MetalWorks™ Linear – Classics

Instructions for Interior & Exterior Applications

1. GENERAL

1.1 Product Description

MetalWorks™ Linear – Classics is a metal ceiling system that utilizes linear planks that are available in 96" long and in 2", 4", 6", 8", 10", and 12" widths. All planks include a 1-1/4" plank flange that can optionally be covered with a black plastic filler strip to create the contrasts visual. Linear planks are made of 0.028" thick electrogalvanized steel. Their post-production, powder-coated finish is available in White, Silver Grey, Gun Metal Grey, Effects™ and Sequels™ wood-look finishes, and in a wide range of custom colors. Microperforated options with a plain border and acoustical fleece backing are available.

The Main Beam Carriers used to suspend the planks are directional and have hanging features at 2" increments. All plank widths can be installed on the same carrier system which allows for design and installation flexibility.

For Curved and Wall installations refer to Section 4.

For Exterior installations refer to Section 8.

For Seismic installations refer to Section 9.

The Sequels wood-look finish is designed for interior installation only and is not recommended for exterior use.

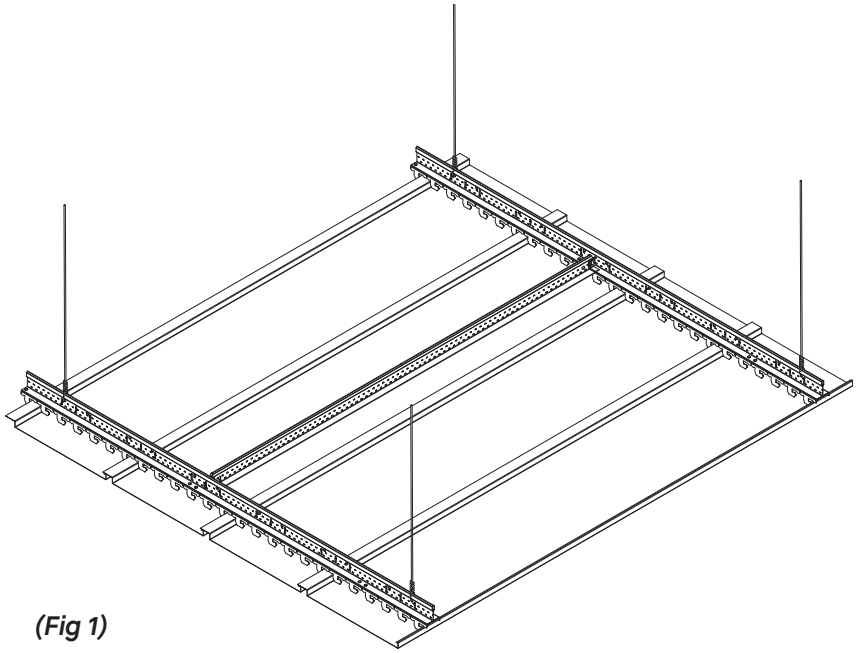
1.2 Storage and Handling

The ceiling planks must be stored in a dry interior location and should remain in cartons prior to installation to avoid damage. The cartons must be stored in accordance with the instructions on the carton. Proper care should be taken when handling to avoid damage or soiling.

1.3 Ceiling Plank Layout

The ceiling plank layout should have perimeter planks equal in width on opposite ends. These cut perimeter planks should be more than 50% of their original width. If the plank is less than 50% of the original width, divide the room dimension by the nominal width of the plank (2", 4", 6", 8", 10", or 12"). Determine the remainder, add one full plank width, and divide by two to determine the width of the border plank.

Example: 8" nominal plank width, room dimension 10' 4". Divide 10' 4" by 8" = 15 full sections with 4" remainder. Add 4" + 8" = 12". Divided by 2 = 6" border plank with 14 full rows of planks. This will create the best visual and installation.



(Fig 1)

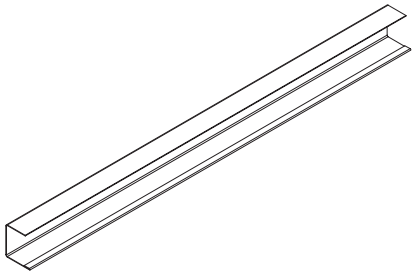
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Perimeter consideration for 2" planks: 2" wide planks are not compatible with the Cut Plank Support Bracket (CPSB). Pop rivets and pressure springs can be used to secure the planks to the molding. In cases where pop rivets are not allowed, the installation must have two rows of 4" planks at the perimeters to enable the CPSB to be used.

2. SUSPENSION SYSTEM INSTALLATION

2.1 Perimeter Molding

Install the Carrier Molding (Item 5574) on the perimeter walls ***(Fig 2)***. Molding should be secured to the wall every 16" to 24". The bottom of the molding will be the finish height of the linear planks.



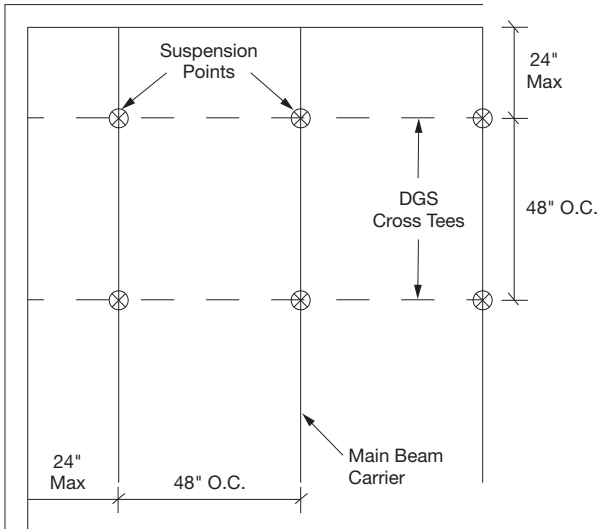
(Fig 2)

2.2 Hanger Wires

Secure hanger wires to the structure above to support the Main Beam Carriers. Wire spacing for Main Beam Carriers should be within 24" of the perimeter wall and then 48" O.C.

2.3 Main Beam Carriers

The Main Beam Carriers will be installed 48" O.C. perpendicular to the desired plank length direction. The first and last Main Beam Carrier must be installed within 24" of the perimeter wall ***(Fig 3)***.

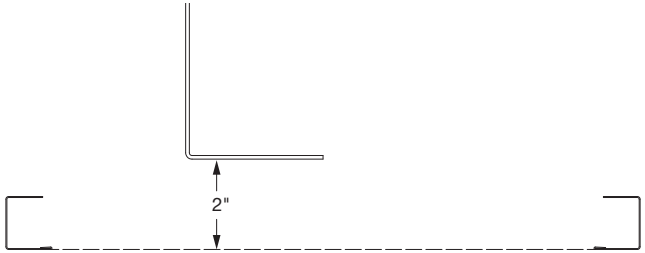


(Fig 3)

Main Beam Carriers are directional and must be installed accordingly. Main Beam Carriers splice together with SuperLock™ end detail just like standard drywall grid main beams.

2.4 Pre-bending Hanger Wires

Stretch a string line or set a laser at the bottom of the molding from one side to the other along a row of hanger wires. Bend the wires 2" above the string or laser ***(Fig 4)***.

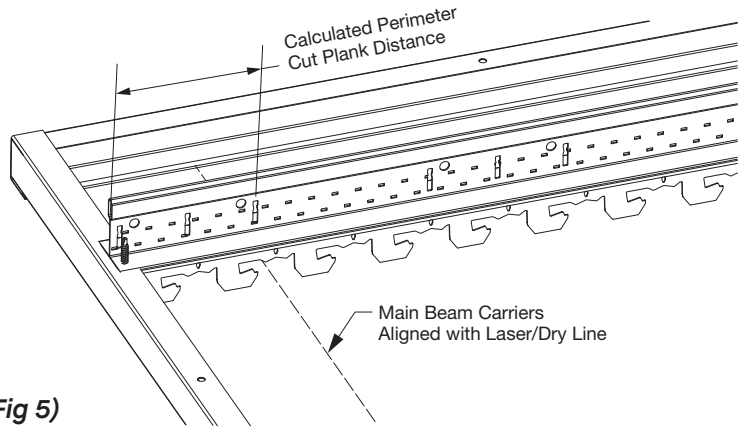


(Fig 4)

2.5 Squaring and Cutting the Main Beam Carriers

Stretch a string line from one side of the room to the other at the bottom of the molding (string perpendicular to the Carrier). The string should be out from the “end” wall by the calculated width of the first “plank.” Refer back to Section 1.3 for width of border planks.

