Installation Manual

Sonitus Acoustics Ultra
Home Cinema Acoustical Tuning System

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Introduction

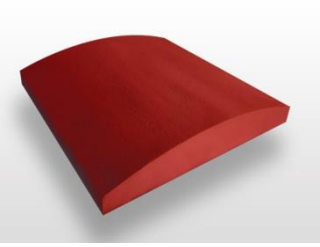
Every home cinema is affected by room acoustics. That's because more than 50% of what enters your ears is from sound waves that have bounced around the room surfaces after leaving your speakers! It stands to reason, then, that you should pay some serious attention to those room surfaces. Acoustics may 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.

The Sonitus Acoustics Ultra system is made of 5" (12cm) and 7" (18cm) modules, modules, is effective over a broad range of frequencies, and uses solid wood construction for improved aesthetics. It is available in six room sizes and can be installed with very effective results by observing the following simple instructions.



Building Blocks



Legato 12:

Construction: The 23.6” x 23.6” x4.7” (60cm x 60cm x 12cm)) Legato 12 is an absorber module made of high-performance polyester acoustical foam with a curved shape and cool velvet finish. It absorbs a broad range of frequencies so it will ensure a balanced reflection spectrum.

Benefits: Provides absorption down to 160 Hz



Decosorber:

Construction: The 23.6” x 23.6” x 3.15” (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.

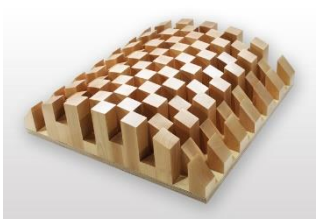
Benefits: Provides absorption from 180 Hz to 2500 Hz



6-Strip:

Construction: The 23.6” x 23.6”” x 2.75” (60cm x 60cm x 7cm) 6-Strip combines absorption of mid to high frequencies and 2D diffusion, all in one module! It features a solid oak wood frame and front slats. The insert layer is USAP Polyester foam covered with black velvet.

Benefits: Provides 250Hz to 3kHz absorption and hemispherical diffusion down to 1000 Hz by means of slat diffraction.



Bigfuser II Massive: for Ultra system

Construction: A 23.6” x 23.6” x6.25” (60cm x 60cm x 16cm) professional-grade, wideband solid wood 3D diffuser.

Benefits: Provides 3D hemispherical diffusion down to 300 Hz by means of diffraction scattering cells.



Decotrap Bass Trap

Construction: 23.6” x 23.6” x 9.7” (60cm x 60cm x 25cm) 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

