

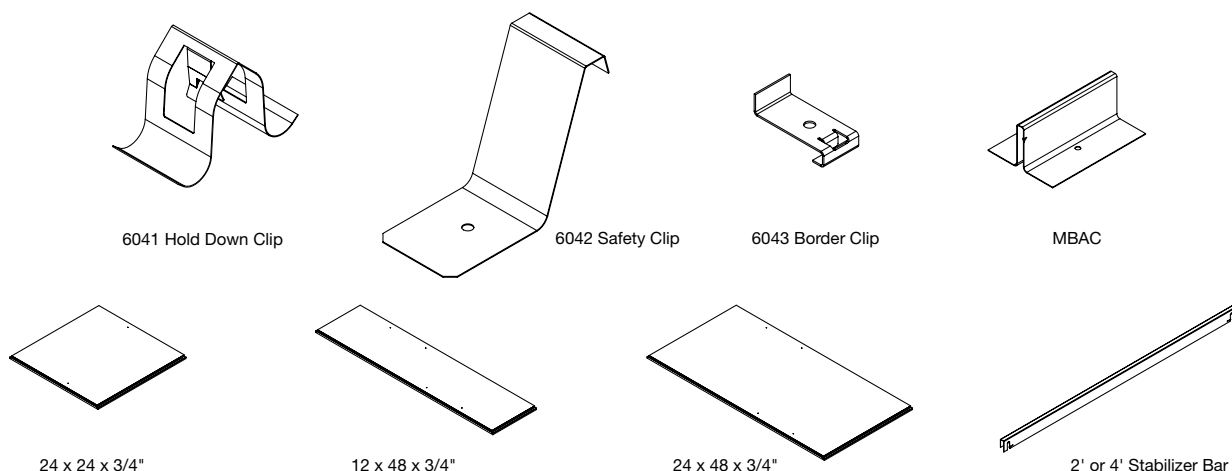
# WOODWORKS® Vector® Panels

## Assembly and Installation Instructions

Item #	Description	Included with panels	Required for Install	Sold by the	Pcs/Ctn	Notes
<b>WoodWorks® Vector® Panels</b>						
5401	24 x 24 x 3/4" panel	–	–	Ctn	16	
5403	24 x 24 x 3/4" panel – FSC	–	–	Ctn	16	
6480	12 x 48 x 3/4" panel – FSC	–	–	Ctn	16	
6482	24 x 48 x 3/4" panel – FSC	–	–	Ctn	16	
<b>Suspension System Components</b>						
7301	Prelude® HD Main Runner	No	Yes	Ctn	20	
XL7341	Prelude HDE 4' Cross Tee	No	Yes	Ctn	60	
XL8320	Prelude 2' Cross Tee	No	Based on layout	Ctn	60	
7875	Shadow Molding for Vector	No	Optional method	Ctn	30	
7800	7/8" Angle Molding	No	Optional method	Ctn	30	
<b>Accessories</b>						
6041	Hold Down Clips	Yes	Yes	–	–	442A can be ordered as replacement
6042	Safety Clips (with screws)	Yes	Yes	–	–	
6043	Border Clip (with screws)	Yes	Optional method	–	–	
7870	Spring Border Clip	No	Optional method	Ctn	1000	
7425, 7445	2' and 4' Stabilizer Bars	No	Yes*	Ctn	50	
MBAC	Main Beam Adapter Clip	No	Optional method	Ctn	70/50	

Reference Price List for minimum order quantities.

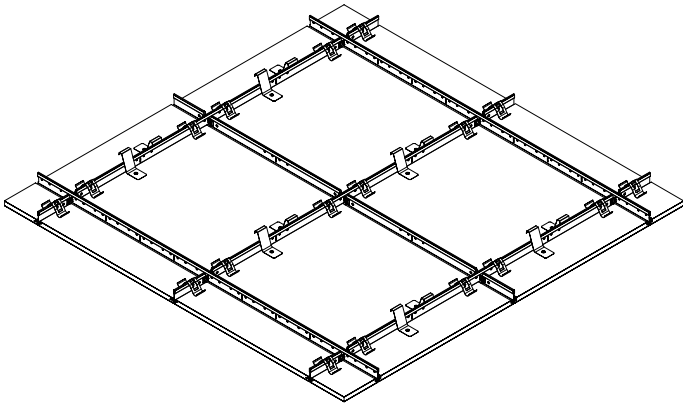
\*Stabilizer bars are required if grid is not attached to perimeter with GCWA or BERC2.



## 1. GENERAL

### 1.1 Product Description

WoodWorks® Vector® ceilings consist of perforated and unperforated panels that are downward accessible, and are designed to be installed on a Heavy-Duty 15/16" wide T-Bar suspension system. Available sizes are 12" x 48", 24" x 24", and 24" x 48". All full panels without penetrations can be removed and reinstalled for access to the plenum without the need for special tools. Two parallel edges of each panel engage the grid. These edges have specially designed kerf details, which allow one edge of the panel to be raised slightly off of the suspension system flange, and then moved out of position. The other two sides are fitted with reverse tegular edges, which work to center the panel within the suspension system opening.



### Surface Finish

All wood panels are constructed of fire-retardant particle board bonded together between two layers of wood veneer finish. All exposed edges are banded with the same finish as the face.

*For Seismic installations refer to section 9.*

### 1.2 Storage and Handling

WoodWorks components should be stored in a dry interior location and shall remain in cartons prior to installation to avoid damage. The cartons should be stored in a flat, horizontal position. The protectors between panels should not be removed until installation. Proper care must be taken when handling to avoid damage and soiling. Do not store in unconditioned spaces with humidity greater than 55% or lower than 25% RH, and temperatures lower than 50°F or greater than 86°F. Panels must not be exposed to extreme temperatures, for example, close to a heating source or near a window where there is direct sunlight.

**NOTE:** Vector panels feature exposed edges. Exercise appropriate care to avoid unnecessary contact with the panel edges. Remember that the suspension system flanges will not conceal panel edge damage.

### 1.3 Site Conditions

WoodWorks ceiling panels are required to reach room temperature and have stabilized moisture content for a minimum of 72 hours before installation. Remove plastic wrap to allow panels to acclimate. They should not, however, be installed in spaces where the temperature is lower than 50°F or greater than 86°F, or humidity conditions are greater than 55% or lower than 25% RH. Panels must not be exposed to extreme temperatures, for example, close to a heating source or near a window where there is direct sunlight.

### 1.4 Safety Considerations

This product is made of wood fibers. Sawing, sanding, or machining these products can produce wood dust. Airborne dust can cause respiratory, eye, and skin irritation. Respirable wood dust is classified as a carcinogen. Personal protective equipment includes safety glasses or goggles, and impervious gloves. Respiratory protection may be required and depends on how the product is being cut and handled. Job site environmental conditions must be evaluated in determining what type of respiratory protection is required. In all cases, cutting is to be performed in a well-ventilated area and power tools must be equipped with a dust collection system. Refer to the Safety Data Sheet [www.armstrongceilings.com/WoodWorks](http://www.armstrongceilings.com/WoodWorks) for additional information.

### 1.5 Warranty

The WoodWorks Vector system has been tested based on the installation method described in this document. Warranty will be voided if instructions and guidelines are not followed.

### 1.6 HVAC Design & Operation and Temperature and Humidity Control

Real wood and wood composite products are natural building materials and they will react to changes in humidity. Spaces with installed product should be maintained with humidity in a range between 25% and 55% RH, and temperatures in a range between 50°F and 86°F (wood tends to contract with lower humidity and expand with higher humidity). Wood may also have a tendency to warp, twist, or bow due to the natural stresses in the components and these humidity changes. Be aware of these natural tendencies when evaluating the products. It is also necessary for the area to be enclosed and for the HVAC systems to be functioning and in continuous operations for the life of the product. All wet work (plastering, concrete, etc.) must be complete and dry. These products cannot be used in exterior applications.

### 1.7 Plenum Space

Installation of Vector panels requires no additional space in the plenum than that which is required to install the hanger wires for the suspension system. Three inches (3") is generally accepted as the minimum practical space that is needed to attach these wires.

