

GUILFORD WHITFIELD CEILING TILE UPGRADE

**NATHANAEL B. GREENE COMMUNITY CENTER
32 CHURCH STREET
GUILFORD, CT 06437
BID #3-1920**

S/P+A PROJECT NO. 19.210

DATE: October 30, 2019

The following changes to the Drawings and Project Specifications shall become a part of the Drawings and Project Specifications; superseding previously issued Drawings and Project Specifications to the extent modified by Addendum No. 1.

General Information:

- The prebid sign-in sheet is attached for reference. (1 page)
- The deadline for RFIs is Wednesday, October 30, 2019, 12:00pm.
- See attached RFIs. (18 pages)

The bid date remains unchanged by this addendum.

The addendum consists of twenty (20) pages of 8½” x 11” text.

End of Addendum ‘1’

Town of Guilford Vendor Sign-in		Mandatory Walk Through Sign-in Sheet		10/21/2019	11:30 a.m.
Bid #3-1920					
N. B. GREENE COMMUNITY CENTER - CEILING TILE UPGRADE					
PLEASE PRINT					
Company Name	City and State	Phone #	Company Representative	E-Mail Address	
1 RE-TECH LLC	Fairfield, CT	203-818-8774	Max Debonodi	MAX@RETECHCONSTRUCTION.COM	
2 Re-Tech LLC	Fairfield, CT	203 818 8774	Jonas Santos		
3 PROURDE ENT.	NEW BRITAIN, CT	860 982 3567	SASH PROURDE	PROURDE@HOTSHEET.COM	
4 Bob Street	Middletown, NY	914 447 3551	MAC INDUSTRIES	MAC INDUSTRIES@GMAIL.COM	
5 SILVER PETRUCELLI	HAMDEN CT	203-230-9007	DEAN PETRUCELLI		
6 Silver Petrucci	Hamden CT	203-230-9007	Humza Afzal	Hafzal@SilverPetrucci.com	
7 Town of Guilford	Guilford	203-453-8068	TODD MAKE	RAKETE@ci.guilford.ct.us	
8 T.O.G	Guilford CT	203 453-8487	Stephen Neydorf	neydorps@ci.guilford.ct.us	
9 Parks & Recreation Dept.	Guilford CT	(203) 453-8068	RICK MAYNARD	MAYNARD@ci.guilford.ct.us	
10					
11					
12					
13					
14					
15					

Rebecca Bouchard

Subject: RE: Nathanael B. Greene Community Center Ceiling Tile upgrade

From: Humza Afzal <hafzal@silverpetrucelli.com>

Sent: Thursday, October 24, 2019 4:15 PM

To: kaz@retechconstruction.com

Cc: Pamela Millman <MillmanP@ci.guilford.ct.us>; Victoria Ahern <AhernV@ci.guilford.ct.us>; Rick Maynard <MaynardR@ci.guilford.ct.us>; Dean Petrucelli <dpetrucelli@silverpetrucelli.com>; Amanda Cleveland <acleveland@silverpetrucelli.com>

Subject: Nathanael B. Greene Community Center Ceiling Tile upgrade

Hi Kaz,

I spoke with our Armstrong REP and he confirmed that Armstrong does not void warranty for vector system if the slope is more than 30 degrees. I also asked about the lower ceiling product and they confirmed that the product we spec is sufficient for that location. In regards to the lower ceiling the barrel ceiling effect can be achieved through a faceted ceiling installation to achieve the existing ceiling barrel effect.

Thanks,

Humza Afzal

Design Professional



SILVER/PETRUCELLI+ASSOCIATES
Architects / Engineers / Interior Designers

3190 Whitney Avenue Bldg 2 | Hamden, CT 06518

One Post Hill Place | New London, CT 06320

silverpetrucelli.com | P: 203.230.9007 x 215 | F: 203.230.8247

From: kaz@retechconstruction.com [<mailto:kaz@retechconstruction.com>]

Sent: Wednesday, October 23, 2019 10:30 AM

To: Rick Maynard

Cc: Pamela Millman; wgatcomb@centralconnacoustics.com

Subject: Nathanael B. Greene Community Center Ceiling Tile upgrade

Hi Rick,

My name is Kaz from RE-TECH LLC, we attended a walk-through for the ceiling upgrade the other day.

As we are preparing a proposal for you, we have learned that Armstrong does NOT warranty Vector System if the slope is more than 30 degrees.

Also the 2 lower ceiling areas are barrel ceilings and will have to be segmented to form that profile to match that barrel affect.

I would appreciate a reply from you and your team.

Thanks...Kaz

Kaz Behboudi

203-818-8774

P.O. Box 1103

Fairfield, CT 06825

www.RETECHconstruction.com

Rebecca Bouchard

To: Rebecca Bouchard
Subject: FW: Guilford Community Center Ceiling
Attachments: sloped-ceilings-technical-guide.pdf; Faceted Ceiling.pdf; 1-year-warranty-metalworks.pdf

From: Nicholas D. Smay <NDSmay@armstrongceilings.com>
Sent: Thursday, October 24, 2019 2:35 PM
To: Humza Afzal <hafzal@silverpetrucelli.com>
Cc: Amanda Cleveland <acleveland@silverpetrucelli.com>
Subject: RE: Guilford Community Center Ceiling

Hi Humza,

Here is everything we just discussed over the phone. See attached for technical guides on faceted and sloped ceilings. I would recommend the faceted ceiling installation in the "barreled" Calla mineral fiber areas.

To answer your questions on the greater than 30 degree sloped ceiling. The Metalworks Warranty is a **product warranty** not an installation warranty. If the installer procures the product and it is defective due to manufacturing error, the product may be covered under warranty. Installation has nothing to do with the warranty. It is up to the installer to ensure that the system is installed safely and will function as intended. While Armstrong does not recommend sloped ceilings greater than 30 degrees (because we personally have not tested this), we have seen installations in which greater than 30 degree installations perform just fine. If you or the installer are concerned, we as Armstrong suggest that you bring in a third party engineer to sign off on the intended plans. I have attached the Metalworks warranty for you to look over.

Please let me know if you have any more questions. Another resource is our Installation Specialist Michael Portno. He is quite familiar with your firm and would be happy to go even more in depth with you.

Best regards,

Nick Smay

Commercial Sales Support Specialist

Armstrong World Industries

2500 Columbia Avenue

Lancaster, PA 17603

T: 717.396.2737

F: 717.396.4154

E: ndsmay@armstrongceilings.com

www.armstrong.com/commceilings

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From: Humza Afzal [<mailto:hafzal@silverpetrucelli.com>]
Sent: Thursday, October 24, 2019 11:19 AM
To: Nicholas D. Smay <NDSmay@armstrongceilings.com>
Cc: Amanda Cleveland <acleveland@silverpetrucelli.com>
Subject: Guilford Community Center Ceiling
Importance: High

* This email originated from outside of Armstrong World Industries.