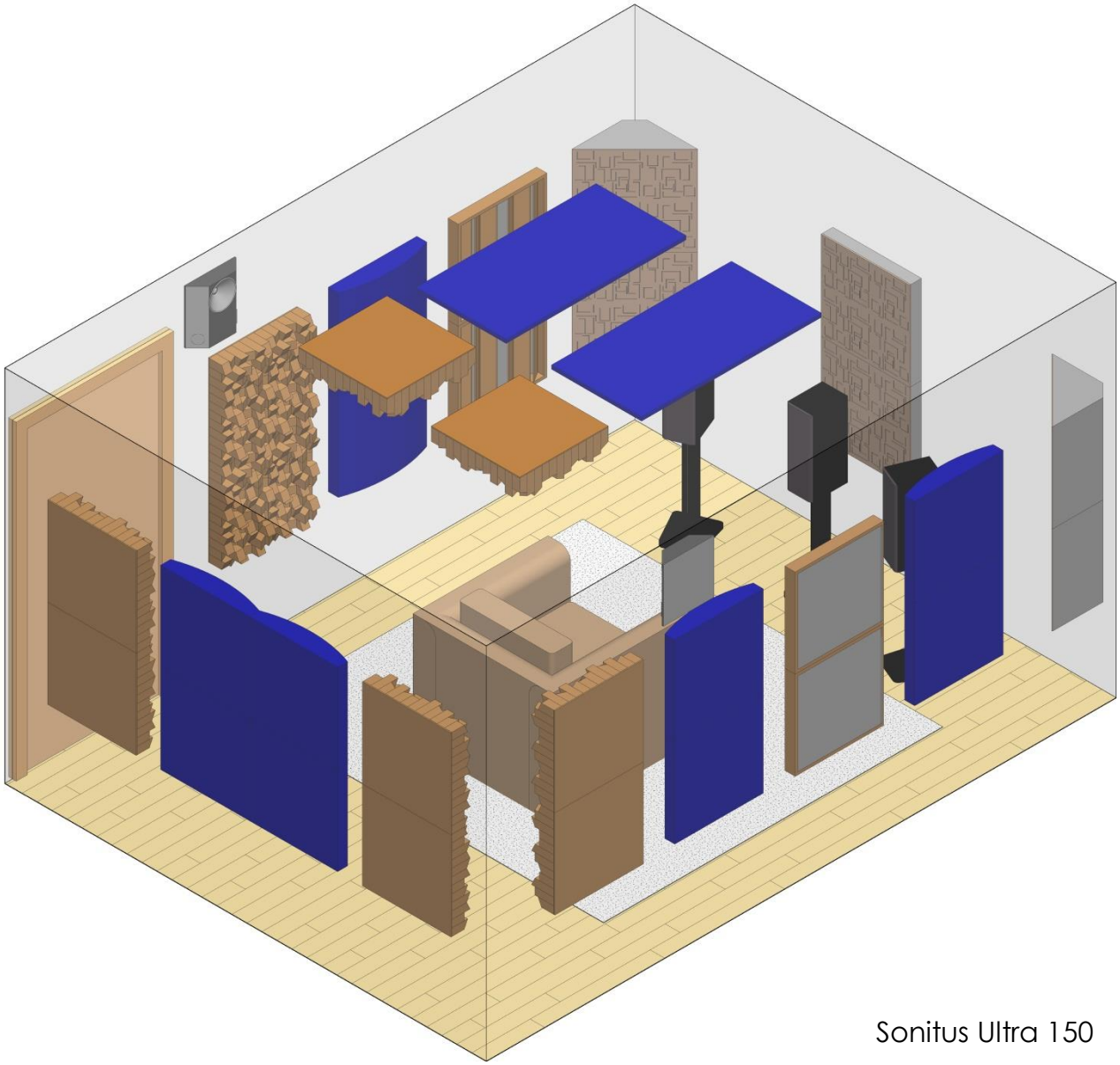
Module Placement

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

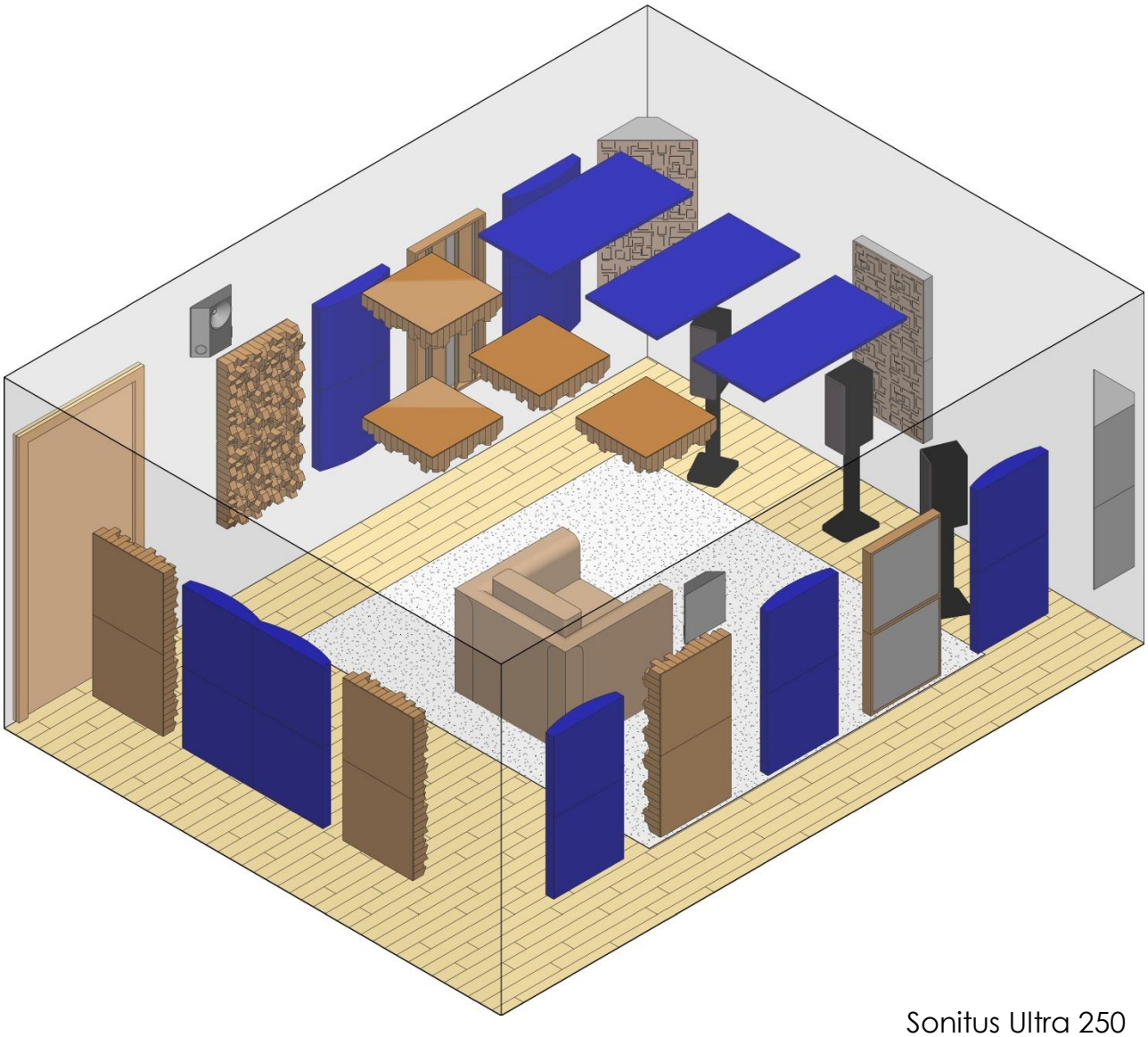
100-200 ft2 (10-20 m2) Room
Using Sonitus Ultra 150



