# OPTIMA® Vector® Plank

## Installation Instructions

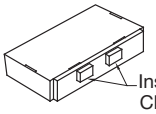
### 1. GENERAL

#### 1.1. Product Description

The Vector products referenced in these instructions are made from fiberglass. Panels are downward accessible, and are designed to be installed on a conventional 15/16" wide T-bar suspension system. All full panels can be removed and re-installed without the need for access to the plenum. Optima Vector Plank panels are available in 24" x 48", 24" x 72" and 24" x 96" sizes. Optima Vector plank panels can be used with standard Optima Vector 12" x 24" and 24" x 24" panel sizes as well as the new 48" x 48" size.

Only two sides support installed panels. These edges, the long direction of the plank, have specially designed kerf details, which allow one edge of the panel to be raised slightly off of the grid flange, and then moved out of position. The other two sides are fitted with rabetted edges, which work to center the panel within the grid opening.

**1.1.1. Installation Clips** A box of Vector Border Clips (item #441) is included with each carton of panels. Remove it from the protective pad on the end and be careful not to discard with waste wrapping. To order additional clips call 1 877 276 7876, Option 1.




#### 1.2. Surface Finish

Optima Vector planks feature the Armstrong DuraBrite® finish. The surface of these panels is scratch and soil resistant, washable and non-directional. The panel edges are finished with a factory applied paint finish. Optima panels are available with or without CAC backing, and have square edges.

#### 1.3. Storage and Handling

The ceiling panels shall be stored in a dry interior location and shall remain in cartons prior to installation to avoid damage. The cartons shall be stored in a flat position. Proper care should be taken when handling to avoid damage or soiling.

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

**1.3.1. Working With Fiberglass & Mineral Fiber Products**
**FIBERGLASS CEILINGS**
**MAN-MADE VITREOUS FIBER CEILING PANELS**
⚠ **W A R N I N G** THIS PRODUCT CONTAINS MAN-MADE VITREOUS FIBERS. POSSIBLE CANCER AND RESPIRATORY TRACT HAZARDS. CAN CAUSE TEMPORARY RESPIRATORY, SKIN AND EYE IRRITATION.

**1.3.2. Precautionary Measures:** During the installation be certain that the work site is well ventilated 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.

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

#### 1.4. Site Conditions

Building areas to receive ceilings shall be free of construction dust and debris. Products with HumiGuard® Plus performance can be installed in conditions between 32°F (0°C) and 120°F (49°C) and in spaces before the building is enclosed, where HVAC systems are cycled or not operating. These products are not recommended for exterior applications or where standing water is present or where moisture will come in direct contact with the ceiling.

#### 1.5. Plenum

Installation of Vector panels requires a minimum of space in the plenum, primarily 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. PANEL EDGES

#### 2.1. General

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

Armstrong®

### 2.2. Access Kerf Edge
The panel edge designated as “A” has a stepped groove detail and is called the access kerf. This edge is the first to engage the suspension system. An arrow printed on the back of the panel will identify this edge.


### 2.3. Registration Kerf
Edge “B” has a single kerf detail that supports the second side and centers the panel in the “A – B” direction. This edge is referred to as the registration kerf and is opposite edge “A.”

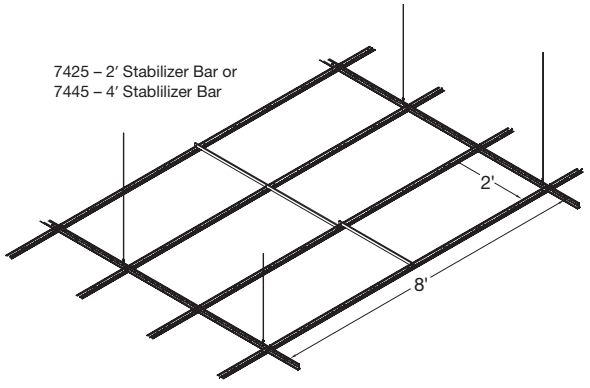
### 2.4. Reverse Tegular Edges
The two remaining panel edges are rabetted to fit between the flanges of the grid system. These edges center the panel in the “C – D” direction and are called reversed tegular edges.


