces after leaving your speakers! It stands to reason, then, that you should pay some serious attention to those room surfaces. Acoustics may seem like a complicated and confusing art form, but by following some simple rules, you can in fact get great results.

Allow the articulation, tonal balance and clarity of your sound system to be heard. Don't chance missing important elements within the soundtrack. The Sonitus Acoustics tuning system is a high value, easy-to-install solution for home cinemas and listening rooms. Based on scientifically designed building blocks including absorbers, diffusers, bass filters, and ceiling modules, Sonitus Acoustics provides optimum absorption and diffusion in a full-frequency solution.

Sonitus Acoustics Standard system is made of 3" (8cm) thick modules and is effective over a major part of the audible range of frequencies. It is optimized for cost and value. . It is available in six room sizes and can be installed with very effective results by observing the following simple instructions



Building Blocks



Quadsorber 8:

Construction: The 23.6” x 23.6” x3.25” (60cm x 60cm x 8cm) Quadsorber 8 is an absorber module made of high-performance sculptured polyester acoustical foam. Working from mid to high frequencies, Quadsorber can be applied on walls or/and ceiling

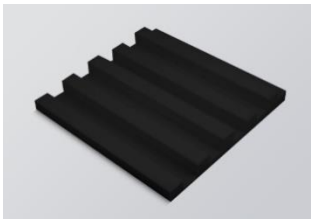
Benefits: Provides absorption down to 315 Hz



Decosorber:

Construction: The 23.6” x 23.6” x 3.2” (60cm x 60cm x 8cm) Decosorber is decoratively designed for mid-frequency absorption. It is made from highest quality polyester foam (USAP*), coated with a black velvet layer and covered with a 4mm poplar plywood plate which is available in different designs and colors and a semi-gloss finish.

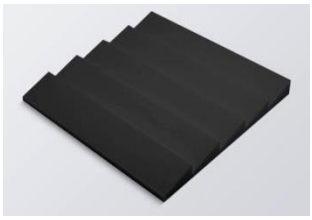
Benefits: Provides absorption from 180 Hz to 2500 Hz



Fourfuser:

Construction: A 23.6” x 23.6” x3.25” (60cm x 60cm x 8cm) 2D diffuser module made of Hard Expanded Polystyrene with acrylic paint finish.

Benefits: Provides hemisdisc diffusion down to 700 Hz by means of slotted diffraction channels.



Sharpfuser:

Construction: A 23.6” x 23.6” x3.25” (60cm x 60cm x 8cm) 2D diffuser module made of Hard Expanded Polystyrene with acrylic paint finish.

Benefits: Provides hemisdisc diffusion down to 700 Hz by means of wedge diffraction ridges.



Decotrap Bass Trap

Construction: 23.6 x 23.6 x 9.7” (42cm x 42cm x 60cm) membrane absorber for control of low frequencies. Made of USAP DT (Unique Sonitus Acoustic Polyester) foam with a sculptured wood face.

Benefits: Provides absorption down to 70 Hz.



Cloud Fiber Panel

Construction: A 23.6” x 47.3” x 2.4” (60cm x 120cm x 6cm) module consisting of a polyester foam core clad in wood framing and wrapped with fabric.

Benefits: Provides absorption down to 300 Hz (with 1” gap from ceiling).

Tools and Materials Required

- Screwdriver (Philips or standard depending on the type of fastener)
- 25 Foot (8m) Measuring Tape
- Pencil
- Masking Tape
- Bubble or Laser Level
- Mirror
- Screws or other appropriate fasteners for your wall surface (E-Z Ancor works well for sheetrock)
- Screw Hooks
- Construction Adhesive

