

SOUNDSCAPES® Shapes Acoustical Clouds

Assembly and Installation Instructions

DO NOT REMOVE PANELS FROM THE CARTON UNTIL THESE INSTRUCTIONS HAVE BEEN READ IN THEIR ENTIRETY. LOCATE HARDWARE ACCESSORY KITS THAT SHIPPED SEPARATELY.

1. GENERAL

1.1 Product Description

SoundScapes® Shapes Acoustical Clouds are flat fiberglass panels designed to be installed in one of four types of suspension system options. There are 13 standard panel options that come in a variety of 60 and 90 degree shapes.

SoundScapes Shapes are designed to be suspended with Armstrong® ceilings accessory kits and are engineered for use in seismic areas only when installed in accordance with these installation instructions.

1.2 Materials and Finishes

SoundScapes Shapes panels are made from fiberglass and finished on the front surface and all sides with DuraBrite® acoustically transparent membrane. The back of the panel is unfinished with an embedded metal extrusion for use with four Armstrong ceilings suspension systems. If the back of the panel will be visible, 360° panel finishing capability is available.

There are fourteen standard color options for the finished panels. See section 1.8 for panel touch-up options. Field painting will void the product warranty.

1.3 Design Consideration for Sag

SoundScapes Shapes maintain a natural sag that may be noticeable when installed 6" or less apart. Deflection up to 1/8" has been documented in some cases.

1.4 Safety

1.4.1 Working with Fiberglass Products

WARNING: This product contains man-made vitreous fibers. Possible cancer and respiratory tract hazards. Can cause temporary respiratory, skin, and eye irritation.

1.4.2 Precautionary Measures

Be certain that the work site is well ventilated during the installation, and avoid breathing dust. If high dust levels are anticipated during installation, such as with the use of power tools, use appropriate NIOSH designated dust respirator. All power cutting tools must be equipped with dust collectors. Avoid contact with skin or eyes. Wear long-sleeve, loose-fitting clothes, gloves, and eye protection.

1.4.3 First Aid Measures

If contact occurs, flush eyes and skin irritation with plenty of water for at least 15 minutes, and remove contaminated clothes. After installing material, wash with warm water and mild soap. Wash work clothes separately from other clothing. Rinse washer thoroughly. Refer to Armstrong Ceilings SDS (which includes information on established occupational exposure limits) which are available from Armstrong Ceilings or your employer.

1.5 Storage and Handling

The ceiling panel components shall be stored in a dry interior location and shall remain in the original cartons prior to installation to avoid damage and soiling. The cartons shall be stored in a flat, horizontal position. Save the carton cardboard insert for potential use during installation as a guide for hanging panels. The panels should not be removed from their carton until the suspension system is ready. Proper care should be taken when handling panels to avoid damage and soiling, particularly with panel edges and the surface of color panels.

Proper care should be taken to locate the hardware accessory kits shipped separately from the panels.

1.6 Temperature During Installation

This product can be installed where the temperature is between 40°F (4°C) and 120°F (49°C). It cannot be used in exterior applications, where standing water is present, or where moisture can come in direct contact with the panel.

1.7 Fire Performance

SoundScapes Shapes, as with other architectural features located in the ceiling plane, may obstruct or skew the existing or planned fire sprinkler water distribution pattern, or possibly delay the activation of the fire sprinkler or fire detection system. Designers and installers are advised to consult a fire protection engineer, NFPA 13, and their local codes for guidance on the proper installation techniques where fire detection or suppression systems are present.

1.8 Touch-up Paint

For minor surface and edge scratches on white panels, use Armstrong® SuperCoat™ Touch-Up Paint (Item 5760 _ _). This paint provides an excellent one-coat edge treatment that will match the original panel. For minor surface and edge scuffing or scratches on colored panels, order the coordinating touch-up paint using the 2 digit color code associated with your panel's item number.

1.9 Cleaning

Use a clean, dry, soft white cloth to wipe off any dirt or fingerprints. Regular light dusting of the back side of the panel is recommended.

2. COMPONENTS

2.1 Panel Shapes

Panels come in 13 standard shapes with various size options available. See the product data sheet for exact product dimensions. Panels are flat but may exhibit some natural deflection based on installation details.

2.2 Suspension Systems

There are four types of suspension system options for use with SoundScapes Shapes. All panels can be suspended individually from the deck with aircraft cable; individually direct-attached to drywall with clips; or suspended as a group from grouping frames. Only 90 degree panels can be suspended from traditional 15/16" suspension grid system with Grid Hook Kits. It is not recommended to install 4' x 8' panels as a group from grouping frames; only independent suspension is recommended. See section 3.0 for a description of each suspension system option and the installation procedures in more detail.

3. INSTALLATION

3.1 General

Before opening the panel carton, be sure to locate the hardware accessory kits needed for installation that were shipped separately.

SoundScapes Shapes may require two people to align and install each panel safely. **DO NOT REMOVE PANELS FROM THEIR CARTON** until the appropriate suspension system method has been prepared and is ready to accept the panels for installation.

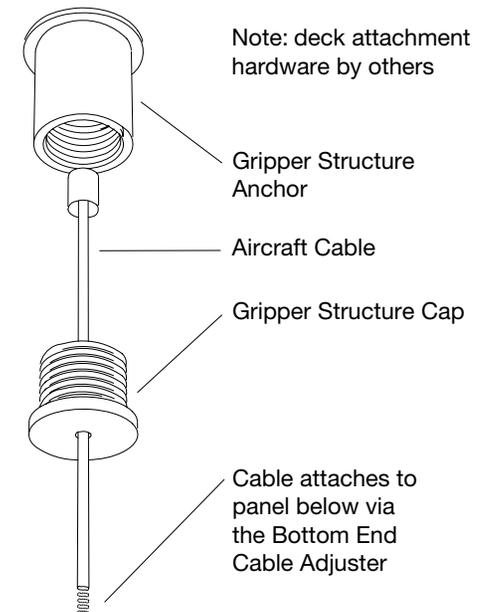
Panels cannot be used to support any other material. The suspension system chosen must be fastened to the structure and cannot be hung from any commercial ceiling system. SoundScapes Shapes are not approved for exterior applications.

Each suspension system utilizes attachment points along the metal extrusion in the back of each panel. Each metal extrusion edge is marked with guidelines to facilitate suspension with several methods, as well as the possible hook location attachments in group configurations. Those suspension system specific attachment locations are explained in detail in the following sections.

3.2 Panel Installation: Deck Suspension

3.2.1 Deck Hanging Kit (Item 5450)

Suspended individual SoundScapes Shapes panels utilize the Deck Hanging Kit that includes (2) Gripper Structure Anchors, (2) Gripper Structure Caps, (2) 8' aircraft cables, (2) Bottom End Cable Adjusters, and (2) nuts with washers.



(Fig 1)

3.2.2 General Installation

To fasten the cable connectors to the structure, use fasteners by others that are compatible with the structure. This part of the installation will utilize the Gripper Structure Anchor and Cap from the Deck Hanging Kit (Item 5450).

Screw cable connectors into the threaded holes at the panel specific attachment points on the metal extrusion and configure the cable connectors as shown in (Fig 2). The height of a panel can be adjusted at the bottom end cable adjuster. When a final height is determined and installation is complete, cut off the excess cable wire from the side of the adjuster, leaving a 1" tail.

TIP: Excess wire can be wound up in a tight circle and left on the back of the panel for future use.