Sonitus Ultra 150

10 Legato 12
4 6-Strip
2 Decosorber
10 Bigfuser Solid I
4 Decotrap
2 Fiber Panel

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



Sonitus Ultra 250

14 Legato 12
4 6-Strip
2 Decosorber
12 Bigfuser Solid
4 Decotrap
3 Fiber Panel

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

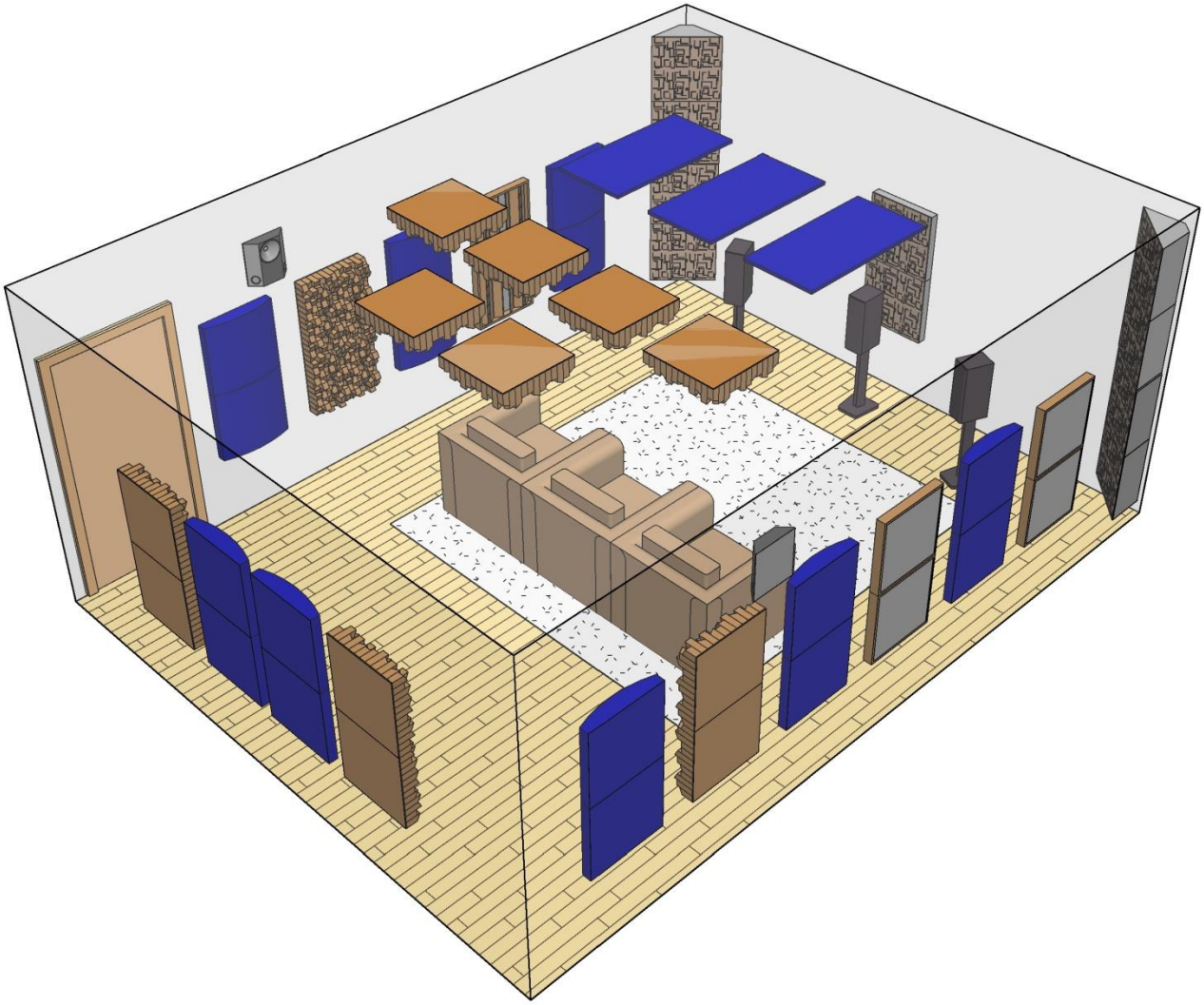


Fig 3

Sonitus Ultra 350

16 Legato 12
6 6-Strip
