

## INSTALLATION MANUAL

# Acoustical Room Kit 10

The Acoustical Room Kit 10 is an package of easy to install acoustic panels that will effectively absorb a broad bandwidth of frequencies and look great for years to come. Because Acoustical Wall panels are also Class-1 fi re rated, they are ideally suited to provide effective acoustic control in applications as diverse as home-theater, practice rooms, houses of worship, offices, call centers and broadcast studios. Please take a few minutes to read through this install manual. It includes a list of parts as well as step by step mounting instructions. Please refer to [www.allnoisecontrol.com](http://www.allnoisecontrol.com) for various placement options, benefi ts, and general room acoustic information.

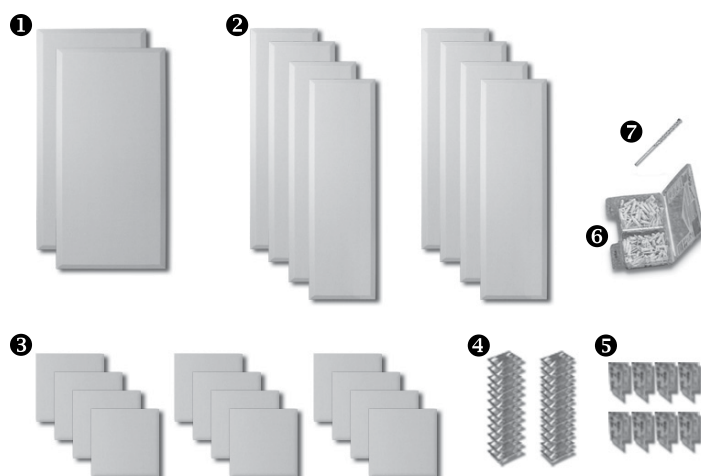


## BOX CONTENTS:

Before beginning assembly, please take a moment to familiarize yourself with the box contents.

Ref.# (Qty.) Description

- ❶ (2) 24" x 48" x 2" Acoustical Wall Broadband panels. Corner traps to reduce excessive bass and absorb primary reflections.
- ❷ (8) 12" x 48" x 2" Acoustical Wall Control Columns. Wall mounted to control primary refl ections.
- ❸ (12) 12" x 12" x 1" Acoustical Wall Scatter Blocks. Spaced to produce Soft Diffusion™ effect.
- ❹ (28) Surface impaler mounting clips.
- ❺ (8) Corner impaler mounting clips.
- ❻ (1) Package of 100 wall anchors and screws.
- ❼ (1) Drywall/masonry 1/4" drill bit.



## TOOL REQUIRED

- Bubble level
- Phillips #2 screw driver
- Power drill



## SPECIFICATIONS

SURFACE COVERAGE AREA

60 sq/ft (5.6 sq/m) total surface area of all panels

CORE MATERIAL

Formed, semi rigid inorganic glass fi bers; Density = 6.0 lbs. (2.72kg/m3) per cubic foot

FABRIC FACING

Acoustically transparent polyester; Color code: Black=00, Beige=03, Grey=08

## FIRE & BURN TESTING

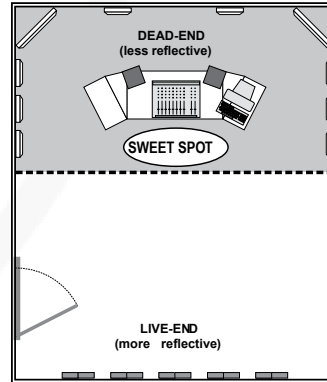
TEST	CLASS	FLAME SPREADS	MOKE DENSITY
ASTM E 84-05	1 OR A	15 FSI	155 SD
CAN/UL-S102	1 OR A	15 FSC1	155 SD

Test data provided by Bodycote Materials Testing Inc. This method, designated as ASTM E 84-05, "Standard Method of Test for Surface Burning Characteristics of Building Materials", is used to measure and describe the response of materials, products, or assemblies to heat and flame under controlled conditions, but does not by itself incorporate all factors required for fire-hazard or fire-risk assessment of the materials, products, or assemblies under actual fire condition. Broadway panels have been tested to meet the most stringent ASTM and CSA testing requirements for the USA and Canada. For international customers, please consult your local building authority for proper cross-compatibility specifications.