NOTE: An 8' aircraft cable is included in the standard Deck Hanging Kit. If additional cable length is needed for high ceiling applications, order the Extended Hanging Cables Kit (Item 625530), which has (4) 30' aircraft cables per kit.

For angled hanging applications up to 60 degrees, use the Angled Hanging Kit (Item 7121), which has (2) angled hanging cables per kit. To install, insert the angled hanging cable between the bottom end cable adjuster of the deck hanging kit and the corner bracket on the back of the panel.

3.2.3 Panel Frame Attachment Points: 90 Degree Shapes

4' x 4' Panels

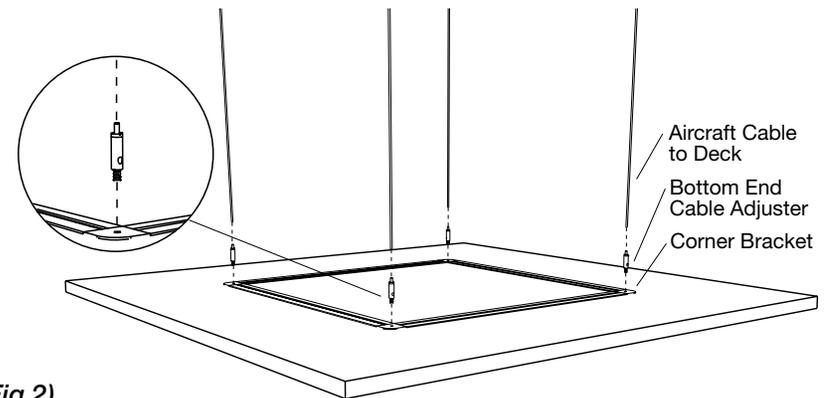
When installing a single 4' x 4' (nominal) panel, hang all four cables from the structure in a 2' square configuration. The cables attach to the individual panel at the four corners of the back frame using the cable adjusters supplied in the Deck Hanging Kit. (Fig 3)

NOTE: Individually suspended panels will not use nuts and washers supplied in kit. Those are for group hanging applications only.

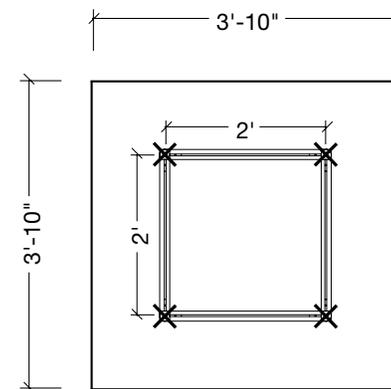
4' x 6' Panels

For 4' x 6' panels, attachment points are located at the midpoints of each side of the metal extrusion (Fig 4). First, line up the 1/4-20 nuts in the frames to the four midpoint areas of the back frames. Then screw the cable connectors into the 1/4-20 nuts in those locations. This provides the appropriate support for a 4' x 6' panel.

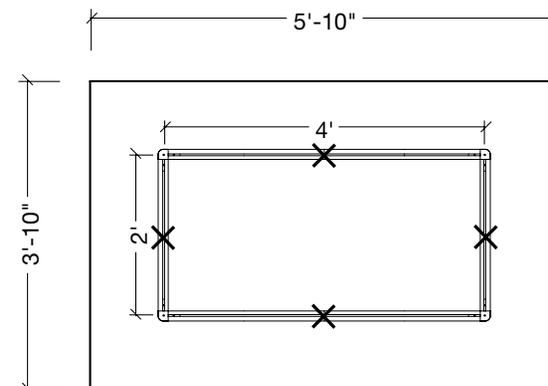
NOTE: Individually suspended panels will not use nuts and washers supplied in kit. Those are for group hanging applications only.



(Fig 2)



(Fig 3)



(Fig 4)

4' x 8' Panels

For 4' x 8' panels, in addition to the four corners, you will need to attach two additional cables to the midpoints of the long sides of the frames. (Fig 5) For the midpoint attachments, first line up the 1/4-20 nuts in the frames to the midpoint areas of the frames. Then screw the cable connectors into the 1/4-20 nuts in those locations. Along with the corner attachments, this provides the appropriate extra support needed for a 4' x 8' panel. **NOTE:** Individually suspended panels will not use nuts and washers supplied in kit. Those are for group hanging applications only.

IMPORTANT SAFETY AND QUALITY NOTE: Do not allow any portion of the aircraft cable to drop below the panels while adjusting final panel height. To do so could cause injury to the installer or damage to the edge of a panel.

3.2.4 Panel Frame Attachment Points: 60 Degree Shapes

Triangle Panels

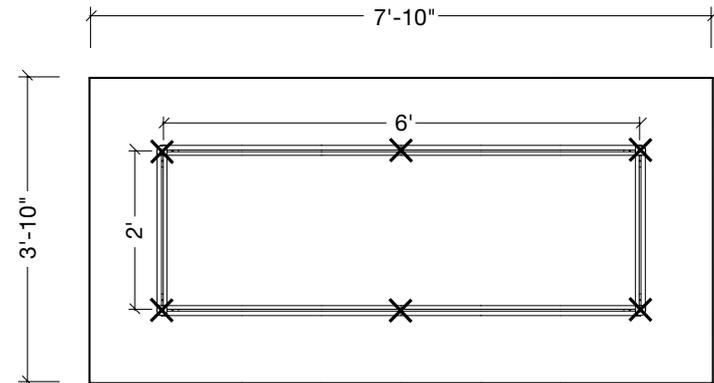
For Triangle panels (Item 7101T1), the cables attach to the individual panel at the three corners of the back frame using the cable adjusters supplied in the Deck Hanging Kit. (Fig 6) **NOTE:** An individually suspended panel will not utilize the nuts and washers supplied in that kit. Those are for group hanging applications.

Parallelogram Panels

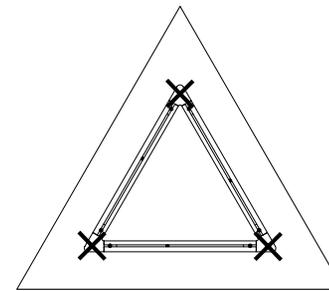
For Parallelogram panels (Item 7101P1), the cables attach to the individual panel at the four corners of the back frame using the cable adjusters supplied in the Deck Hanging Kit. (Fig 7) **NOTE:** An individually suspended panel will not utilize the nuts and washers supplied in that kit. Those are for group hanging applications.

Trapezoid Panels

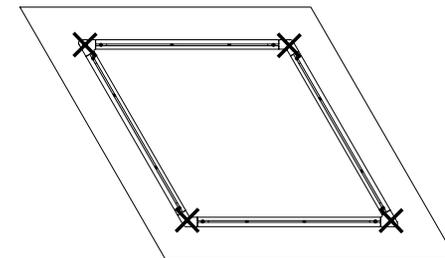
For Trapezoid panels (Item 7101Z1), in addition to the four corners, you will need to attach two additional cables to the midpoints of the long, parallel sides of the frames. (Fig 8) For the midpoint attachments, first line up the 1/4-20 nuts in the frames to the midpoint areas of the frames. Then screw the cable connectors into the 1/4-20 nuts in those locations. Along with the corner attachments, this provides the appropriate extra support needed for a Trapezoid panel. **NOTE:** An individually suspended panel will not utilize the nuts and washers supplied in that kit. Those are for group hanging applications.