2 Decosorber
14 Bigfuser Solid
8 Decotrap
3 Fiber Panel

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

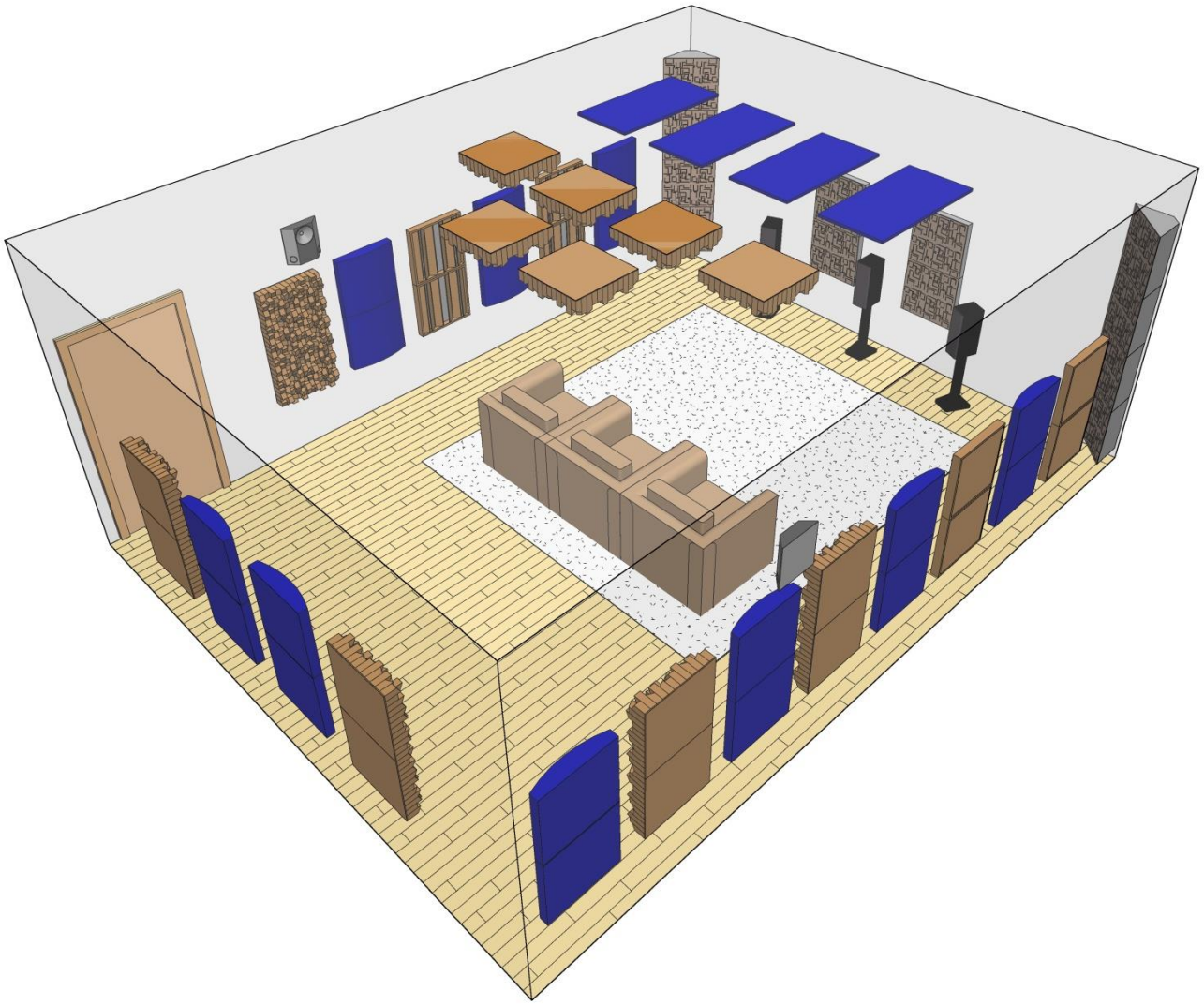


Fig 4

Sonitus Ultra 450

18 Legato 12
8 6-Strip
4 Decosorber
16 Bigfuser Solid
8 Decotrap
4 Fiber Panel

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

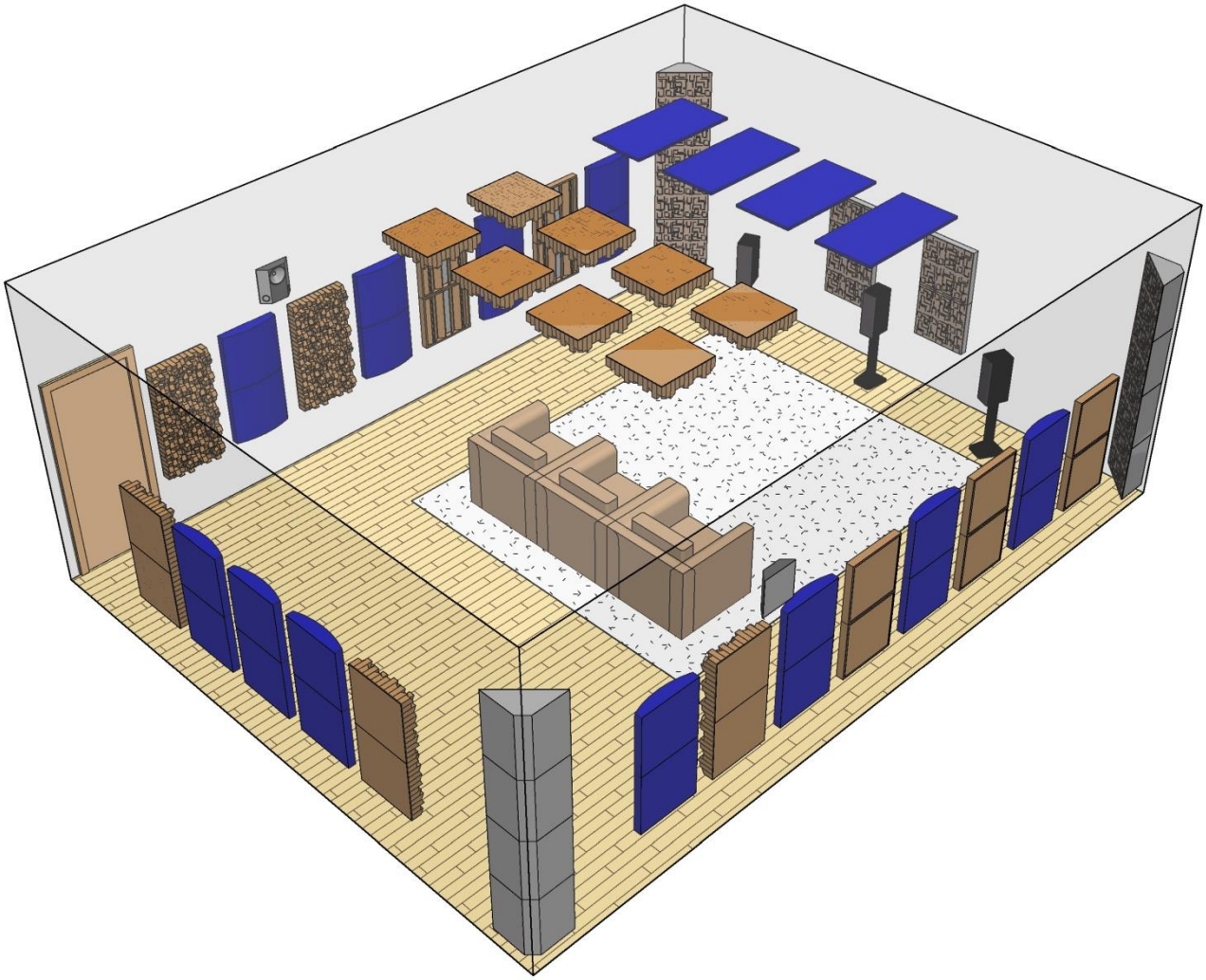


Fig 5

Sonitus Ultra 550

22 Legato 12
10 6-Strip
