FeltWorks® Blades – HookOn Acoustical Panels

Assembly and Installation Instructions

TABLE OF CONTENTS

Installation Video

Scan the QR code with your smartphone camera or click here to view the installation video.

Armstrong® World Industries

1. GENERAL

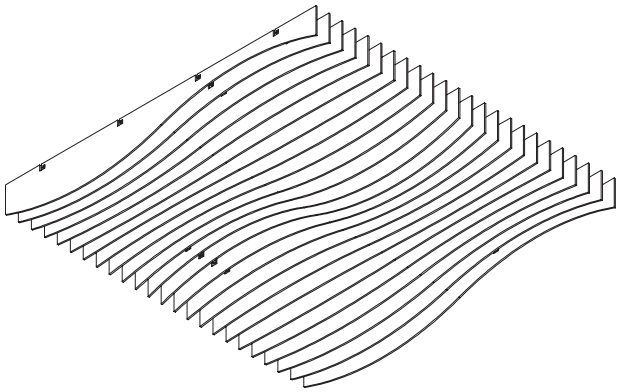
1.1 Product Description

FeltWorks® Blades – HookOn panels are vertical, acoustical felt panels designed to be suspended from aluminum suspension bars (Item 8230AB). FeltWorks Blades – HookOn panels are made from polyester felt (PET) fibers, with color throughout, and finished on all edges and surfaces.

FeltWorks Blades – HookOn panels are available in Rectangular Blades, Ebbs and Flows Modular Kits, and Peaks and Valleys Modular Kits. See the product data page for dimensions of each panel. Additionally, custom shape and size panels can be ordered through ASQuote@armstrongceilings.com

There are 15 standard color options for FeltWorks Blades – HookOn panels. Field painting will void the product warranty.

FeltWorks Blades – HookOn panels are engineered for use in seismic areas when installed in accordance with these installation instructions. Reference Section 7 for more detailed instructions on seismic installations.



1.2 Storage and Handling

FeltWorks Blades – HookOn panels should be stored in a dry interior location and must remain in the original carton prior to installation to avoid damage. The carton(s) should be stored in a flat, horizontal position. The vertical panels should not be removed from the carton until the suspension system is installed. Proper care should be taken when handling Blades panels to avoid damage and soiling. It is recommended to hold the panels in the vertical orientation to avoid creasing the blade. White cotton or latex gloves are recommended for handling. It is recommended that two installers handle 96" FeltWorks Blades – HookOn panels.

1.3 Site Conditions

FeltWorks Blades – HookOn panels can be installed where the temperature is between 40°F (4°C) and 158°F (70°C). Panels cannot be used in exterior applications, where standing water is present, or where moisture will come in direct contact with the FeltWorks Blades – HookOn panels.

1.4 FeltWorks Blades – HookOn Panel Layout

FeltWorks Blades – HookOn panels are available in a variety of lengths and shapes and are able to be suspended on aluminum suspension bars. Please note that panels have a 1/4" gap between ends of panels for best visual due to potential bowing.

1.5 Fire Performance

FeltWorks Blades – HookOn panels achieve Flame Spread Index 25 or less. Smoke Developed Index 450 or less. Class A per ASTM E84. FeltWorks Blades – HookOn panels 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 code official for guidance on the proper installation techniques where fire detection or suppression systems are present.

1.6 Warranty

The FeltWorks Blades – HookOn panel systems have been tested based on the installation methods described in this document. Warranty will be voided if you do not follow these instructions and guidelines.

1.7 HVAC Design and Operations and Temperature/Humidity Control

Proper design for both air supply and return air, maintenance of the HVAC filters, and building interior space are essential to minimize soiling. Before starting the HVAC system, make sure the supply air is properly filtered and the building interior is free of construction dust. FeltWorks Blades – HookOn panels are for interior use only and cannot be used where standing water is present or where moisture will come in direct contact with the ceiling.

1.8 Plenum

FeltWorks® Blades – HookOn panels allow downward accessibility to the plenum. Blades – HookOn panels can be unattached and reattached to the aluminum suspension bars.

Blades – HookOn panels are installed below the suspension system, and do not need to travel above the suspension system during installation.