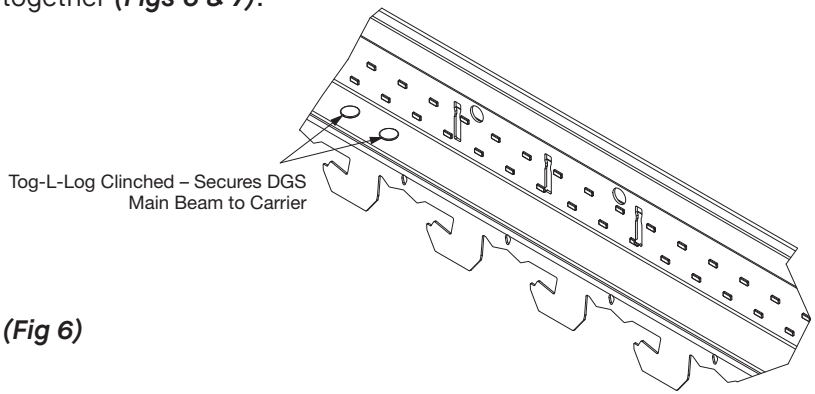
2.5.1 Measure from this string to the wall. Cut the first Main Beam Carrier in each row so the desired notch lines up with this string ***(Fig 5)***.



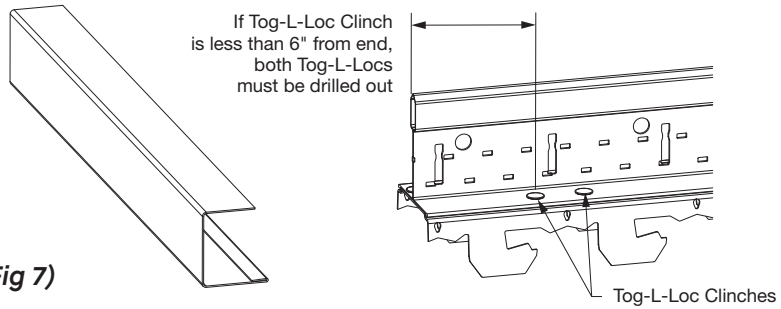
(Fig 5)

NOTE: The system can also be squared by measuring a 4' × 4' diagonal opening, as with installing a normal DGS ceiling.

When cutting the Main Beam Carrier, note that it features a Tog-L-Loc® clinch system, which secures the carrier components together ***(Figs 6 & 7)***.

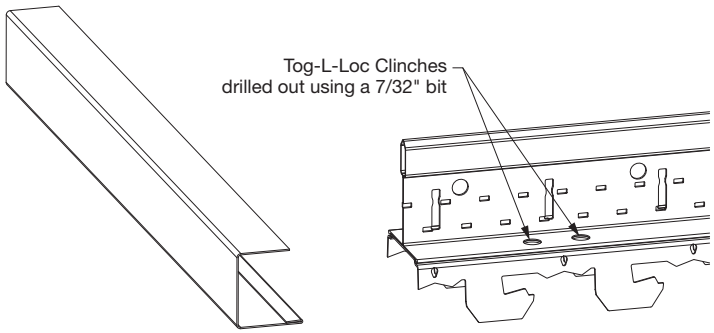


(Fig 6)



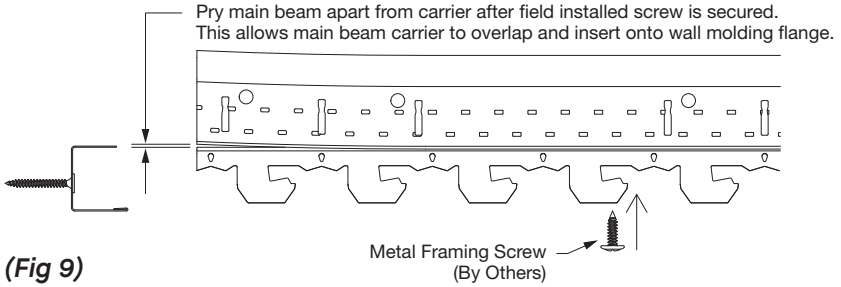
(Fig 7)

If the Tog-L-Loc clinch is located less than 3" from the end cut of main beam carrier, both clinches must be drilled out. Use a 1/4" drill bit to carefully drill through the Tog-L-Loc ***(Fig 8)***.



(Fig 8)

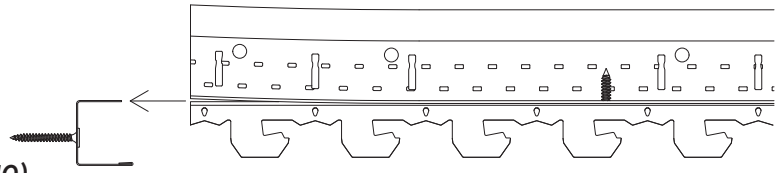
Then, gently pry open the main beam carrier at the cut end. To maintain structural integrity, insert a screw to secure the two parts of the carrier. Position the screw so that it holds the pieces together without fully closing the slightly opened end ***(Fig 9)***.



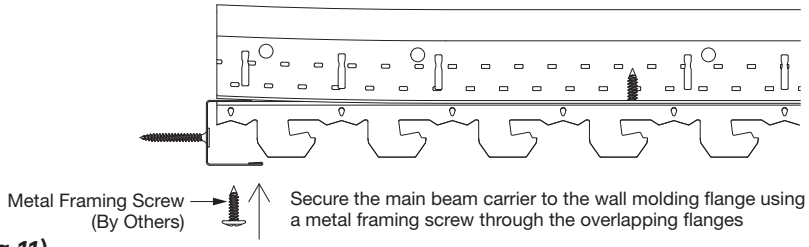
(Fig 9)

2.6 Main Beam Carrier Attachment

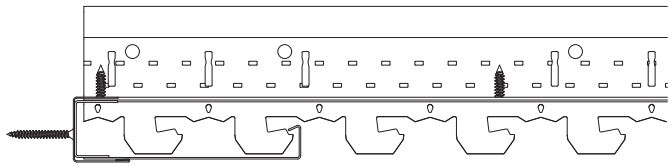
The top flange of the Carrier Molding will slide in between the two components of the Main Beam Carriers. Once each Main Beam Carrier is aligned with the guide string as in the previous detail, fasten them to the perimeter molding with a framing screw or pop rivet to the wall molding ***(Figs 10-12)***.



(Fig 10)



(Fig 11)



(Fig 12)

2.6.1 Complete the run of Main Beam Carriers to the other end of the space.

3. PLANK INSTALLATION

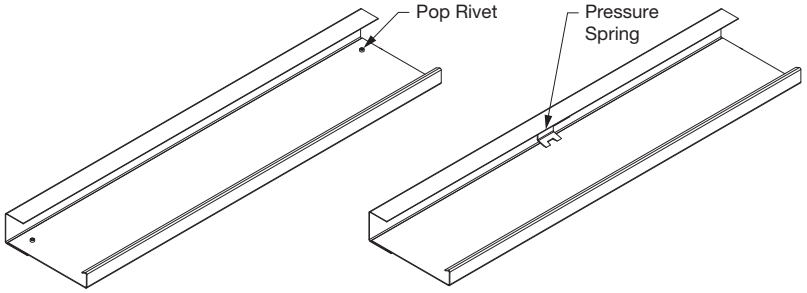
3.1 Starting Perimeter Row

Measure from the wall to the string several places and determine the exact width of the first row of planks.

3.1.1 Mark the plank and cut to width. The 1-1/4" flange edge is the edge that should be cut off.

3.1.2 Slide the cut edge of the plank into the perimeter wall molding. The opposite hook edge (factory edge) of the plank will fit onto the tab on the carrier.

3.1.3 Insert pressure springs and/or pop rivet plank to secure the plank to the molding; frequency of pressure springs or pop rivets is as necessary, but typically 24" O.C. ***(Fig 13)***.



(Fig 13)

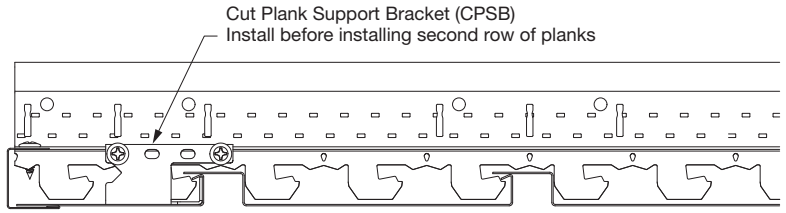
3.1.4 The Cut Plank Support Bracket (CPSB, Item 7237) can be used as an optional method to secure planks to the carrier system when one of the plank's factory engagement edges has been removed. The function of the bracket is to keep the remaining factory edge of a cut plank engaged in the carrier, while the cut edge is supported by the carrier molding.