Can you please confirm the information below regarding Armstrong Metal Vector Ceiling Tile.

Armstrong does NOT warranty Vector System if the slope is more than 30 degrees.

If it turns out that our ceiling indeed is more than 30 degrees what alternate product would you recommend?

Also the 2 lower ceiling areas are barrel ceilings and will have to be segmented to form that profile to match that barrel affect.

We suggested Armstrong Calla for this area. What would be an alternative to this product if we don't want the segmented to form.

Thanks,

Humza Afzal

Design Professional



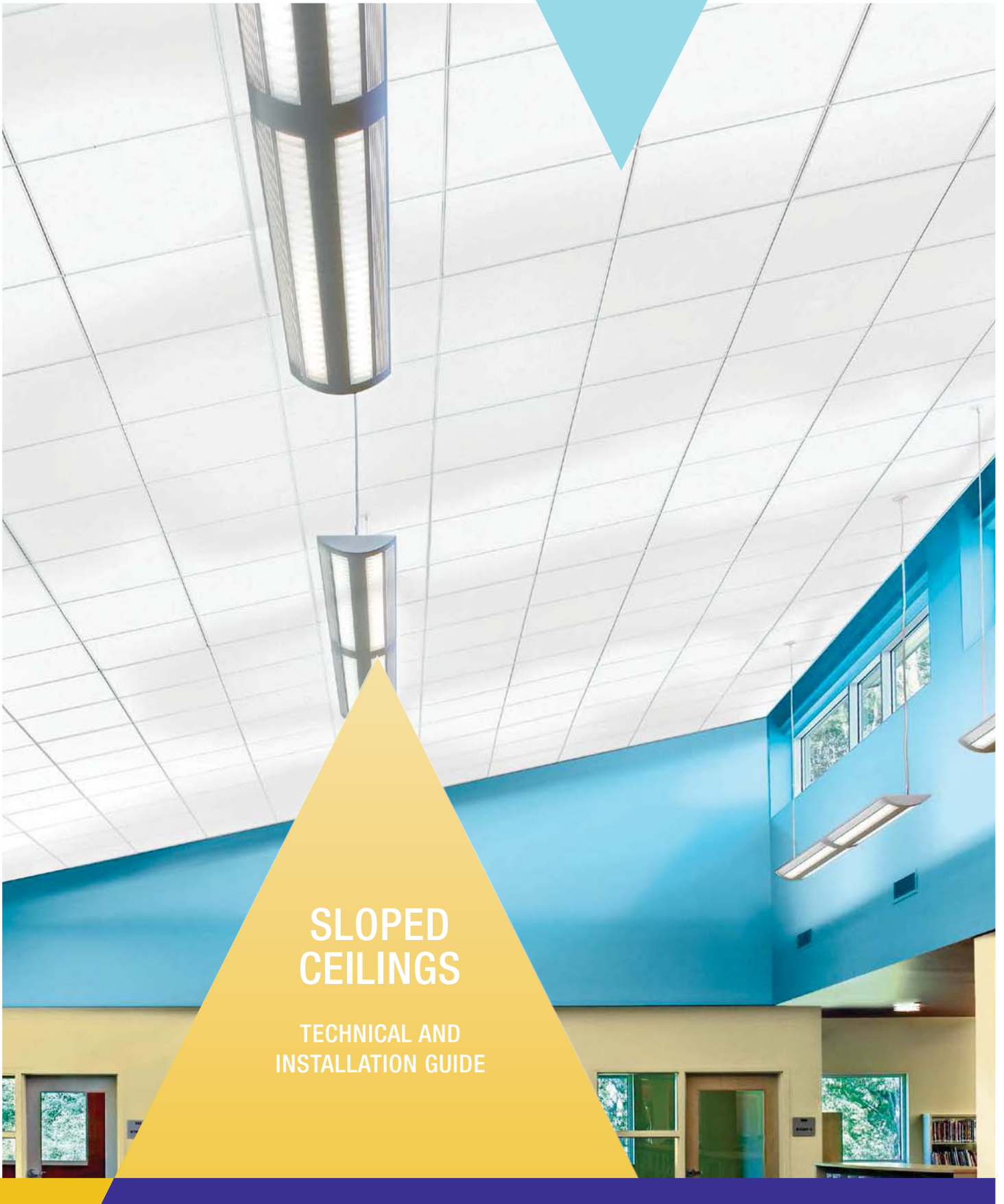
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Architects / Engineers / Interior Designers

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SLOPED CEILING

TECHNICAL AND
INSTALLATION GUIDE

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CEILING SOLUTIONS

SLOPED CEILINGS TECHNICAL GUIDE

ARMSTRONG® CEILING PANELS ACCEPTABLE IN SLOPED INSTALLATIONS

Mineral Fiber Lay-in, Tegular, and Vector® Ceiling Panels
Fiberglass Lay-in, Tegular, and Vector Ceiling Panels
MetalWorks™ Tegular and Vector Ceiling Panels
WoodWorks® Tegular Ceiling Panels

[Not all panel sizes can be installed in a sloped configuration. Panels over 4' in length must be evaluated on a case by case basis.]

ARMSTRONG SUSPENSION SYSTEMS ACCEPTABLE IN SLOPED INSTALLATIONS



Prelude® XL®



Suprafine® XL



Silhouette® 1/4" XL

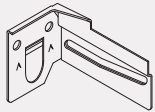


Silhouette® 1/8" XL

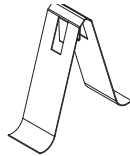


Interlude® XL

ACCESSORIES:

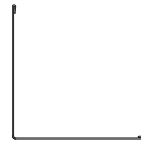


**BEC2 —
Beam End Retaining Clip**

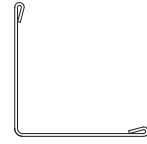


**PMHDC —
Maximum Hold Down Clip**

WALL MOLDINGS:



7808 2" Angle Molding



7800 Hemmed Angle

IMPORTANT SAFETY INFORMATION

Safe installation of a sloped ceiling requires project specific evaluation for compliance with building codes. The final design and installation parameters are the responsibility of the design team. Armstrong has evaluated certain design configurations and supplied the following recommendations based on our testing:

- The maximum ceiling slope shall not exceed 30°
- Use of a maximum hold down clip is required for all sloped ceiling applications except Metalworks Vector which have integrated spring clips in the panel.
- Main beams **MUST NOT** be installed perpendicular to the slope as this may result in suspension system failure.
- Main beams must be spaced a maximum of 4' on center.
- Panels installed at a slope will tend to slide downhill. Shims must be used to prevent this.
- Vector panels **MUST** be installed with the access kerf (side A) oriented toward the top of the slope. Panels may fall out if not configured with the A side at the top of the slope.
- Maintenance personnel who may be removing and replacing specific panels must be trained on how to properly replace the panel with proper clips and orientation.