NOTE: Light fixtures and air handling systems require more space and may determine the minimum plenum height for the installation.

1.9 Cleaning

Use a clean, dry, soft, white cloth to wipe off any dust or fingerprints. A vacuum can also be used to remove dirt from the panels. Vacuum cleaner brush attachments, such as those designed for cleaning upholstery or walls, do the best job. Be certain to clean in one direction only to prevent rubbing dust into the face of the panel. If this does not clean the panel, use a damp, clean, soft, white cloth or sponge with a mild detergent to wipe the panel. Remove any remaining moisture with a dry cloth.

2. DESIGN AND INSTALLATION CONSIDERATIONS

2.1 Directionality

There is a natural fiber direction in the FeltWorks Blades – HookOn panels, similar to the graining found in natural wood products. Overall installation designs are non-directional. FeltWorks Blades – HookOn panels installed on the Aluminum Suspension Bar (Item 8230AB) will be limited to panels running perpendicular to the suspension bars.

2.2 Sprinklers

FeltWorks Blades – HookOn panels 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 code official for guidance on the proper installation techniques where fire detection or suppression systems are present.

Standard FeltWorks Blades – HookOn panels can hang 3"-12" below the face of the suspension bar. Sprinkler heads may need to clear the bottom of the panels depending on the openness of the layout. See local building code official or fire protection engineer.

2.3 Colors

There are 15 standard color options for the finished FeltWorks Blades – HookOn panels. Field painting will void the product warranty. Natural variations in color and grain are characteristic of felt products. These are color-throughout blades.

FeltWorks Blades – HookOn panels are manufactured in dye lots. Panel color and texture may vary from order to order; adequate attic stock should be ordered. Otherwise, orders and material from separate dye lots may have an unacceptable color variance. If orders must be placed at separate times, it is recommended to install the material from the separate orders in different areas of the project.

2.4 Approximate System Weight and Attachment to Deck

FeltWorks Blades – HookOn panels have an approximate weight of .40 LBS/SF. You will need to calculate LBS/SF for the installation method based on your layout and the panels used.

Hanger connections to the ceiling structure must follow the fastener manufacturer's instructions and reference code based on the system weight and structure into which the suspension system will be fastened. Average system weight per square foot will depend on the design layout and must be calculated by installer.

2.5 Accessibility

FeltWorks Blades – HookOn panels are vertically mounted panels. When blades are installed on aluminum suspension bars, FeltWorks Blades – HookOn panels can be removed for access into the plenum. Make sure to place the blades on a clean surface once they are removed.

2.6 Cutting Panels

FeltWorks Blades – HookOn panels may be cut with a variety of tools, depending on the type and precision of cut required. Tool speeds and the angle of the cut should be such that the panel does not melt from frictional heat. In general, the highest speed at which overheating of the tool or panel does not occur will give best results.

2.6.1. The following tools can be used to make cuts in the field:

- Hand tools may be needed to cut straight or circular cuts. Tools that have proven performance include insulation cutting knife, snap-away utility knife, straight knife.
- 3 to 4 passes may need to be made to cut through the material
- Ensure blade is long enough to cut through the material to prevent poor edge quality
- Utilize a straight edge to guide the hand tool to ensure the cut edge remains straight
- Circular saw can be used for straight cuts. Be sure to use a 7-1/4" foam blade, such as Bullet Tools™ CenterFire™ or equal, or a non-ferrous/plastic blade, such as Diablo® D0756N or equal. Utilize a straight edge to guide the circular saw to ensure the cut edge remains straight. Constant feed rate is critical to limit panel melting on the cut edge.
- When using the circular saw, make sure the blade comes to a complete stop before backing the saw out of the cut

2.6.2 Make sure panel is supported on a clean surface when making cuts to minimize the risk of blemishes or melting on the cut face.

2.6.3 It is recommended that the same blade is not used when cutting panels that have different colors in order to minimize the risk of transferring colored fibers between panels.

2.6.3.1 If you only have one cutting blade, mineral spirits (or other similar solvents) can be used to clean the cutting blade with steel wool.