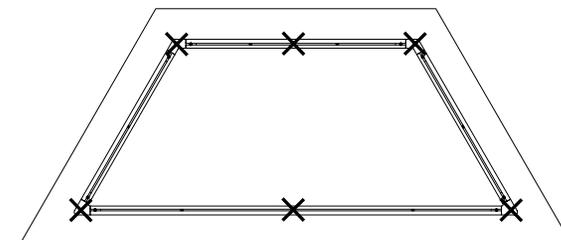
(Fig 5)



(Fig 6)



(Fig 7)



(Fig 8)

3.3 Panel Installation: Direct to Drywall Ceilings

3.3.1 General Installation

With drywall attachment to ceilings, the panels can be installed individually or grouped in any arrangement that allows at least 2" of space between panels. The panel drywall clip drops the back of the panel approximately 1" from the face of the drywall.

Attach the panel drywall clips to the ceiling using the appropriate fasteners (by others), such as toggle bolts or molly bolts.

Install the shoulder bolts into the panel specific attachment points on the metal extrusion on the back of the panel. (Fig 9)

The drywall clips need to be located on the ceiling so the ends of the clip with the detail that accepts the bolt heads are arranged in the same layout as the shoulder bolts are located on the back of the panel.

To mark these locations in the ceiling, swing the top part of the clip out of the way to visually align the hanging point location (where the shoulder bolt will go) and mark the location on the drywall ceiling above for mounting attachment. (Fig 10) **TIP:** Create a jig using a piece of cardboard to mark the attachment point locations of the shape when installing the drywall clips on the ceiling to ensure the exact location of attachment points.

Once drywall clips are mounted in the ceiling and shoulder bolts are mounted in the panel frame, lift the panel to the ceiling, carefully lining up all of the bolts with the open ends of the clips. Slide the panel so that the bolts enter the ends of the clips. (Fig 11)

NOTE: Visualizing the alignment of the shoulder bolts to the Drywall clips can be difficult once the panel is raised to its mounting position. Be sure to handle the panel and edges carefully during this process. It is helpful to have a second person who can see where the bolts are to carefully guide panel placement onto the clips.

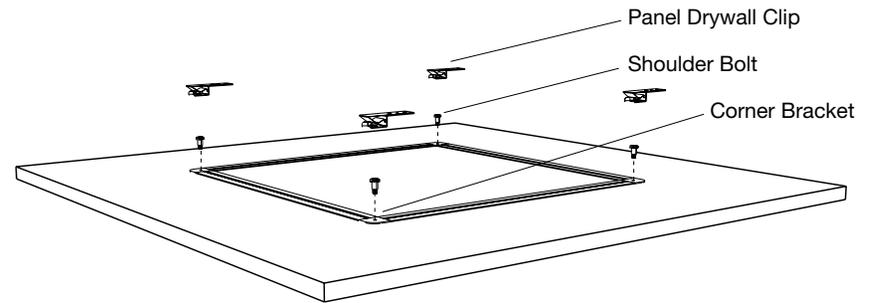
When the panel has been successfully positioned and fully engaged with the clip opening, lower the panel so the bolt heads are captured by the clips, to ensure the panel will not move.

3.3.2 Panel Frame Attachment Points: 90 Degree Shapes

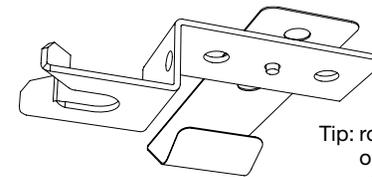
4' x 4' Panels

When installing 4' x 4' panels directly to drywall, place shoulder bolts into threaded holes at the four corner attachment points of the metal extrusion on the back of the panel. (Fig 12)

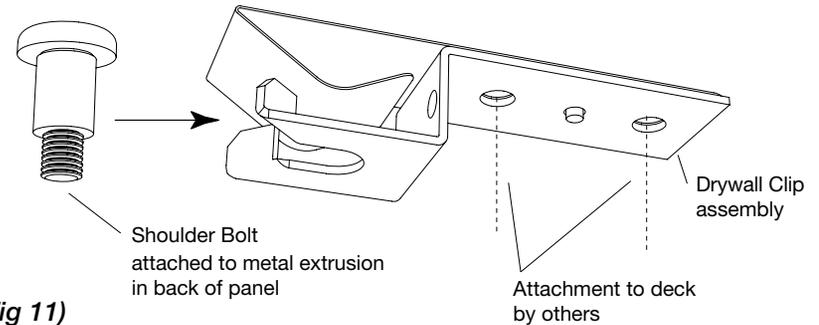
Panel drywall clips should be located on the ceiling, so clip ends with the detail that accepts the bolt heads are arranged in a 2' x 2' square configuration. This ensures the clips will line up with the four corners of the metal extrusion.



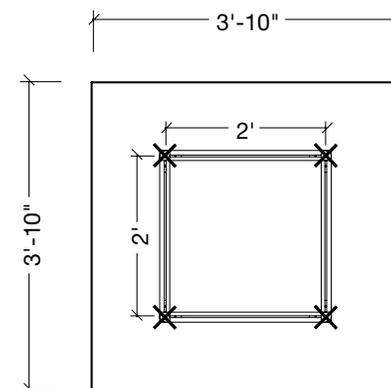
(Fig 9)



(Fig 10)



(Fig 11)



(Fig 12)

4' x 6' Panels

For 4' x 6' panels, the drywall attachment points are at the midpoints of each side of the metal extrusion in the back of the panel. **(Fig 13)** To support these panels, line up the 1/4-20 nuts in the frames with the four midpoint areas. Then screw shoulder bolts into the 1/4-20 nuts in those locations.

NOTE: The alignment of a 4' x 6' panel to the installed clips can be challenging due to its larger size. Please handle the panel with care and patience during this process, especially with colored panels. It is helpful to have a second person who can see where the bolts are to help carefully guide panel placement onto the clips.

4' x 8' Panels

For 4' x 8' panels, in addition to the four corners, you will need to attach two additional shoulder bolts to the midpoints of the long sides of the frames for support. **(Fig 14)** For midpoint attachments, first line up the 1/4-20 nuts in the frames to the midpoint areas. Then screw shoulder bolts into the 1/4-20 nuts in those locations.

NOTE: The alignment of a 4' x 8' panel to the installed clips can be challenging due to its larger size. Please handle the panel with care and patience during this process, especially with colored panels. It is helpful to have a second person who can see where the bolts are to help carefully guide panel placement onto the clips.

3.3.3 Panel Frame Attachment Points: 60 Degree Shapes

Triangle Panels

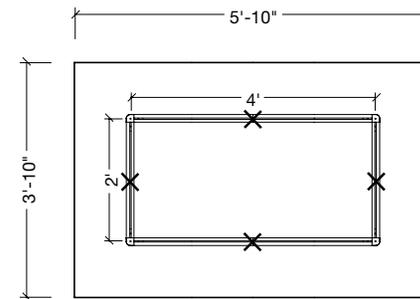
For Triangle panels (Item 7101T1), install shoulder bolts into the threaded holes at the three corners of the metal extrusion on the back of the panel. **(Fig 15)** Then proceed with the installation of the drywall clips to the ceiling and subsequently the panel to the clips.

Parallelogram Panels

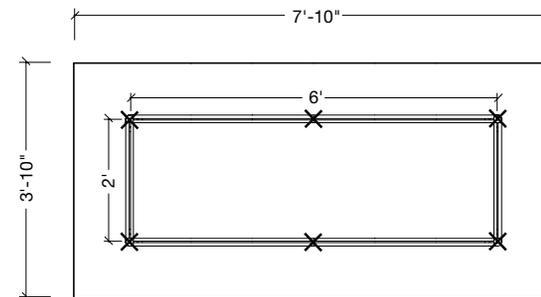
For Parallelogram panels (Item 7101P1), install shoulder bolts into the threaded holes at the four corners of the metal extrusion on the back of the panel. **(Fig 16)** Then proceed with the installation of the drywall clips to the ceiling and subsequently the panel to the clips.