GENERAL

Designing and installing a sloped suspended ceiling can provide the opportunity to enhance daylighting, conserve energy, and contribute to LEED EQ Daylighting credits.

Sloped ceilings are not addressed in current building codes. Current building code states that suspended ceiling main beams must be leveled to within 1/4" on a 10' span. Alternate designs are acceptable when approved by the Authority Having Jurisdiction. This is the responsibility of the Project Design Team.

Actual construction of a sloped suspended ceiling may require engineering documents by code officials/ authorities having jurisdiction in your area.

Armstrong Ceilings has examined sloped ceilings utilizing ceiling panels for Seismic Design Categories C, D, E, F. We have conducted full-scale seismic shake table testing on multiple sloped ceiling designs at the Structural Engineering Earthquake Simulation Lab located at the State University of New York at Buffalo. Armstrong Ceilings can provide documentation of these test results to design professionals, code officials, and building departments on a project specific basis in the form of a Seismic White Paper. For more information on seismic design, please reference our *Seismic Design: What You Need to Know Brochure*.

Since each sloped ceiling design is unique, general detail drawings accompany these guidelines. Project shop drawings are the responsibility of the contractor. The structural engineer of record is responsible for verifying and approving the use of Armstrong Ceilings components in these unique installations.

SLOPED CEILING INSTALLATION GUIDELINES

The following guidelines are in addition to the requirements set forth in ASTM C636 and ASCE 7.

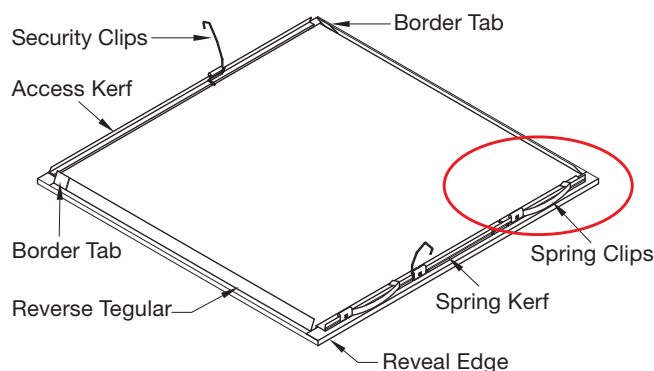
ANGLE GUIDELINES

- Maximum ceiling slope angle shall not exceed 30°.

MAXIMUM HOLD DOWN CLIP GUIDELINES

The Maximum Hold Down Clip is required for all sloped ceiling applications except MetalWorks™ Vector ceiling panels which have integrated spring clips in the panel.

Metalworks Vector Spring Clip

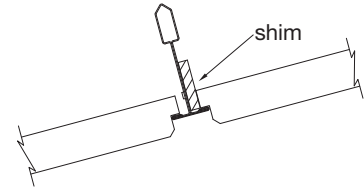


- The use of the Maximum Hold Down Clip will reduce the accessibility of the panel.

SLOPED CEILINGS TECHNICAL GUIDE

SHIM GUIDELINES

- Panels will tend to slide downhill, especially on steeper angles.
- If needed, place 1/8" or 3/32" shims (depending on panel type) between the panel edge and the web of the cross tee at the lower edge of each panel to center the panel in the suspension system opening.



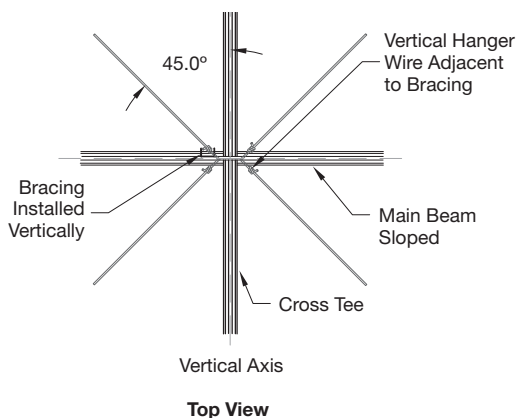
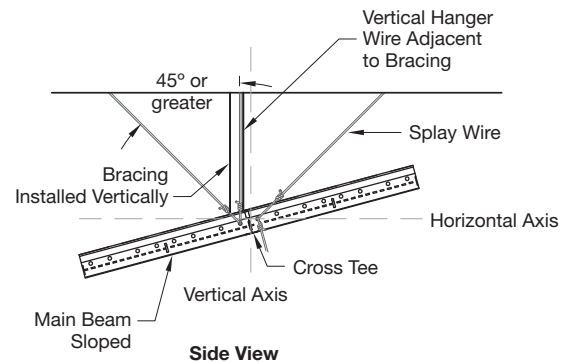
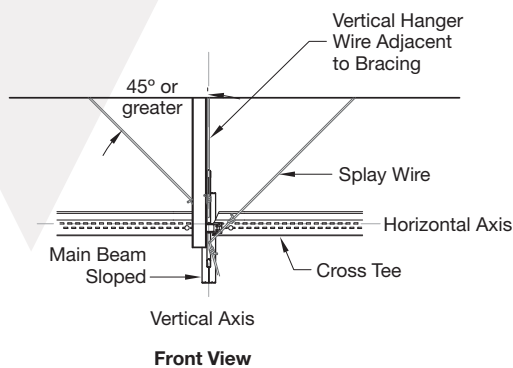
SUSPENSION SYSTEM GUIDELINES

- Install main beams parallel (up/down the incline) the slope.
- DO NOT INSTALL MAIN BEAMS PERPENDICULAR TO THE SLOPE AS THIS MAY RESULT IN SUSPENSION SYSTEM FAILURE.
- Main beams should be spaced 4'-0" on center, maximum.
- If I-beams, joists, or trusses are running up the slope and do not have purlins between them, bridge the beams, joists, or trusses with a material capable of supporting the ceiling system load.

HANGER WIRE GUIDELINES

- 12 gauge hanger wire must comply with ASTM C636 requirements.
- Hanger wires should be suspended vertically and plumb.
- If lateral force bracing is required in severe seismic areas, it shall remain vertical and the splay wires shall be installed at maximum 45° to the horizontal.