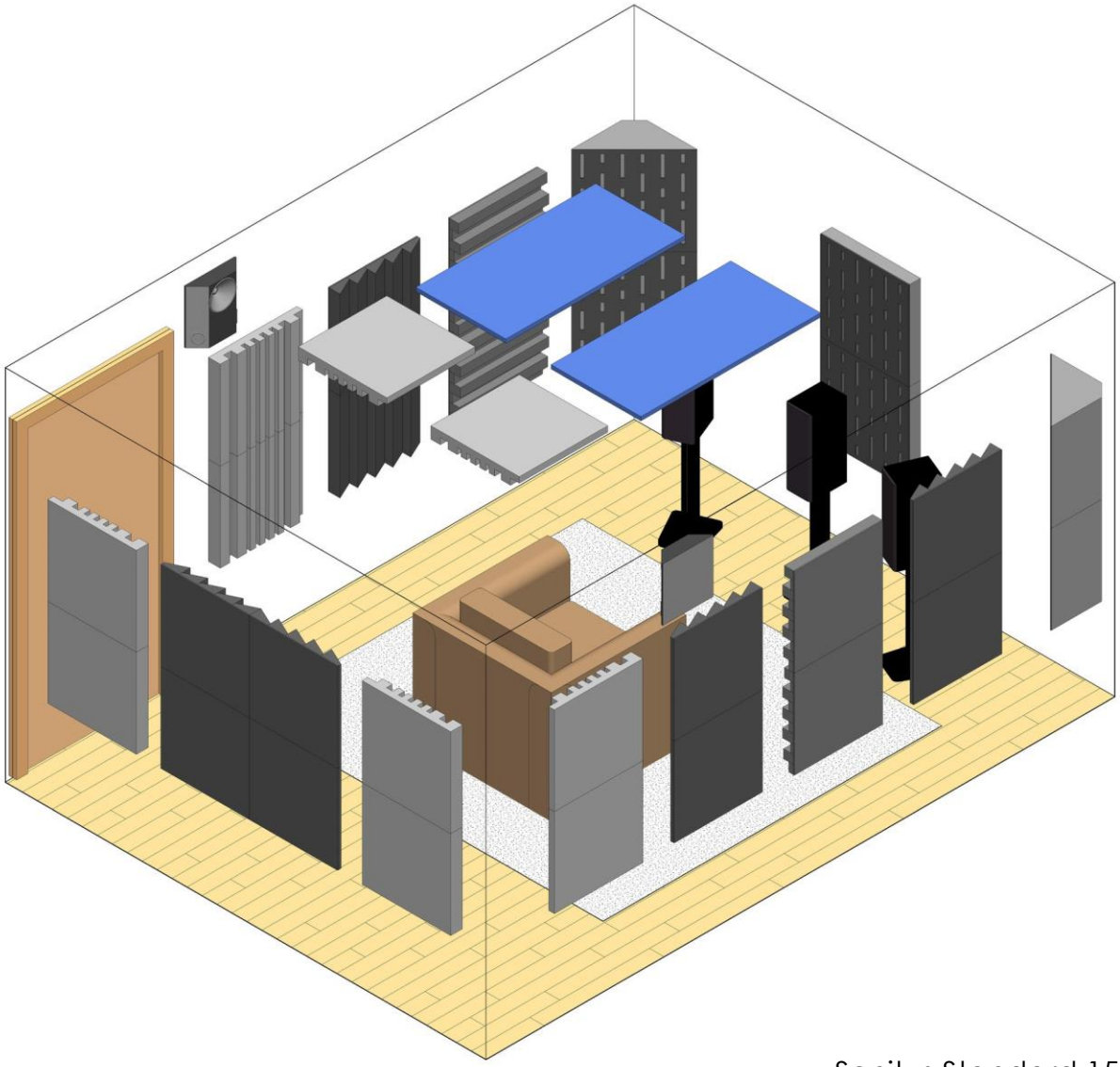
Module Placement

Sonitus Acoustics systems are suitable for a wide variety of room sizes. The bigger the room, the larger the number of treatment modules.

The following diagrams show sample room layouts for six ranges of room sizes. For best results, you will need to find the first reflection points between the speakers and the listening position (See instructions later in this manual.)

Room Size (ft^2)	(m^2)	Kit	Number of Modules
100-200	10-20	150 System	32
200-300	20-30	250 System	39
300-400	30-40	350 System	49
400-500	40-50	450 System	58
500-600	50-60	550 System	70
600-700	60-70	650 System	88

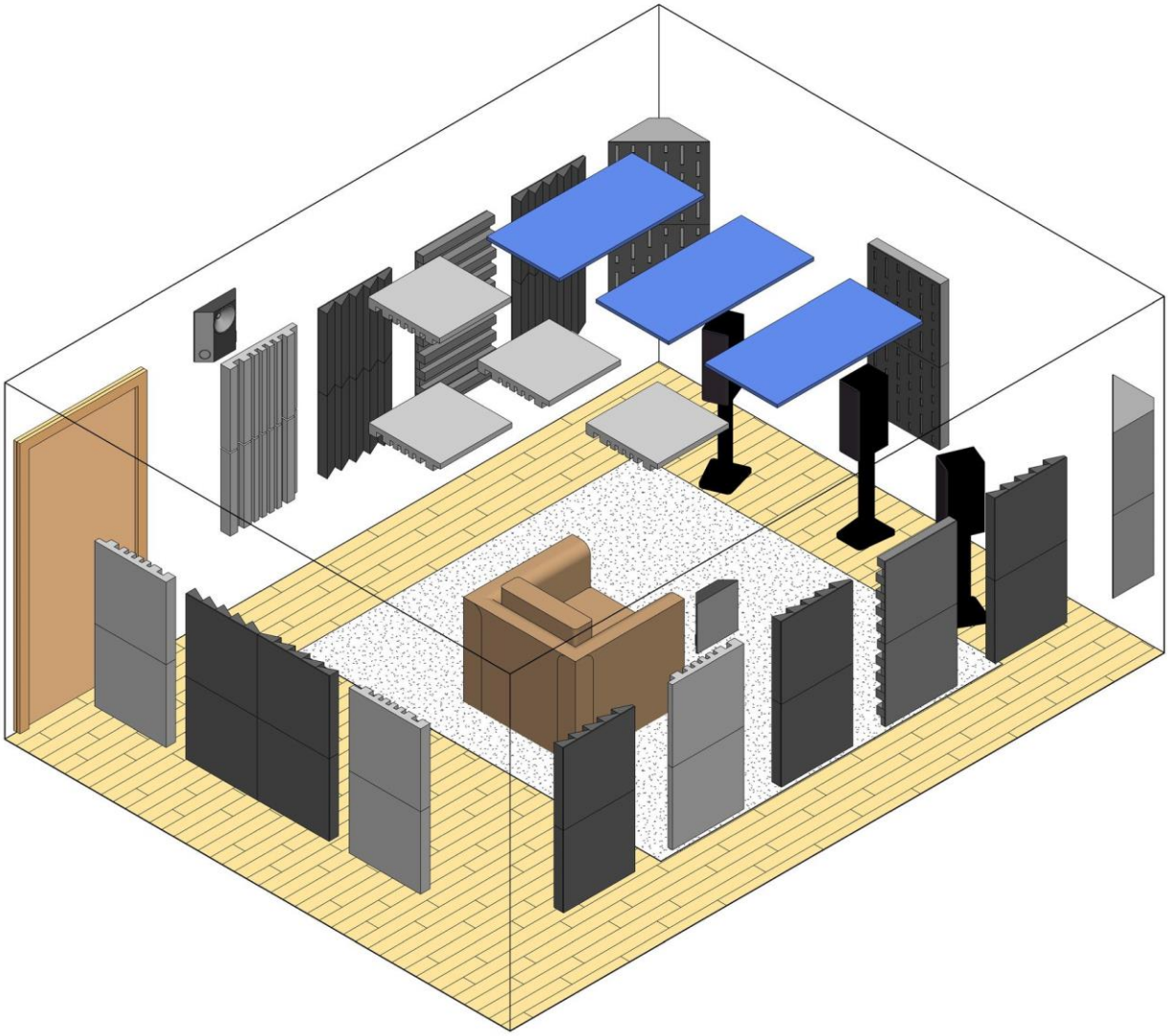
100-200 ft2 (10-20 m2) Room
Using Sonitus Standard 150