Trapezoid Panels

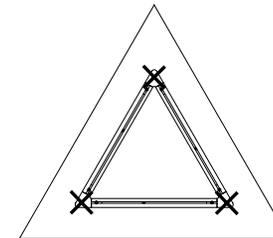
For Trapezoid panels (Item 7101Z1), in addition to the threaded holes at the four corners of the metal extrusion on the back of the panel, install two additional shoulder bolts to the midpoints of the long, parallel sides of the frames to provide necessary panel support. **(Fig 17)** For the midpoint attachments, first line up the 1/4-20 nuts in the frames to the midpoint areas of the frames. Then screw shoulder bolts into the 1/4-20 nuts in those locations.



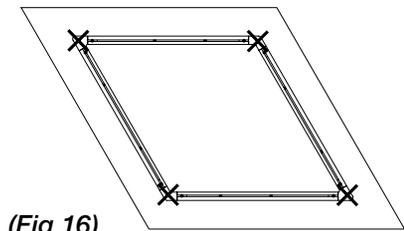
(Fig 13)



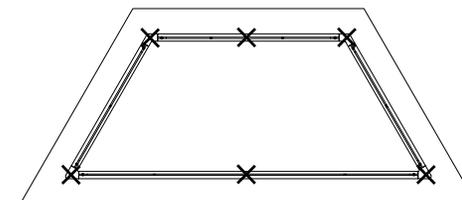
(Fig 14)



(Fig 15)



(Fig 16)



(Fig 17)

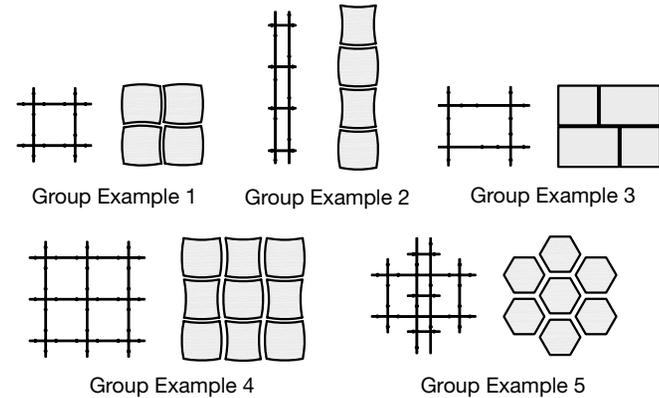
3.4 Panel Installation: Group Suspension

3.4.1 When suspending panels in a group configuration of more than two panels, grouping frames and suspension hooks provide support and systematic spacing designed for use in all seismic areas. This takes the math and extra effort out of maintaining consistent spacing.

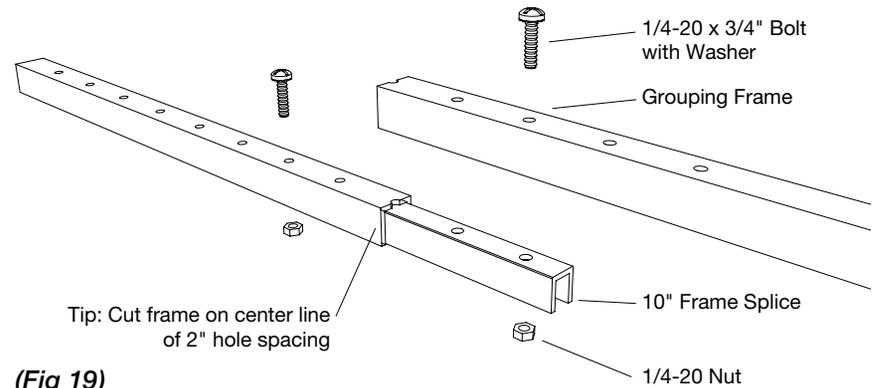
First, determine the length of the 144" grouping frame components needed based on your layout, then cut and arrange them so panels have at least 2" of clearance between them. There are a variety of grouping options with different frame arrangements needed for support (**Fig 18**). For more grouping design options, patterns, and drawing details visit armstrongceilings.com/soundscapesshapes and armstrongceilings.com/patterngallery for a list of 15 patterns, including a Bill of Materials for each. Contact TechLine for assistance with your layout.

3.4.2 For groupings with more than 2" of space between panels, it is necessary to increase the center distances between grouping frames accordingly. If the grouping arrangement length increases, additional grouping frame and frame splice kits (Item 5452) may be needed to connect the 144" frames. (**Fig 19**) Center distances must be changed in 2" increments to correspond with the 2" hole spacing in the grouping frame.

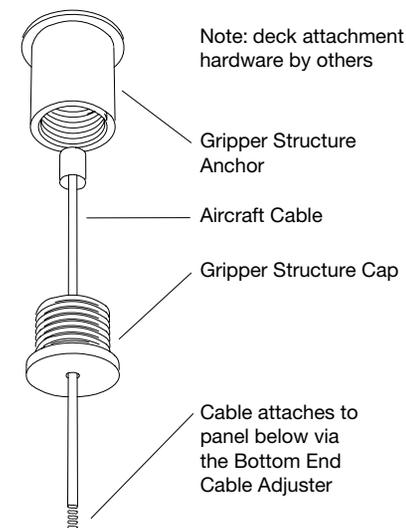
3.4.3 In every group suspension system, multiple Deck Hanging Kits (Item 5450) are used to suspend grouping frame assemblies to deck. The Gripper Structure Anchor is attached to the deck with appropriate deck fastening hardware supplied by others. The cable is then inserted into the Gripper Structure Cap as shown, and threaded into the Gripper Structure Anchor. (**Fig 20**) The bottom end cable adjuster must be attached to the bottom or "lower" grouping frame, and not to the top or "upper" grouping frame.



(Fig 18)



(Fig 19)



(Fig 20)

3.4.4 Grouping Frame Assembly

All grouping frame kits come with (4) 144" long pieces. Cut the frames to the appropriate lengths needed for the application. The aluminum frames can be field cut with a hacksaw or a miter saw equipped with a carbide blade.

NOTE: If the design requires grouping frames longer than 144", 10" Frame Splice Kit (Item 5452) can be used to join the frame members, as shown in (Fig 21).

Next, arrange the grouping frames into the desired design layout, and determine top and bottom elements to maximize the efficiency of installation hanging points. In all cases, the top or "upper" grouping frames should be oriented with the U-profile facing up, and the bottom or "lower" grouping frames facing down, as shown in (Fig 22).

The bottom grouping frames are the support mechanisms that will be suspended from the structure with the Deck Hanging Kits.

Install Frame Alignment Kits where grouping frames cross to establish either a 90 degree (item 5453D090) or 60 degree (item 5453D060) alignment angle. Use the nuts and bolts supplied with the Frame Alignment Kit to secure the connection through the pre-drilled grouping frame holes spaced every 2".

Finally, attach the bottom end cable adjuster every 4' along the supporting (bottom) frame for 90 degree systems, and at every intersection for 60 degree systems. The bottom end cable adjuster is inserted into one of the pre-drilled holes in the bottom grouping frame at the appropriate 48" or intersection location. Use the nuts and washers provided to secure the cable adjuster to the frame (Fig 22).