The CPSB is intended to replace the use of visible pop rivets into the bottom flange of the carrier molding. The CPSB will not function with the 2" planks. Pop rivets or pressure springs will have to be used for the narrow width.

The same bracket can be used to secure cut planks that retain the hook edge or that retain the flange edge (see details below).

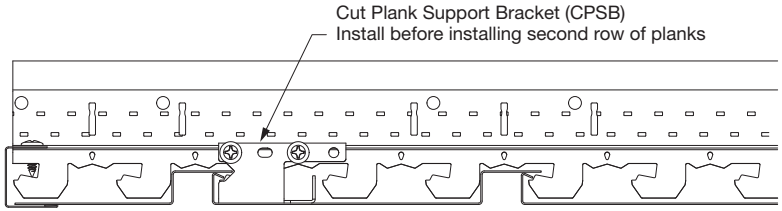
To install the CPSB:

1) Cut and install the planks as described in Sections 3.1 (retaining hook edge) or 3.4 (retaining flange edge)
2) Install pressure springs as outlined previously
3) If installing a plank with the hook edge remaining, install the CPSB before installing the second row of planks. If installing a plank with the flange edge remaining, install the second row of planks before attaching the CPSB.
4) Place the CPSB against the side of each carrier (48" O.C.) so that it engages the cut plank ***(Figs 14 & 15)***.



Retaining Hook Edge

(Fig 14)

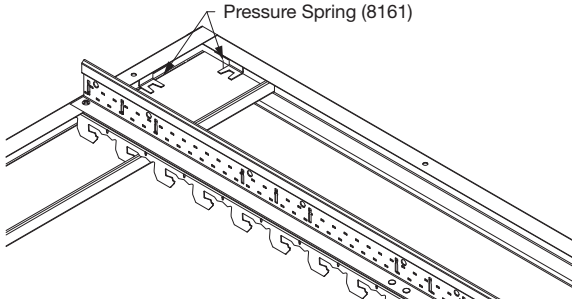


Retaining Flange Edge

(Fig 15)

5) Attach the CPSB to the carrier with two #8 × 1/2" framing screws through the holes in the CPSB that align with the notches in the carrier.

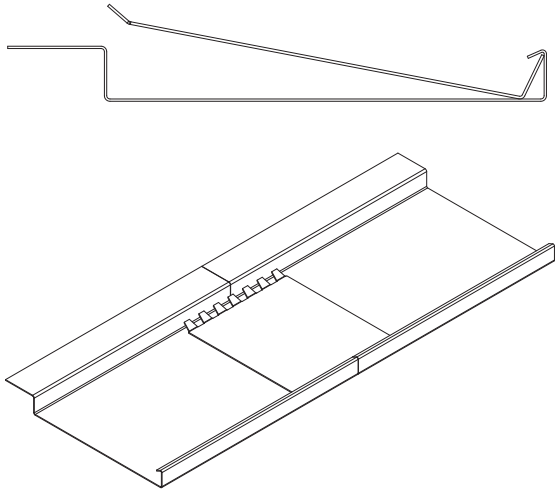
3.1.5 Cut the planks to length to fit into the perimeter molding at the sides parallel to the carrier. Use pressure springs on ends as needed ***(Fig 16)***.



(Fig 16)

3.2 Plank Splices

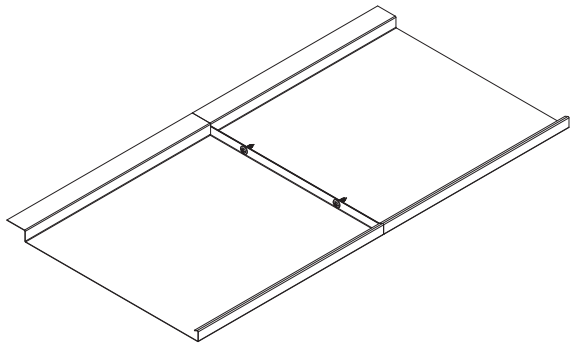
When 2", 4", 6", and 8" planks do not reach across the space in one piece, use a splice plate (available in 2", 4", 6", and 8" widths) to join and align adjacent planks. Install planks so the factory ends are at the splice locations and assure the joint is tight. Install the splice by inserting the solid end under the plank hook. Then gently push the finger side down on the opposite side to lock the plank joints together ***(Fig 17)***.



(Fig 17)

Planks 10" and 12" wide have factory upturns on the short ends and are spliced differently. Install planks so that factory ends are tight and use vise grip clamps to temporarily hold them together.

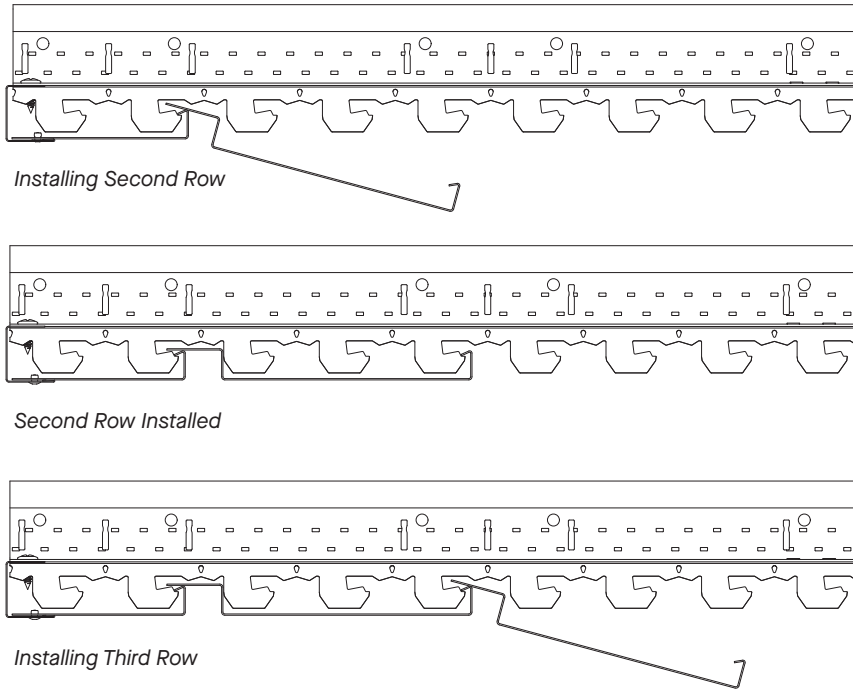
Insert sheet metal framing screws through the plank returns. This requires a clear plenum to work with power tools above the plank. Two screws are required at each joint ***(Fig 18)***.



(Fig 18)

3.3 Field Plank Installation

Install the second row of planks by inserting the flange edge on top of the previous plank. Next, gently push the plank hook side up until it snaps onto the carrier tab. Continue installing rows of planks across the space ***(Fig 19)***. When you get near the opposite perimeter, make sure to leave enough room for access above the main carriers as this will be necessary for the last perimeter row.



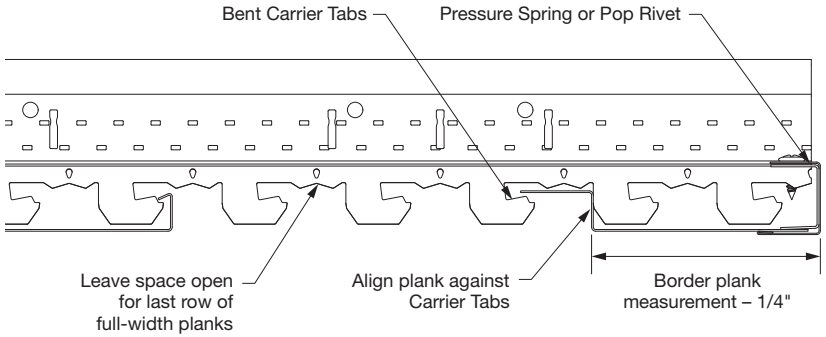
(Fig 19)

It is recommended that splices be staggered for optimal visual.

For cut planks from the molding that only reach a single main carrier make sure that the midpoint of the plank is not past the carrier to avoid cantilever of the plank.

3.4 Last Perimeter Row

Do not install the last row of full width planks at this time. You must install the last perimeter row of planks while you still have access above the main carriers. The approximate width of the perimeter planks will be based off of the layout calculations in Section 1.3. Take the measurement and transfer this to the face of the planks. Cut the planks to retain the flange side ***(Fig 20)***.