Lateral Force Bracing (Compression Posts and Splay Wires)



PERIMETER TREATMENT GUIDELINES

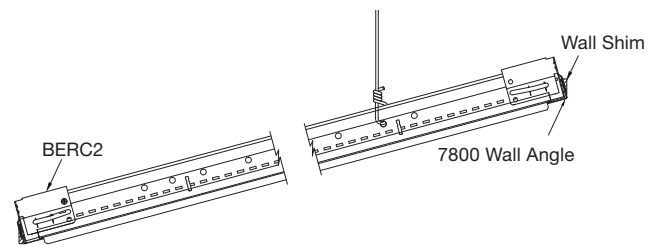
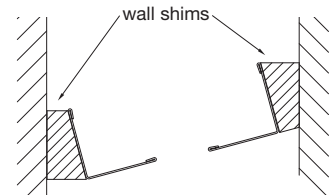
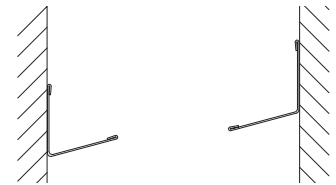
Sloped Ceilings Perimeter Solution Matrix

Suspended Ceiling Slope	Non-Seismic Areas		Seismic Cat. C, D, E, F
	Option 1	Option 2	Option 3
Up to 30°	Field Modified 2" Item 7808 Wall Angle with positive cross tee attachment at all ends	Wall shim with 7/8" Item 7800 Wall Angle kept at 90° with positive cross tee attachment at all ends	SEISMIC RX solution – Wall shim with 7/8" Item 7800 Wall Angle kept at 90° and BERC2 Clip with positive cross tee attachment on adjacent attached walls

PERIMETER TREATMENT GUIDELINES

Perimeter Solution Options

- OPTION 1:** Wall angles at the top and bottom of the slope should be re-bent to the correct angle by the contractor or at a local sheet metal shop.
 - 2" wall angle Item 7808 should be used. **NOTE:** If 7/8" molding is field bent upwards, the result is no room to mount your cross tees to the angle, unless you back cut the web and bulb severely, which impacts loading.
- OPTION 2:** Wall angles are painted and wall shimmed to achieve the correct angle.
 - 7/8" wall angle Item 7800 should be used.
 - The field crafted wall shim must keep the angle 90° to the slope.
- OPTION 3 (SEISMIC):** Wall angles are painted and wall shimmed to achieve the correct angle.
 - 7/8" wall angle Item 7800 should be used.
 - The field crafted wall shim must keep the angle 90° to the slope in order to use Seismic Rx® BERC2 clips.

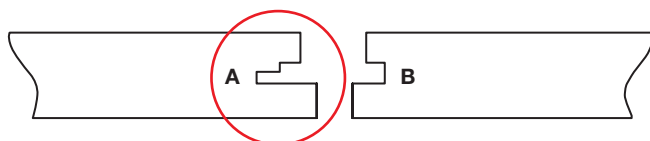


FLOATING SLOPED CEILING PERIMETERS

- Non-Seismic Considerations: Refer to ASTM C636 for standard practice for installation.
- Seismic Considerations: If sloping a floating cloud, project specific engineering is required.

VECTOR® CEILING PANEL CONSIDERATIONS

- Ultima® and Optima® Vector ceiling panels in a sloped installation must have the access kerf (A) oriented towards the **top of the slope**.



SLOPED CEILINGS TECHNICAL GUIDE

QUICK REFERENCE GUIDE FOR SEISMIC SLOPED CEILINGS

Panel Type	Mineral Fiber and Fiberglass Lay-In, Tegular, and Vector Ceiling Panels		Woodworks® Tegular Panels*	
	Metalworks™ Tegular and Vector Ceiling Panels			
Seismic Category	Seismic C	Seismic D,E, F	Seismic C	Seismic D,E,F
Grid ASTM Class	Intermediate Duty (0° < slope < 15°) Heavy - Duty (15° < slope < 30°)	Heavy - Duty	Heavy - Duty	Heavy - Duty
Perimeter Support Wires 8" or Less from Wall	None Required	Required	None Required	Required
Wall Clearance	3/8"	3/4"	3/8"	3/4"
Minimum Wall Molding Width	7/8"	2" or 7/8" with BERC2 Clip	7/8"	2" or 7/8" with BERC2 Clip
Fastened Perimeter Tee Connections	Required	Required	Required	Required
Lateral Force Bracing (splay wires/rigid bracing) for Ceiling Areas > 1,000 ft²	None Required	Required	None Required	Required
Compression Posts for Ceiling Areas > 1,000 ft²	None Required	Required	None Required	Required
Seismic Separation Joints for Ceiling Areas > 2,500 ft²	None Required	Required	None Required	Required
Maximum Weight per ft²	3.0 lbs/ft² (Intermediate-Duty Grid) 4.0 lbs/ft² (Heavy-Duty Grid)	4.0 lbs/ft²	4.0 lbs/ft²	4.0 lbs/ft²
Maximum Hold Down Clip Configuration	See page 9 for layout configuration	See page 10 for layout configuration	See page 9 for layout configuration	See page 10 for layout configuration