The Acoustical Wall Acoustical Room Kit 10 room kit contains a moderate amount acoustic material for recording studios with a footprint of approximately 120 to 150 square feet (11 - 14 square meters), or home theaters of 150 to 200 square feet (14-19 square meters). This is a good first step when tuning your room's acoustics as it will provide a base amount of broadband acoustic treatment for these room sizes. Overtly treated rooms with "dead" acoustics are avoided with the exception of voice over booths. However, depending on your personal preference and room layout, the amount of Acoustical Wall panels acoustic material could be increased for a less reflective, darker sounding room or decreased to create a livelier ambiance. During the treatment process we recommend you conduct listening tests with music you know well.

### RECORDING STUDIO LEDE LAYOUT

The Acoustical Room Kit 10, when installed as suggested, follows a variant of the live-end, dead-end concept referred to as LEDE. The intent of an LEDE layout is to help you to produce tonally balanced recordings that translate well on playback equipment outside your studio. The room is divided into "front" and "rear" sections and includes a well defined listening area or "sweet spot". The front half of the room (where the monitors are generally located) has the most amount of acoustic material applied in order to absorb primary reflections before they reflect into the mix position. This



allows the engineer to hear a high ratio of direct sound from the monitors with less interference from room reflections. The rear section of a LEDE designed room employs acoustic diffusers that break up the sound energy and reflect it back into the room in random directions to create diffuse room reverberation. The rear wall treatment provides a sense of space and ambiance while eliminating standing waves between the front and rear walls.

### 24" X 48" BROADBAND PANEL: FRONT LEFT AND RIGHT CORNERS.

The large Broadband panels are part of the "dead end" front wall that attenuates primary reflections from the rear and side walls. The two inch thick panels provide high and mid-range absorption eliminating flutter echo and standing waves. When mounted across 90° corners an air space is formed behind the panel that increases the absorption of low frequencies (bass trapping). Your room's dimensions will determine the low frequency response and cause specific low frequencies to resonate (room modes) more than others. The corner mounted Broadband panels are a good place to start for rooms with favorable dimensions for music reproduction. Depending on your room dimensions you may need to address other narrow-band low frequency resonances. See the Primacoustic web site or talk to your Primacoustic dealer to learn about Acoustical Wall products that can be employed to treat low frequency room resonance.

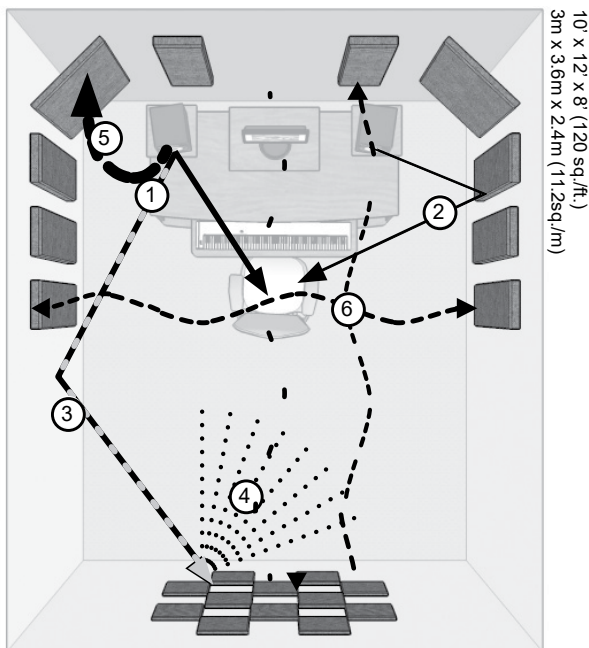
### 12" X 48" CONTROL COLUMNS: FRONT AND SIDE WALLS

The Control Columns also form part of the dead end and are intended to absorb the primary reflections that bounce off the side walls and into the sweet spot. Left untreated, these reflections can equal the amplitude of the direct sound from the monitors and cause degrading comb filtering phase effects. Placing Control Columns on the front wall and on the sides between the sweet spot and the monitors allow you to hear a truer sound from your monitors and also eliminates flutter echoes that bounce back and forth across the mix position. Typically, Control Columns are spaced on the side walls with a 6" to 12" gap between Columns. Distribute the Columns

evenly across the sides and front walls.