4 Decosorber
18 Bigfuser Solid
12 Decotrap
4 Fiber Panel

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

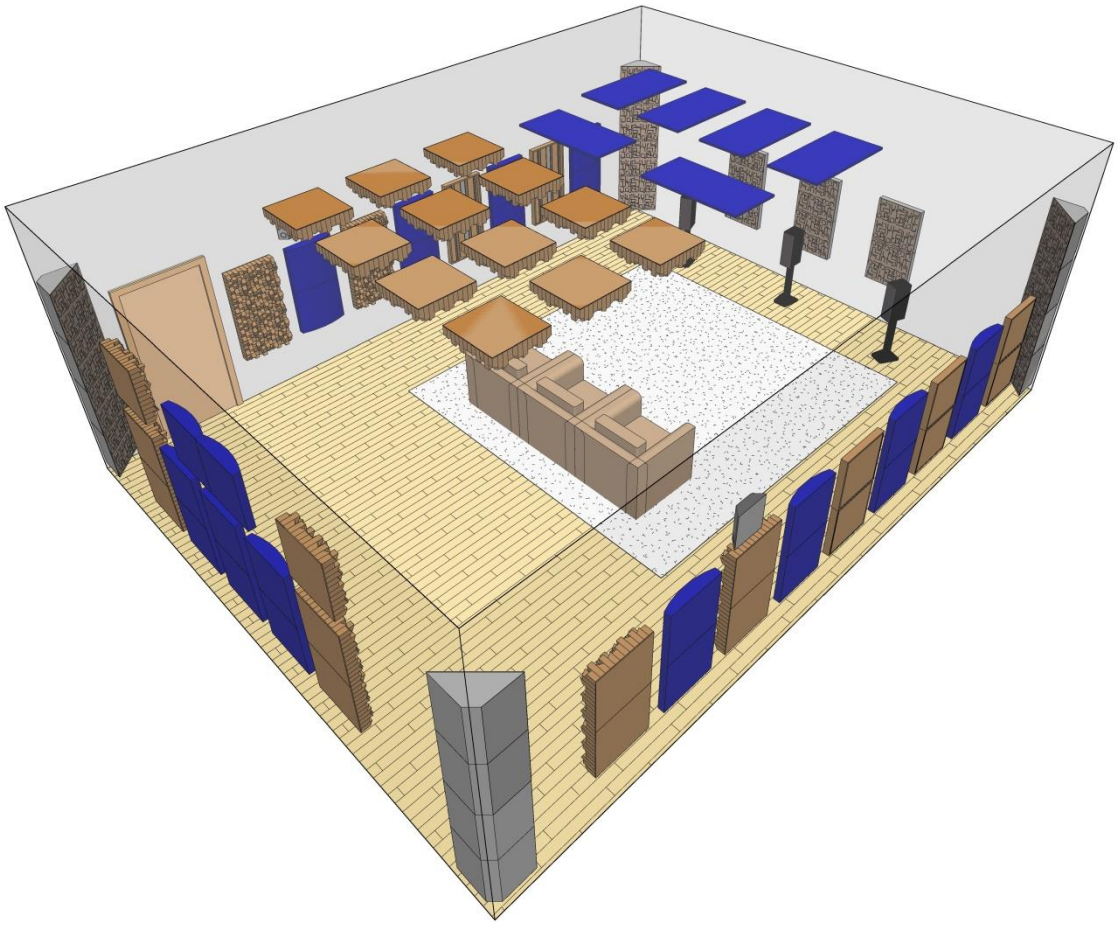


Fig 6

Sonitus Ultra 650

24 Legato 12
10 6-Strip
6 Decosorber
26 Bigfuser Solid
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.

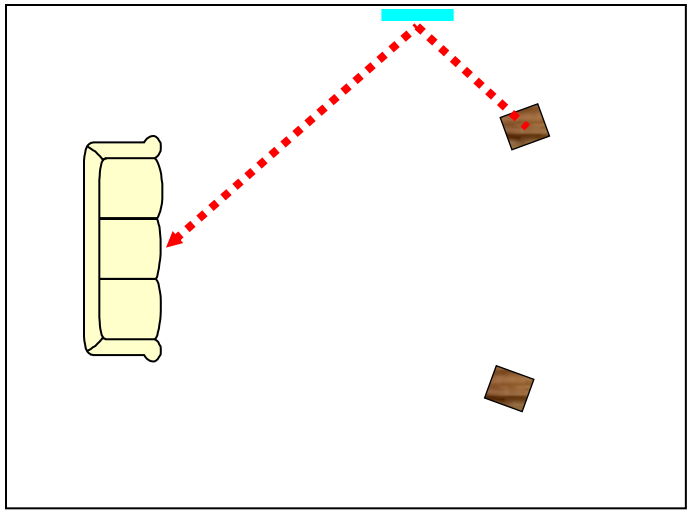


Fig 7 First Reflection Point.
You can see the speaker in the mirror.