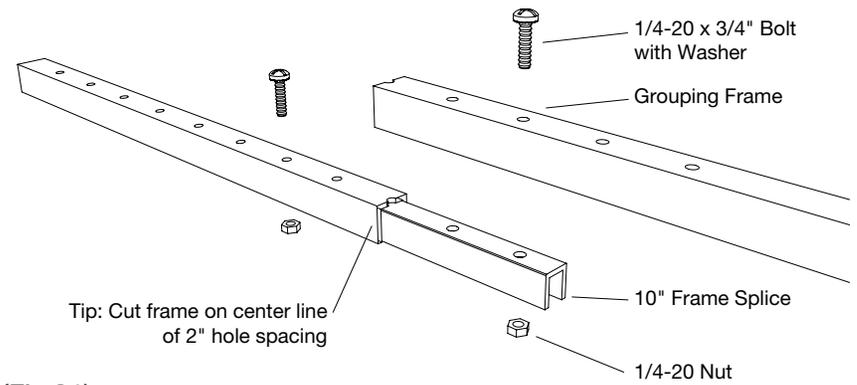
TIP: The grouping frame configuration can be laid out on the floor to install all of the components. The entire assembly can be hung as one unit utilizing the bottom end cable adjusters to gradually position the frame upward. Frames members can also be suspended one by one from the structure, and built into a grouping framework incrementally or in sections.

3.4.5 Panel Hook Attachment

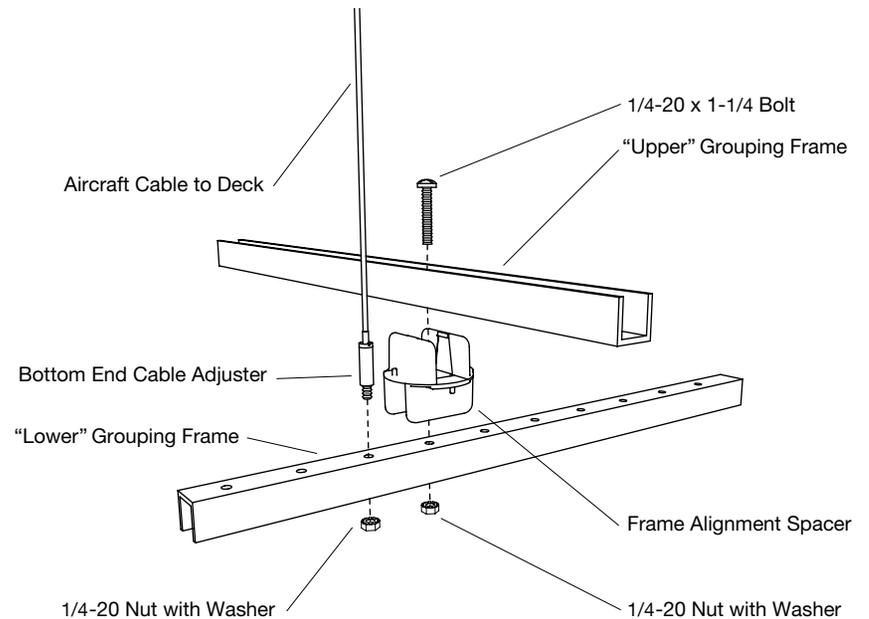
3.4.5.1 Once the group assembly is finished, suspended, and leveled, support hooks can be secured to the backs of the panels.

One Panel Hook Kit (Item 5454), is required for all 4' x 4', 4' x 6', Triangle, and Parallelogram panels. Each kit includes 4 hooks - 2 "high" hooks and 2 "low" hooks.

Trapezoid panels require 6 hooks - 3 "high" hooks and 3 "low" hooks, so 2 Panel Hook Kits are required. **NOTE:** 2 of the 8 hooks will not be used.



(Fig 21)



(Fig 22)

It is not recommended to install 4' x 8' panels as a group from grouping frames; only independent suspension is recommended. Please see sections 3.2.3 and 3.3.2 for those recommendations.

3.4.5.2 While installing the hooks to the panel frames, be aware of the location of the "high" and "low" hooks. High hooks are always across from each other, and low hooks are always across from each other.

For non-symmetrical shapes, such as squares and circles, reference the factory marks on the frames, along with the diagrams in the following section to determine high and low hook placement.

3.4.5.3 Hook Placement: 60 Degree Shapes

Depending on the pattern layout, the 60 degree panels can be in different orientations which can change where the hooks are located on the grouping frame. To the right are diagrams showing the possible directional orientations for each panel and the corresponding hook placements, located in the charts below.

Triangle Panels (Fig 23)

Hook Placement				
Position	Location 1	Location 2	Location 3	Location 4
ALL POSITIONS	L	H	L	H

Parallelogram Panels (Fig 24)

Hook Placement										
Position	Location 1	Location 2	Location 3	Location 4	Location 5	Location 6	Location 7	Location 8	Location 9	Location 10
A & D	-	H	-	-	L	-	-	L	H	-
B & E	H	-	-	L	-	H	-	-	L	-
C & F	L	-	H	-	-	L	-	H	-	-

Trapezoid Panels (Fig 25)

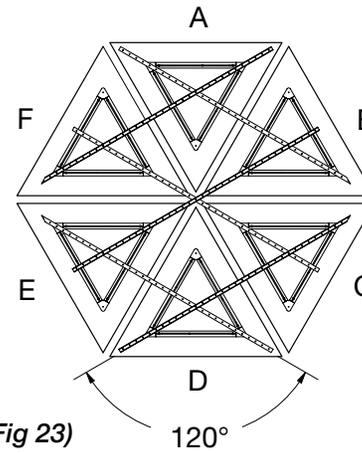
Hook Placement												
Position	Loc. 1	Loc. 2	Loc. 3	Loc. 4	Loc. 5	Loc. 6	Loc. 7	Loc. 8	Loc. 9	Loc. 10	Loc. 11	Loc. 12
A & D	L	H	-	-	L	-	H	L	-	H	-	-
B & E	-	L	-	L	-	H	-	-	H	L	-	H
C & F	H	-	L	-	H	L	-	-	L	-	H	-

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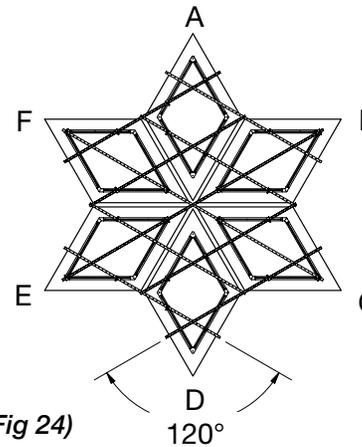
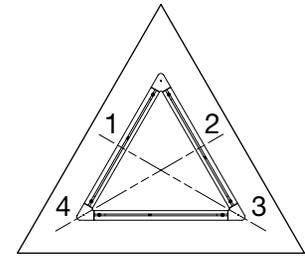
H = 4-1/2" HOOK

L = 3-1/2" HOOK

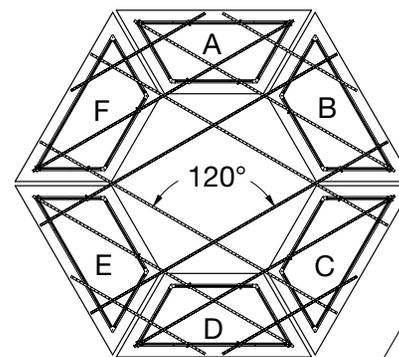
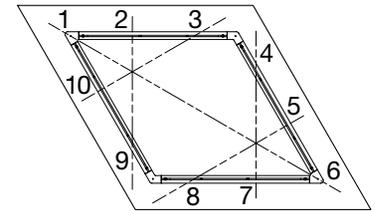
- = NO HOOK



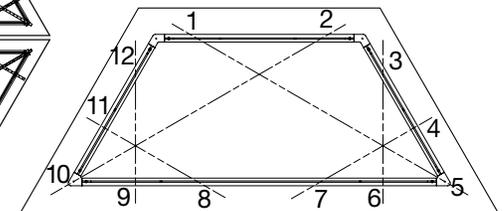
(Fig 23)



(Fig 24)



(Fig 25)



3.4.5.4 There is a notch cut into the base of the hooks to align the hooks with the appropriate marks on the frame. The notch will always face outwards. 1/4-20 nuts for securing the hooks to the frames are factory installed in the extrusion channels. Line up the nuts with the correct location for the hooks, and screw hooks to the panel using bolts included in the Panel Hook Kit (Item 5454) (**Fig 26**).