2.6.4 Make sure the blade is kept clean and sharp to ensure optimal cuts.

NOTE: If a blade is cut down in size, it will need at least two connection points to the aluminum suspension bar system.

2.7 Blades Panel Layout

Minimum spacing between FeltWorks® Blades – HookOn panels is 4" O.C. due to the preset notches on the aluminum suspension bars. Blades can be spaced at 4", 8", 12", or any other 4" increments by skipping the preset notches. For other spacing options contact ASQuote@armstrongceilings.com for custom suspension bar options.

2.8 Product Classification

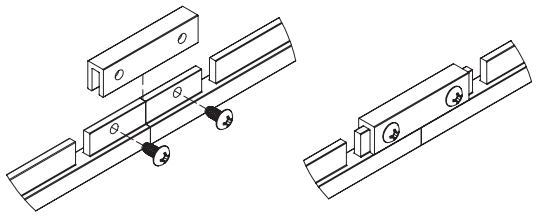
FeltWorks Blades – HookOn panels are classified as an “architectural element” (no bracing is needed) when installed using the aircraft cables. This means the system:

- Must be able to swing 360°
- Must not be able to come in contact with essential components in the ceiling
- Since aircraft cables are used, the maximum swing that can be expected is 18"

3. ACCESSORIES

3.1 Suspension Bar End-to-End Connectors (Item 6651AB)

Layouts with suspension bars longer than 96" will require multiple suspension bars to be spliced together. End-to-End Connectors and screws (Item 6651AB) are required to splice the suspension bars together and maintain proper spacing and alignment ***(Fig 1)***.



(Fig 1)

4. SUSPENSION SYSTEM

The requirements listed here represent the manufacturer’s minimum acceptable installation recommendations and may be subject to additional requirements established by the local authority having jurisdiction. The suspension system chosen must be fastened to the structure per code in the installed location.

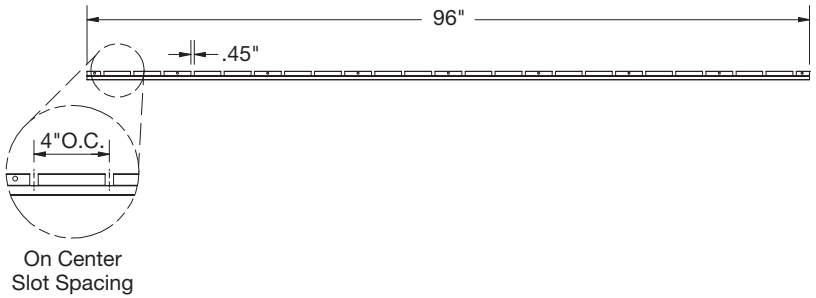
4.1 Aluminum Suspension Bars

FeltWorks Blades – HookOn panels installed on the Aluminum Suspension Bars (Item 8230AB) are not designed for sloped installations.

The aluminum suspension bars are hung with the Blades Hanging Kit (Item 6655L8CR) suspension assemblies. Each suspension bar requires one hanging kit, which includes four hanging assemblies.

Aluminum Suspension Bar Installation

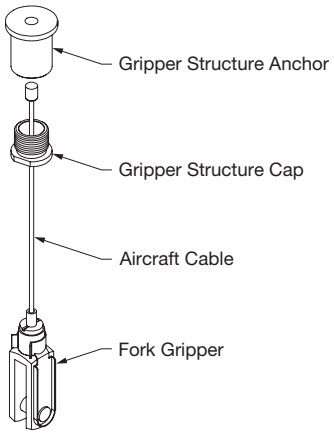
- Determine the direction of the FeltWorks® Blades – HookOn panels per the RCP. The suspension bars will be installed perpendicular to the length of the blades. The suspension bars should be installed 11-7/8" O.C. from the desired starting location of the blades end and continuing 24" O.C. across the field of the installations, making the last row end 11-7/8" from the end of the run of blades ***(Fig 2)***.