Legato 12

Legato modules absorb from 160Hz to 20kHz, and should be distributed evenly around the room, above 24" (60cm) from the floor, as shown in Figures 1 through 6. Stack Legatos 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.

6-Strip Modules

6-Strip is a 2D scattering module that redistributes the oncoming sound wave vectors into a plane. It also provides some mid-frequency absorption. Position 6-Strip on the side walls, interleaved with the absorber towards the front half of the room, as shown in Figures 1 through 6. Orient the 6-Strip slats vertically. Feel free to experiment with the 6-Strip placement by listening to the quality of the soundstage and tonal response.

Bigfuser Solid

The Bigfuser is a 3D scattering device that redistributes the oncoming sound wave vectors into a hemisphere. Position Bigfusers 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 Bigfuser 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.

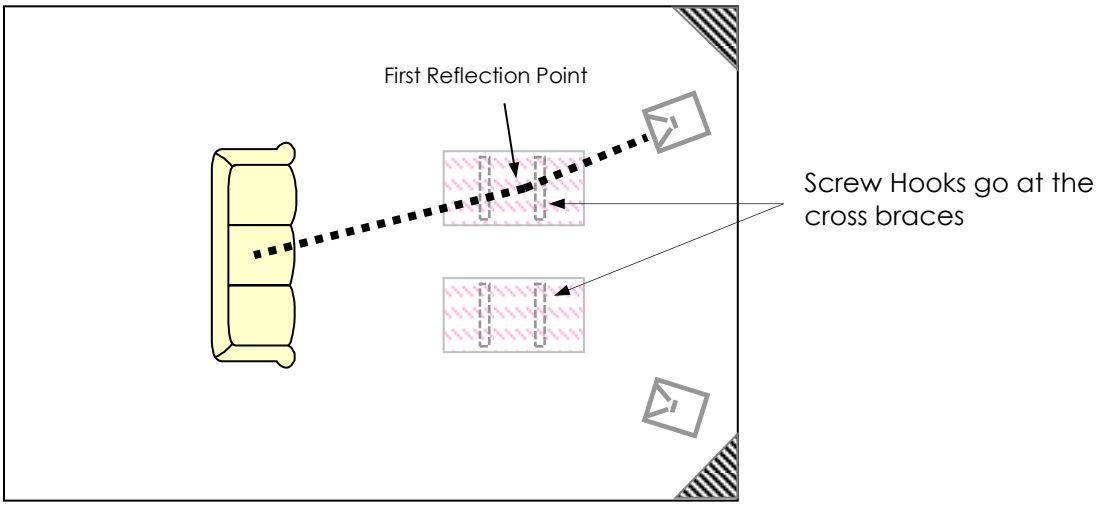


Fig 8 Ceiling First Reflection

Module Installation

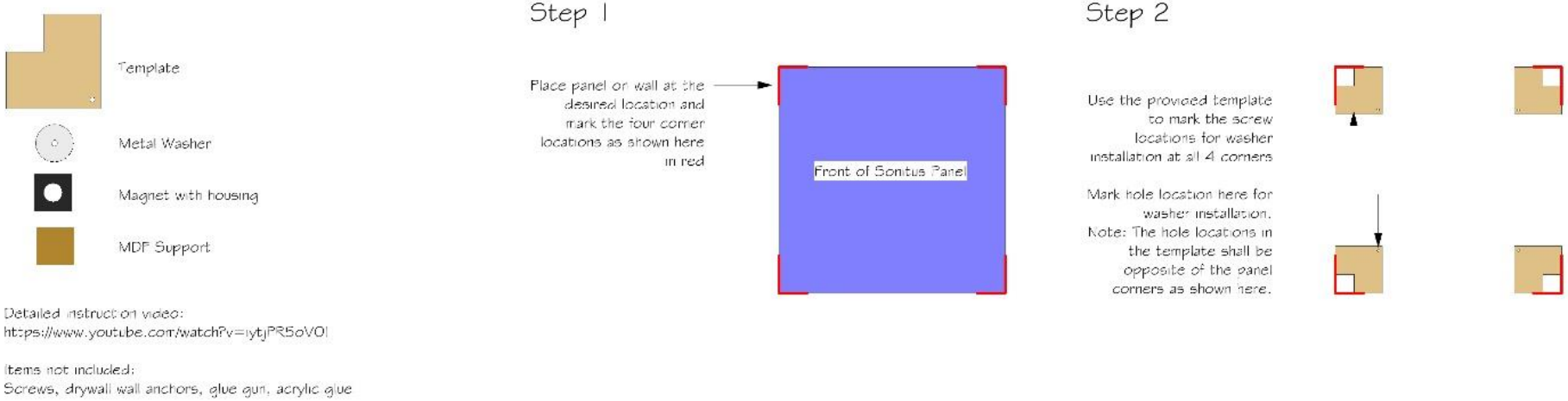
The modules in the Sonitus Ultra system are installed in a variety of ways. The Legato 12 and Decosorbers can use the optional Sonitus Magnetic Mounting System for easier installation (see section below). The heavier panels came with integrated mounting cleats and bars. If you chose not to use SMMS, 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