Sonitus Standard 150

10 Quadsorber8
4 Fourfuser
2 Decorsorber
10 Sharpfuser
4 Decotrap
2 Fiber Panel

200-300 ft2 (20-30 m2) Room
Using Sonitus Standard 250



Sonitus Standard 250

14 Quadsorber 8
4 Fourfuser
2 Decorsorber
12 Sharpfuser
4 Decotrap
3 Fiber Panel

300-400 ft2 (30-40 m2) Room
Using Sonitus Standard 350

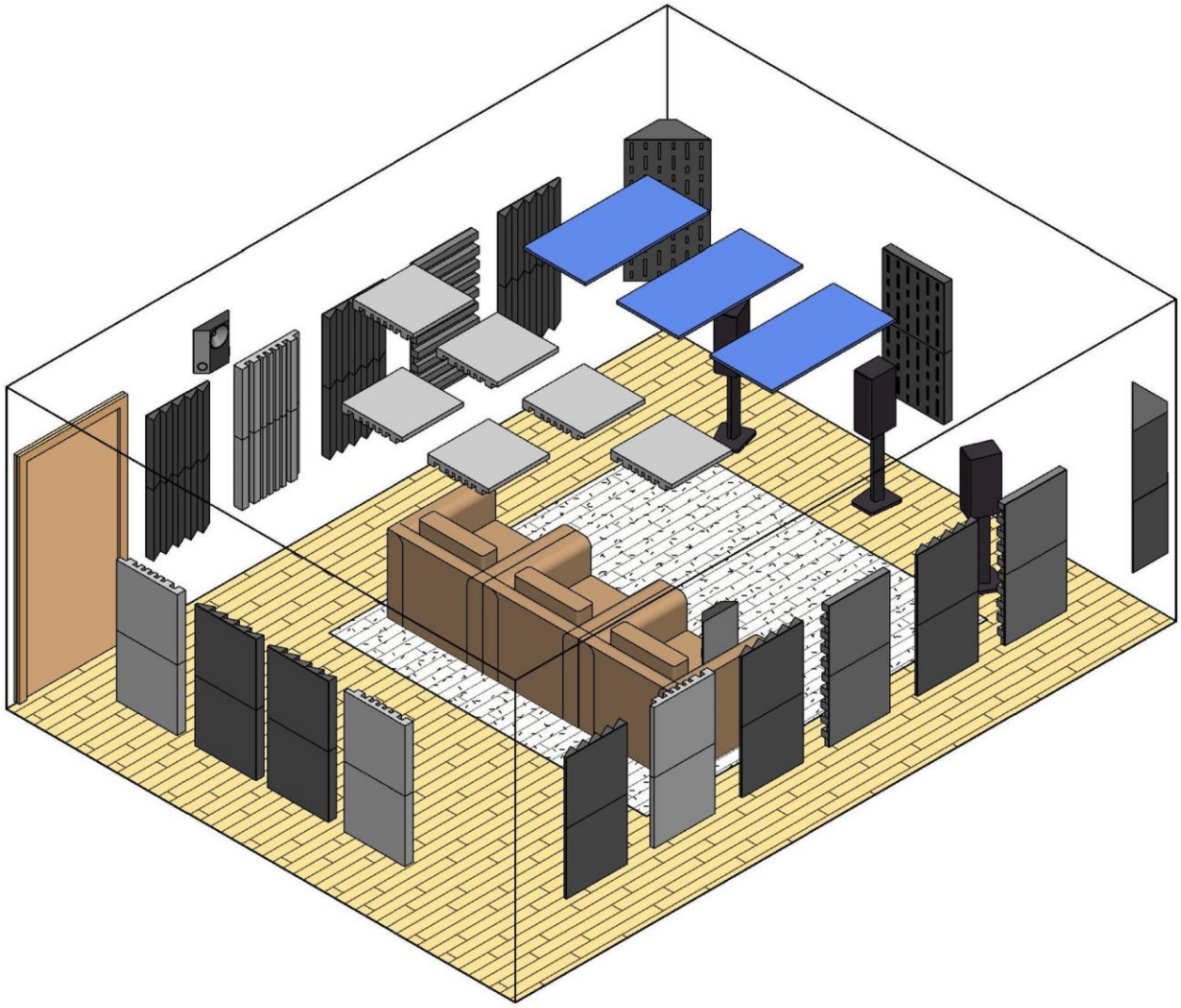


Fig 3

Sonitus Standard 350

16 Quadsorber 8
6 Fourfuser
2 Decorsorber
14 Sharpfuser
8 Decotrap
3 Fiber Panel

400-500 ft2 (40-50 m2) Room
Using Sonitus Standard 450

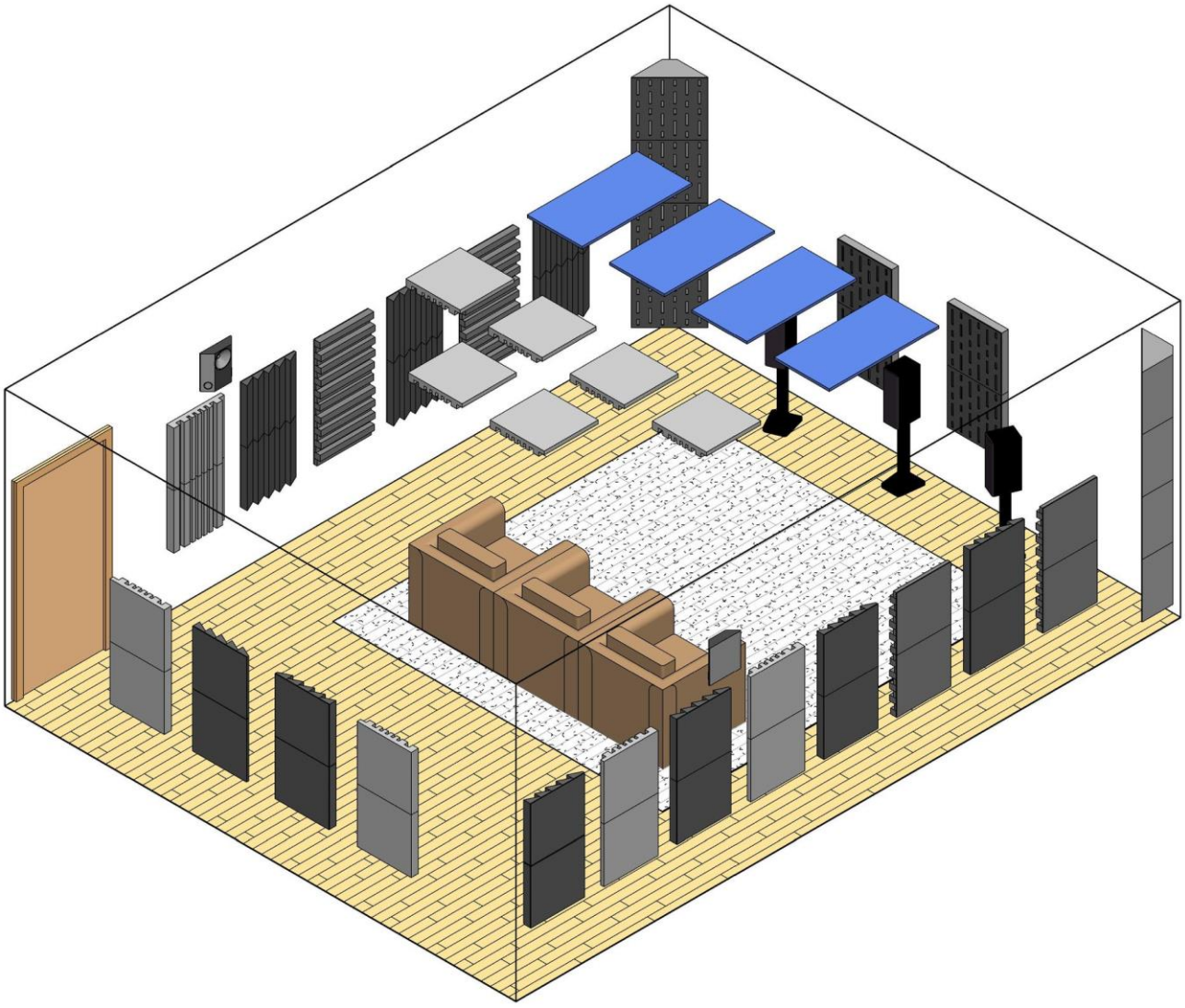


Fig 4

Sonitus Standard 450

18 Quadsorber 8
8 Fourfuser
4 Decorsorber
16 Sharpfuser
8 Decotrap
4 Fiber Panel

500-600 ft2 (50-60 m2) Room
Using Sonitus Standard 550

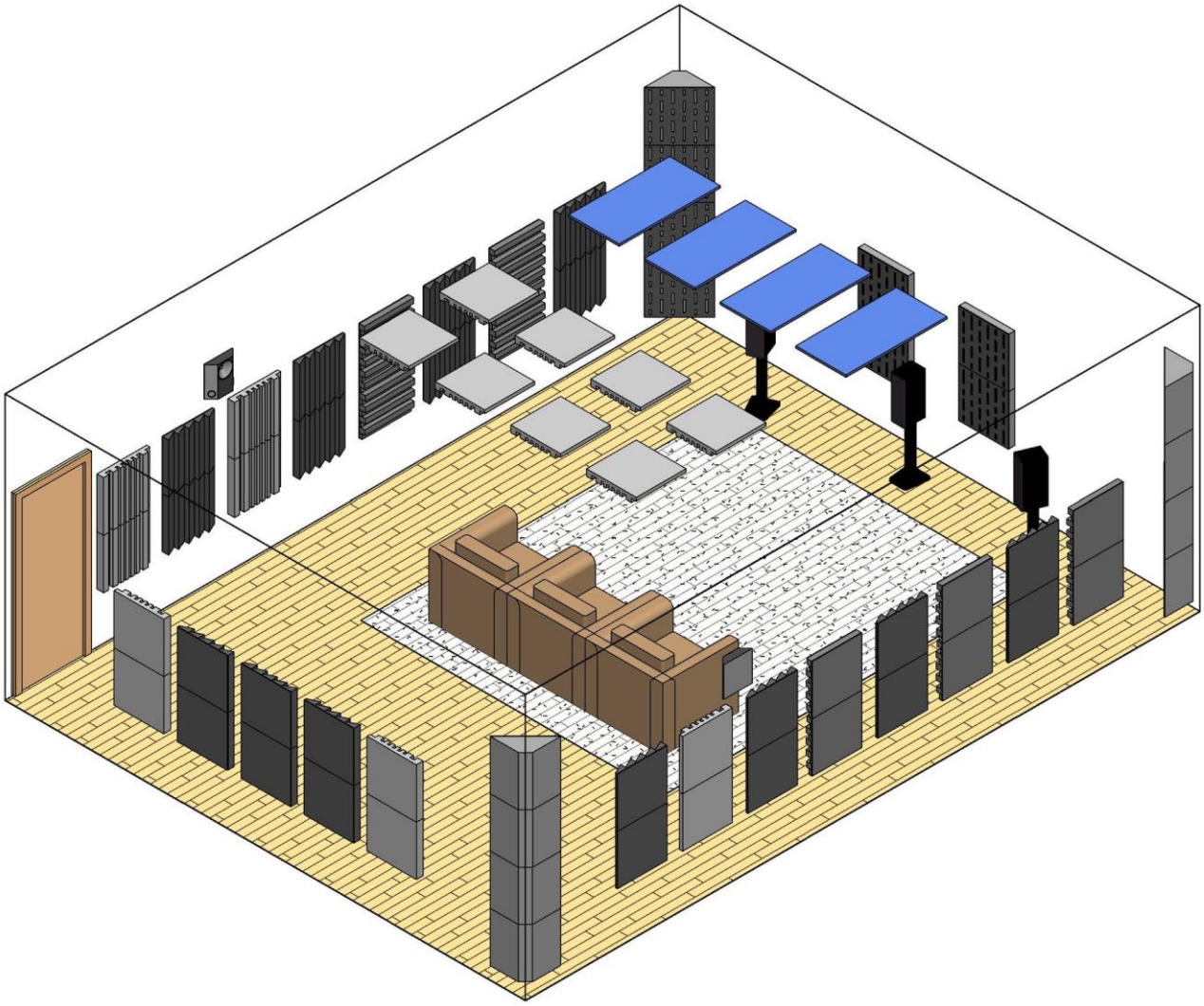


Fig 5

Sonitus Standard 550

22 Quadsorber 8
10 Fourfuser
4 Decorsorber
18 Sharpfuser
12 Decotrap
4 Fiber Panel

600-700 ft2 (10-20 m2) Room
Using Sonitus Standard 650

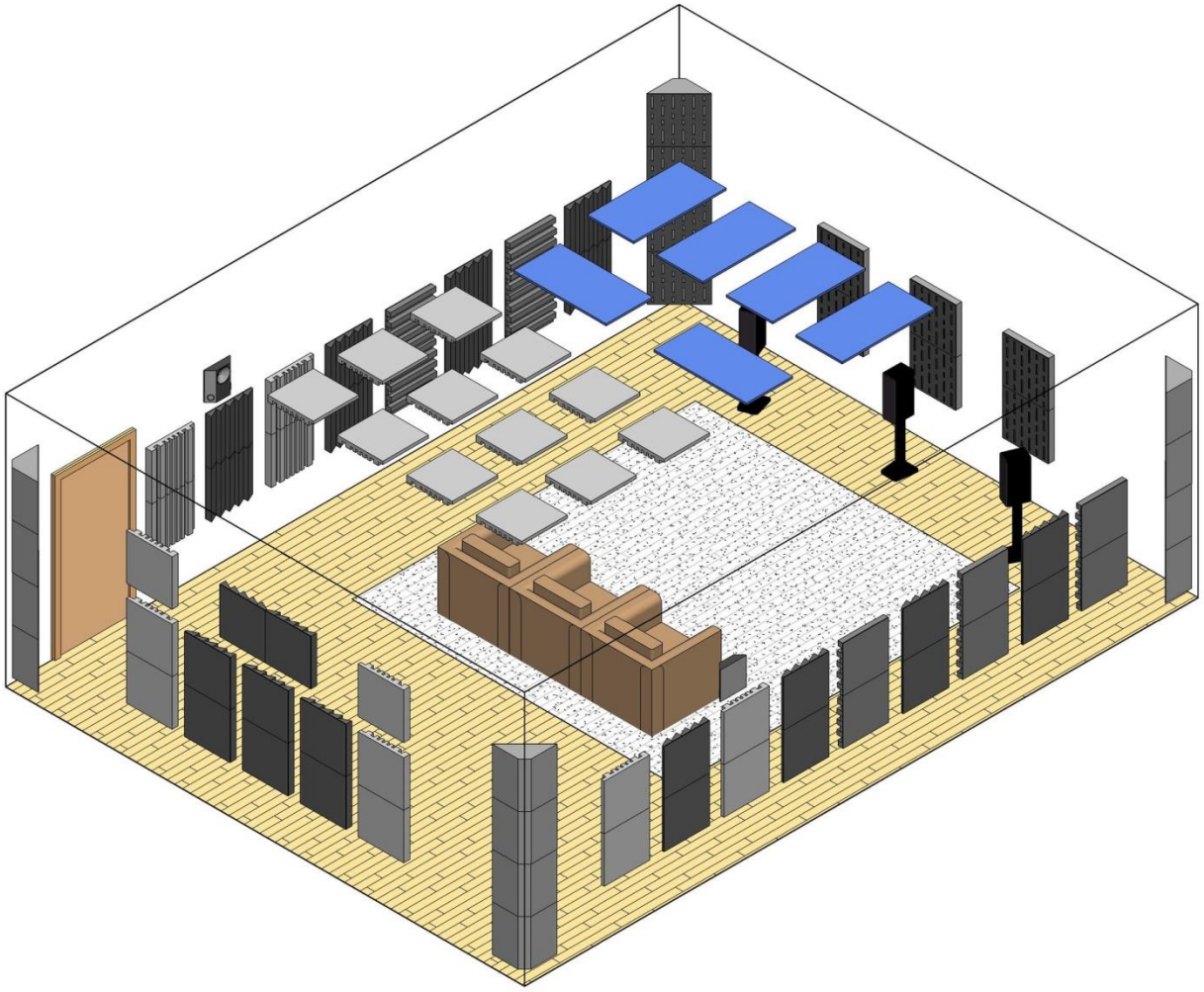


Fig 6

Sonitus Standard 650

24 Quadsorber 8
10 Fourfuser
6 Decorsorber
26 Sharpfuser
16 Decotrap
6 Fiber Panel

Placement Recommendations:

Position the Sonitus Modules based on the diagrams and instructions from the preceding pages, or as supplied by your acoustical consultant.

General rules for quantity and placement of modules are:

a. Apply absorption to about 15% of your wall and ceiling surface area. The absorption material should be at least 2" thick (5 cm) dense porous or fibrous material and should be spread out evenly throughout the room.