(Fig 2)

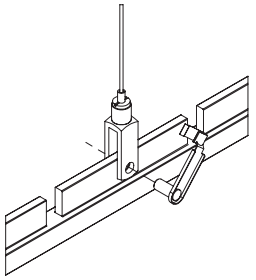
- Determine the location to hang the first suspension bar. The Blades Hanging Kit (Item 6655L8CR) includes: (4) 96" long cables with stops, (4) fork gripper adjusters, and (4) gripper structure anchors. Each suspension bar uses one kit with the assemblies located 12" from the end and then at 24" O.C. across the length of the bar in pre-drilled holes ***(Fig 3)***.

NOTE: In cases where attachment to structure is not possible at 24" O.C., hanging kit assemblies can be spaced at a maximum of 36" O.C. along the length of the bar, and within 12" of each end of the bar. Holes for the attachment pin will have to be drilled in the field.



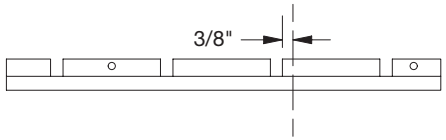
(Fig 3)

- Fasten the gripper structure anchor to the structure. Use fasteners (by others) that are compatible with the structure.
- Thread the aircraft cable through the hole on the gripper anchor cap
- Thread the gripper anchor cap onto the gripper anchor structure
- Attach the fork gripper to the suspension bar by removing the attachment pin from the fork. Install the fork over the vertical fin of the suspension bar to align with the through holes ***(Fig 4)***.



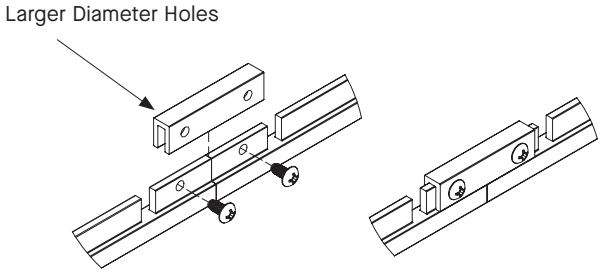
(Fig 4)

- Slip the attachment pin through the fork and hole in the suspension system and secure attachment pin to the top of the fork gripper
- The fork grippers allow for easy leveling by pulling the aircraft cable through the fork gripper. If the aluminum suspension bars need to be lowered, you can press the top of the fork gripper which will allow the cable to release back out of the fork gripper. Aircraft cables need to be plumb before the system is leveled. Aluminum suspension bars should be level to no more than 1/8" over 10'. Any level measurements should be taken accounting for the intended 24" O.C. aluminum bar spacing.
- The suspension bars can be cut to length at the perimeters of the installation. **NOTE:** The suspension bars are extruded aluminum and it is recommended that they are cut with a metal-cutting chop saw or battery-powered circular saw. When cutting to length, be sure to leave at least 3/8" of material from the last notch to the end of the suspension bar ***(Fig 5)***.



(Fig 5)

- Layouts with suspension bars longer than 96" will require multiple suspension bars to be connected together. End-to-End Connectors and screws (Item 6651AB) are required to connect the suspension bars together and maintain proper spacing and alignment.
- End-to-end connectors have smaller diameter holes on one side. Insert the screws from the side with the larger diameter holes so that the screw will properly bind the components ***(Fig 6)***.



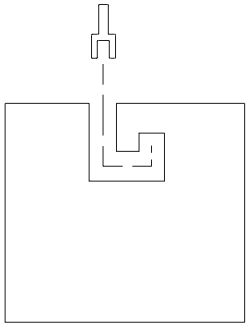
(Fig 6)

5. PANEL INSTALLATION

5.1 General

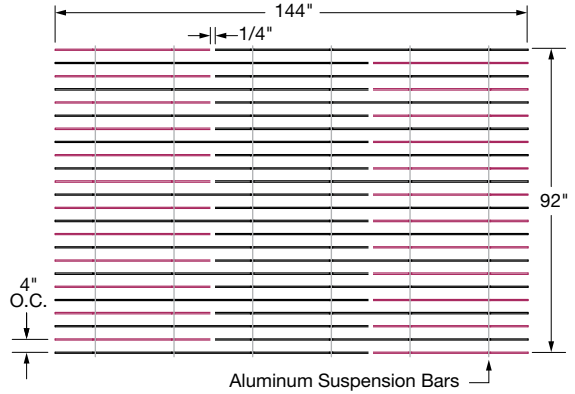
5.1.1 FeltWorks® Blades – HookOn panels require two people to align and install each 96" blade to ensure the blade is not damaged. Blades cannot be used to support any other material. Blades can be rotated 180°.