(Fig 20)

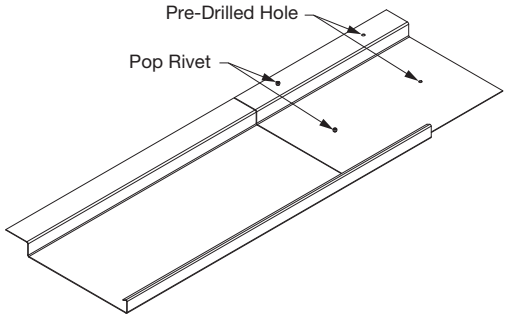
Use pliers to bend the carrier tabs out 90 degrees. Next, insert the long cut edge of the plank into the molding, align the plank in the carrier, and use pliers to bend the supporting tabs back to their original position. Insert pressure springs or pop rivets to secure the border planks to the molding as shown in Section 3.1.3. The Cut Plank Support Bracket CPSB (Section 3.1.4) can be used as a substitute for visible pop rivets.

Once the cut perimeter row is complete, continue installing planks as before until you get to the last full plank width row.

3.5 Last Full Plank Width Row

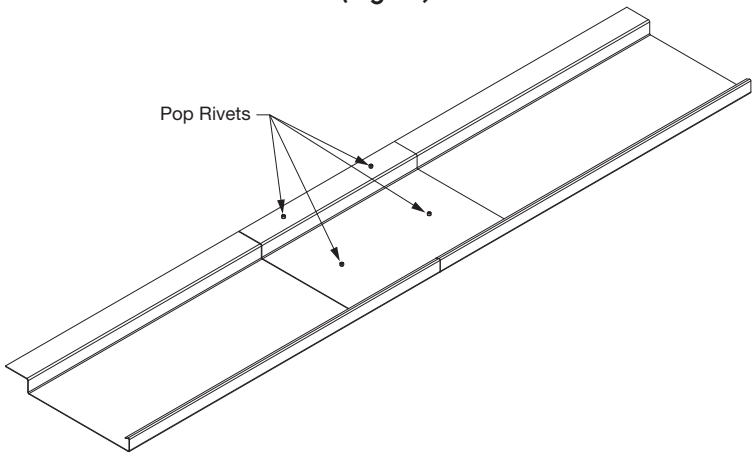
The last full row of 2", 4", 6", or 8" planks must be joined end-to-end after installation, but must be prepared before installation (for 10" and 12" planks see Section 3.5.7).

3.5.1 Cut a scrap piece of plank (4-6" length). Nest this piece into the flange of the first plank to be installed in the last row and pop rivet ***(Fig 21)***. This is the end of the plank that does not rest on the wall molding.



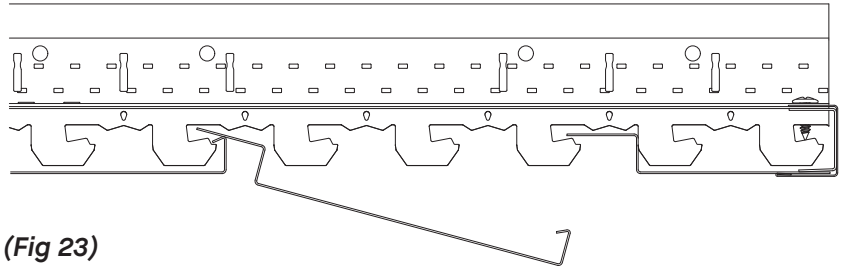
(Fig 21)

3.5.2 Align another section of the plank with the end of the one just prepared and drill two holes for the pop rivet in the second plank of the row, but do not install the rivets ***(Fig 22)***.



(Fig 22)

3.5.3 Install the first plank in the ceiling by inserting the flange edge on top of the adjacent plank ***(Fig 23)***. Next, gently push the plank hook side up until it snaps onto the carrier tab.



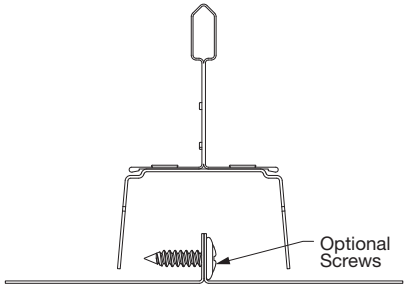
(Fig 23)

3.5.4 Prepare the third plank in the row as described in Section 3.5.1 and 3.5.2 above. Install the second plank in the row and insert the pop rivets in the holes prepared in Section 3.5.2.

3.5.5 Continue this pattern for the remainder of the row. The scrap piece of plank installed in the next to last plank can only extend about 1/2" into the end of the last plank in the row.

3.5.6 Color the exposed rivets to match the plank finish.

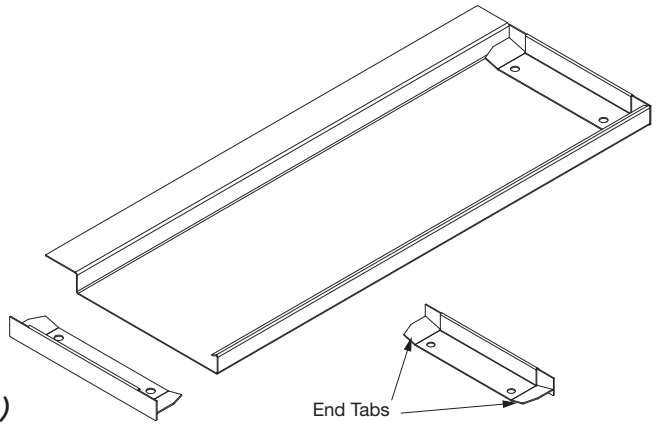
3.5.7 To install the last full plank width row of 10" and 12" planks cut the first plank to length so the factory upturn will be at the middle of a main carrier. Install the plank flange edge as normal and then gently push the plank hook side up until it snaps onto the carrier tab. The splice will be directly under the main carrier to keep the joint aligned ***(Fig 24)***. Pop rivets or pressure springs can be used to hold the first plank from the perimeter in place. Main carriers are installed 48" O.C. so the remaining plank joints should line up under the main carriers.



(Fig 24)

3.6 Optional Plank End Caps

Plank end caps can be used when the plank end is not covered by a molding ***(Fig 25)***. This may occur at a ceiling penetration or custom perimeter treatment, such as a floating installation.

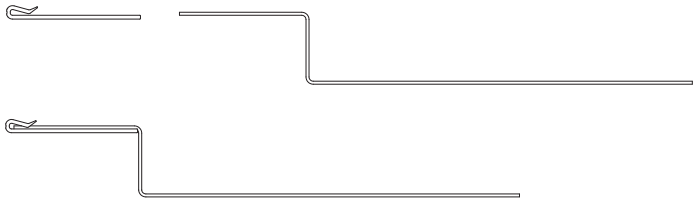


(Fig 25)

The plank end must be cut square and clean. Press the cap into the plank until it is flush with the end. The end tabs may need to be bent to create the resistance fit needed to hold the end cap in the end of the plank. For Sequels™ finish, the standard black end cap is recommended. **NOTE:** Double-sided tape can be used to strengthen the end cap connection to the plank. Simply place a piece of double sided tape on the underside of the end cap and install it in the plank.

3.7 Optional Contrasts Fillers (Item 5494)

Nominal 1-1/4" wide black Contrasts filler strips are field applied to planks before installation. Slide the filler hem over the plank flange ***(Fig 26)***. Install the plank as usual.



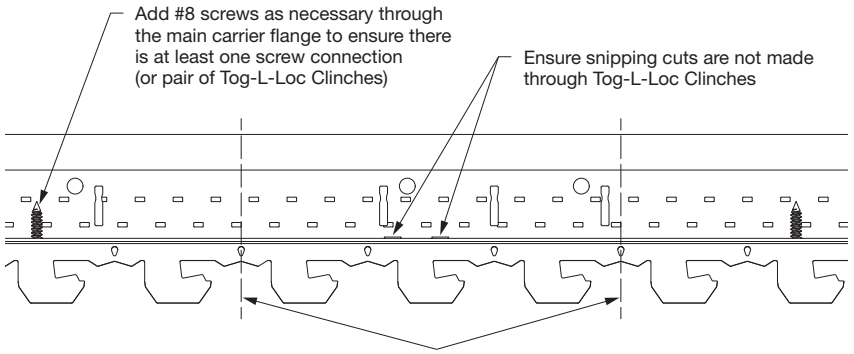
(Fig 26)

4. CURVED AND WALL INSTALLATIONS

MetalWorks™ Linear – Classics planks can be installed to create a curved or vaulted ceiling. To do this, install the Main Beam Carriers at the radius or shape of the desired ceiling from the job plan. Follow the Curved Drywall Grid Technical Guide, BPCS-3540, for hanging curved ceilings. Copies are available on the web at *http://www.armstrong.com/pdbupimages-clg/205659.pdf*

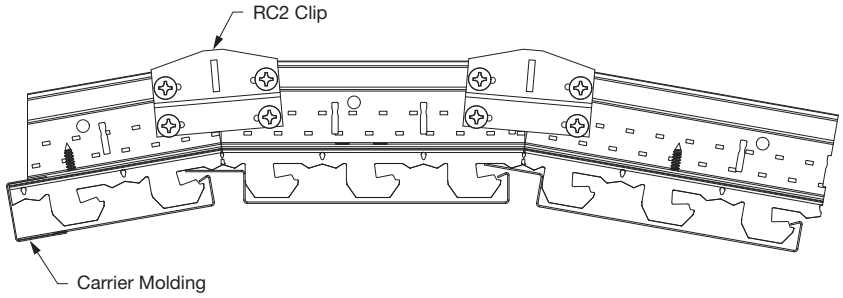
4.1 Faceting the Main Beam Carriers

A MetalWorks™ Linear – Classics curved system is actually a faceted application with a 2", 4", 6", 8", 10", or 12" facet depending on the plank width. To curve or facet the Main Beam Carrier, snip the small vertical section between plank tabs and through the web to the flange. Ensure snipping cuts are not made through Tog-L-Loc clinches ***(Fig 27)***.