## 3. SUSPENSION SYSTEM

### 3.1. General
The suspension system shall be standard 15/16" exposed tee grid. The suspension system, whether new or existing, shall be properly installed and leveled using not less than 12-gage galvanized steel wire. Suspension system installation shall conform to ASTM C636 requirements.

### 3.2. Suspension Grid
Vector plank panels install in a 2' x 6' (24" x 72") or 2' x 8' (24" x 96") module. The main beams and cross tees must be installed to create the Vector plank module sizes as detailed on the reflected ceiling plan. The suspension system must be leveled to within 1/4" in 10' and must be square to within 1/16" in 2'. Installation on grid systems that do not meet this tolerance will produce unacceptable panel alignment.

### 3.3. Stabilizer Bars
Stabilizer bars are recommended at the perimeters of all installations. While they would only be a code requirement for certain seismic applications, their use greatly improves the installation and removal of the border panels and helps maintain proper panel alignment. Stabilizer bars are recommended at the mid point of 2' x 8' panels for the entire installation and can be installed during grid installation or prior to panel installation.




### 3.4. Vector Seismic Hold Down Clips
Vector Seismic Hold Down Clips, #442, are recommended for use on installations in areas of light to moderate seismic activity (Zones 0-2 or SDC A, B & C) and required in areas of severe seismic activity (Zones 3-4 or SDC D, E & F).

**NOTE: Vector Seismic Hold Down Clips are recommended for all installations of Optima Vector. The hold down clip will keep the panel tight in the grid, help maintain the proper panel alignment and prevent the panel from disengaging the grid due to system movement or vibrations.**

Vector Seismic Hold Down Clips #442 are not supplied with the panels and must be ordered separately. Contact your Armstrong representative or call 1 877 276 7876, options 1-1-1-2.

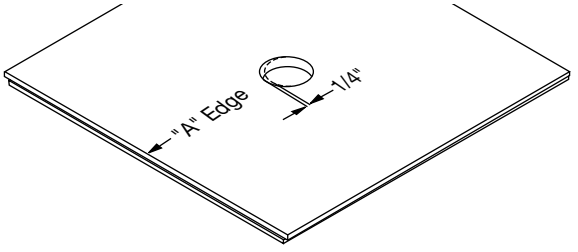
### 3.4.1. Clip Application
Clips can be installed before the planks and do not interfere with plank installation or removal.

Snap the clip onto the grid so they will press down on the “A” edge of all panels. A single clip at the midpoint is used for planks up to 4' long. Planks greater than 4' long will use a clip about 12" in from each end.

Do not install the Vector Seismic Clip to press on a “C” or “D” edge. These edges are unsupported, and the pressure of the hold down clip will deform the plank and create a poor visual.

### 3.5. Panel Face Offset
The face of the Vector panel extends 1/2" below the 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 1/2" offset.

### 3.6. Panel 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.

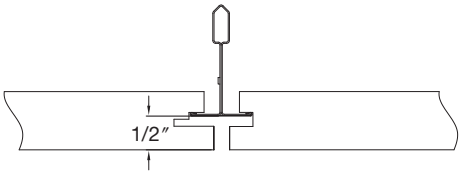



**PENETRATIONS THROUGH VECTOR CEILINGS**

**Most Vector ceilings will be installed with penetrations through the panels such as sprinklers or “can” lights. Because the ceiling panels may not be in place when these penetrations are installed, the grid will be the installers’ primary reference for ceiling plane height. The installers must be advised that THE ACTUAL CEILING PLANE WILL BE LOWER THAN THE GRID HEIGHT.**

**PANEL FACE OFFSET**

**The face of the Vector panel extends 1/2" below the suspension system. The height of components that interface with the ceiling panels, such as sprinkler heads and light fixture trim rings, must be adjusted to accommodate this 1/2" offset.**



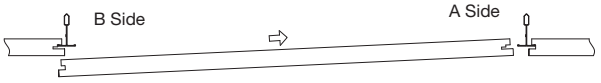
## Panel Installation & Removal

### 3.7. General
Vector plank ceiling panels are installed and removed from below the suspension system without the aid of tools or special equipment, allowing downward access to the plenum.

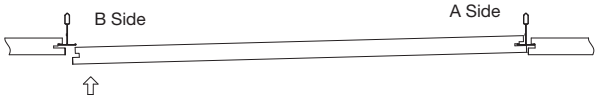
### 3.8. Installing Full Size Panels
The Vector panels are installed in a simple three step process.