WoodWorks Vector panels require Hold Down Clips and Safety Clips that require at least 2" above the top of the grid for installation.

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

## 2. DESIGN AND INSTALLATION CONSIDERATIONS

### 2.1 Directionality

- All WoodWorks Vector panels are directional due to the veneer.
- Panels can be rotated 180 degrees but not 90 degrees.

The grain direction should be noted on the reflected plans or clarified before installation of the grid system.

- All WoodWorks Vector panels have the grain direction running parallel with the A and B edges.
- For 1' x 4' and 2' x 4' panels the A and B edges are parallel to the length of the panel.

*Please see section 7 for details of A and B edges.*

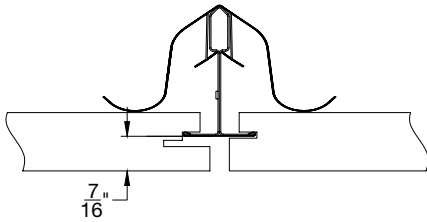
**NOTE:** To ease the installation of border panels it is recommended that the A and B edges be installed perpendicular to the main beams.

## 2.2. Layout

See section 4 for suspension system layout options for all panel sizes. Panel sizes can be mixed within an installation as long as the grain direction is considered with the design.

## 2.3 Panel Face Offset

The face of the Vector® panel extends 7/16" below the face of suspension system. The height of components that interface with the ceiling panels, such as sprinkler heads and light fixture trim rings, will have to be adjusted to accommodate this 7/16" offset.



## 2.4 Plenum

Installation of Vector panels requires no additional space in the plenum than that which is required to install the hanger wires for the suspension system. Three inches (3") is generally accepted as the minimum practical space that is needed to attach these wires.

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

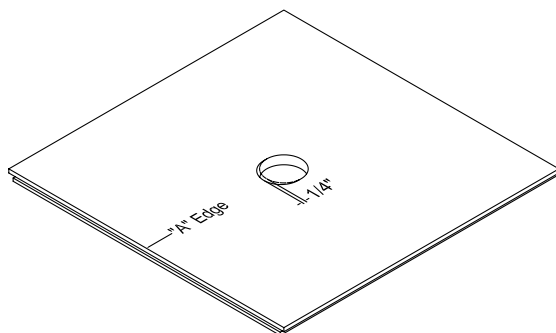
## 2.5 Accessibility

WoodWorks® Vector® panels are designed to be downward accessible without the use of access tools. Panels that have penetrations will lose accessibility. Border panel accessibility will depend upon the installation method.

## 2.6 Penetrations

Holes cut for sprinkler heads and other services that penetrate the ceiling panel must be cut slightly oval shaped to allow the panel to move 1/4" in the direction of the "A" edge. Additionally, trim rings for these devices must be wide enough to accommodate this 1/4" movement.

**NOTE:** Panels with penetrations are rendered inaccessible.



## 2.7 Approximate System Weight (lbs/SF) & Attachment to Deck

Overall system weight will be based on the panel and grid layout:

- WoodWorks Vector panels weigh 2.75 lbs/SF.
- The weight of the suspension system ranges between 0.2 – .03 lbs/SF based on the grid layout and components used.

Hanger connections to structure must follow the manufacturer's instructions and reference code. Average system weight per square foot will depend on design layout.

## 2.8 Wood Veneer Characteristics

WoodWorks panels are made with a variety of real wood veneers. Natural variations in color and grain are characteristic of wood products. To maximize visual consistency, panels should be unpacked and examined collectively to determine the most desirable arrangement for installation. Where consistency is critical, Armstrong Ceilings can offer custom solutions to meet your budget and aesthetic requirements. Consult HPVA Hardwood, Plywood and Veneer Association for additional information on veneers and veneer grades.

## 2.9 Sprinklers

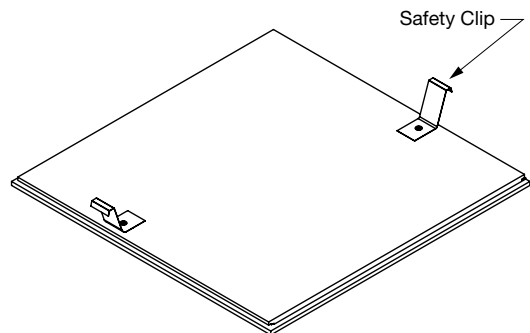
Sprinklers must be installed to accommodate the 7/16" drop of the panel face from the face of the grid.

Penetrations cut for sprinklers must also be cut in accordance with section 2.6 Penetrations, cutting the hole to allow 1/4" movement in the "A" direction. These cuts will require trim rings wide enough to accommodate these openings.

## 3. ACCESSORIES

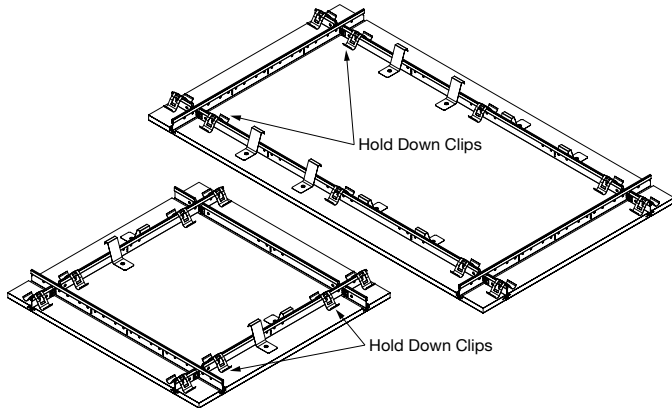
### 3.1 Safety Clips (6042)

Downward access suggests the need for a mechanism to prevent panels from dropping when disengaged from the suspension system. Two safety clips are required for each 24" x 24" panel. 1' x 4' and 2' x 4' panels require four clips per panel. Clips and screws are included and shipped with the product. These clips must be attached to each panel by means of the #8 x 9/16" screws provided. Pre-drilled pilot holes are located along both the "A" and "B" edge of the panel. For each safety clip, drive a screw into the pre-drilled hole for proper location. Safety Clips are required for all full-size, field panels. Perimeter panels are secured by other methods (etailed in section 7) which negate the requirement of Safety Clips at the perimeter.



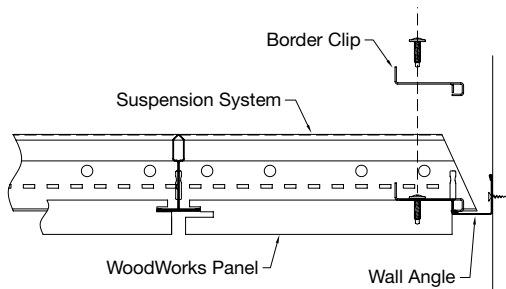
### 3.2 Hold Down Clips (6041)

Hold Down Clips keep the kerfs of the panel properly seated on the flange of the grid. These clips are only located along the A and B edges of the panels. 2' x 2' panels require two (2) Hold Down Clips per panel, 1' x 4' and 2' x 4' panels require three (3) Hold Down Clips per panel. Clips are included and shipped with the product. Clips should be applied to the suspension system before the placement of the panels. Refer to the detail below for clip locations.



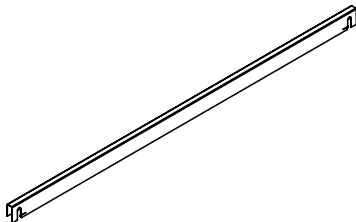
### 3.3 Border Clips (6043)

Apply WoodWorks® Vector® Border Clips to the cut edge of the panel as shown when following Option B for border panels (section 7). Use one (1) #8 x 9/16" screw (included) in each clip. Clips are required within 6" of the edge and then at 1' O.C. Clips and screws are included and shipped with the product.



### 3.4 2' and 4' Stabilizer Bars (items 7425, 7445)

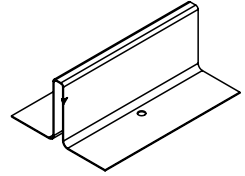
2' and 4' Stabilizer Bars (items 7425, 7445) – Used at borders to limit movement of grid in the absence of perimeter clips (BERC2, GCWA) or Axiom® trim clips (AXTBC, AXVTBC). Also, required throughout the field of the installation for any panels over 5' long.