(Fig 27)

Use RC2 clips to reinforce the cuts in the Main Beam Carrier per the Curved Drywall Grid Technical Guide, BPCS-3540 ***(Fig 28)***.



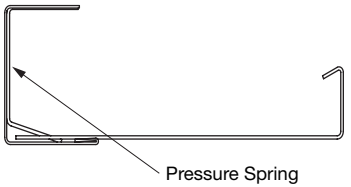
(Fig 28)

4.2 Use of Carrier Molding

The carrier molding is used at the perimeter of curved linear metal installations. The carrier molding is not flexible and is to be notched in the field for curved applications.

4.3 Perpendicular to the Carrier

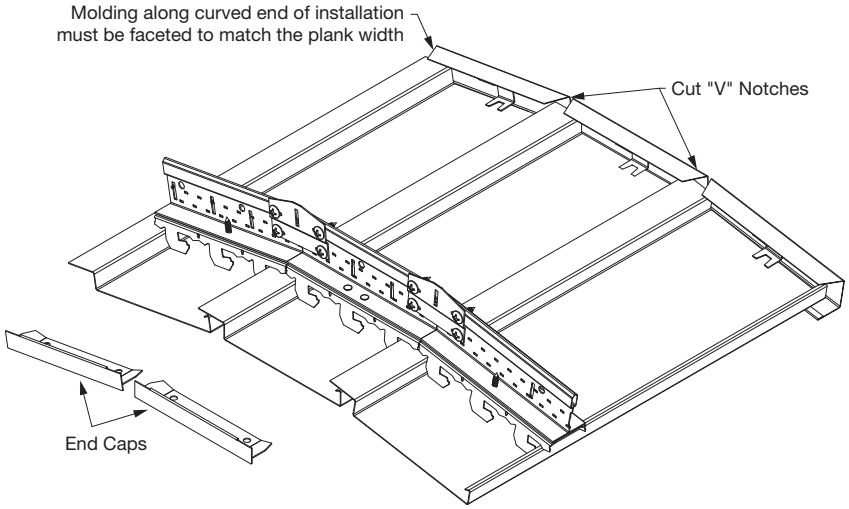
On the two sides that the molding runs perpendicular to the modified carriers, it can be attached to the carriers as detailed in Section 2.8 Main Beam Carrier attachment. Use pressure springs to keep the plank tight in the carrier molding ***(Fig 29)***.



(Fig 29)

4.4 Perpendicular to the Linear Planks

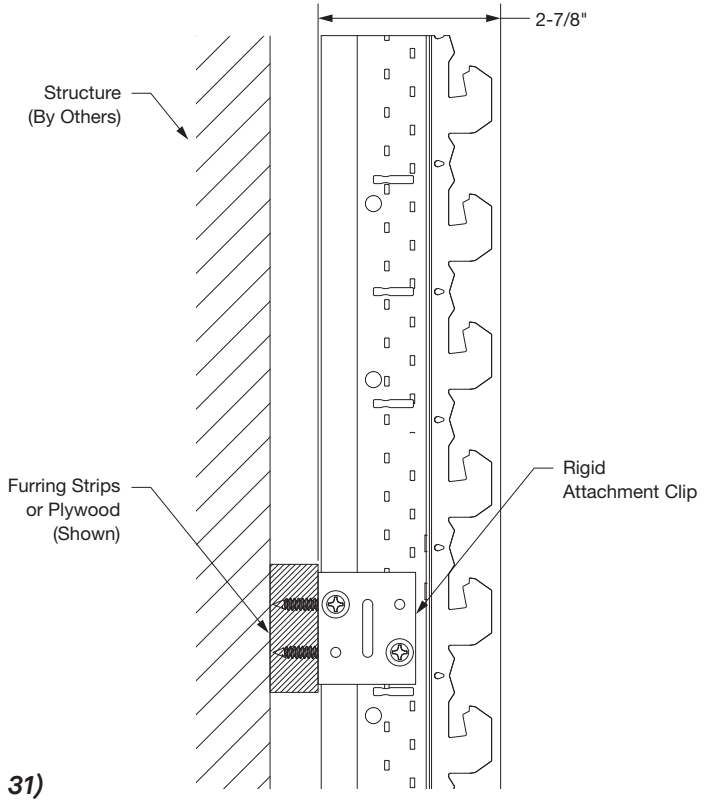
The molding along the curved end will need to be faceted to match the plank width – 2", 4", 6", 8", 10", and 12". Cut a V-notch on the top flange at the module length. This will provide clearance to make a vertical cut on the side. Attach the molding to the wall to match the elevation of the planks. Use pressure springs to keep the plank tight in the flex carrier molding ***(Fig 30)***.



(Fig 30)

4.5 Wall Installations

4.5.1 MetalWorks™ Linear – Classics planks can only be installed on the wall horizontally. Install Rigid Attachment Clips (Item 6459BL) to furring strips or 5/8" plywood, securing them with appropriate fasteners for the substrate ***(Fig 31)***. Spacing between clips along the Main Beam Carrier should not be more than 24". The first row of clips at the bottom should be elevated from the floor by no more than 6". The last row of clips at the top should be within 6" from the existing ceiling.



(Fig 31)

4.5.2 Install the Main Beam Carrier directly to the clips 48" O.C. The first and last carrier must be within 8" from the end to control plank twist. Install the planks with the flange facing down starting at the bottom going up.

4.5.3 Install splice plates at plank joints. Splice plate installation will be blind because of proximity to the wall structure.

4.5.4 If not wall-to-wall, use end caps on planks, but all other components may be in line of sight.

4.6 Curved Ceiling-to-Wall Transitions

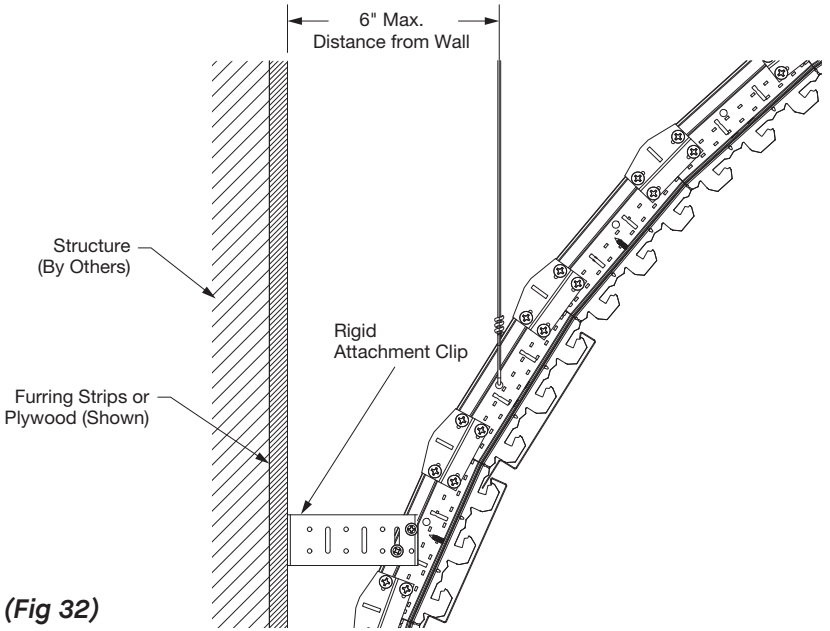
4.6.1 MetalWorks™ Linear – Classics can be installed to create a curved transition from ceiling to wall by faceting the Main Beam Carriers.