**NOTE** - The use of two installers is recommended for 24" x 96" Vector plank panels. This will ease the installation of the long kerfed edges and proper fit into the grid.

STEP 1: Fully insert the deepest kerf of edge “A,” the access kerf, onto the exposed grid flange.




STEP 2: Raise the “B” edge of the panel, the registration kerf, into the grid opening until the kerf lines up with the grid flange.




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

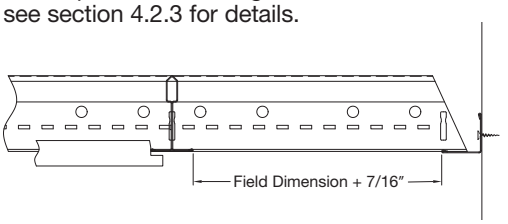

### 3.9. Orientation of Full Panels
Install all full size panels with the “A” edge facing in the same direction to provide access consistency. Align panels as you proceed to ensure a uniform reveal width in both directions. **Pay particular attention to this alignment process. Minor variations in placement can be difficult to see from the scaffold, but will become obvious when looking down long runs of panels.**

### 3.10. Panel Removal
Press on the face of the panel and raise it up to touch the grid. Slide the panel in the direction of the “A” edge (the only way it will move). Allow the “B” edge to disengage the grid flange and drop down out of the ceiling plane. Slide the “A” edge off of the grid. Do not allow the panel to hang on the “A” kerf. Damage could occur, and result in poor alignment when the panel is re-installed.

## 4. PERIMETER DETAILS

### 4.1. General
Install suspension system as usual - grid flanges resting on the molding.

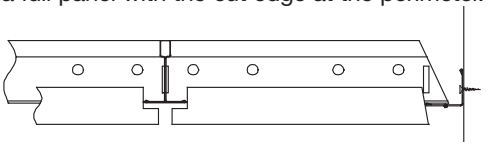
### 4.2. Grid Resting on Trim
Measure the size of the opening from the edge of the T-bar to the edge of the molding and add 7/16". Measure and mark the face side of the panel at both edges. An alternate method is scribing, see section 4.2.3 for details.



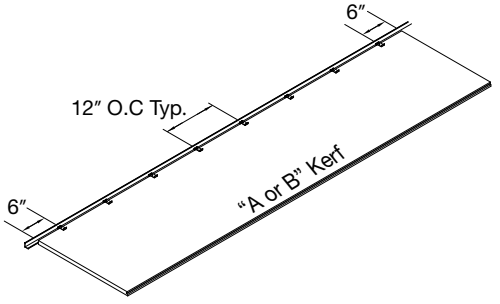

#### 4.2.1. Cutting and Installing the Panel
Cut from the face side using a sharp knife and a straight edge. Install the same as a full-size panel.

#### 4.2.2. Perimeter Panel Orientation
Because Optima Plank panels are rectangular, different perimeter procedures are required when the long “A/B” kerf or short “C/D” kerf meet the wall molding.

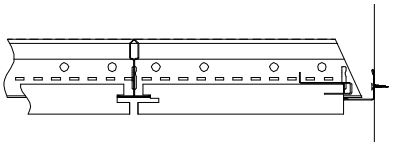
#### 4.2.2.1. “C/D” Edge along the Perimeter
When this option is used, the cut is made parallel to either the “C” or “D” edge of the panel. This will retain the “A” and “B” details on opposite sides of the border panel. Install this border panel like a full panel with the cut edge at the perimeter.



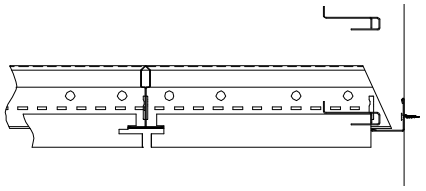
#### 4.2.2.2. “A” Kerf along the Perimeter
When this option is used, the cut is made parallel to the kerfed edge of the panel. For ease of installation and panel accessibility, retain the “A” kerf and cut off the “B” kerf. Support the cut side of the panel by inserting Vector Border Clips #441. Clips must be within 6" of the end and spaced 12" along the cut edge.