### 3.5 Main Beam Adapter Clip (MBAC)

The MBAC is used as a method to positively secure any border or cut panels within the suspension system. It is placed over the bulb of the grid and is screw-attached from above into the back of two adjacent panels with the #8 - 9/16" screws that are included with the panels. This installation method requires enough plenum space to operate a screw gun down into the back of the panels. See section 7.6 perimeter options A and B for details on when this clip is required.

- Use of the MBAC eliminates accessibility unless it is unscrewed from the top.
- Panels secured with the MBAC are not required to have Safety Clips.



## 4. SUSPENSION SYSTEM (WALL TO WALL)

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.

- All installations should follow ASTM C636.
- All references to suspension component duty ratings are per ASTM C635.

The suspension layout (main beam and cross tee spacing) will depend on the panel size being installed. Please refer to the appropriate section below for the layout specific to your panel size. Contact TechLine for information on alternate grid layouts if it is required for changing the grain direction or integrating fixtures.

Perimeter support and attachment options will change on non-seismic vs. seismic installations. Please refer to section 7.6 for non-seismic and section 9 for seismic perimeter attachment details.

### 4.1 System components:

- All installations of WoodWorks Vector require Heavy-Duty Prelude® 15/16" grid.
- Cross tees must have XL end details and be Heavy-Duty Equivalent (16 lbs./LF).
- Cross tees must be the same height as the main beams (1-11/16").

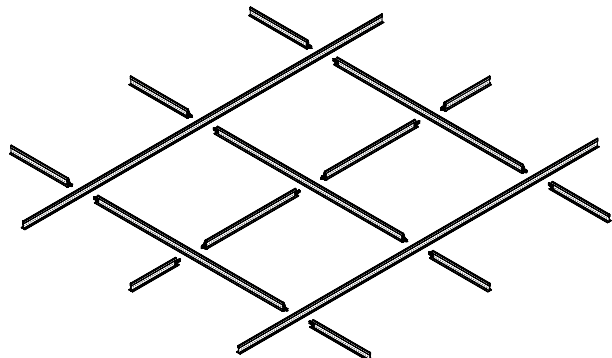
### 4.2 Suspension Rules for All Layouts:

- Hanger wires must be installed within 24" of the wall and no more than 48" O.C.

### 4.3 Suspension Layouts

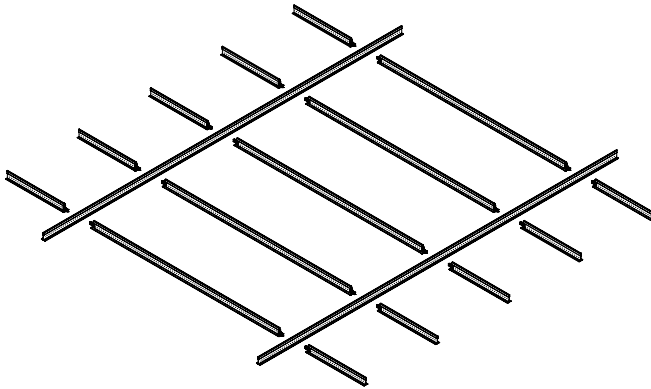
#### 24" x 24" Vector Panels:

- Heavy-duty 7301 main beams spaced 48" O.C.
- XL7341 48" cross tees shall intersect the main beams at 90° every 24" O.C.
- XL8320 24" cross tees shall be installed at the midpoints of the 48" tees, creating 24" x 24" modules.



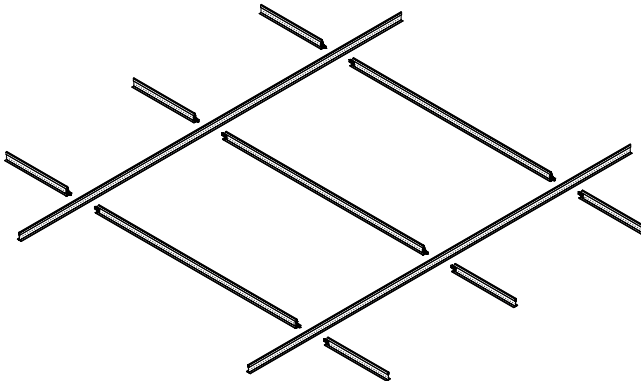
### 12" x 48" Vector® Panels:

- Heavy-duty 7301 main beams spaced 48" O.C.
- XL7341 48" cross tees shall intersect the main beams every 12" O.C., creating 12" x 48" modules.



### 24" x 48" Vector Panels:

- Heavy-duty 7301 main beams spaced 48" O.C.
- XL7341 48" cross tees shall intersect the main beams every 24" O.C., creating 24" x 48" modules.



### 4.4 Suspension Tolerances for Level and Square

- The suspension system must be leveled to within 1/4" in 10' and must be square to within 1/16" within each full-size panel module. Installation on suspension systems that do not meet this tolerance will produce unacceptable panel alignment.

### 4.5 Suspension System Perimeter Support Options (non-seismic)

Perimeter attachments vary based on whether the wall is parallel or perpendicular to the A/B edges of the panels. This is due to the different panel installation methods used for panels with one or two support edges. Refer to the appropriate sections below for the attachment methods for each wall condition of the installation.

#### Walls parallel to A and B Edges (perpendicular to mains):

- Securely fix Grip Clip Wall Attachment (GCWA) or pop rivet all grid members to wall angle. This will ensure that the grid opening that the panels are cut to will not change.
- Hanger wires within 24" of the wall.

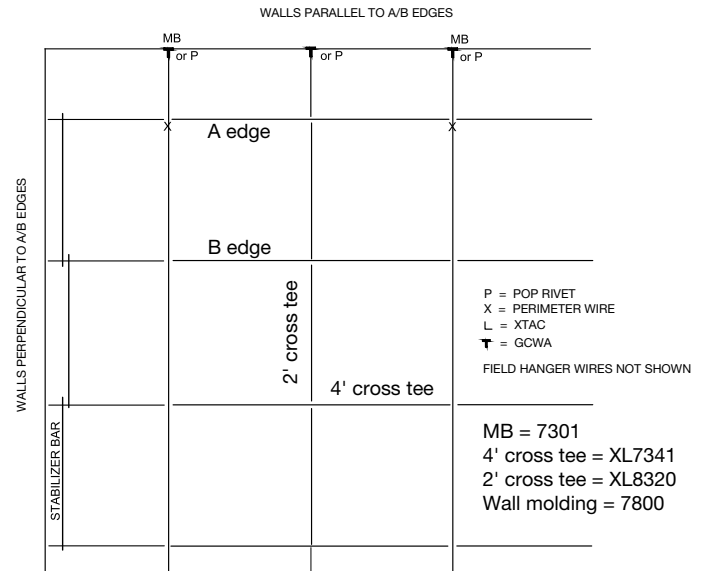
#### Walls perpendicular to A and B Edges (parallel to mains):

Connections to the perimeter on walls perpendicular to the A and B Edges must allow for the grid to be lifted for panel installation. For this reason Stabilizer Bars are recommended,

but if GCWA or BERC2s are used they must not be screw-attached to the perimeter until after panel installation.

### Option #1:

- Layout the suspension system to ensure that a main runner is located within 24" from each wall.
- Stabilizer bars (items 7425, 7445) or GCWAs are required over all grid members at the perimeter to prevent spreading of the grid components.



### Option #2:

- Perimeter wires within 8" of the wall must be installed on all grid members. This allows mains to be installed up to 48" from each wall.
- Stabilizer bars (items 7425, 7445) or GCWAs are required over all grid members at the perimeter to prevent spreading of the grid components.

### 4.6 Wall or Soffits Lateral Bracing

- Walls or soffits that have the wall angle attached that serve to support a panel edge must be braced to structure so as not to allow movement greater than 1/8" when subjected to design lateral force loads. When such bracing is not practical or is not effective for eliminating wall movement panels can be locked in place from above with the MBAC as detailed in section 7.8.
- Axiom® perimeter trim connected to the suspension system with AXTBC clips will also meet this requirement.