## 12" X 12" SCATTER BLOCKS: REAR WALL SOFT DIFFUSION™

The LEDE concept calls for acoustic diffusion in the rear section of the room. These devices work by breaking up and reflecting sound waves back into the room in a diffused field. The problem is that for diffusers to work; they must have sufficient mass making them large and heavy. Acoustical Wall Scatter Blocks present an affordable alternative to full scale diffusion. By arranging Scatter Blocks in patterns with reflective spaces in between you create an checkerboard effect we call Soft Diffusion™. This provides for some of the acoustic energy to be absorbed while a portion is allowed to reflect back into the room. This helps control flutter echo and reduces standing waves while leaving a sense of 'air' or natural ambience in the room. Because Scatter Blocks are individually mounted they easily accommodate furnishings like bookcases or sofas.



- 1 Direct sound waves from monitors. Direct sound waves arrive at the sweet spot without reflecting off of room surfaces.
- 2 Primary reflections. Off-axis sound waves from the monitors reflect off the side walls and into the sweet spot. These reflections combine with the direct sound and cause phase cancellations. Control Columns reduce the amplitude of side primary reflections.
- 3 Secondary reflections bounce off of two or more room surfaces and eventually fall-off into room

reverb. If left untreated they can create chatter echo where several distinct repeats are heard instead of a smooth reverb tail.

- 4 Soft Diffusion helps break up reflections returning from the rear wall controlling standing waves while maintaining a natural room ambience.
- 5 Low frequency energy wraps around objects and is guided into the corners by the room boundaries. The corner mounted Broadband panels absorb bass in the corners and deaden the front wall to control primary reflections and standing waves between the front and back walls.
- 6 Flutter echoes bounce back and forth between parallel walls across the sweet spot. Control Columns on the sides and front walls eliminate flutter echoes and control standing waves that set up across the sweet spot.

## HOME THEATER LAYOUT

While a recording engineer wants the room to play less of a role in the reproduced sound, a home theater enthusiast is inclined to allow the room to influence the soundstage through more reflective surfaces. The increased reflections make for a livelier room sound which translates to a more exciting and realistic experience. The key to home theater layout is spreading the acoustic material out to create a somewhat even balance of reflective and absorbing surfaces throughout the room while keeping an eye out for the most problematic reflections like off-axis primary reflections from the side walls, flutter echo and standing waves.

## 24" X 48" BROADBAND PANEL: ROOM CORNERS

The large Broadband panels can be located in either the front or rear corners with the same expected performance of controlling standing waves, absorbing high/mid-range frequencies and trapping bass in the corners. Locating Broadband panels on the rear wall behind the surround speakers can help make surround channel information more distinct by absorbing reflections that would otherwise compete with the direct sound from the surround speakers.

## 12" X 48" CONTROL COLUMNS: SIDE WALLS

Acoustical Wall Control Columns are located on the sides between the loudspeakers and seating area. Here they control off-axis sound waves from the front speakers before they bounce off the side walls and into the

**Acoustical Wall Control Columns** are located on the sides between the loudspeakers and seating area. Here they control off-axis sound waves from the front speakers before they bounce off the side walls and into the seating area. If left untreated, too much of these powerful primary reflections can reach the seating where they combine with the direct sound causing destructive phase cancellations. By reducing primary reflections from the sides a higher ratio of direct sound is heard at the seating area making critical mid-range frequencies clearer and dialog more intelligible.