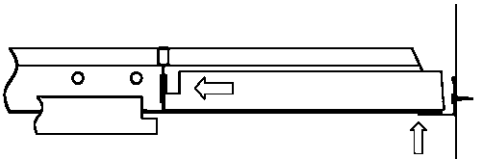

To install this panel, fully engage the “A” kerf on the grid. Raise the cut edge up until the border clips are above the wall molding. Slide the panel towards the wall until the access kerf of “A” edge drops down into the correct position. The vector border clips will support the cut edge along the wall molding.



#### 4.2.2.3. “B” Kerf along the Perimeter
This option may be used when required but the panel is not accessible. The cut is made parallel to the “B” kerf. To install this panel, engage the “B” kerf on the grid and raise the cut edge up until it is above the wall molding. From above the grid insert the Vector Border Clips #441, along the cut edge. Clips must be within 6" of the end and spaced 12" along the cut edge.



#### 4.2.3. Curved and Angled Walls
Panels that meet curved or angled walls can be marked using the same method that is used for standard tegular edge panels. Cut the board large enough to rest on the grid and wall molding as shown in the drawing below.

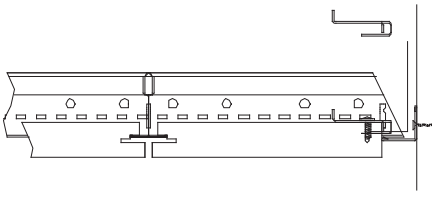


Slide the panel away from the wall until it touches the web of the grid. Scribe and cut the panel to the edge of the wall molding. Install the panel as shown on the drawing in section 4.2.

#### 4.2.4. Corner Panel Installation
Preparation of the corner panel will require the removal of two edges. Mark and cut the panel to fit the corner.

Follow section 4.2.3.2 if the “A” kerf is retained. Follow section 4.2.3.3. if the “B” kerf is retained.

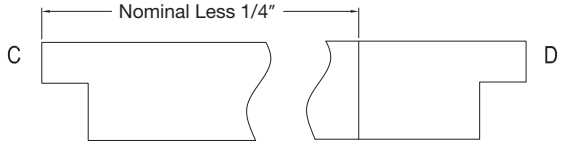
Optima Vector Border Clips, #441, packaged in boxes of 16 pieces, are automatically included with your order. If additional clips are needed they are available free of charge by calling 1 877 276 7876, Option #1.



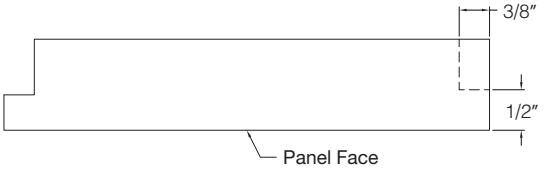
#### 4.3. Treating Exposed Edges
All field cut edges “exposed to view” should be colored to match the factory finish. **Armstrong SuperCoat™ Ceiling Panel Touch-up Paint is recommended.**

#### 4.4. Odd Size Panels
Panels within the field of the ceiling that are less than full size must be cut to replicate factory edges. Standard 1' x 2' and 2' x 2' panels are available to accommodate the use of 12", 24" and 48" light fixtures. An example of a condition that might require a special cut would be odd sized panels next to a linear air diffuser or custom size light.

#### 4.4.1. Measuring the Panel
Measure, mark and cut the panel 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 17-3/4" wide.



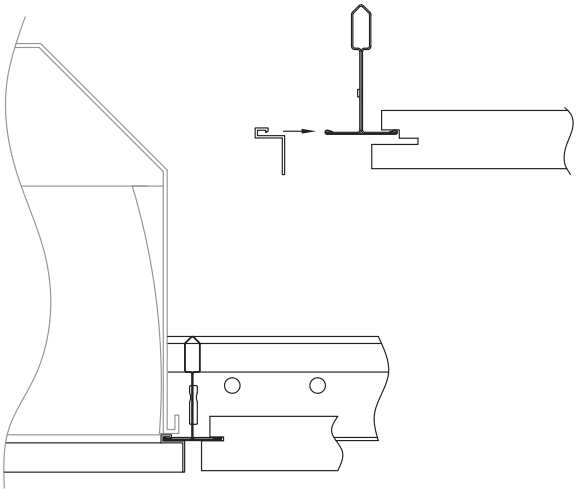

#### 4.4.2. Re-cut the Edge Detail
Turn the panel over and re-cut the reverse tegular edge as dimensioned in the drawing below. Protect the face of the panel from damage.