## 5. FLOATING PERIMETERS/TRIM FOR DISCONTINUOUS CEILINGS

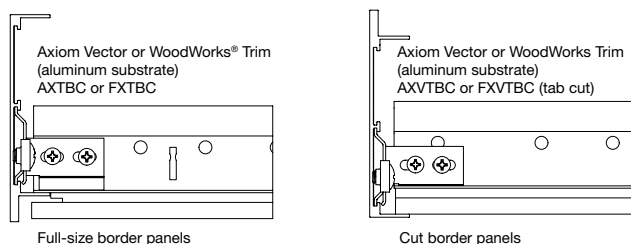
For discontinuous grid installations Axiom trim can be used to provide a professional, finished aesthetic. The installation of Axiom products to be used with this system must conform to the installation instructions for the specific Axiom family (e.g. Classic, Vector, Knife Edge®).

In addition, the following rules will apply:

1. All grid components as described in section 4 of this guide shall be used.
2. All cut and full-size border panels must be secured to the suspension system per directions in section 7.8.

**NOTE:** This product is not to be used with Axiom® Formations™ Clouds due to the weight of the panels.

The finish face of the Vector® panel extends 7/16" below the face of the suspension system.



## 6. TRANSITIONS

The finish face of the Vector panel extends 7/16" below the face of the suspension system. Axiom Transitions can be used for cut or full-size panels, and for elevation changes, or same elevation.

Transitions with cut panels that require matching elevation must account for this by raising the grid 1/2" so that the panel face can rest on the flange of the transition piece. This requires use of the AXVTBC with the tab removed.

Transitions with full-size panels that require matching elevation should use the AXTRVESTR, which will account for the panel face offset and have a matching 1/4" reveal between the panel edges and the transition. Because the transition piece accounts for the offset, standard AXTBC clips are used and do not need to be modified.

## 7. PANELS

Vector ceiling panels are easily installed and removed from below the suspension system without the aid of tools or special equipment, allowing easy downward access to the plenum. Vector panels are designed to provide a consistent, 1/4" reveal between all panel edges.

### 7.1 Panel Edges

The edges of the Vector panels feature unique detailing. The following section is intended to define and explain the function of the edge details.

#### Access Kerf ("A" edge)

- The panel edge designated as "A" edge has a stepped groove detail and is called the Access Kerf. This edge is the first to engage the suspension system. Review the drawings below to familiarize yourself with this unique detail.
- Remember that the "A" edge is always installed first. This panel edge is also the one that must rise when the ceiling must be accessed.

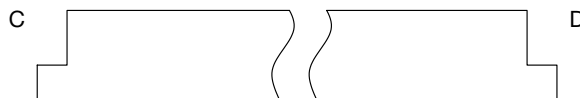
#### Registration Kerf ("B" edge)

- The "B" edge is a single kerf detail that supports the opposite side of the A edge and centers the panel in the A – B direction. This edge is referred to as the registration kerf and is opposite edge "A".



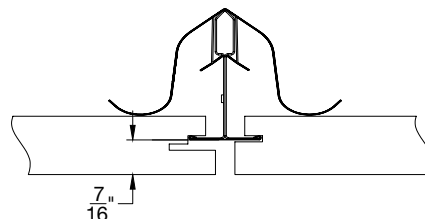
### Reverse Tegular Edges ("C" and "D" edges)

- The two remaining panel edges are reverse tegular cut to fit between the flanges of the suspension system. These edges center the panel in the C - D direction and are called reverse tegular edges and do not engage the grid system.



### 7.2 Panel Face Offset

The finish face of the Vector panel extends 7/16" below the face of the suspension system.



### 7.3 Directionality and Orientation of Panels

All WoodWorks® Vector® panels are directional due to the veneer.

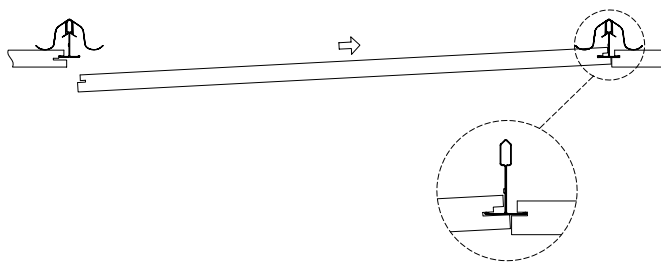
- Panels can be rotated 180 degrees but not 90 degrees.
- All WoodWorks Vector panels have the grain direction running parallel with the A and B edges.
- For 1' x 4' and 2' x 4' panels the A and B edges are parallel to the length of the panel.

**NOTE:** To ease the installation of border panels it is recommended that the A and B edges be installed perpendicular to the main beams.

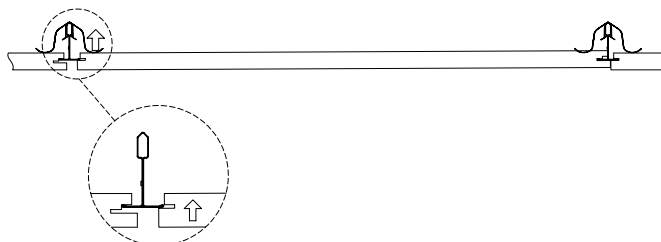
### 7.4 Installing Full-size Panels

The Vector panels are installed in a simple three-step process.

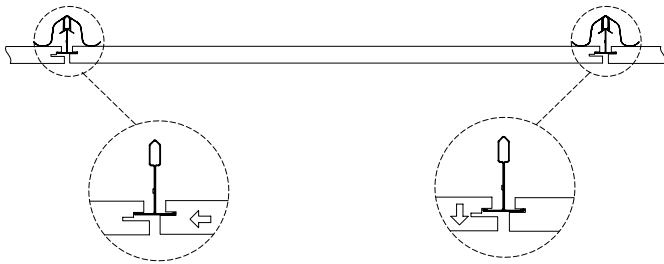
- STEP 1: Fully insert the deepest kerf of edge "A", the access kerf, onto the exposed suspension system flange.



- STEP 2: Raise the "B" edge of the panel, the registration kerf, into the suspension system opening until the kerf lines up with the suspension system flange.



- **STEP 3:** Slide the panel so that the registration kerf on edge “B” engages the suspension system flange. Ensure that the access kerf on edge “A” drops down into the correct position.



Align panels as you proceed to ensure a uniform reveal width in both directions. Pay particular attention to this alignment process. Minor variations in placement can be difficult to see from the scaffold, but will become obvious when looking down long runs of panels.

### 7.5 Panel Removal

Press against the panel face to identify the edge that raises easily. This is the “A” edge. Move the “A” edge up and toward the web of the suspension system member until the “B” edge disengages and drops out of the ceiling plane.

### 7.6 Border Panels

There are two options for border panel installations:

- Panel face resting on molding flange.
- Suspension face resting on molding flange.

The option chosen from above will impact the way that border panels are cut. Refer to the following sections based on the job conditions.

#### 7.6.1 Option A (Panel face resting on molding flange)

Molding items and accessories:

##### Accessories:

- 7870 – Spring Border Clip

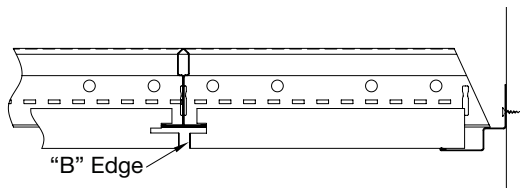
##### Wall Molding Options:

- 7800 – Angle Molding
- 7875 – Shadow Molding for Vector
- 7897 – Seismic Shadow Molding for Vector

##### Grid Spacing at Perimeter Options:

- BERC2 – 2" Beam End Retaining Clip
- GCWA – Grip Clip Wall Attachment
- 7425, 7445 – 2' and 4' Stabilizer Bars

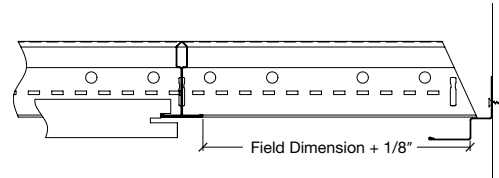
The suspension system is raised above the bottom flange of the molding by 1/2". This clearance will allow the face of the panel to pass over and rest upon the support leg of the shadow molding, while the suspension system rests on the “step” of the shadow molding (item 7875 or seismic item 7897). An alternate option would be to use a standard “L” angle molding but hold the suspension system 1/2" above the horizontal flange.