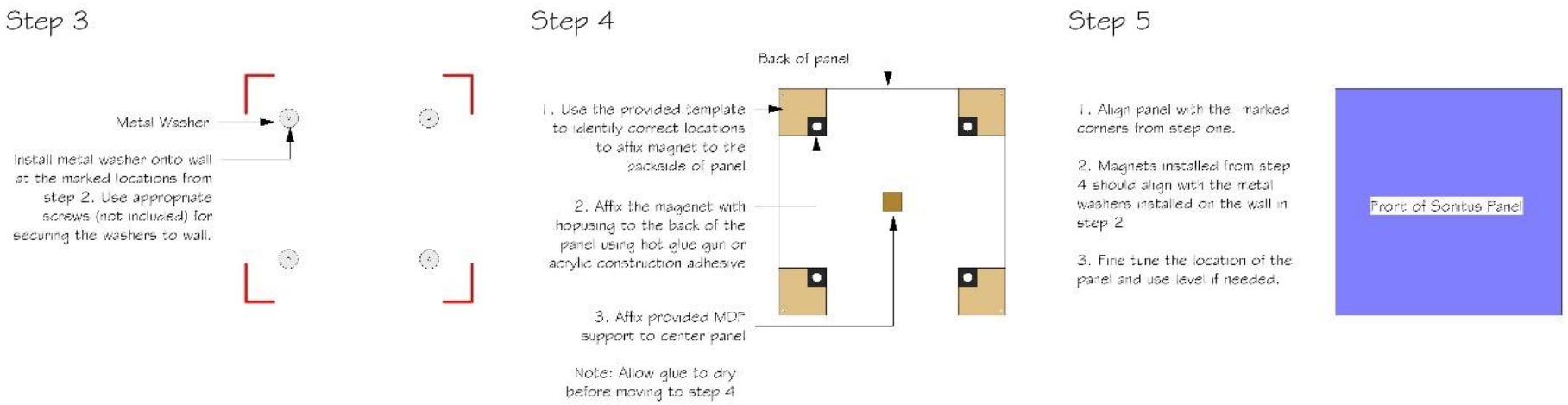


Fig 9 SMMS Installation Steps

Fiber Panels

Fiber panels can be used on walls or ceiling. In the Sonitus Premium 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!