## 5. FIXTURE TRIM

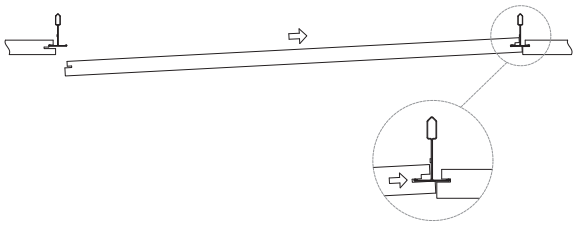
#### 5.1. General
The design of the edge details used on Vector creates a gap between the face of the grid and the edge of the panel. This gap is necessary to allow the panel to lift sufficiently to allow installation and removal. This gap may be objectionable when type G light fixtures and air diffusers are used. For this reason, fixture trim kits are available for use with Vector panels.

#### 5.2. Trim Installation
Fixture trims are provided in pre-mitered lengths of plastic molding that snap onto the exposed flanges of the grid at the location of lay-in light fixtures or other accessories that sit into the grid in place of a ceiling panel. Trim elements may be installed before or after the placement of the ceiling panels.

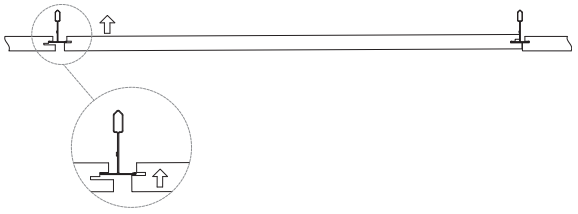


# HOW TO INSTALL
## a Vector® Panel

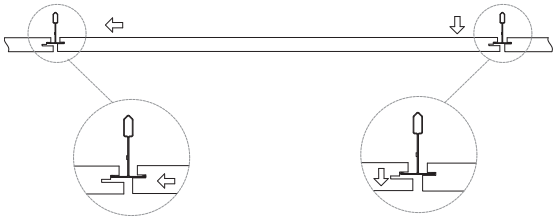
**1.** Place the deepest portion of the double kerfed edge onto the grid flange.



**2.** Raise the opposite edge up into the grid opening.

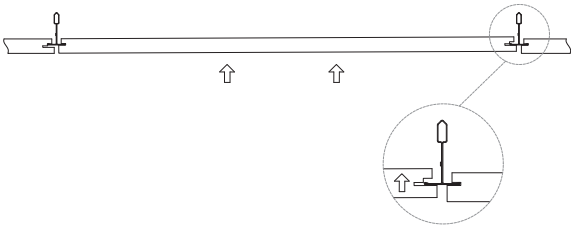


**3.** Slide the panel back onto the grid flange. Make sure that the first edge drops into position as shown.

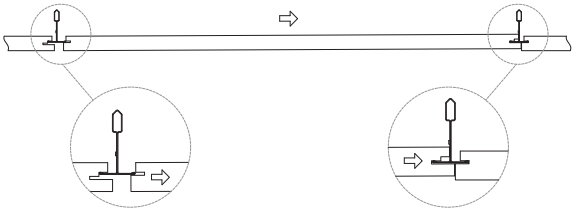


# HOW TO REMOVE
## a Vector® Panel

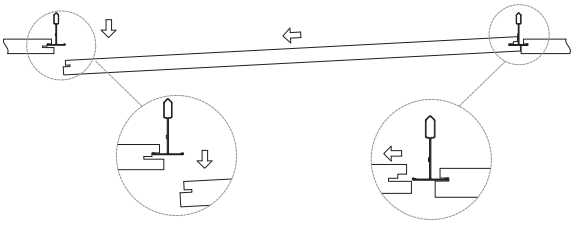
**1.** Push the panel up against the grid flanges and find the one direction it will move.



**2.** Slide the panel until it contacts the adjacent panel.



**3.** Lower the opposite edge out of the grid opening. Slide the panel off of the flange. Do not allow the panel to hinge or hang on the grid flange, as this may cause damage to the kerf.