b. Apply scattering surfaces (diffusion) to another 15-20% of your wall and ceiling area. Diffusers should be at least 2" (preferably 4-6") deep and interleaved with the absorption. Use 2D diffusers (that scatter into a plane) towards the front of the room and 3D diffusers (that scatter into a hemisphere) towards the back and on the ceiling.

c. Include some form of bass absorption, usually placed in the front or back corners of the room. Bass traps should be made of dense fiber or foam material 18-24" deep. Models that have a semi-rigid front plate offer improved performance.

First Reflection Points

The treatment layouts shown in figures 1 through 6 give you great control over the acoustic reflections in your room. For best results, ensure that you have placed absorbers or diffusers at all the first reflection points on the side and back walls. You can find these by simply using a mirror as shown in fig 7. Sit at the listening position and have someone walk up and down the left wall holding the mirror flat against it. Mark an X at the point where you can see the left speaker in the mirror. Repeat for the right wall and back wall. Later on, you will be covering these *X*'s with absorbers or diffusers. Most of the Sonitus modules are to be stacked in pairs, and they should line up with the first reflection point as marked on the wall. It is in fact best to place these asymmetrically, where if you have an absorber on the left wall, you place a diffuser on the right wall, and vice-versa.

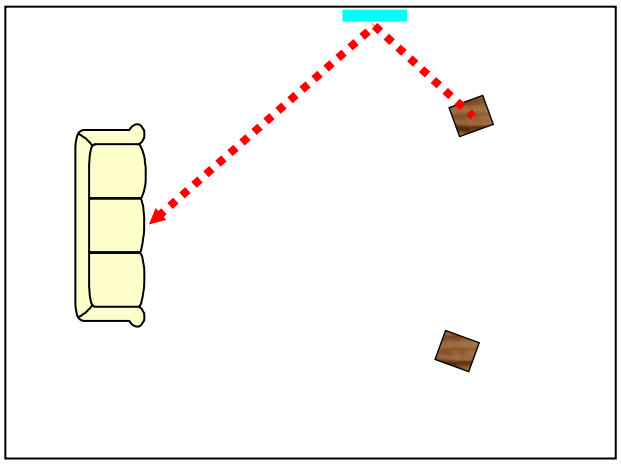


Fig 7 First Reflection Point.
You can see the speaker in the mirror.

Quadsorber 8

Quadsorber 8 modules absorb from 315Hz to 20kHz, and should be distributed evenly around the room, above 24" (60cm) from the floor, as shown in Figures 1 through 6. Stack Quadsorbers in pairs, so that the top edge of the pair is around 72 inches (183cm) from the floor. Cluster them together on the back wall of the room. As surprising at it may seem, asymmetrical placements result in a better soundstage and imaging accuracy because they yield a more randomized correlation of the sound reflections off the walls.

Fourfuser Modules

Fourfuser is a 2D scattering module that redistributes the oncoming sound wave vectors into a plane. Position Fourfusers on the side walls, interleaved with the absorber towards the front half of the room, as shown in Figures 1 through 6. Orient the Fourfuser slots and ridges vertically. Feel free to experiment with the Fourfuser placement by listening to the quality of the soundstage and tonal response.

Sharpfuser

The Sharpfuser is a 2D scaterring device that redistributes the oncoming sound wave vectors into a plane. Position Sharpfusers on the side walls, interleaved with the absorber towards the back half of the room, on outer parts of the back wall, and on the ceiling, as shown in Figures 1 through 6. Feel free to experiment with Sharpfuser placements by listening to the quality of the soundstage and tonal response.