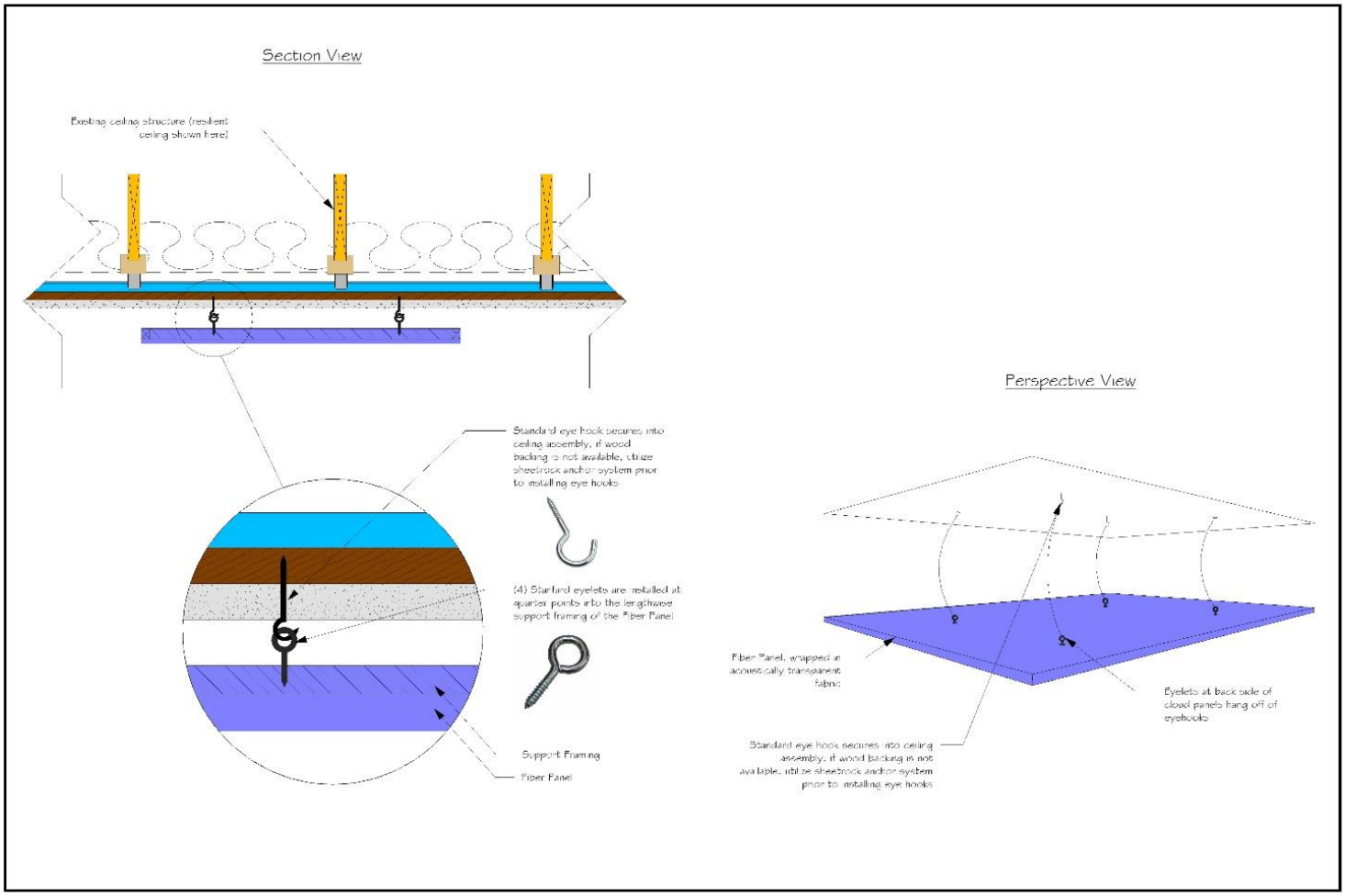
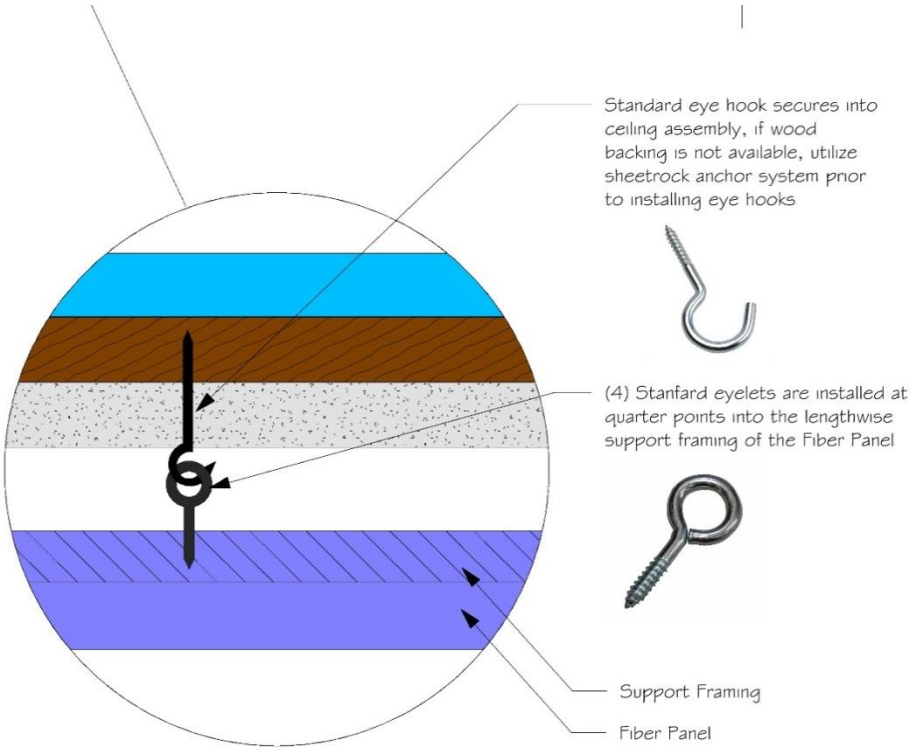
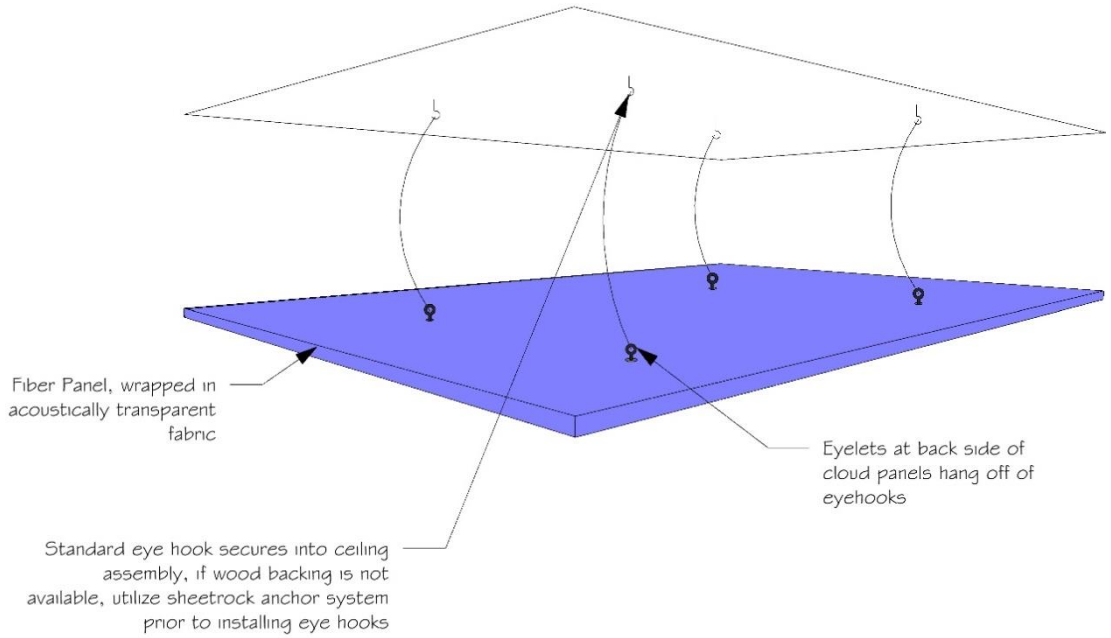


Fig 10: Fiber Panel Ceiling Installation

- 
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
Legato 12	4	15	25	25	21
Decosorber	6	20	25	25	20.5
6-Strip	2	29	25	25	7.5
Bigfuser II Massive	1	48	25	25	21
Decotrap	2	15	24	17	17
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
Legato 12	4	6.80	63.5	63.5	53
Decosorber	6	9.0	63.5	63.5	52
6-Strip Massive	2	13.15	63.5	63.5	19.0
Bigfuser II Solid	1	21.77	63.5	63.5	53
Decotrap	2	6.80	61	43.18	43.18
Fiber Panel	2	10.43	48	61	12.7

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