# OPTIMA® Vector® Plank

## Seismic Installations

### 1. GENERAL

#### 1.1. Product Description
The following guidelines are in addition to the standard Optima Vector Plank Installation Instructions.

These solutions are recommended in areas of moderate seismic activity, IBC Category C, and required for severe seismic activity, IBC Category D, E and F.

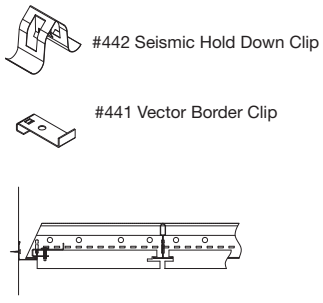
### 2. SUSPENSION SYSTEM

#### 2.1. General
Suspension system shall be installed to meet the requirements for the specified Seismic Design Category (SDC).

#### 2.2. Stabilizer Bars
Stabilizer bars or BERC Clips are recommended at the perimeters of all installations. Stabilizer bars can be used on grid spans of 2' or 4'. Grid spans greater than 4' will require the BERC or BERC 2 clip to maintain the proper grid spacing. While they would only be a code requirement for certain seismic applications, their use greatly improves the installation and removal of the border panels and helps maintain proper panel alignment.

#### 2.3. Vector Seismic Hold Down Clips
Vector Seismic Hold Down Clips, #442, are recommended for use on installations in areas of moderate seismic activity (SDC C) and required in areas of severe seismic activity (SDC D, E & F).

#### 2.3.1. Clip Application
Clips can be installed before the planks and do not interfere with plank installation or removal.




Snap the clip onto the grid so they will press down on the “A” edge of all panels. A single clip at the mid point is used for planks up to 4' long. Planks greater than 4' long will use a clip about 12" in from each end.

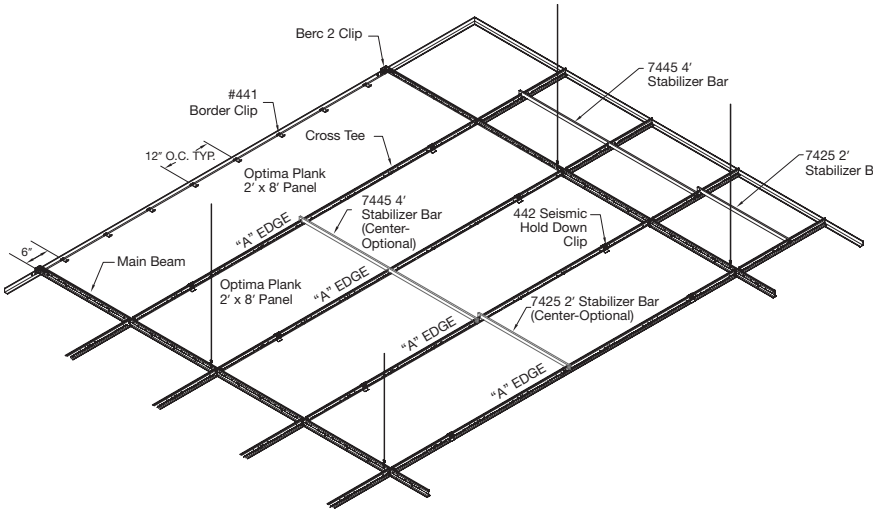
Do not install the Vector seismic clip to press on a “C” or “D” edge. These edges are unsupported, and the pressure of the hold down clip will deform the plank and create a poor visual.

#### 3. Plank Installation and Removal
The use of two installers is recommended for Optima Vector planks 6' long or greater. This will ease the installation or removal of the long kerfed edge on the grid flange against the pressure of the seismic hold down clip.

#### 3.1. Border Panels
Follow the Optima Vector Plank Installation Instructions, section 4.2 for border panel installation.

#### 3.1.1. Border Clips
The following modification to the #441 border clip is required for Optima Vector Planks installation in SDC C, D, E & F.

Insert the #441 clip on the panel. Push a #8 x 9/16 sheet metal screw (or equivalent) through the clip into the plank to secure the border clip to the plank.




### MORE INFORMATION

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

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

For the latest product selection and specification data, visit armstrong.com/ceilings.

U.S. Patents 6,103,360; 6,230,463.



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