Decosorber

The Decosorber is a mid to low frequency absorption device with an effective bandwidth between 180 and 2500 Hz. Decosorbers should be placed at the first reflection points of the front speakers off the front wall.

Decotrap

The Decotrap is a low frequency absorption device with an effective bandwidth from 70 Hz to 500Hz. It should be placed in the front or back corners of the room, angled between the front/side walls, near the floor. Position the Decotrap based on the diagrams and instructions from the preceding pages, or as supplied by your acoustical consultant.

Fiber Panel

The Fiber Panel is a flat-surfaced absorber that solves unwanted reflections from the ceiling. Research has shown that ceiling reflections are among the most detrimental to quality sound reproduction.

Hang Ceiling Panels at the first reflection points for the front speakers as shown in fig 8.

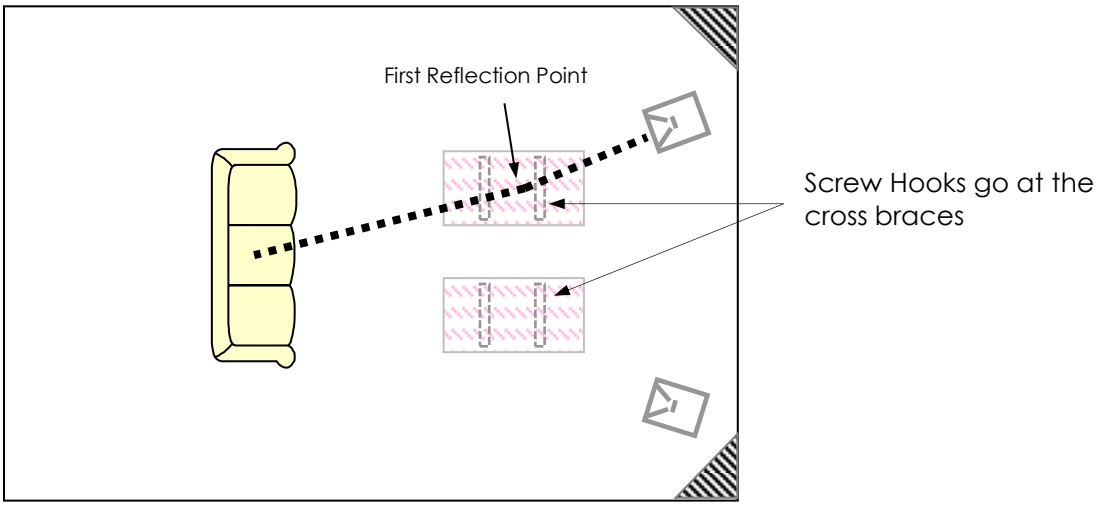


Fig 8 Ceiling First Reflection

Module Installation

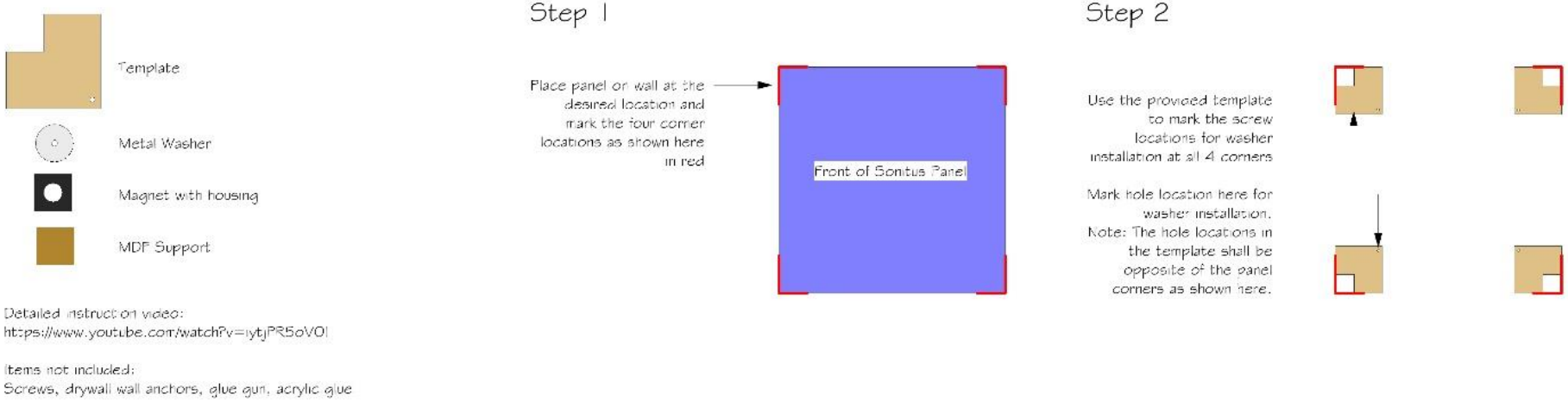
The modules in the Sonitus Standard system are installed in a variety of ways. Most of them can use the optional Sonitus Magnetic Mounting System for easier installation (see section below). If you chose not to use SMMS, you can fasten through the modules into the wall surfaces, and use large diameter "fender" washers to prevent damage to the modules. You can also apply to the walls using adhesives, and you will need to experiment in order to properly secure to the surface materials. Use a bubble or laser level to make sure the modules all hang straight.

Magnetic Mounting System®

The SMMS system allows you to mount panels that can be removed or re-positioned later fairly easy. One kit contains 24 magnets, 6 spacers, and 24 washers which is enough to mount 6 panels (4 magnets on each panel each). The washers are screwed to the walls, and you provide appropriate screws for your wall type. The magnets get hot-glued to the acoustical components. Do not use with the Solid Series (Bigfusor II Solid, 6-Strip, Decosorber Solid) or Fiber Panels - these all come with their own mounting systems. Installation steps of the MMS are shown in Figure 9 below. We recommend sanding the face of the magnet to a rough surface so as to ensure better friction against the wall-mounted washer. For more permanent installations, and to reduce the potential for rattles, you may choose to cover the area behind the Sonitus module with construction adhesive.