NOTE: The back channel is marked in various locations on each product to assist with hook placement. See the Trapezoid panel frame in (**Fig 27**) as an example.

3.4.6 Grouping Frame Assembly

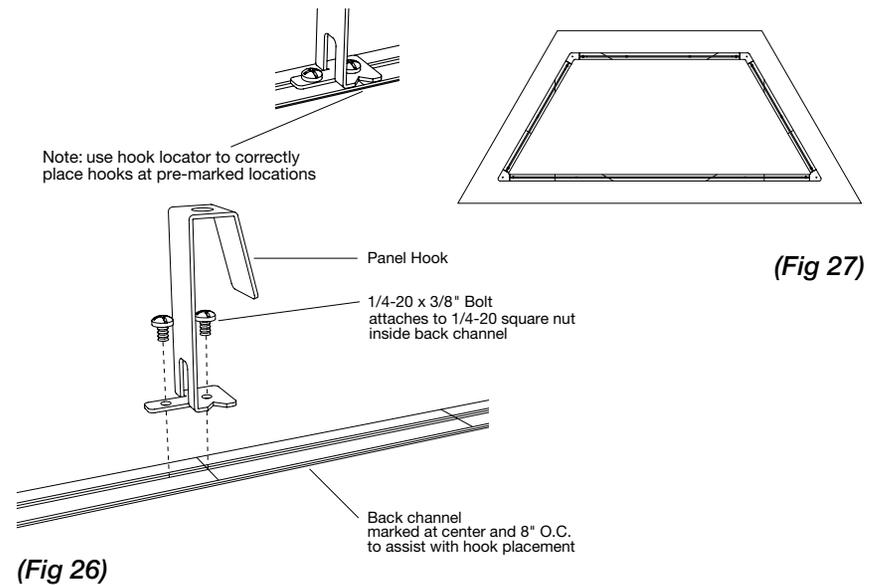
Install the panels onto the Grouping Frame by rotating the panel hooks over the frame members as shown in (**Fig 28, 29, 30**).

After panels are installed, there should be 5-9/16" spacing from the top of the upper frame to the panel face when using the Panel Hook Kit (item 5454) (**Fig 31**). Adjust the final height of the group assembly as needed (**Fig 32**).

IMPORTANT SAFETY AND QUALITY NOTE: Do not allow any portion of aircraft cable to drop below the panels while adjusting final panel height. To do so could cause injury to the installer and/or can damage panel edges.

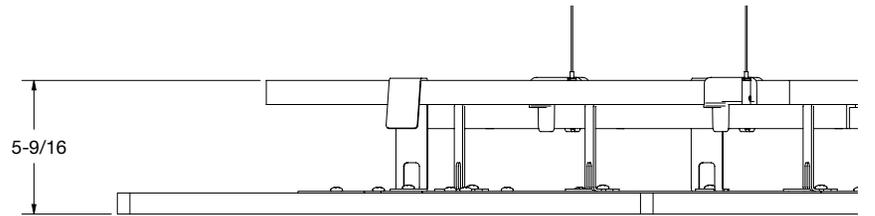
3.4.7 Multi-Plane Hanging Kits (Items 5629, 5630, 5631)

Refer to section 3.4.5 for panel hook placements. The only difference with these hooks is that they lower the panels either 1", 2", or 3" from the grouping frame.

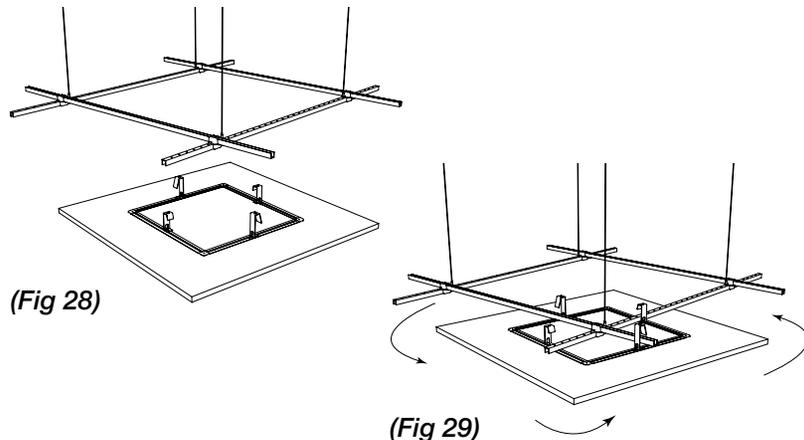


(Fig 26)

(Fig 27)

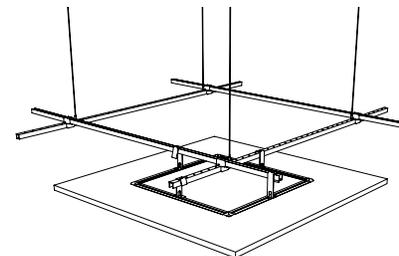


(Fig 31)

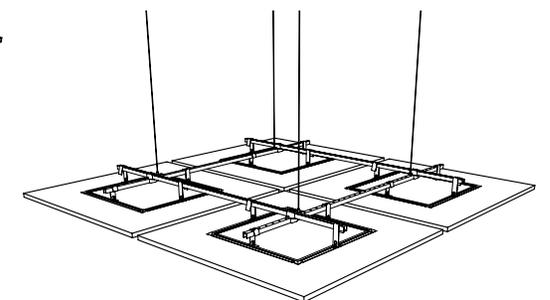


(Fig 28)

(Fig 29)



(Fig 30)

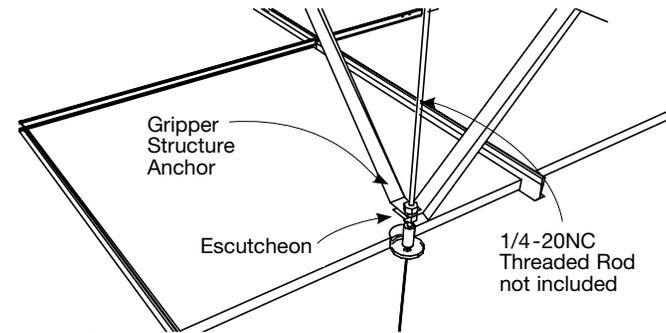
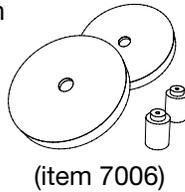


(Fig 32)

3.5 Panel Installation: Below Suspended Ceiling

Suspension cables used to suspend shape panels individually or in groups from the deck should not impose any lateral force on a suspended ceiling (*Fig 33*).