Radius minimums:

- 12" plank – 6' radius
- 10" plank – 5' radius
- 8" plank – 4' radius
- 6" plank – 3' radius
- 4" plank – 2' radius
- 2" plank – 1' radius

See Section 4. CURVED INSTALLATIONS for instructions on how to facet Main Beam Carriers.

4.6.2 Use Rigid Attachment Clips (Item 6459BL) or QSUTC to stabilize the Main Beam Carriers. Install hanger wires to deck 6" from wall, then 24" O.C. along the curved segment of the Main Beam Carriers. Install planks with flange down starting from the bottom ***(Fig 32)***.



(Fig 32)

4.6.3 MetalWorks Linear – Classics curved transitions are single wall only, due to the directional attachment of the planks.

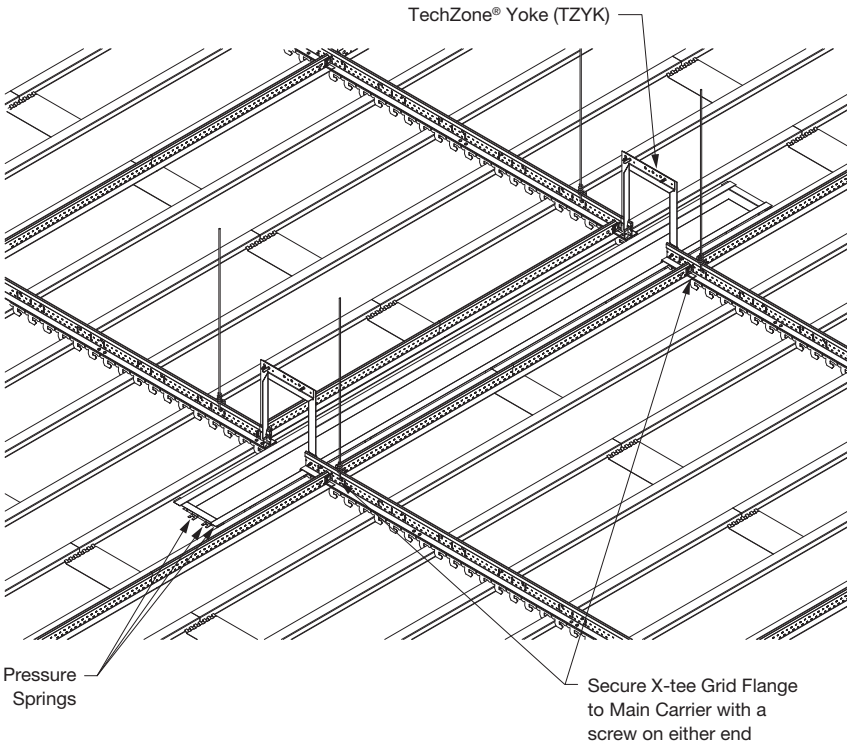
5. FIXTURE INTEGRATION

Penetrations through linear metal planks are made using typical metal working equipment. Hole saws work well for sprinklers. Tin snips can be used for larger openings. All penetrations should be fitted with escutcheons that conceal the cut plank edges.

Planks are not to be used to support the weight of ceiling mounted hardware. These items are to be supported from the Main Beam Carriers or directly from the overhead structure.

5.1 Linear Fixtures

Parallel to plank length (perpendicular to Main Beam Carriers) Suspension System:
Based on the desired positioning of the fixture or the fixture length (any linear fixture that is longer than 46" and cannot fit in between main carriers) the installation will require Main Beam Carriers to be cut. In cases where the Main Beam Carriers must be cut, they can be reinforced with the TechZone® Yoke (TZYK) to keep the carrier aligned ***(Fig 33)***.



(Fig 33)

- The Main Beam Carriers must be supported within 8" of the cut end on each side of the yoke.
- Bracing may be required by local code or a structural engineer, especially in seismic installations.

Planks:
- Openings for the fixtures can be framed with the Carrier Molding (Item 5574) using Pressure Springs (Item 8161) or pop rivets to hold it in place.

Perpendicular to plank length (parallel with Main Beam Carriers) Suspension System:
Linear fixtures that install parallel with the Main Beam Carriers may require repositioning of the 4' cross tees and/or the possible addition of sections of the carrier. The 4' cross tees are not load bearing in this system and are used to help with spacing and squaring of the main carriers. Based on the length of the fixture, the cross tees can be repositioned to frame the fixture on the short ends. Any single tee connections can be reinforced with a framing screw through the carrier and the flange of the cross tee.

- Make sure that a carrier is installed not more than 12" from the cut ends of the planks. If sections of carrier must be added, they should extend at least one full plank width beyond the cut rows. Any added sections of carrier must be supported with hanger wire.

Planks:
- Openings for the fixtures can be framed with the Carrier Molding (Item 5574) using Pressure Springs (Item 8161) or pop rivets to hold it in place.

6. ACCESS PANELS (INTERIOR ONLY)

6.1 Access panels must be installed at each location where entry through the ceiling is required. Maximum access panel size is 36" wide by 36" long. Plan size and location carefully to ensure that all above ceiling equipment requiring service is reachable.

6.2 Access Panel Opening

6.2.1 Make sure that a carrier is installed not more than 12" from each end of the openings. If sections of carrier must be added, they should extend at least one full plank width beyond the sides of the openings.

6.2.2 Frame the opening with sections of Carrier Molding (Item 5574) to match the size of the opening. Fasten the backside corners of the frame overlap with metal framing screws.

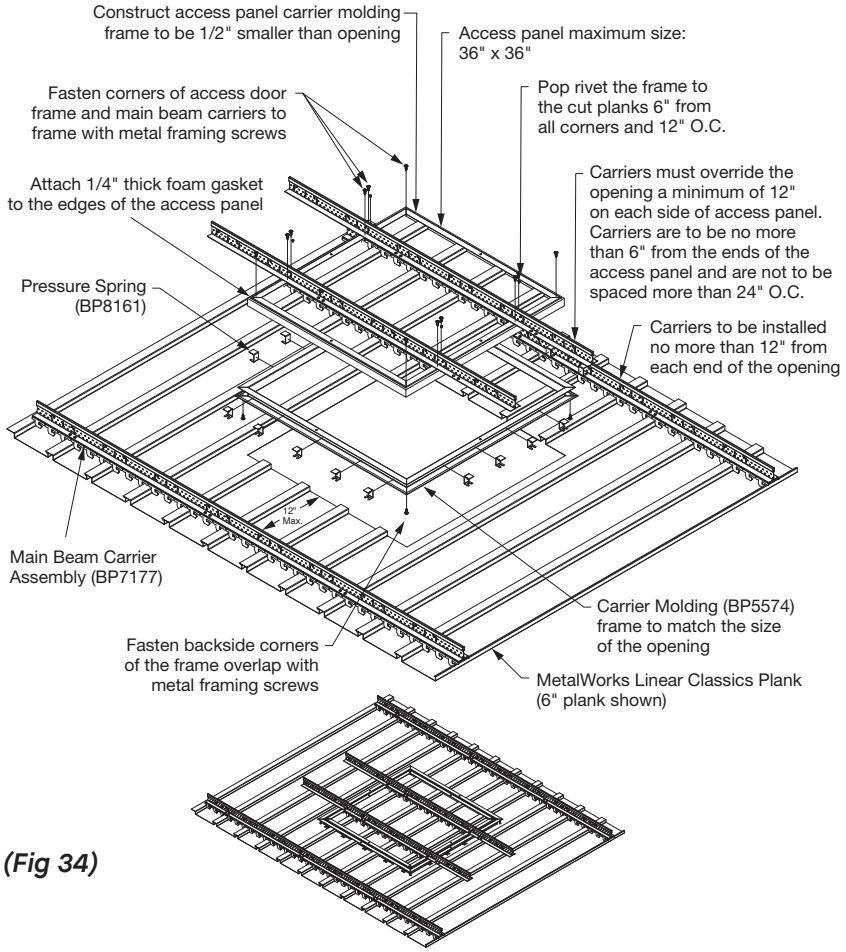
6.2.3 Pop rivet the frame to the cut planks 6" from all corners and 12" O.C. to hold the frame in place.

6.3 Access Panel Construction

6.3.1 Fabricate a second frame for the access panel out of the Carrier Molding. Size this frame 1/2" smaller, in both directions, than the ceiling opening.

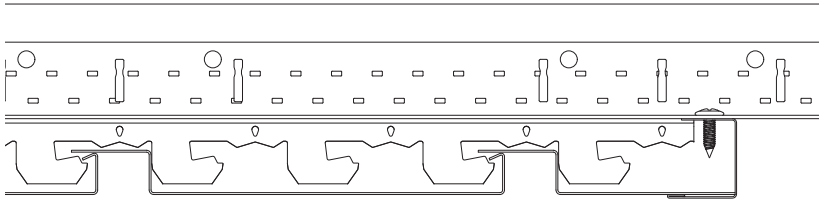
6.3.2 Cut lengths of plank to fill the frame, making sure that they will line up with the planks in the field of the ceiling. Pop rivet the long side of the planks to the inside of each end of the frame 6" in and 12" O.C.