5.1.2 Each blade is attached to the suspension system by hanging the blade's factory hook cut out within the slot of the aluminum suspension bar ***(Fig 7)***.

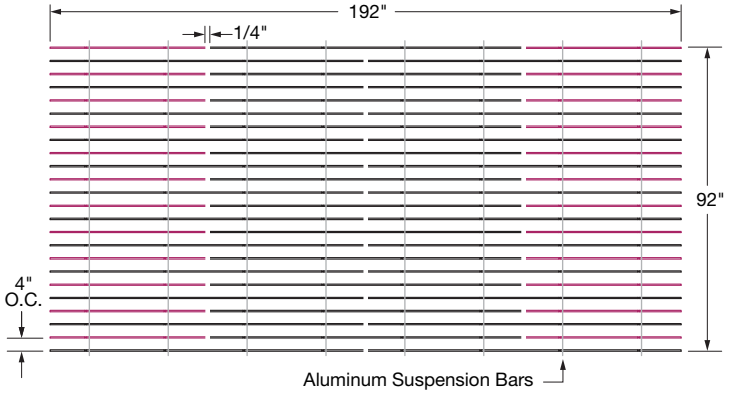


(Fig 7)

5.1.3 The suspension bar allows for rows of blades every 4". Joints between panels should be staggered between blade runs as shown. Blades can be spaced at 4", 8", 12", or any other 4" increments by skipping the preset notches ***(Figs 8 & 9)***.



(Fig 8)



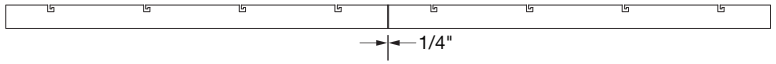
(Fig 9)

KEY
48" Panel
96" Panel
Suspension Bars

5.2 Rectangular Blades Design Considerations

5.2.1 Rectangular Blades with different depths can be installed together to create different patterns and designs.

5.2.2 Blades have a 1/4" gap between ends of panels for best visual due to potential bowing ***(Fig 10)***.



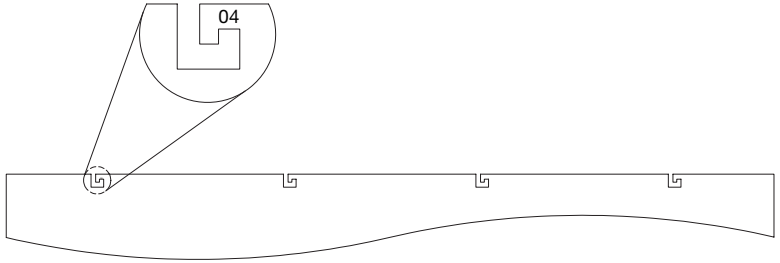
(Fig 10)

5.3 Kitted Blades Design Considerations

5.3.1 The Kitted Blades consist of the Peaks and Valleys Kits and the Ebbs and Flows Kits.

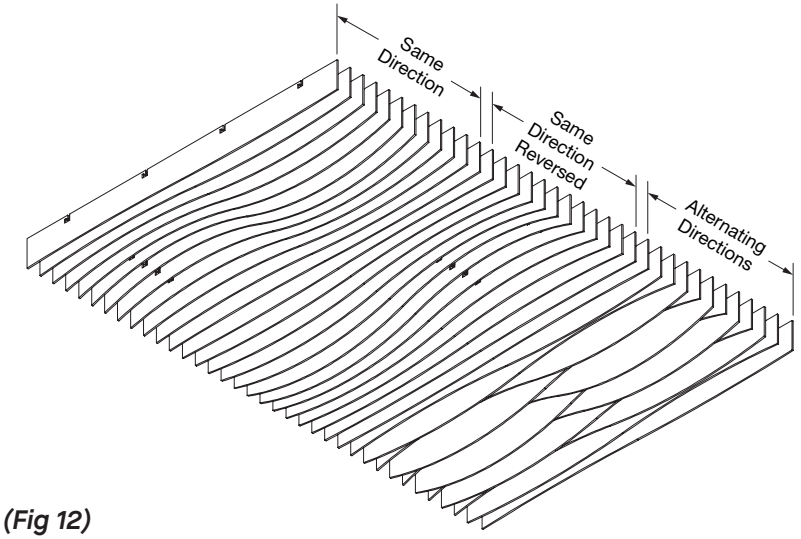
5.3.2 There are 48" blade kits and 96" blade kits. Each kit needs to be ordered to create an installation wider than 96". See Section 5.1.3 to properly stagger your blades.