This method will create a reveal where the suspension system passes over the molding flange, but it eliminates field-cut panel edges that may be exposed to view.

#### 7.6.1.1 Measuring Border Panels

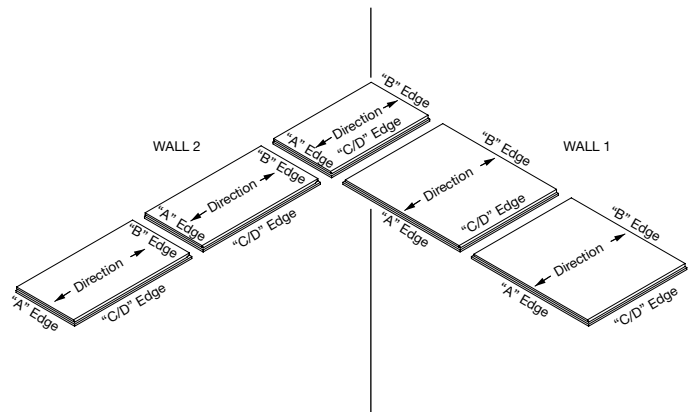
Measure the distance from the edge of the suspension system flange to the step of the shadow molding (or to the wall, if you are using angle “L” molding) and add 1/8". Use this dimension to cut your border panel as outlined in the following section. Panels that do not have at least 3/8" of material resting on the molding will require MBAC clips to secure in place.



#### 7.6.1.2 Cutting Direction Border Panels

Directional panels will require different methods on adjacent walls. The two walls that run parallel to the A/B edges will be cut to fully retain the “B” edge (removing the “A” edge, see Wall 1).

Because the panels are directional, the other two walls, which run perpendicular to the A/B edges will require a “C” or “D” edge to be removed, retaining portions of both the “A” and “B” edges of the panel (wall 2).



Transfer your measurement to the face of the panel and cut using standard woodworking tools. A table saw is recommended for straight cuts and a bandsaw or jigsaw for curved cuts. In general, these practices will be typical of those employed in finish carpentry.

**CAUTION! WOOD DUST.** Sawing, sanding, and machining wood products can produce dust. Airborne wood dust can cause respiratory, eye, and skin irritation. The International Agency for Research on Cancer (IARC) has classified wood dust as a nasal carcinogen in humans.

**Precautionary measures:** If power tools are used, they should be equipped with a dust collector. If high dust levels are encountered, use an appropriate NIOSH-designed dust mask. Avoid dust contact with eyes and skin. First Aid Measure in case of irritation: Flush eyes or skin with water for at least 15 minutes.

#### 7.6.1.3 Corner Panel Installation

It is recommended to install corner panels first. Preparation of the corner panel will require the removal of two edges. Install the panel from above the suspension system and align the “B” edge with the suspension system flange. It may be necessary to swing a cross tee to the side to ease installation. Spring Border Clips (item 7870) must be used on two sides to maintain the location of the panel.

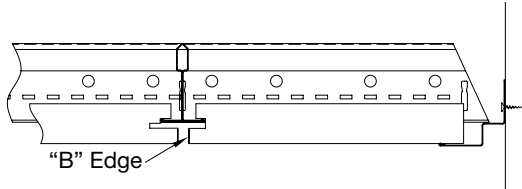


#### 7.6.1.4 Installing Border Panel

There are two different border panel installation methods based on whether the panel is along a wall parallel to the A/B edges or perpendicular to them.

##### Walls parallel to the A/B edges

- 1) Start with the cut edge going up and over the flange of the molding and toward the wall
- 2) Raise the "B" edge of the panel up so that the panel is horizontal.
- 3) Slide the "B" edge back onto the grid flange.



##### Walls perpendicular to the A/B edges

Cut border panels for the other two opposite walls (which retained portions of the "A" and "B" edge), require a different installation method. These panels require both the "A" and "B" edges to engage the grid flanges with the cut edge resting on the molding.

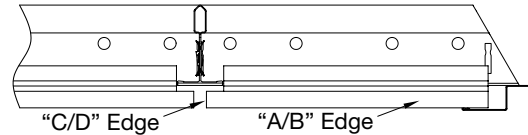
If Stabilizer Bars are being used at the perimeter:

- 1) Start with the cut edge going up and over the flange of the molding and toward the wall.
- 2) Raise the ends of the grid so that the "A" and "B" edges can be engaged on the grid flanges.

If GCWA or BERC2 clips are being used at the perimeter:

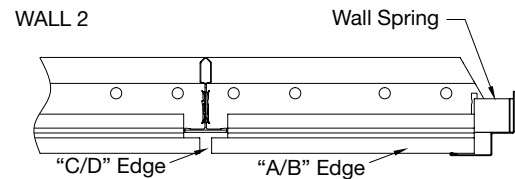
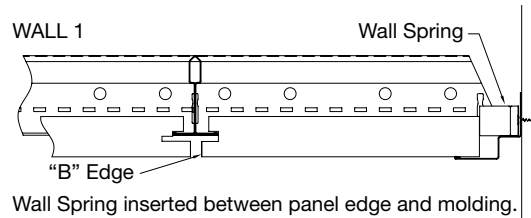
- 1) Start with the cut edge going up and over the flange of the molding and toward the wall.

- 2) In order to have the clearance needed to shift the panel to engage the "A" and "B" edges you may have to slide a cross tee to the side or roll the flange of the grid.



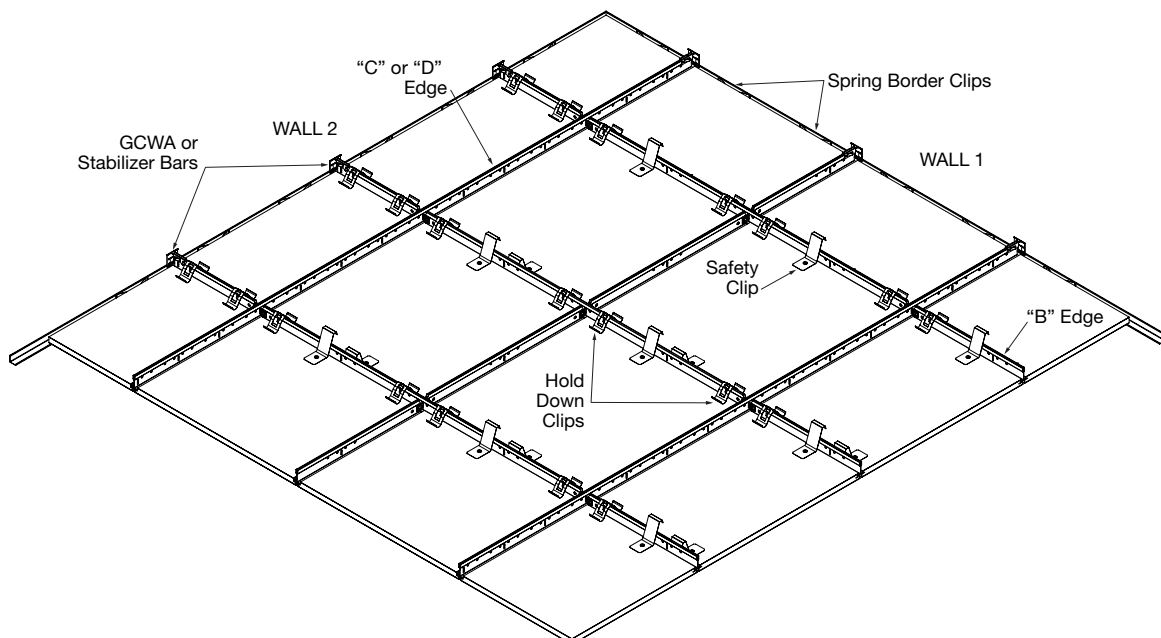
#### 7.6.1.5 Shimming Border Panels

All cut border panels installed with the panel face resting on molding require Spring Border Clips. Spring Border Clips serve two functions: 1) to maintain a consistent reveal, and 2) to prevent panels with only one engagement edge from shifting and disengaging from the grid flange. Insert Spring Border Clips between the edge of the panel and the molding as shown below.