6.3.3 Cut Main Beam Carriers 12" past cut opening. Remove lower portion of Main Beam Carrier so that the Main Beam Carrier fits inside of the access panel frame ***(Fig 34)***. Carriers are to be not more than 6" from the ends of the access panel and not more than 24" O.C.



(Fig 34)

6.3.4 Assemble the frame around the cut planks and secure with sheet metal screws ***(Fig 35)***.

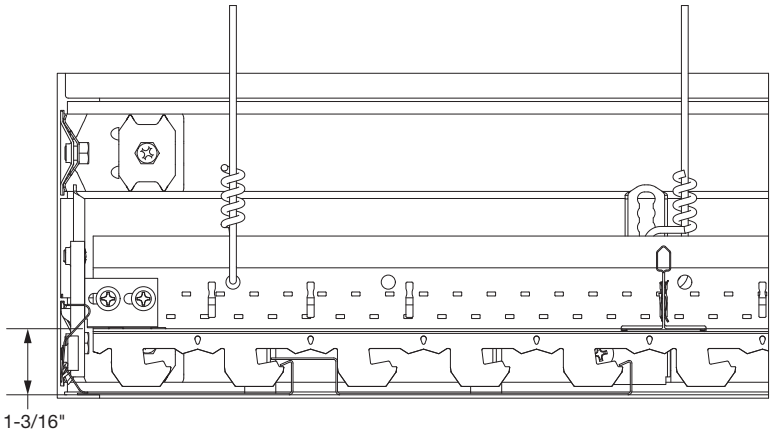


(Fig 35)

6.3.5 Attach 1/4" thick foam gasket to the edges of the door. Hold the gasket about 1/2" up from the face of the molding.

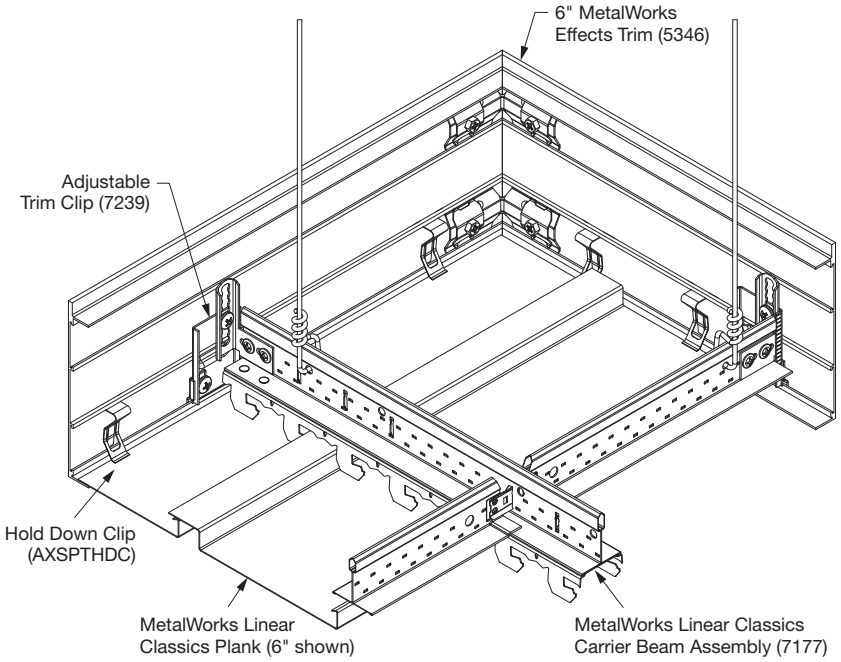
7. FLOATING TRIM/DISCONTINUOUS CEILINGS

For cloud or discontinuous installations, the MetalWorks™ Linear – Classics system can be capped with Axiom® trim. The offset from the plank face to the main carrier flange is 1-1/8" ***(Fig 36)***.



(Fig 36)

To accommodate this, drop and rest cut planks on the Axiom flange. The Adjustable Trim Clip (Item 7239) must be used (***Fig 37)***. This clip takes the place of AXTBC clips but can adjust to within 1/8" increments to hold the trim at different heights relative to the carrier flange.



(Fig 37)

For detailed trim and clip installation instructions refer to the link here: *https://www.armstrong.com/pdbupimages-clg/224643.pdf/download/installation-guide-axiom-classic-trim.pdf*

8. EXTERIOR INSTALLATION

MetalWorks Linear – Classics planks, 2", 4", 6", 8", 10", and 12" widths (unperforated) are recommended for non-exposed exterior applications.

8.1 Only these specific suspension system items and accessories should be used for wind uplift applications:

- Item 7177 Main Beam Carrier 1
- XL7936G90 3' DGS cross tee
- XL8926G90 2' DGS cross tee
- MetalWorks Linear Carrier Molding Item 5574
- 20AWG 3-5/8" CSJ Compression Posts (not sold by Armstrong World Industries)
- 16AWG CRC U Profile (not sold by Armstrong World Industries)
- BACG90 Clips
- XTAC (Cross Tee Adapter Clip)
- 2" Splice Plate Item 8159
- 4" Splice Plate Item 5495
- 6" Splice Plate Item 7163
- 8" Splice Plate Item 5496
- Pressure Spring Item 8161

8.2 This section provides details for the proper application of these products in areas requiring resistance to wind uplift forces. The details and descriptions provided in this section depict the method used during independent testing conducted according to UL580 *"Standard Test for Uplift Resistance of Roof Assemblies"*.

8.2.1 Armstrong World Industries is not licensed to provide professional architecture or engineering design services. These drawings and descriptions show typical conditions in which the product depicted is installed. They are not a substitute for an architect's or engineer's plan and do not reflect the unique requirements of local building codes, laws, statutes, ordinances, rules, and regulations (legal requirements) that may be applicable for a particular installation.

Armstrong World Industries does not warrant, and assumes no liability for the accuracy or completeness of the drawings for a particular installation or their fitness for a particular purpose. The user is advised to consult with a duly licensed architect or engineer in the particular locale of the installation to assure compliance with all legal requirements.

8.2.2 Independent testing was successfully conducted to Class 30, 60, and 90 using 20AWG 3-5/8" CSJ Compression Posts with a 30" plenum. Plenum depths beyond 30" will require a structurally engineered configuration.

Class Rating	Carrier Spacing	Compression Post and Cross Tee Spacing
MetalWorks™ Linear – Classics Exterior: Suspension System and Compression Post Spacing for UL® Uplift Class Rating		
2" Planks		
30 (45 PSF)	36"	36"
60 (75 PSF)	36"	24"
90 (105 PSF)	36"	24"
4" Planks		
30 (45 PSF)	36"	36"
60 (75 PSF)	36"	24"
90 (105 PSF)	36"	24"
6" Planks		
30 (45 PSF)	36"	36"
60 (75 PSF)	36"	24"
90 (105 PSF)	36"	24"
8" Planks		
30 (45 PSF)	24"	32"
60 (75 PSF)	24"	32"
90 (105 PSF)	24"	32"
10" Planks		
30 (45 PSF)	24"	32"
60 (75 PSF)	24"	32"
90 (105 PSF)	24"	32"
12" Planks		
30 (45 PSF)	24"	32"
60 (75 PSF)	24"	32"
90 (105 PSF)	24"	32"

8.3 Installation of Suspension System

8.3.1 Install Item 5574 Carrier Molding at the finish ceiling elevation.

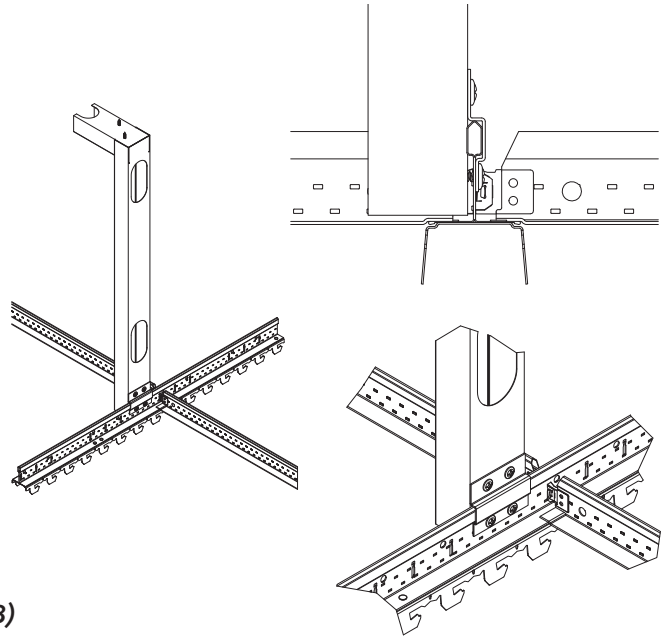
8.3.2 Attachment should be by metal fasteners of a type and size appropriate for the mounting surface. Fasteners should be evenly spaced along the length of the track and the maximum center spacing should not exceed 16".