*Safety cables are required for 2' x 4' and 2' x 6' panels

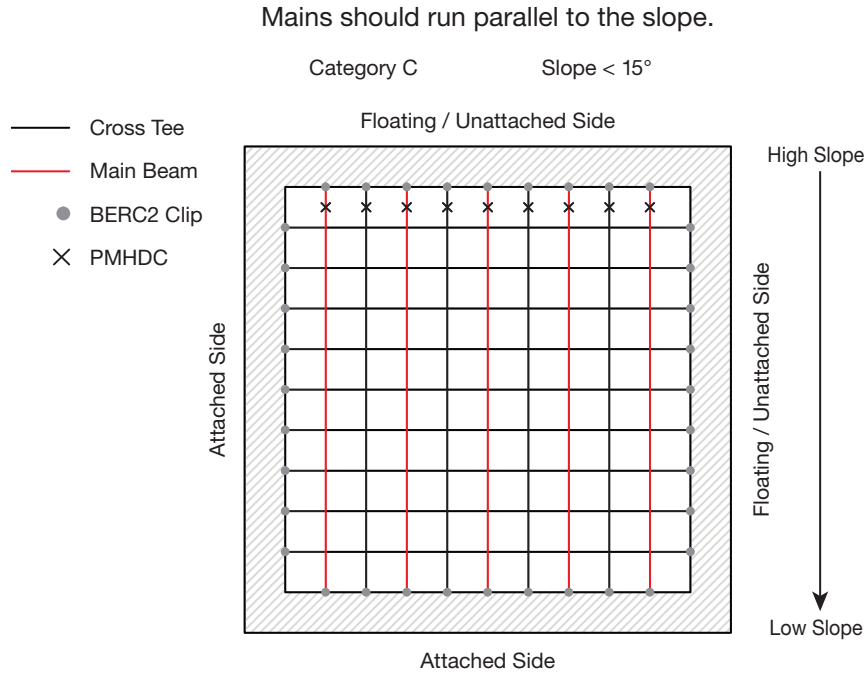
QUICK REFERENCE GUIDE FOR NON-SEISMIC SLOPED CEILINGS

Non-Seismic Sloped Ceiling Requirements

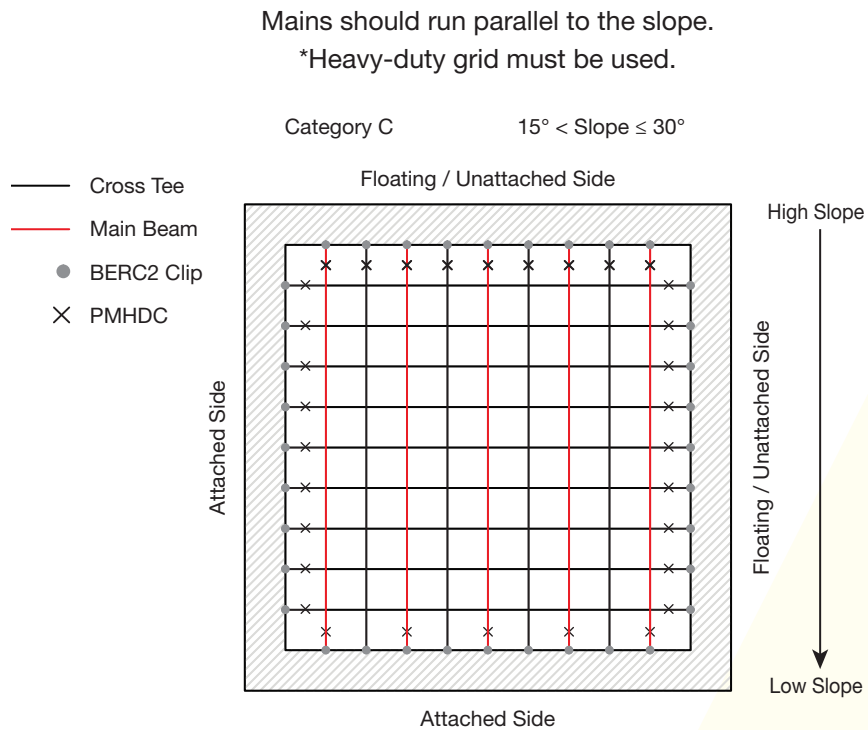
Grid ASTM Class	Intermediate-Duty or Heavy-Duty
Perimeter Support Wires 8" or Less from Wall	None Required
Wall Clearance	None Required
Minimum Wall Molding Width	None Required
Fastened Perimeter Tee Connections	None Required
Lateral Force Bracing (splay wires/rigid bracing) for Ceiling Areas > 1,000 ft²	None Required
Compression Posts for Ceiling Areas > 1,000 ft²	None Required
Seismic Separation Joints for Ceiling Areas > 2,500 ft²	None Required
Maximum Hold Down Clip Configuration	None required.

Seismic Categories C, D, E, F Sloped Ceiling Layouts for Mineral Fiber and Fiberglass Lay-In, Tegular, Vector and Concealed Ceiling Panels and Metalworks™ Tegular and Vector Ceiling Panels

Seismic Category C Sloped Ceiling Layout for Slopes $\leq 15^\circ$



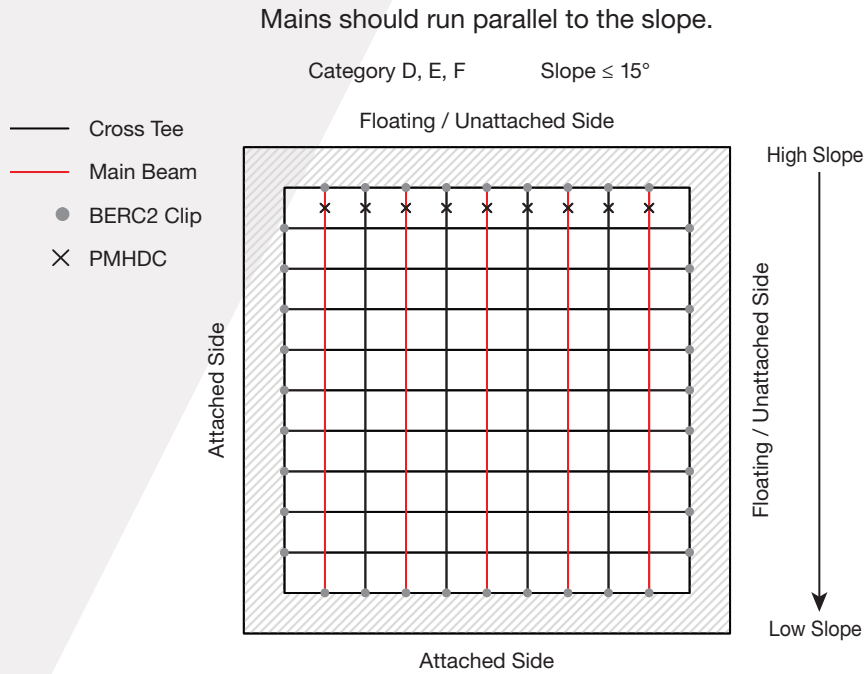
Seismic Category C Sloped Ceiling Layout for $15^\circ < \text{Slope} \leq 30^\circ$