Fig 9
SMMS



Magnetic Mounting System Components
No Scale

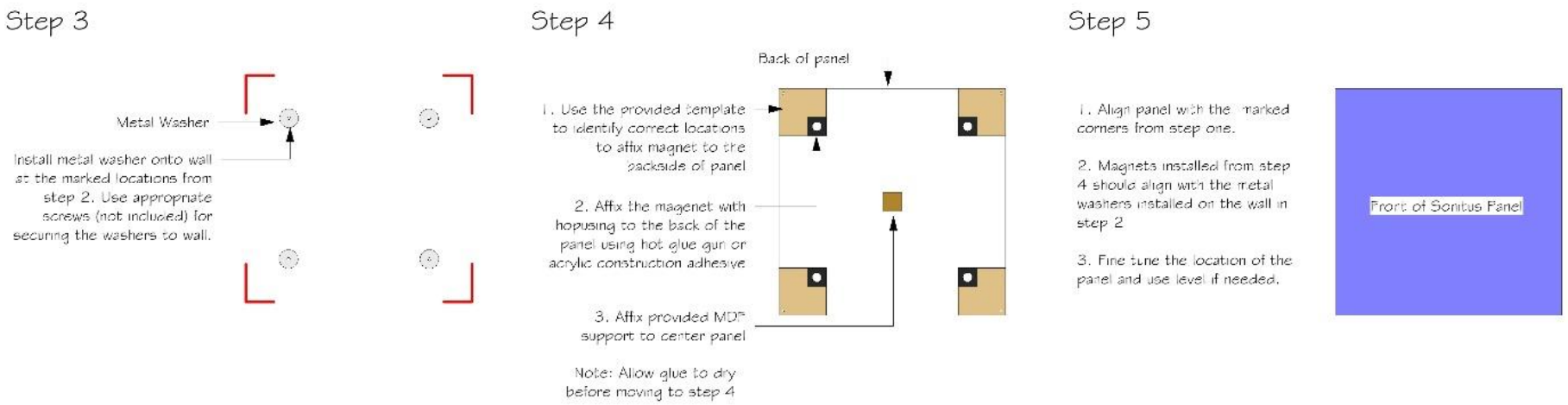


Fig 9 SMMS Installation Steps

Fiber Panels

Fiber panels can be used on walls or ceiling. In the Sonitus Standard system, Fiber Panels are used as ceiling "clouds." They are hung using eye hooks. You will need to supply a total of 4 screw hooks per panel (not included). Position the Fiber Panels based on the diagrams and instructions from the preceding pages, or as indicated by your acoustical consultant. Remember to find and mark the first reflection points as described earlier. The center of each panel should line up with one of the first reflection points as marked on the ceiling. They will require four little hooks and eye screws (available at your local hardware store). The eye screws are planted into the two cross-braces at 1/3 and 2/3 of the length of the panel. Install the screw-hooks into the ceiling using drywall anchors if needed. Figure 10 below shows the installation steps. This takes some precision in marking and placement, remember to measure twice, mount once!