5.3.3 Each blade will have a two-digit identification number on the left-most hook. Please refer to the online pattern layout guide to determine where each specific blade is located within the design ***(Fig 11)***.



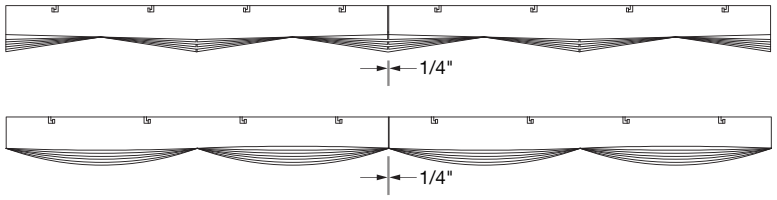
(Fig 11)

5.3.4 Kits can be installed in the same direction or in alternating directions, as shown. Surface texture on the front and back of the blade will vary due to the natural felt fibers ***(Fig 12)***.



(Fig 12)

5.3.5 Blades have a 1/4" gap between ends of panels for best visual due to potential bowing ***(Fig 13)***.



(Fig 13)

6. SPECIALTY INSTALLATION CONSIDERATIONS

6.1 Sloped Installations

FeltWorks® Blades – HookOn panels installed on the Aluminum Suspension Bars (Item 8230AB) are not designed for sloped installations. Contact ASQuote@armstrongceilings.com for sloped solution options.

6.2 Product Classification

FeltWorks Blades – HookOn panels are classified as an "architectural element" (no bracing is needed) when installed using the aircraft cables. This means the system:

- Must be able to swing 360°
- Must not be able to come in contact with essential components in the ceiling
- Since aircraft cables are used, the maximum swing that can be expected is 18"

6.3 MEP Integration

Mechanical fixtures such as lights, speakers, and sprinklers can be installed at the suspension system height, flush with the bottom of the panels, or below the bottom of the panels (refer to Section 2.2 for sprinkler considerations). Fixture weight or housing must not be supported by the blade panels or the aluminum suspension bars.

6.4 Exterior Installations

FeltWorks Blades – HookOn panels cannot be installed in exterior applications.

7. SEISMIC INSTALLATIONS

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.

7.1 Aluminum Suspension Bar Installation

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:

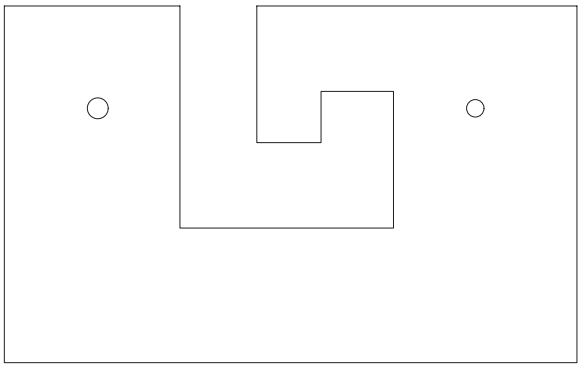
- The connection to the structure shall allow a 360° range of motion in the horizontal plane
- The component may not cause damage to an essential building element

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 canopies has proven to be ineffective and is not recommended.

OSHPD/DSA installations may require additional attachment from blade to suspension bar. Standard blades do not come with pilot holes pre-drilled, however, blades can be ordered with pre-drilled pilot holes adjacent to the hook details (as shown in detail below). 18-gauge hanger wire should be inserted to bridge over the suspension bar and the ends twist together with four turns. Contact ASQuote@armstrongceilings.com for custom panel options or holes can be made in the field as well with an awl or a drill bit ***(Fig 14)***.