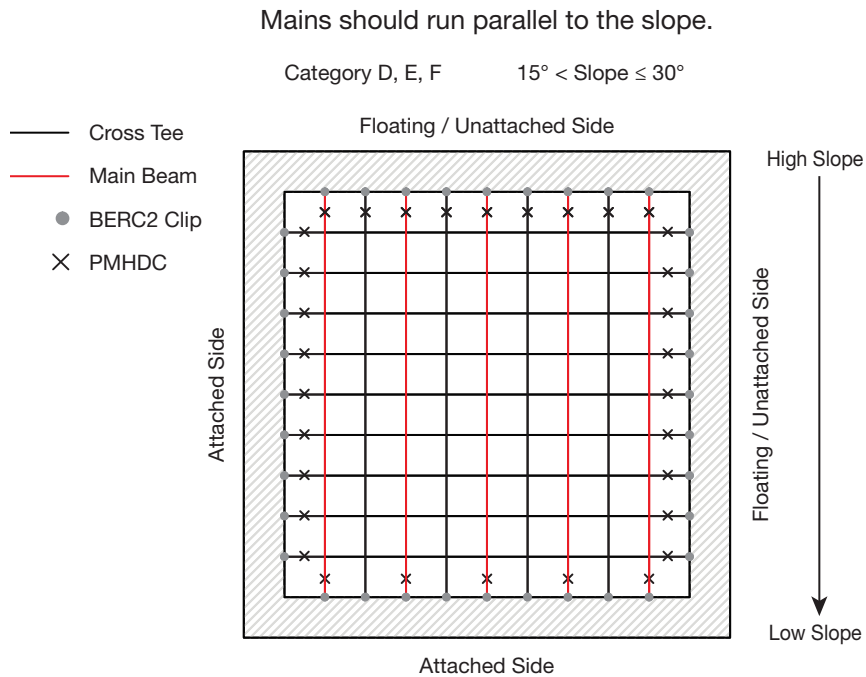
SLOPED CEILINGS TECHNICAL GUIDE

SLOPED CEILING LAYOUTS

Seismic Category D, E, F Sloped Ceiling Layout for Slopes $\leq 15^\circ$



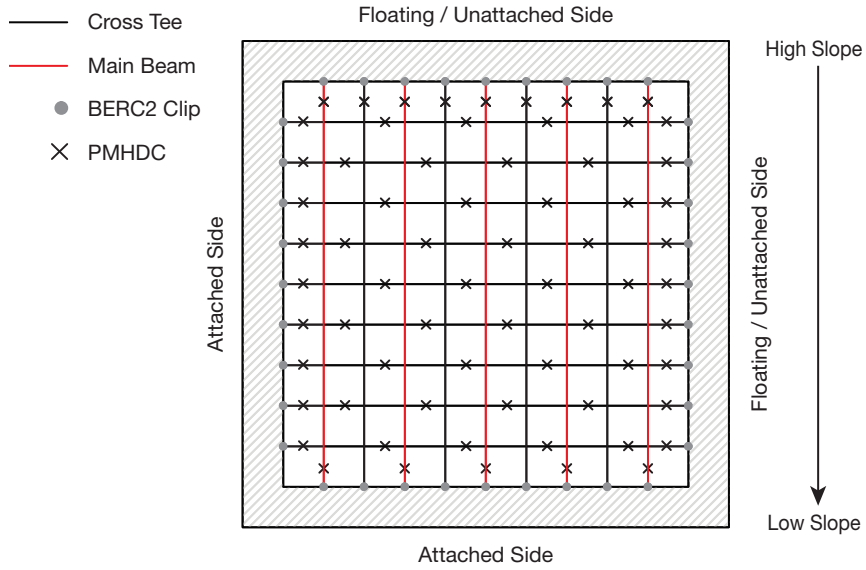
Seismic Category D, E, F Sloped Ceiling Layout for $15^\circ < \text{Slope} \leq 30^\circ$



Woodworks Tegular Seismic Category C, D, E, F Sloped Ceiling Layout for $0^\circ < \text{Slope} \leq 30^\circ$

Mains should run parallel to the slope.

WoodWorks Tegular $0^\circ < \text{Slope} \leq 30^\circ$
Category C, D, E, F



1 877 276 7876

Customer Service Representatives
7:45 a.m. to 5:00 p.m. EST
Monday through Friday

TechLine – Technical information, detail drawings, CAD design assistance, installation information, other technical services – 8:00 a.m. to 5:30 p.m. EST, Monday through Friday. FAX 1 800 572 8324 or email: techline@armstrongceilings.com

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CEILING SOLUTIONS

STANDARD FACETED Ceiling

Installation Guidelines

ARMSTRONG CEILING PANELS ACCEPTABLE IN FACETED INSTALLATIONS INCLUDE:

All Mineral Fiber Lay-in, Tegular Ceiling Panels
All Fiberglass Lay-in, Tegular Ceiling Panels
MetalWorks™ Tegular and Vector® Ceiling Panels
Infusions® Lay-in Ceiling Panels

Note: Mineral Fiber Vector, Fiberglass Vector Ceiling Panels, and WoodWorks® Ceiling Panels are not acceptable in faceted designs.

SUSPENSION SYSTEMS ACCEPTABLE IN FACETED INSTALLATIONS INCLUDE:

Suprafine® XL®
Prelude® XL

1.0 GENERAL

Faceted ceiling systems are non-flat ceiling systems composed of panels with Prelude XL or Suprafine XL Armstrong suspension systems.

Generally, a faceted suspended ceiling is built with standard parts and pieces that are customized on the job site. Current building code states that suspended ceiling main beams must be leveled to within 1/4" in 10'; faceted installations are not addressed. The International Building Code (IBC), as well as its antecedents, permits alternate designs, materials, and methods of construction so long as any such alternate is approved by the Authority Having Jurisdiction (AHJ).

Actual construction of a faceted suspended ceiling may require engineering documents by code officials/ authorities having jurisdiction in your area; a strict interpretation of the code may rule out faceted designs.

Since each faceted ceiling design is unique, general detail drawings accompany these guidelines. Shop drawings are the responsibility of the contractor. The structural engineer of record is responsible for verifying and approving the use of Armstrong components in these unique installations.

2.0 FACETED CEILING INSTALLATION GUIDELINES

The following guidelines are in addition to the requirements set forth in ASTM C636 and ASCE 7.

2.1 Panel Guidelines

- Reveals between panels will NOT be consistent on all sides. This difference is slight, and is dependent on the radius of the installation.
 - On “hill” installations, the spacing between panels on adjacent facets will be slightly less.
 - On “valley” installations, the spacing between panels on adjacent facets will be slightly more.
 - Staggered or running bond patterns should not be used in faceted installations.

2.2 Suspension System Guidelines

- Only Prelude XL or Suprafine XL suspension systems are recommended for use in faceted designs.
- When installing faceted (broken) main beams with the RC2 clip, cross tees must be physically attached to the main beams with the Single Tee Adapter Clip (STAC), the Cross Tee Adapter Clip (XTAC), or maintain a tee-to-tee connection.
- Installations requiring seismic restraint shall have splayed wire and rigid lateral force bracing/compression posts applied as prescribed by local building code for flat ceilings.

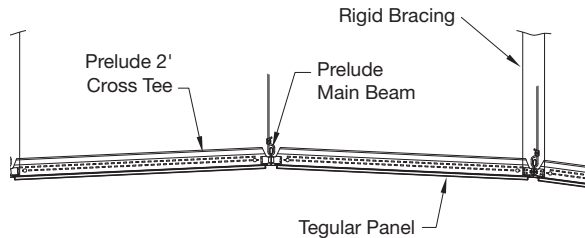
2.2.1 Hanger Wire Guidelines

- 12 gauge hanger wire must comply with ASTM C636 requirements.
- Hanger wires should be suspended vertically and plumb.
- If rigid bracing is used, it shall remain vertical and the splay wires shall be installed at maximum 45° to the horizontal.