Wall Spring inserted between panel edge and molding.  
NOTE: Hold Down Clips not shown, but required.

## OPTION A OVERVIEW





### 7.6.2 Option B (Suspension face resting on molding flange)

#### Accessories:

- Item 6043 – Vector® Border Clip
- Item MBAC – Main Beam Adapter Clip

#### Wall Molding:

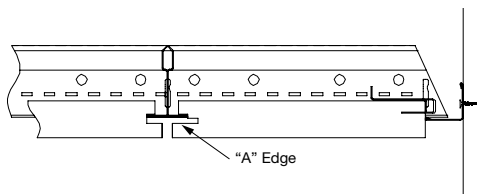
- Item 7800 – 7/8" "L" Wall Molding

#### Grid Spacing at Perimeter Options:

- Item BERC2 – Beam End Retaining Clips
- Item GCWA – Grip Clip Wall Attachment
- Items 7425, 7445 – 2' and 4' Stabilizer Bars

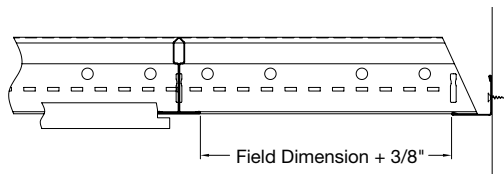
The face of the suspension system components rests directly on the molding or trim flange. The border panels are cut to butt against the molding.

The grain pattern on the panels dictates that they can be rotated 180°, but not 90°. Cutting and installing border panels will require two different techniques, based on whether the wall is parallel or perpendicular to the "A/B" edges.



#### 7.6.2.1 Measuring Border Panels

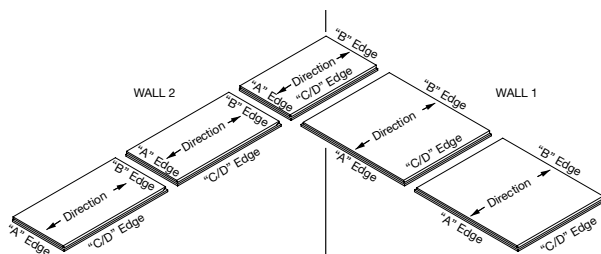
Measure the size of the opening from the edge of the suspension to the edge of the molding and add 3/8". Measure and mark the face side of the panel at both edges. Use this dimension to cut your border panel as outlined in the following section.



#### 7.6.2.2 Cutting Directional Border Panels

Directional panels will require different methods on adjacent walls. The two walls that run parallel to the "A/B" edges will be cut to fully retain the "A" edge (removing the "B" edge, see Wall 1). Because a support edge was removed, Vector Border Clips will need to be added to this edge as described in the installing border panels section.

Because the panels are directional, the other two walls, which run perpendicular to the A/B edges will require a "C" or "D" edge to be removed, retaining portions of both the "A" and "B" edges of the panel (wall 2).



Transfer your measurement to the face of the panel and cut using standard woodworking tools. A table saw is recommended for straight cuts and a bandsaw for curved cuts. In general, these practices will be typical of those employed in finish carpentry.

**CAUTION! WOOD DUST.** Sawing, sanding, and machining wood products can produce dust. Airborne wood dust can cause respiratory, eye, and skin irritation. The International Agency for Research on Cancer (IARC) has classified wood dust as a nasal carcinogen in humans.

**Precautionary measures:** If power tools are used, they should be equipped with a dust collector. If high dust levels are encountered, use an appropriate NIOSH-designed dust mask. Avoid dust contact with eyes and skin. First Aid Measure in case of irritation: Flush eyes or skin with water for at least 15 minutes.

#### 7.6.2.3 Corner Panel Installation

It is recommended to install corner panels first. Preparation of the corner panel will require the removal of two edges. Mark and cut the panel to retain a portion of the "A" edge. Support the cut side of the panel along the wall molding by attaching Vector Border Clips as described in section 3.3. Clips must be within 6" of the ends and spaced 12" O.C. along the cut edge.

It may be necessary to install the panel from above the suspension system, and then align the "B" edge with the suspension system flange. Panels installed this way will no longer be downward accessible.

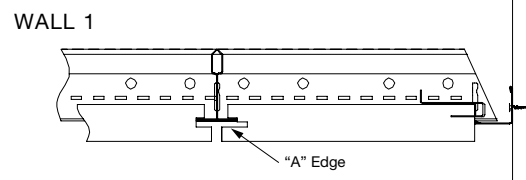
#### 7.6.2.4 Installing Border Panels

There are two different border panel installation methods based on whether the panel is along a wall parallel to the A/B edges or perpendicular to them.

##### Walls parallel to the "A/B" edges

- 1) Start by fully engaging the "A" kerf on the suspension system.
- 2) Raise the cut edge up until the Border Clips are above the wall molding.
- 3) Slide the panel towards the wall until the access kerf of the "A" edge drops down into the correct position.
- 4) Support the cut side of the panel along the wall molding by attaching Vector Border Clips as described in section 3.3. Clips must be within 6" of the ends and spaced 12" O.C. along the cut edge.
- 5) All panel edges supported by Border Clips must be secured with the MBAC as described in section 7.8.

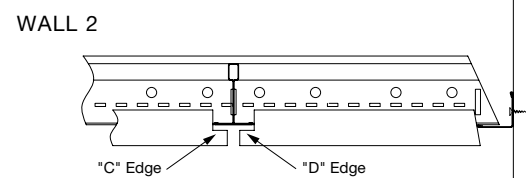
442A Hold Down Clips are required for all "A" edges to keep the panels engaged with the grid.



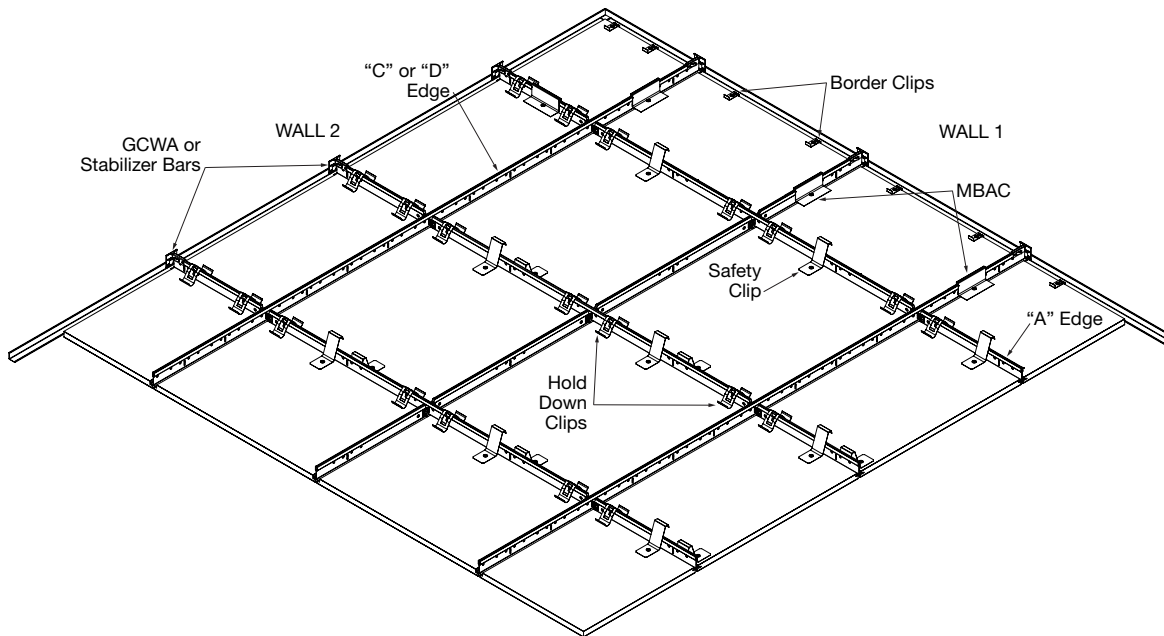
##### Walls perpendicular to the A/B edges

Cut border panels for the other two opposite walls (which retained portions of the "A" and "B" edge), require a different installation method. These panels are installed similarly to full-size panels and require both the "A" and "B" edges to engage the grid flanges.