1. The structure gripper anchor must be mounted to a support at or above the existing ceiling.
2. Attach 1/4-20 threaded rod to structure to secure the structure gripper anchor at the correct height.
3. Use diagonal bracing to structure to provide support.
4. Conceal the structure gripper anchor when installed above the ceiling level with the optional Escutcheon Kit (item 7006). Kit includes:
 - (2) collars with set screws
 - (2) 2" escutcheons



(Fig 33)

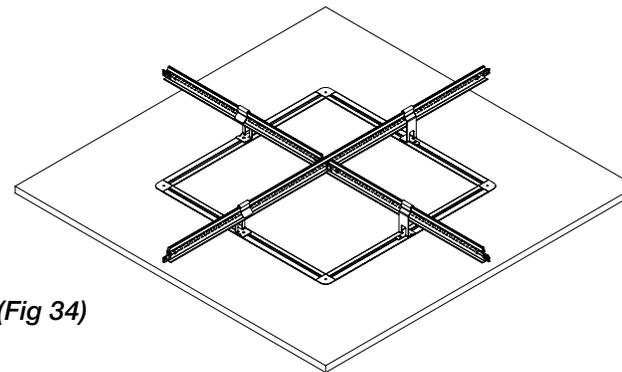
3.6 Panel Installation: Grid Attachment

To install SoundScapes Shapes panels on grid, install the hooks on the back of the panels (*Fig 34*). Refer to section 3.4.5 for installation of hooks on the back of the panels. However, these hooks will all be the same height. When these hooks are used, the panel can be installed at any grid intersection (assuming that the existing grid is no closer than 24" O.C.) that allows enough space for the panel between the intersection to the wall. Install on grid only when the mains and tees have the same web height. Use heavy-duty XL8320 Prelude XL 2' Cross Tees to maintain 1-11/16" cross tee height. Use only with Prelude main beam 15/16" grid face.

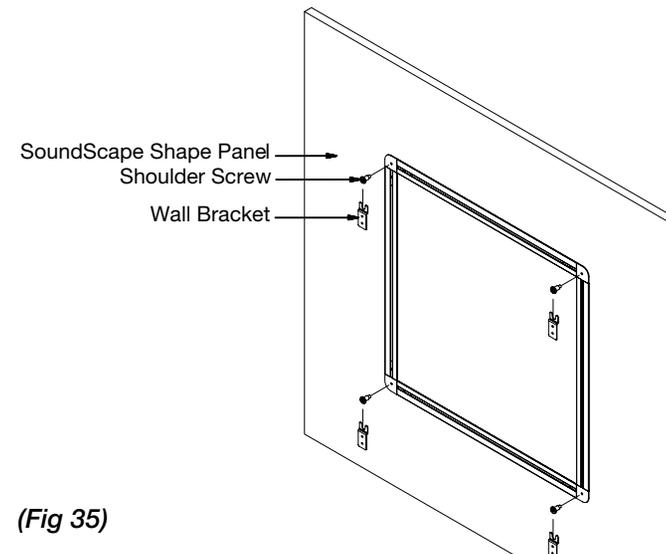
NOTE: the 60 degree panels are not able to be installed by hanging on grid. Only 90 degree panels can be installed on grid.

3.7 Installing Individual Panels Directly to Drywall Walls

SoundScapes Shapes panels can be installed on walls with the Wall Hanging Kit (Item 5588). For all 4' x 4' shapes, install shoulder bolts into the four corners of the panel frame and fasten the four brackets to the wall using hollow wall anchors (*Fig 35*). When fastening the brackets to the wall, arrange them on 24" centers to coordinate with the shoulder bolt locations on the panel.



(Fig 34)



(Fig 35)

For a 4' x 6' or 4' x 8' nominal shape the same process should be followed but more brackets and shoulder bolts will need to be used. The brackets and shoulder bolts must be spaced on 24" centers along the length and width directions of the shape. This will lead to six brackets and shoulder bolts being used on a 4' x 6' nominal shape and eight brackets and shoulder bolts being used on a 4' x 8' nominal shape.

For a Triangle panel, install shoulder bolts into the three corners of the panel frame.

For Parallelogram panels, install shoulder bolts into the four corners of the panel frame.

For Trapezoid panels, in addition to the four corners, attach two additional shoulder bolts to the midpoints of the long, parallel sides of the panel frame. For the midpoint attachments, first line up the 1/4-20 nuts in the frames to the midpoint areas of the frames. Then screw the shoulder bolts into the 1/4-20 nuts in those locations.

PRO TIP: create a jig using a piece of cardboard to mark the corner locations of the shape when installing the brackets on the wall to ensure the exact location of the attachment points.

When the brackets and bolts are in place, hold the panel against the wall slightly above the brackets and lower the panel onto the brackets.

4. MEP INTEGRATION

4.1 The panels can be field cut for penetrations such as lighting or sprinklers as long as the fixtures are independently supported and not supported in any way by the panel suspension system.

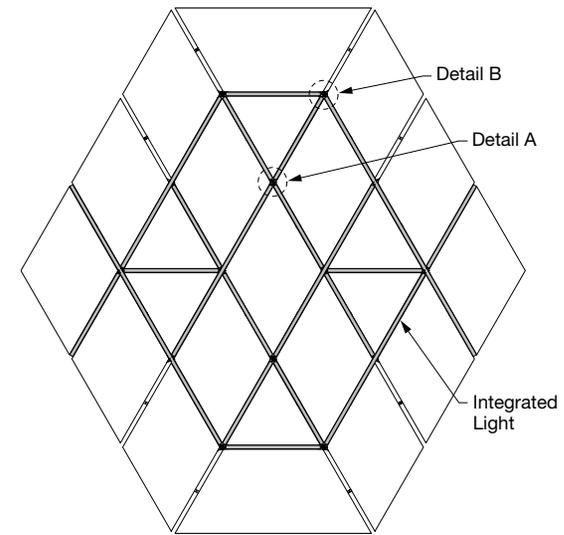
5. LIGHTING INTEGRATION

No penetrations are needed if the Axis Stencil® Light is used in conjunction with the system. The narrow light can fit in-between the prescribed 2" gap between panels (Fig 36). The lights will need to be independently supported.

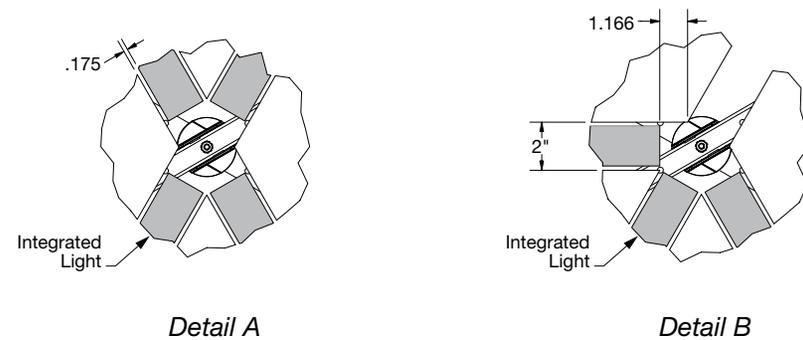
NOTE: The lights may not extend to each panel corner (Fig 37). Contact your local Axis representative for custom sized lights.

The Axis Stencil light is 2" in height and should fit underneath the Frame Alignment Kit(s) without any interference. It is recommended that the light is suspended so the lens is flush with the face of the panel (Fig 38).