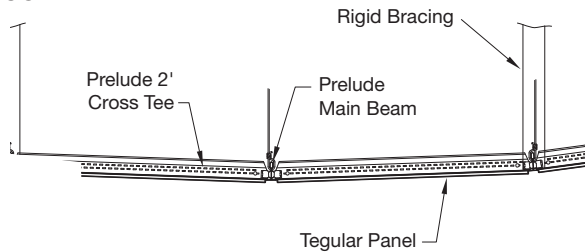
2.2.2 Main Beams at Different Elevations

- When installing main beams at different elevations:
 - Main beams may not be spaced any greater than 2' O.C.
 - Minimum concave radius limitation is 22-1/2'; there is no maximum concave radius limitation.
 - Maximum convex radius limitation is 5° between facets.
 - Both hills and valleys may be created and connected together to create waves.

CONCAVE:

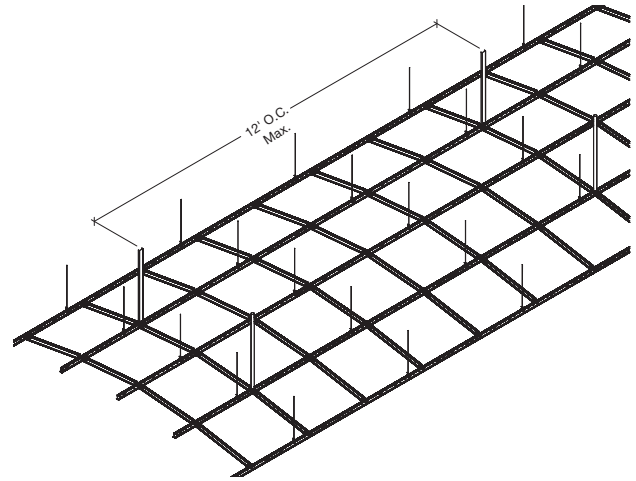


CONVEX:



- MetalWorks™ Vector® panels must be positioned so that all kerfed edges engage cross tees.
- Every other main beam must be held in position by rigid bracing that extends from the main beam to the structure above.
 - Acceptable material for this bracing is #16 gauge, steel, cold rolled channels measuring 1/2" x 1-1/2" or 1/2" diameter EMT. Or 2-1/2", 20 gauge steel studs may be used (same as for exterior wind uplift installations).
 - Bracing is to be attached to the suspension system by means of two pan head framing screws, and to the structure by means of hardware appropriate for the materials encountered.
 - Attachments to the structure must be capable of withstanding a minimum of 100 pounds of force in both tension and compression.
 - The function of the bracing is to overcome the suspension system's natural tendency to flatten out.
 - This bracing is necessary to maintain the desired curve.

- Bracing must be spaced not more than 12' apart along the length of the main beams.



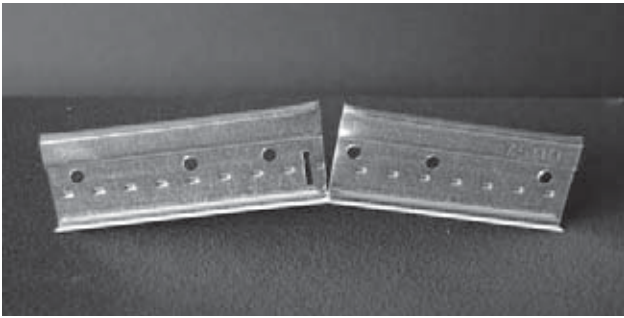
2.2.3 Faceted/Broken Main Beams

- When faceting or breaking main beams to form the curve:
 - For radiuses tighter than 22-1/2', a narrow panel is recommended (12" or 6").
 - Both hills and valleys may be created and connected together to create waves.

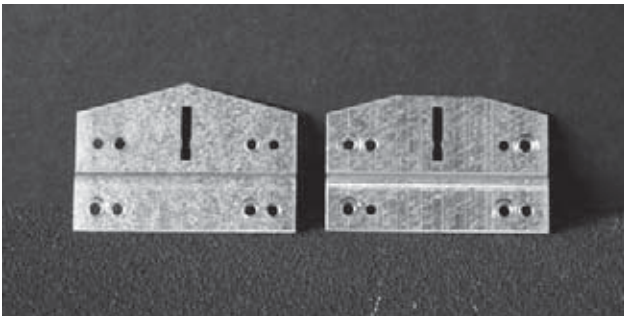


- Only lay-in or Tegular panels may be used. Vector® panels will not work.
- Every main beam must be held in position by rigid bracing that extends from the main beam to the structure above at 4'-0" O.C. along the broken main beam.
 - Acceptable material for this bracing is #16 gauge, steel, cold rolled channels measuring 1/2" x 1-1/2" or 1/2" diameter EMT. Or 2-1/2", 20 gauge steel studs (same as for exterior wind uplift installations).
 - Bracing is to be attached to the broken main beams by means of two pan head framing screws, and to the structure by means of hardware appropriate for the materials encountered.
 - Attachments to the structure must be capable of withstanding a minimum of 100 pounds of force in both tension and compression.
 - The function of this bracing is to solidify the suspension system.

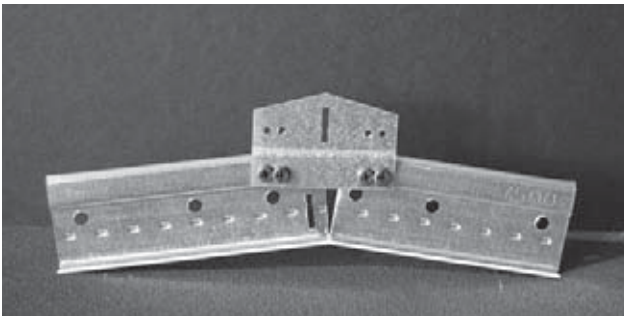
There are two options when faceting main beams:



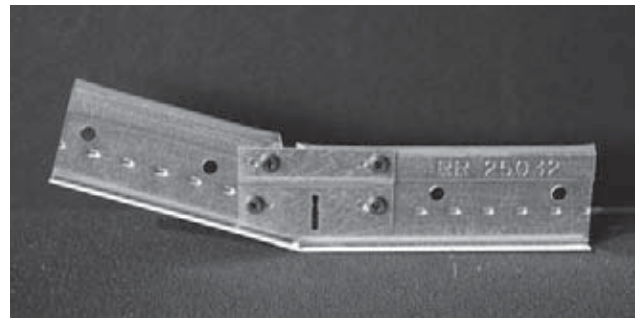
1. Cut the bulb and web of the main beam to form the facet.
 - For 9/16" cross tees – 1/4" strong from the center of the route hole
 - For 15/16" cross tees – 1/2" lite from the center of the route hole



2. If needed, cut off the point on the RC2 clip.
3. Line up the RC2 clip at radius desired.
- 3.a. If positioning the RC2 clip on bulb, hold it in place with a clamp at the desired radius and attach it to the main beam bulb with four pointed screws.