### 12" X 12" SCATTER BLOCKS: SOFT DIFFUSION™

The rear wall, as in the recording studio layout, is the primary location for Soft-Diffusion treatment. The goal is a mix of absorbent and reflective surfaces that reduce standing waves between the front and rear walls but still return some acoustic energy into the room. Place Scatter Blocks in a staggered pattern on the rear wall directly behind the seats to treat standing waves at the seating area. Home theaters have the advantage of more furnishings than what is found in a typical recording studio. Furnishings like bookcases can offer excellent diffusing properties. Scatter Blocks can be integrated with your existing furnishings by looking for open areas on the rear wall.

### ALTERNATIVE LAYOUTS

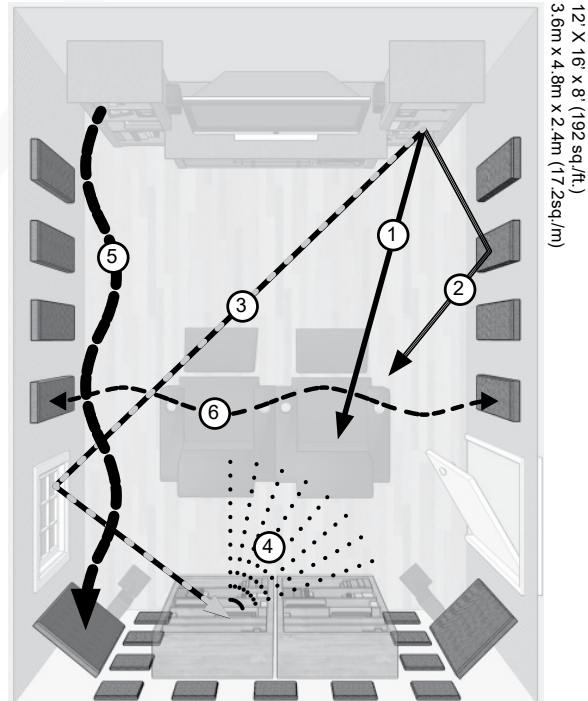
Often, the challenge in setting up a home studio, theater or music listening room is maintaining symmetry while accommodating existing furnishings and room fixtures like windows. When dealing with a less than ideal room some creative modifications to the layout can be made without adversely affecting your ability to achieve a balanced room response with the Acoustical Room Kit 10 room kit. Here are some tips for the different panel sizes:

**Broadband Panels:** The 24" x 48" Broadband panels can be stacked two high in any room corner and still provide the same amount of bass trapping. To increase the absorption of low frequencies you can pack the air space behind the corner mounted Broadband panels with polyester batting.

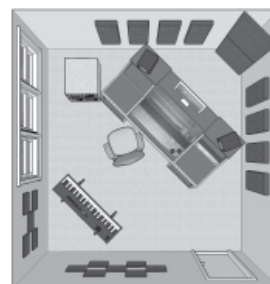
**Control Columns:** The 12" x 48" Columns are to absorb off-axis primary reflections from the front loudspeakers. In the examples to the right the Columns are used opposite from windows. Drapes on the windows can help make the acoustic treatment more symmetrical.

**Scatter Blocks:** The 12" x 12" Scatter Blocks are very flexible. If the rear wall is unavailable they can be divided into two groups of six staggered panels to treat more than one room surface. Alternatively, if you have

bookcases acting as rear diffusers you can go ahead and use the Scatter Blocks on any large untreated room surface or to augment the sides and front treatment in larger rooms.



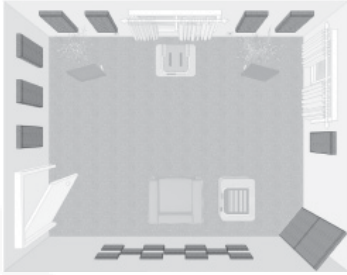
- 1 Direct sound waves from loudspeakers.
- 2 Primary off-axis reflections are attenuated by Control Columns.
- 3 Secondary reflections bounce off of two or more room surfaces and eventually creates room reverberation.
- 4 Diffused sound waves form the room's reverb tail.
- 5 Low frequencies are guided into the corners by room boundaries.
- 6 Standing waves set-up between parallel walls.