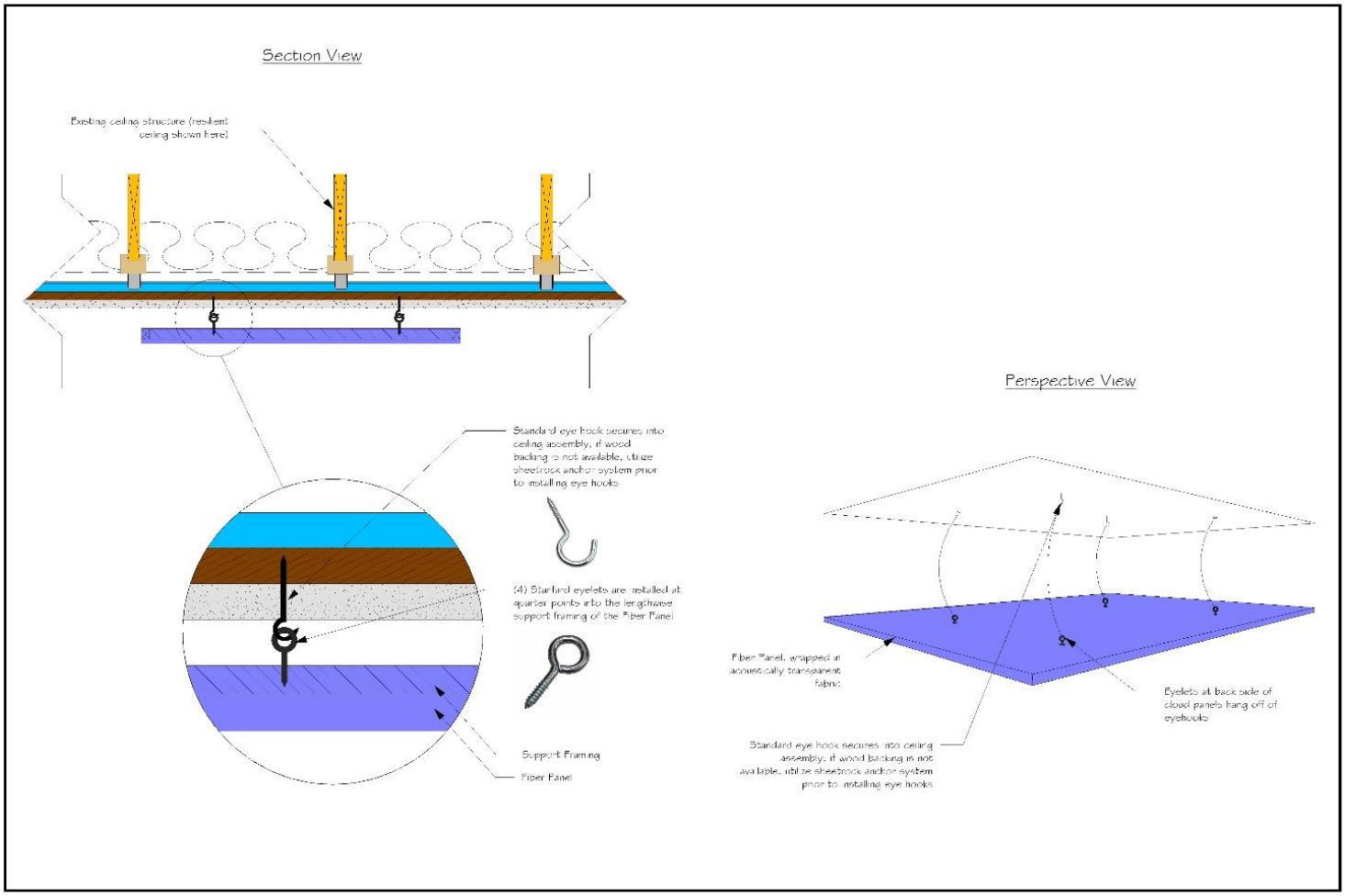
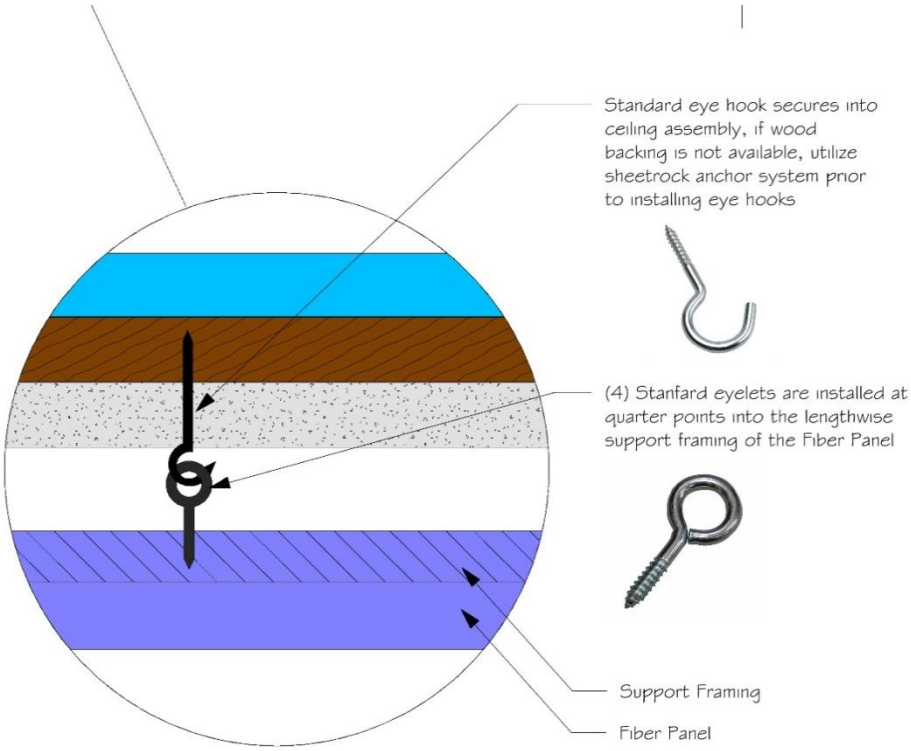
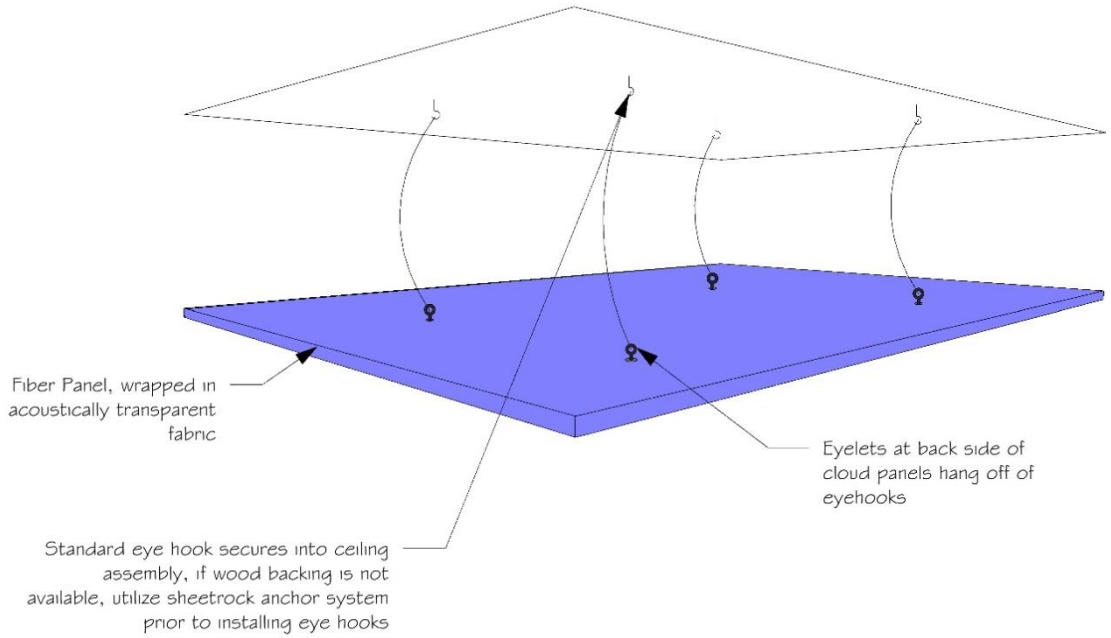


Fig 10: Fiber Panel Ceiling Installation

- 
Standard eye hook secures into ceiling assembly, if wood backing is not available, utilize sheetrock anchor system prior to installing eye hooks
(4) Stanfard eyelets are installed at quarter points into the lengthwise support framing of the Fiber Panel
Support Framing
Fiber Panel


Fiber Panel, wrapped in acoustically transparent fabric
Eyelets at back side of cloud panels hang off of eyehooks
Standard eye hook secures into ceiling assembly, if wood backing is not available, utilize sheetrock anchor system prior to installing eye hooks

Care Instructions

The fabric surfaces may be cleaned with mild, water-free solvents or water-based cleaning agents or foam. The wood surfaces may be cleaned with a lightly dampened cloth.

Spares

If any mounting hardware, module parts, or extra printed material are needed, please call MSR.

Warranty

All Sonitus modules are warranted to be free of manufacturing defects for a period of 12 months from the date of purchase.

Sonitus Components Shipping Weight & Dimensions Imperial Sizes

Components	Units	Weight (lbs)	Crate/Box Dimensions (in)		
	Per Box	Total	L	W	H
Quadsorber 8	8	14	24	24.5	18
Decosorber	6	20	25	25	20.5
Fourfuser	6	11	25	25	14
Sharpfuser	6	10	24	24	14.5
Decotrap	2	15	24	17	17
Cloud Fiber Panel	2	23	48	24	5

Sonitus Components Shipping Weight & Dimensions Metric Sizes

Components	Units	Weight (kg)	Crate/Box Dimensions (cm)		
	Per Box	Total	L	W	H
Quadsorber 8	8	6.3	60	61	45.7
Decosorber	6	9	63.5	63.5	52
Fourfuser	6	5	63.5	63.5	35.6
Sharpfuser	6	4.5	61	61	37
Decotrap	2	6.8	61	43.2	43.2
Cloud Fiber Panel	2	10.4	48	61	12.7

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200808 Sonitus Acoustics Standard Instruction Manual.docx. Issue date August 8, 2020