442A Hold Down Clips are required for all "A" edges to keep the panels engaged with the grid.



## OPTION B OVERVIEW



### 7.7 Treating Exposed Edges

Cut panel edges that are exposed to view will have to be treated to look like factory edges. Prefinished peel and stick edge banding is available for this purpose. Cut edge must be clean and smooth before applying edge banding. Apply wood glue to fill in gaps in particle board substrate. Peel off the release paper (edge banding and trimming tools are ordered directly from Armstrong Ceilings through the Customer Focus Center) and apply the edge banding using finger pressure or a small trim roller. Trim excess material with a sharp knife blade or with the edge trimmer available for order through Armstrong Ceilings.

### Ordering Edge Banding Material

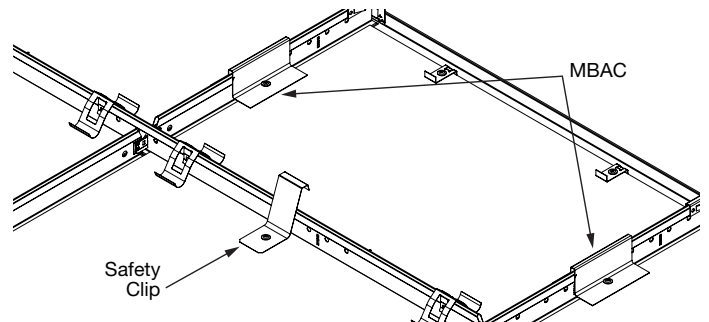
Prefinished pressure-sensitive adhesive banding is available 15/16" wide and in 25' lengths.

### 7.8 Locking in Panels (makes panels inaccessible)

Panels can be secured to the suspension system with the Main Beam Adapter Clip (MBAC). This can be for cut panels along perimeters, panels with "A" edges adjacent to fixtures so that Hold Down Clips cannot be used, or anywhere that the size of the grid openings may not be firmly maintained. Each MBAC will be placed over a grid member and attached to two adjacent panels. Each panel that is intended to be locked down will require one MBAC and two screws.

Steps:

- Place the MBAC over the grid members that are perpendicular to the perimeter.
- Screw down through the horizontal flange of the clip and into the back of the adjacent panels with #8 – 9/16" screws.



This method is required for border panels installed following Option B, and is optional when following Option A as long as at least 3/8" of material rests on the molding.

### 7.9 Cut Panels within the Field (Off-module size)

#### General

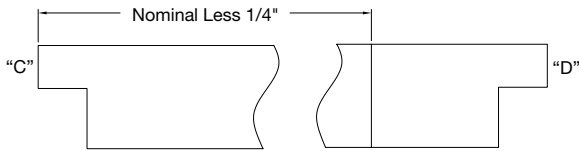
Special-size panels are available to accommodate less than full modules within the field of the ceiling through contacting Armstrong Ceilings Architectural Specialties. Panels can also be field-cut to size but only perpendicular to the A/B edges. Cutting panels parallel to the "A/B" edges would remove one of these engagement edges, which cannot be field replicated.

- All panels have grain direction running parallel to the "A" and "B" edges (cuts must be made perpendicular to the grain direction).

Steps to replicate the reverse tegular detail on the "C/D" edges follow.

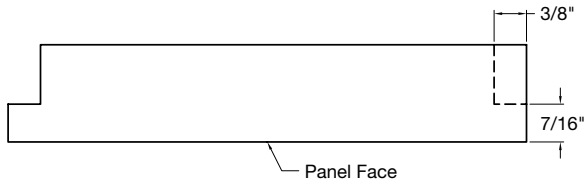
### Measuring the Panel

Measure, mark, and cut the face of the panel  $\frac{1}{4}$ " smaller than the "nominal" dimension required. For example, if the panel is to fit into a nominal 18" x 24" opening, it would be cut 17- $\frac{3}{4}$ " wide.



### Re-cut the Edge Detail

Turn the panel over and re-cut the reverse tegular edge as dimensioned in the drawing below. Protect the face of the panel from damage.



### Treat the Cut Edge

Treat the re-manufactured edge as described in section 7.7.

The panel can be installed just like a full-size panel since the "A" and "B" edges were retained.

### Acoustical Infill Options

- Reference the Acoustical Infill Panels instructions document (BPLA-298550) for details and recommendations for adding acoustical infill panels to increase acoustical performance.

## 8. SPECIAL INSTALLATION CONSIDERATIONS

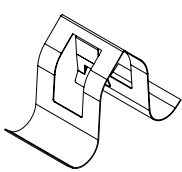
### Modification to grid related to MEP such as:

- Mechanical fixtures such as lights, speakers, and sprinklers should be installed into the acoustical suspension system before installing the panels.
- Fixtures can be installed at the suspension system height or flush with the bottom of the panel.
- Fixtures can be supported by the suspension system so long as they do not exceed the load-carrying capacity of the suspension system member. If it exceeds the load-carrying capacity then the fixture must be independently supported.
- Refer to the ceiling plans for specific details.
- See section 7.9 Cut Panels within the Field for instructions on cutting panels to accommodate MEP in the system.
- **Sloped** – WoodWorks® Vector® is not approved for sloped installations.
- **Single tee insertion** – WoodWorks Vector panels can be installed in a running bond system. Grid layouts that include single-tee insertion connections can be reinforced with the Single Tee Adapter Clip (STAC) which is referenced in document LA297835.

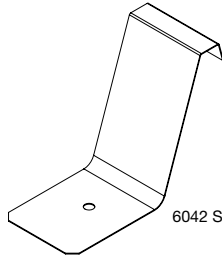
# SEISMIC

Item #	Description	Included with panels	Required for Install	Sold by the	Pcs/Ctn	Notes
<b>WoodWorks® Vector® Panels</b>						
5401	24 x 24 x 3/4" panel	–	–	Ctn	16	
5403	24 x 24 x 3/4" panel – FSC	–	–	Ctn	16	
6480	12 x 48 x 3/4" panel – FSC	–	–	Ctn	16	
6482	24 x 48 x 3/4" panel – FSC	–	–	Ctn	16	
<b>Suspension System Components</b>						
7301	Prelude® HD Main Runner	No	Yes	Ctn	20	
XL7341	Prelude HDE 4' Cross Tee	No	Yes	Ctn	60	
XL8320	Prelude 2' Cross Tee	No	Based on layout	Ctn	60	
7897	Seismic Shadow Molding for Vector	No	Optional method	Ctn	30	
7800	7/8" Angle Molding	No	Optional method	Ctn	30	
<b>Accessories</b>						
6041	Hold Down Clips	Yes	Yes	–	–	
6042	Safety Clips (with screws)	Yes	Yes	–	–	
6043	Border Clip (with screws)	Yes	Optional method	–	–	
7870	Spring Border Clip	No	Optional method	Ctn	1000	
BERC2	2" Beam End Retaining Clip	No	Required*	Ctn	200/50	
XTAC	Cross Tee Adapter Clip	No	Optional method	Ctn	100	
	1/2" Framing Screws for XTAC	No	Optional method	–	–	By Contractor
MBAC	Main Beam Adapter Clip	No	Optional method	Ctn	70/50	

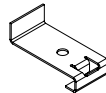
Reference Price List for minimum order quantities



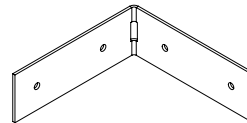
6041 Hold Down Clip



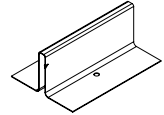
6042 Safety Clip



6043 Border Clip



XTAC Cross Tee Adapter Clip



MBAC

## 9. SEISMIC INSTALLATIONS (C AND D, E, F)

For more details on Seismic installations please see our *Seismic Design: What You Need to Know* brochure.