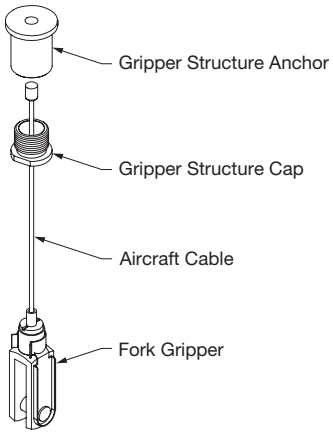


(Fig 14)

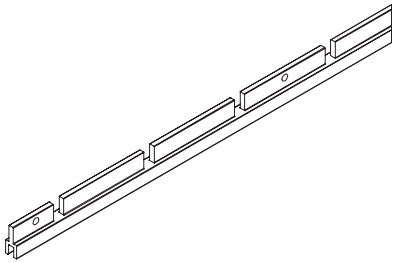
Seismic installations of FeltWorks Blades – HookOn panels are to be handled per building code. Please check with your local code official to see if any additional requirements need to be met.

FELTWORKS® BLADES – HOOKON PANELS						
Item No. ◆	**Description – Sizes are Nominal not Exact**	**Included with Panels**	**Required for Install**	**Sold by the**	**PCS/CTN**	**Notes**
6533RCH0004___	6 × 48 × 3/8" Rectangular Panel	–	–	CTN	16	
6533RCH0001___	6 × 96 × 3/8" Rectangular Panel	–	–	CTN	16	
6533RCH0005___	8 × 48 × 3/8" Rectangular Panel	–	–	CTN	12	
6533RCH0002___	8 × 96 × 3/8" Rectangular Panel	–	–	CTN	12	
6533RCH0006___	10 × 48 × 3/8" Rectangular Panel	–	–	CTN	8	
6533RCH0003___	10 × 96 × 3/8" Rectangular Panel	–	–	CTN	8	
6533KEF0002___	48" Ebbs & Flows Kit	–	–	CTN	24	
6533KEF0001___	96" Ebbs & Flows Kit	–	–	CTN	24	
6533KPV0002___	48" Peaks & Valleys Kit	–	–	CTN	24	
6533KPV0001___	96" Peaks & Valleys Kit	–	–	CTN	24	
SUSPENSION SYSTEM COMPONENTS						
6655L8CR	Blades Hanging Kit	No	Yes	Kit	4	1 Kit has (4) Hanging Assemblies
8230AB	96" Aluminum Suspension Bar for 3/8" thick FeltWorks Blades – HookOn	No	Yes	CTN	8	Includes (4) Suspension Bar End-to-End Connectors (6651AB)
6651AB	Suspension Bar End-to-End Connectors in Anodized Black (recommended finish) Includes 4 connectors and 8 screws	No	Based on Design	CTN	4	Can be ordered as replacements, if needed

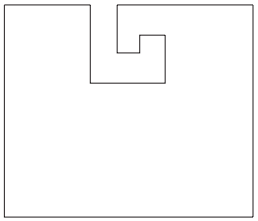
◆ When specifying or ordering, include the appropriate 3-letter color suffix.



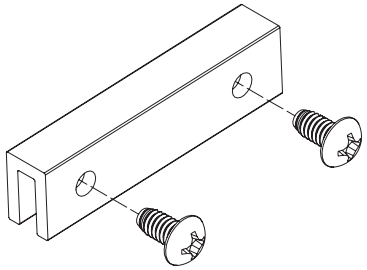
6655L8CR Blades Hanging Kit Assembly



8230AB Aluminum Suspension Bar



FeltWorks® Blades – HookOn Panel Hook Detail



6651AB Suspension Bar End-to-End Connector

MORE INFORMATION

For more information, or for an Armstrong Ceilings representative, call 877 276-7876.
For complete technical information, detail drawings, CAD design assistance, installation information, and many other technical services, call TechLine customer support at 877 276-7876 or FAX 800 572-TECH.

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