11' x 12' x 8' (132sq./ft.)  
3.4m x 3.6m x 2.4m (12.3sq./m)

Broadband panels and Columns form a less reflective "front" wall while trapping bass and reducing standing waves/flutter echo. Acoustic symmetry is maintained.





In this music listening room the windows are treated with drapes and Control Columns are position opposite to balance the symmetry.

11' X 14' x 8' (154 sq.ft.)  
3.3m x 4.2m x 2.4m (13.8sq./m)

## INSTALLING SURFACE IMPALING CLIPS AND WALL PANELS

Prima surface impaling clips are designed to provide the installer with a simple and effective method of mounting Acoustical Wall™ panels onto walls. The mounting clips feature a series of sharp impaling heads that penetrate the panels for secure semi-permanent mounting without causing serious wall surface defacement.

**Step 1:** Use a bubble-level to make a straight pencil line where the top of the panel(s) will be. Measure along this line and carefully mark where the corners of each panel will be. If you are planning to space panels apart include the gap measurement between panels.

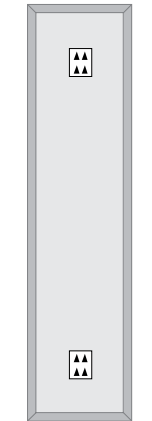
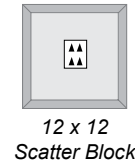
**Step 2:** Hold the surface impaler clips up to the wall and mark the screw hole locations. Precise mounting is not necessary. Impaler clips can be located anywhere within the panel space. Below is a guide for locating surface impaler clips and how many to use for each panel.

**Scatter Blocks:** one surface impaler each. Use twelve surface impalers to mount twelve Scatter Blocks.

**Control Columns:** two surface impalers each. Use sixteen surface impalers to mount eight Control Columns. Using the included drill bit, make holes and install the wall anchors that will support each impaler clip. Follow the instructions on the packaging for anchor installation. Once the plastic anchors are in, mount the impaler clips with the included screws. For additional security apply a golf-ball sized dab of construction adhesive to each impaler tip. This will prevent the panel from being easily removed once the adhesive is dry.

**Step 3:** Tilt the panel so the top edge is touching the wall. Carefully line it up on the straight line and edge marks you made in step #1. Placing a bubble-level on top of the panel will help you keep it straight as you guide it onto the impaler clips. Once you have lined up the panel squarely, bring the back of the panel in contact with all

of the impaler tips. Apply pressure in and down onto the clips. The panel will slide onto the Impalers and sink down about one inch. If alignment is off, the panel may be nudged up to ¼" to make it level.



## INSTALLING CORNER BASS TRAP PANELS

Prima corner impalers make it easy to mount the 24" x 48" Broadband panels across room corners to form effective bass traps. Like the surface impaling clips, the corner impalers feature sharp tips that penetrate the panel and hold it securely in place.

**Step 1:** At the approximate panel location mark a vertical pencil line 17" (432mm) out from the corner on either side.

**Step 2:** Mark the screw/anchor locations for corner impalers along the edge of the pencil line. Corner impalers should be approximately 6" - 8" from the panel top/bottom edges.

**Step 3:** Install the included wall anchors for each Corner Impaler. Follow the instructions on the anchor packaging for drywall, brick and concrete walls. Use the included

screw to mount the corner impalers. Special holes in the impaler clips allow your screw driver to pass through.

Step 4: Once the corner impalers are in place, carefully rotate the sharp impaling tips so they all point up at a 45° angle.

Step 5: Lift the panel so it is in contact with all of the corner impaler tips. Once you have it lined up squarely, apply even pressure in and down onto the clips. The panel will sink down about one inch. If alignment is off, the panel may be nudged up to 1/4" to make it level.