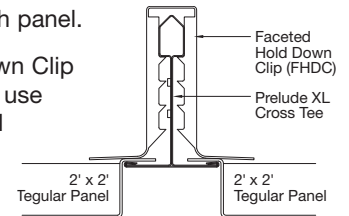
- 3.b. If positioning the RC2 clip with route holes, line up the route holes on the RC2 clip and the main beam. Make sure the clip is placed on the smooth side of the rotary stitching. Use a clamp to hold down the RC2 clip and attach it to the main beam bulb and web with four pointed mini screws.



4. Insert the cross tees and click them into place. If the RC2 clip is aligned with the route hole (3.b.), you may need to modify the XL tab by cutting approximately 1/8" off of the bottom.
5. Brace as recommended in the architect's structural drawings.

2.3 Hold Down Clip Guidelines

- Hold down clips are required for all faceted ceiling applications (except MetalWorks™ Vector® ceiling panels).
- At least two hold down clips should be used on each side of each panel.
- Armstrong Faceted Hold Down Clip Item FHDC is acceptable for use on lay-in and Tegular mineral fiber, fiberglass, metal, and Infusions® ceiling panels in faceted installations.



- Hold down clips reduce accessibility.

2.4 Perimeter Guidelines

- Tying to a wall or drywall bulkhead:
 - Moldings will need to be bent to match the angle of the ceiling where it contacts the walls at the straight sides, and will need to be cut to align with the panel segments on the faceted sides.
 - If using broken main beams, the wall angle will need to be field faceted to match the curvature of the main beam.
- Floating ceiling conditions:
 - Serpentina® Trim may be used, but is limited in radius options. See Serpentina literature CS-3622 for radius options offered as standard trim.
 - Where the panel meets the Serpentina curved trim, it is meeting a true radius, while the opposing side of the panel rests on a flat section of suspension system. Extra hold down clips, Item AX-SPT-HDC, will be needed to force the panel to the shape of the curved Serpentina Perimeter Trim.

MetalWorks™ Ceiling & Wall Systems

One (1) Year Limited Warranty

EFFECTIVE DECEMBER 2018

Please read the following terms carefully, as they are affected by the installation conditions. Armstrong World Industries does not assume nor does it authorize any person to assume or extend on its behalf any other warranty obligation or liability. This express warranty constitutes the entire obligation of Armstrong World Industries, Inc. and there are no other warranties expressed or implied, including any warranty of merchantability or fitness for any purpose whatsoever.

Armstrong® MetalWorks™ ceiling and wall systems and MetalWorks™ custom suspension systems for interior applications are warranted to be free from defects in materials or factory workmanship for a period of one (1) year from the date of installation. In the case of obvious defects in materials or factory workmanship, of which Armstrong World Industries must be notified within 30 days of the date of shipment to the customer. For MetalWorks ceiling and wall systems installed on standard suspension systems, refer to the relevant warranty for Commercial Suspension Systems.

This limited warranty is subject to further conditions listed below.

Armstrong® MetalWorks™ ceiling and wall systems and MetalWorks custom suspension systems for interior applications limited warranties are subject to use under normal conditions. Abnormal Conditions include exposure to chemical fumes, corrosive agents (i.e., chlorine), vibrations, presence of standing water; moisture coming into direct contact with the ceiling or wall, such as could result from building leaks or condensation, excessive humidity, or excessive dust or dirt buildup.

What will Armstrong World Industries do?

Subject to confirmation by Armstrong World Industries of such product failure, Armstrong will deliver, at Armstrong's expense, F.O.B., to the place of installation, new product, of the same or similar type and grade, in an amount equal to that which is determined to be defective.

What does this warranty not cover?

Damage which may occur from vibrations, fire, freezing temperature, accident water, chemical fumes, corrosive agents, or any form of abuse, or exposure to Abnormal Conditions is not covered by this warranty. If subject to Abnormal Conditions, the product should be removed immediately and replaced once the conditions of installation are normal.

This warranty does not extend to variations in the natural characteristics of metal, such as deflection, which may be affected by the type of metal used and dimensions and shape of the panel.

This warranty for Armstrong® MetalWorks™ ceiling and wall systems and MetalWorks custom suspension systems for interior applications is void if: 1) The designated suspension system is not used; 2) The ceiling system is installed in a non-recommended application; 3) The ceiling panels are used to support any other material (unless designated as such); 4) The ceiling system is installed over areas such as swimming pools which provide direct contact with corrosive agents (e.g., chlorine).

THIS EXPRESS WARRANTY CONSTITUTES THE ENTIRE OBLIGATION OF ARMSTRONG WORLD INDUSTRIES AND THERE ARE NO OTHER WARRANTIES EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PURPOSE WHATSOEVER. LIABILITY IS LIMITED TO THAT SET FORTH BELOW AND ARMSTRONG WORLD INDUSTRIES SHALL IN NO EVENT BE LIABLE FOR ANY INSTALLATION OR REMOVAL COST OR FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES OR PERSONAL INJURY.

Warranty Conditions

Prior to installation, the panels and/or suspension system must be kept clean and dry and not subject to Abnormal Conditions (as specified above). If the panels and/or suspension system are installed in, or subsequent to installation are exposed to Abnormal Conditions or improper maintenance, then the panels and/or suspension system may be damaged. Such damage is not covered by this warranty nor is it the responsibility of Armstrong World Industries.

All Armstrong® products shall be installed in accordance with written Armstrong installation instructions and/or approved shop drawings for that product in effect at the time of installation.

Installation of MetalWorks™ ceiling and wall systems and MetalWorks™ custom suspension systems for interior applications shall be carried out where the temperature is between 32°F (0°C) and 120°F (49°C). It is not necessary for the area to be enclosed or for HVAC systems to be functioning. The ceiling panels and suspension system shall not be used to support any other material. MetalWorks ceiling and wall systems and MetalWorks custom suspension systems for interior applications cannot be used in exterior applications.

How do you get service?

You must notify Armstrong World Industries of any product failure covered by this warranty within 30 days of first observation of failure by writing to the following address: Armstrong World Industries, Inc., P.O. Box 3001, Lancaster, PA 17604, or call us at 1 877 276-7876. Reference to Armstrong in this section shall mean, for the United States, Armstrong World Industries, Inc., P.O. Box 3001, Lancaster, PA 17604; and shall mean, for Canada: Armstrong World Industries, Canada, Ltd., 6911 Decarie Blvd., Montreal, Quebec H3W 3E5.

How does state law apply?

This warranty gives you specific legal rights and you may also have other rights, which vary from state to state. Some jurisdictions do not allow exclusion or limitation of incidental or consequential damages or limitations on how long an implied warranty lasts, so the limitation or exclusion herein may not apply to you.

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CEILING & WALL SOLUTIONS