### 9.1 General

The installation shall, in all cases, conform to the requirements of the International Building Code and its referenced standards. Because these panels weigh in excess of 2.5 lbs/SF, all seismic installations of this product must be installed following the additional requirements:

- ASTM C635 rated Heavy-Duty 15/16" T-Bar suspension system.
- Stabilizer bars are required on all perimeter edges unless some other means is provided to prevent spreading (such as fixed mechanical attachment to the perimeter, i.e. BERC2 clips).
- Walls or soffits that serve to support a panel edge must be braced to structure so as not to allow movement greater than 1/8" when subjected to design lateral force loads. When such bracing is not practical or is not effective, additional mechanically connected suspension system

components shall be provided to capture all edges of every panel. Axiom® Perimeter Trim connected to the suspension system with AXTBC clips will also meet this requirement.

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.

### Seismic Rx Cat C, D, E & F

- The installation must conform to basic minimums established in ASTM C636.
- Minimum 7/8" wall molding.
- Suspension system must be attached on two adjacent walls.
- The opposite pair of adjacent walls require BERC2 with 3/4" clearance.
- BERC2 maintains main beam and cross tee spacing; no other components required.
- Heavy-duty systems as identified in ICC-ESR-1308.
- Safety wires required on light fixtures.

- Perimeter support wires within 8".
- Ceiling areas over 1,000 SF must have horizontal restraint wire or rigid bracing.
- Ceiling areas over 2,500 SF must have seismic separation joints or full-height partitions.
- Ceilings without rigid bracing must have 2" oversized trim rings for sprinklers and other penetrations.
- Changes in ceiling plane must have positive bracing.
- Cable trays and electrical conduits must be independently supported and braced.
- Suspended ceilings will be subject to special inspection.
- Suspension layouts are the same as described in section 4: Suspension System. Alternate grid layouts (cross-hatched) are not recommended.
- Connection to wall – See BPCS-4141 *Seismic Design: What You Need to Know – Code Requirements Seismic Rx® Tested Solutions – Seismic Rx Approaches To Category C And D, E, And F Installations*.
- Special bracing required – See BPCS-4141 *Seismic Design: What You Need to Know – Code Requirements Seismic Rx Tested Solutions – Bracing and Restraint for Seismic Installations*.
- Seismic separation joints – See BPCS-4141 *Seismic Design: What You Need to Know – Code Requirements Seismic Rx Tested Solutions – Seismic Separation Joints*.

## 9.2 Suspension System Components:

All WoodWorks® Vector® installations, regardless of Seismic Design Category, require a heavy-duty suspension system. Refer to section 4 for the required grid components list. This includes heavy-duty rated mains and heavy-duty equivalent cross tees per ASTM C635.

WoodWorks Vector can be installed in seismic design categories C, and D, E, F. The total system weight, outlined in section 2: Design Considerations exceeds 2.5lb/SF. Per ASTM E580 section 4.1.1, category C installations with an average weight over 2.5lb/SF must be installed per category D, E, F requirements.

## 9.3 Suspension System Installation

Follow the Armstrong Seismic Rx ESR-1308 guidelines of installation with the following additional product specific requirements.

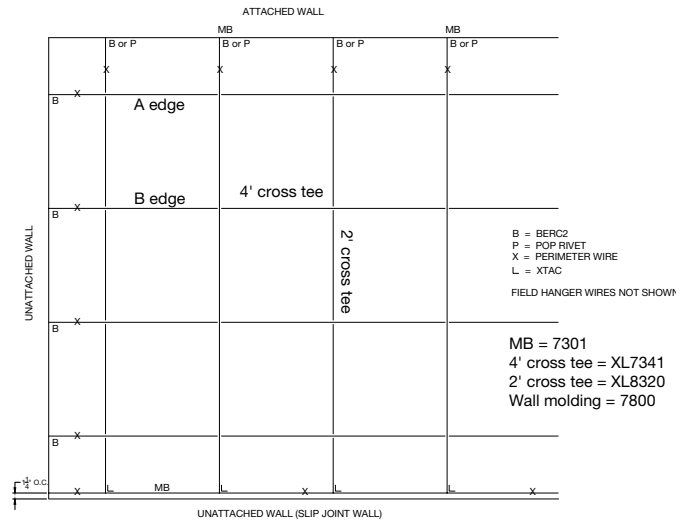
This installation adheres to the requirements of ASTM E580, and ESR-1308. Additional modifications have been made to secure perimeter panel openings. Reference section 4 (Suspension System Layout) for the suspension components and layout. The requirements in the following sections are in addition to the guidelines referenced in section 4.

All WoodWorks Vector panels are directional due to the veneer. This will impact the conditions at the perimeters. Panels can be rotated 180 degrees but not 90 degrees. All panels have the grain direction running parallel with the "A" and "B" edges.

## 9.4 Wall Attachment

### Attached Adjacent Walls

- Adjacent walls must have fixed attachment to wall molding per ESR-1308 (BERC2 positively attached or pop rivets).
- Perimeter wires within 8" of the wall on all grid members.



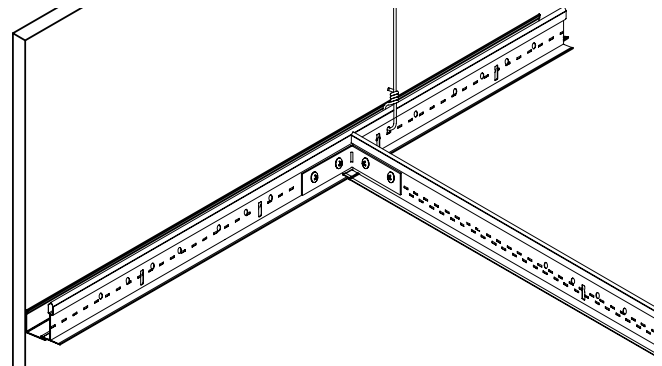
### Unattached Adjacent Walls

- **Unattached Wall Perpendicular to "A/B" Edges**
  - Installed per ESR-1308 (utilizing BERC2 with screw-in slot).
  - Perimeter wires within 8" of the wall on all grid members.
- **Unattached Wall Parallel to "A/B" Edges (Slip Main Wall – Optional based on panel installation method in section 9.5).**

The unattached wall that runs parallel to the "A/B" edges (perpendicular to the main beams) can be installed as a "slip main" when the directions below are followed. The purpose of this installation method is to surround the border panels along this wall with grid so that as movement occurs in the ceiling the opening for the panels does not change. This ensures that as the ceiling moves both engagement sides of the panel ("A" edge and Border Clips) stay supported by grid.

Follow these steps to construct:

- Heavy-duty 7301 main runner installed parallel to and spaced 1-1/4" O.C. from the wall. This will allow for 3/4" clearance to the wall required by code. This main runner will rest on the edge of the 7/8" molding and be supported with 12-ga wire spaced at 4' O.C. along the heavy-duty main. The main will follow the same BERC2 attachments at each of the walls adjacent to the slip main wall.
- All cross tees or main runners that intersect with this main runner will be positively attached using XTAC clips (as detailed).



- Panels must be cut to retain the "A" edge, and Border Clips installed as in section 7.6, Option B.

## 9.5 Panel Installation

WoodWorks® Vector® panels are directional due to the veneer and are only supported on two opposite sides (“A” and “B” edges).

When addressing borders of an installation, two opposite walls will have border panels cut that retain both engagement sides (discarding the “C” or “D” edge). The other two walls will require cutting off an engagement side (“A” or “B” edge). Refer to section 7.6 for additional instructions.

- **Borders panels that retain both engagement sides:**

These do not have any additional requirements when compared to a non-seismic build. The “A” and “B” edges will engage the grid and Hold Down clips are installed, as normal to keep the panel engaged.

- **Borders panels that have had an engagement side removed:**

Attached and Unattached walls:

**Option #1:** MBAC clips must be installed over the grid at the perimeter and screw-attached (same screws as used for safety and Border Clips) into each panel (see section 7.8 for details). This will keep the panels positively attached to the grid system. These panels will now be inaccessible.

**Option #2:** A Slip Main can be installed as described in section 9.4, to ensure that panels are surrounded by grid on all four sides. Panels are then installed with Border Clips. Any border panels that are not surrounded by grid on all four sides will require the MBAC method in option #1.

## MORE INFORMATION

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

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

For the latest product selection and specification data, visit [armstrongceilings.com/woodworks](http://armstrongceilings.com/woodworks)

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