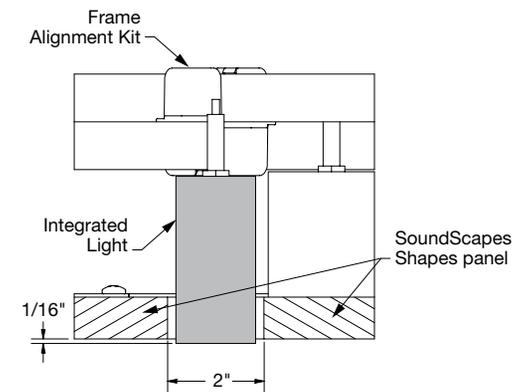
For detailed lighting information, including installation instructions, contact your local Axis representative.



(Fig 36)



(Fig 37)



(Fig 38)

6. SEISMIC

The following are modifications to installations that are Seismic Category C, D, E or F. Please refer to our *Seismic Design: What You Need to Know* brochure for more details on seismic installations.

6.1 Installing Aircraft Cables

This system has been tested and approved for installation in all IBC Seismic Design Categories. ASCE 7 provides an exception to the restraint requirement for architectural components stated in section 13.5.1, provided that:

- The connection to the structure shall allow a 360 degree range of motion in the horizontal plane.
- The component may not cause damage to an essential building element.

The International Building Code allows architectural components to swing freely as long as they will not be damaged or cause damage. Cable lengths less than 20" will generate the greatest amount of pendulum reaction during a seismic event and should, therefore, be avoided.

When it is not practical to use cables greater than 20" long, allow lateral clearance around the architectural component equal to, or greater than, the length of the cable. Architectural components suspended from cables greater than 20" long will swing no more than 8". Restraint of architectural elements has proven to be ineffective and is not recommended.

6.2 Bracing Multiple Grouping Frames

Consult Armstrong's TechLine or your project engineer for proper bracing techniques for your specific project. Please note, TechLine does not provide layout or design services.

6.3 No additional requirements or modifications are required for OSHPD DSA installations.

NOTE: Pendulum reaction information based on full-scale testing and computer modeling conducted at the Structural Engineering Earthquake Simulation Lab located at the State University of New York at Buffalo.

SOUNDSCAPES® SHAPES ITEMS

Item Number	Description	Sold by the	Pcs/Carton
5440	90 Degrees Square	Carton	2
5441	90 Degrees Convex	Carton	2
5442	90 Degrees Concave	Carton	2
5443	90 Degrees Circle	Carton	2
5444	90 Degrees Hexagon	Carton	2
5445	90 Degrees Trapezoid	Carton	2
5635	90 Degrees Square – 6" Radius Cut Corner	Carton	2
5636	90 Degrees Square – 6" Square Cut Corner	Carton	2
5448	90 Degrees Small Rectangle	Carton	2
5449	90 Degrees Large Rectangle	Carton	2
7101P01	60 Degrees Parallelogram	Carton	2
7101T01	60 Degrees Triangle	Carton	2
7101Z01	60 Degrees Trapezoid	Carton	2

ACCESSORY KITS Applications always require more than one kit.

Item # Kit Contents

5450 – Deck Hanging Kit

Allows for suspending individual shapes or grouping frames from deck and bottom-end adjustment of height at panel or frame level.

- (2) gripper structure anchors
- (2) gripper structure caps
- (2) 8' aircraft cables
- (2) bottom-end cable adjusters
- (2) nuts with washers



7121 – Angled Hanging Kit (60° maximum angle)

For use when hanging panels at different angles. Extends from the end of Deck Hanging Kit (5450).

- (2) angled hanging cables



625530 – Extended Hanging Cables

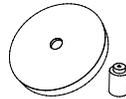
For use with Deck Hanging Kit when longer cables are needed.

- (4) 30' aircraft cables

7006 – Escutcheon Kit

Used when hanging panels below an existing ceiling.

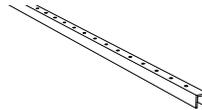
- (2) collars with set screws
- (2) 2" escutcheons



5451 _ _ * – Grouping Frames Kit

Suspension frames used to group panels together.

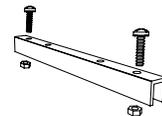
- (4) suspension frames,
12' long, Black (BL) or White (WH)



5452 _ _ * – Frame Splice Kit

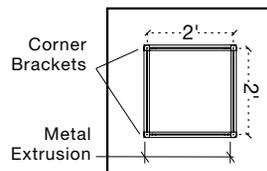
Connects group suspension frames for longer runs (> 12 feet).

- (2) group frame connectors,
10" long, Black (BL) or White (WH)
- (4) bolts with washers
- (4) nuts



NOTE: Accessory kit hardware is attached to panels via the metal extrusion or corner brackets on the back of each panel. The diagram on the right shows the location of extrusions and corner brackets in the back of a nominal 4' x 4' panel. See installation instructions BPLA-297302 for more details. If you need assistance identifying what and how many accessory kits are needed for your project, please contact TechLine customer support at 1 877 276 7876.

* Indicate desired color using two-digit color code when ordering;
BL = Black; WH = White



Item # Kit Contents

5453D090 – 90° Frame Alignment Kit

For use with 90 degree group suspension frames.

- (4) frame alignment spacers, clear plastic
- (4) bolts
- (4) nuts with washers



5453D060 – 60° Frame Alignment Kit

For use with 60 degree group suspension frames.

- (4) frame alignment spacers, clear plastic
- (4) bolts
- (4) nuts with washers



5454 _ _ * – Panel Hook Kit

For use with group frames. All panels require 1 kit, except Item 5449 (Large Rectangle) and item 7101Z01 (60 degree Trapezoid) require two kits.

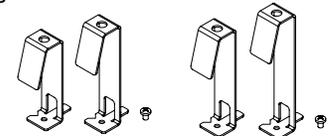
- (2) 4-1/2" high panel hooks, Black (BL) or White (WH)
- (2) 3-1/2" high panel hooks, Black (BL) or White (WH)
- (8) bolts



Multi-plane Hanging Kits

For use when hanging panels at heights below Panel Hook Kit (5454).

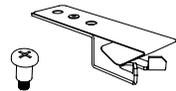
- | | |
|-------------------------|-------------------------|
| 5629 – 1" Drop Hook Kit | 5631 – 3" Drop Hook Kit |
| (2) 4-1/2" hooks | (2) 6-1/2" hooks |
| (2) 5-1/2" hooks | (2) 7-1/2" hooks |
| (8) screws | (8) screws |
| 5630 – 2" Drop Hook Kit | |
| (2) 5-1/2" hooks | |
| (2) 6-1/2" hooks | |
| (8) screws | |



5455 – Drywall Ceiling Hanging Kit

For individual panel attachment to drywall.

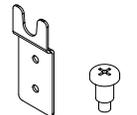
- (2) drywall clip assemblies
- (2) shoulder bolts



5588 – Wall Hanging Kit

For individual panel attachment to a wall.

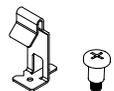
- (4) clip assemblies
- (4) shoulder bolts



5632 – Grid Hook Kit

For hanging individual panels from a standard suspension system.

- (4) hooks
- (8) screws



MORE INFORMATION

For more information, or for an Armstrong Ceilings representative, call 1 877 276 7876.

For complete technical information, detail drawings, CAD design assistance, installation information, and many other technical services, call TechLine customer support at 1 877 276 7876 or FAX 1 800 572 TECH.

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