8.3.3 Cut Main Beam Carriers to length as described in Section 2.7.

8.3.4 Main Beam Carrier spacing for exterior applications is dependent upon the plank width being used. Carriers can be hung with #12 gauge galvanized steel wire at 48" O.C. to facilitate installation.

8.3.5 Stretch a string from one side of the room to the other at the bottom of the molding (string perpendicular to DGS main beams). See detail 2.5.1. The string should be out from the “end” wall by the calculated width of the first “plank.” See Section 3 for border plank layout.

8.3.6 DGS cross tees must be installed adjacent to compression posts (e.g. 24" O.C. or 32" O.C. along the carriers). See ***(Fig 38)*** for cross tee interface with compression posts. All single tee connections or cut cross tees must be reinforced with an XTAC.



(Fig 38)

8.3.7 Attach the ends of the main beams to the Carrier Molding using #8 × 1/2" self-drilling screws.

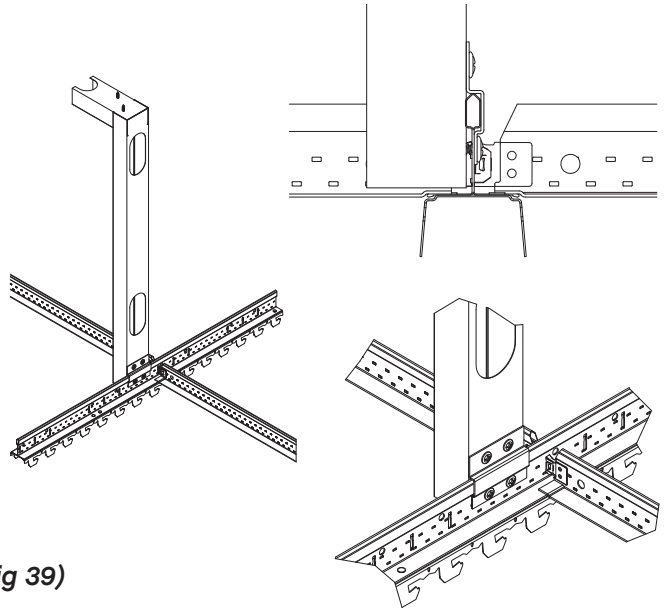
8.4 Installation of the Compression Posts

8.4.1 Independent testing was successfully conducted to Class 30, 60, and 90 using 20AWG 3-5/8" CSJ Compression Posts with a 30" plenum. Plenum depths beyond 30" will require a structurally engineered configuration.

8.4.2 Note that the bottom end of the posts should fit tight against the flange of the Main Beam Carrier.

8.4.3 The top end of the post is made by cutting through the flanges of the stud and folding over a short horizontal leg of approximately 3" to 5" add a screw to secure the folded stud. The top end of the post shall be attached to the structure by means of at least two metal fasteners of a type and size appropriate for the application.

8.4.4 Attachment to the Main Beam Carrier should be by means of the Armstrong® BACG90A clip. Begin by clamping the post and the BACG90A clip in position. Then use four #8 × 3/4" self drilling sheet metal screws to fasten the post to the BACG90A clip. The top screws will fasten the strut to the clip and the bottom screws will fasten the strut and Main Beam Carrier to the clip ***(Fig 39)***.



(Fig 39)

8.5 Install Planks

Please refer to Sections 2 and 3 in this document for general information regarding the installation of MetalWorks™ Linear – Classics planks and suspension system.

8.5.1 Measure, cut, and install the first border plank as described in Section 3. Install a Pressure Spring (Item 8161) every 12" along the border plank. Pop rivet the plank to the Carrier Molding 12" O.C. in between the carriers and within 3" of plank ends.

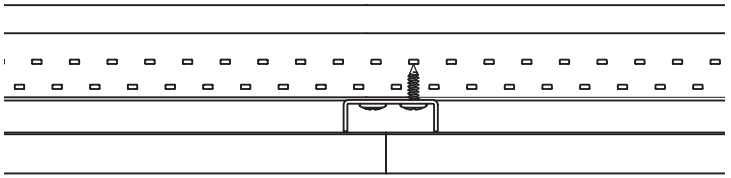
The end of the plank will fit into the Carrier Molding on the adjacent wall. One pressure spring is required on the end for all 2", 4", and 6" wide planks, two pressure springs are required on the short ends of each 8", 10", and 12" plank that rests on the wall molding.

8.5.2 Continue installing rows of planks across the space. When you get near the opposite perimeter, make sure to leave enough room for access above the main carriers as this will be necessary for the last perimeter row.

8.6 Plank Joints

For 2", 4", 6", and 8" planks:

- Splice locations must be centered between two Main Beam Carriers
- 16AWG CRC U Profile must be installed perpendicular to the DGS cross tees above all splice locations ***(Fig 40)***.

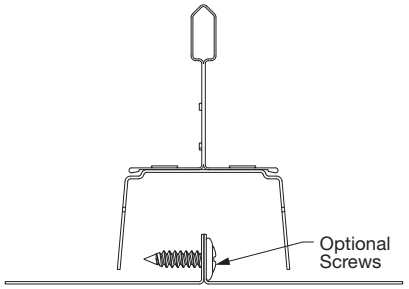


(Fig 40)

- Splice plates will be installed as normal

For 10" and 12" planks:

- Splice locations must be directly under Main Beam Carriers ***(Fig 41)***.



(Fig 41)

- Screws through the plank upturns can be added as detailed in Section 3.5.7 to secure the plank reveals.

8.7 Last Perimeter Row

You must install the last perimeter row of planks while you still have access above the Main Beam Carriers. The approximate width of the perimeter planks will be based off of the layout calculations in Section 1.3. Take the measurement as shown in the detail in Section 3.4 and transfer this to the face of the planks. Cut the planks to retain the flange side.

Use pliers to bend the carrier tabs out 90 degrees. Next, insert the long cut edge of the plank into the molding, align the plank in the carrier, and use pliers to bend the supporting tabs back to their original position.

- Install Pressure Springs every 12" along the border of the plank.
- Pop rivet the plank to the Carrier Molding every 12" in between the Main Beam Carriers and within 3" of plank ends.

Refer to Section 3.5 for details on installing the last full width row of planks.

9. SEISMIC INSTALLATION (IBC C, D, E, AND F)

MetalWorks™ Linear – Classics has been engineered and tested for application in all seismic areas based on the following installation procedures.

The following installation guidelines should be used in areas where anticipated seismic activity will be moderate to severe (IBC Seismic Design Categories C, D, E, and F). Consult the local building code department to ensure compliance with their unique requirements.

9.1 Seismic Suspension System

The following requirements are in addition to the interior installation sections of this guide, ASTM – E580, and the Armstrong® Seismic Ceiling Installation Guide BPCS-4141 requirement for a ceiling system.

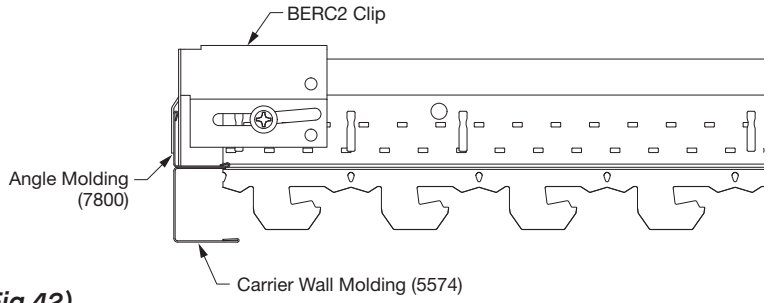
Layout of the grid system is the same regardless of the linear plank width selected. MetalWorks Linear – Classics has only been tested for a flat installation in IBC Seismic Categories (C, D, E, and F).

9.2 Seismic Components

- Item 7177 12' Main Beam Carrier 1
- XL8945 4' DGS Cross Tee
- BERC2 Clip
- Item 7800 7/8" Wall Angle Molding
- Item 5574 Carrier Molding
- Item 8161 Pressure Springs
- Item 7237 Cut Plank Support Bracket (CPSB)

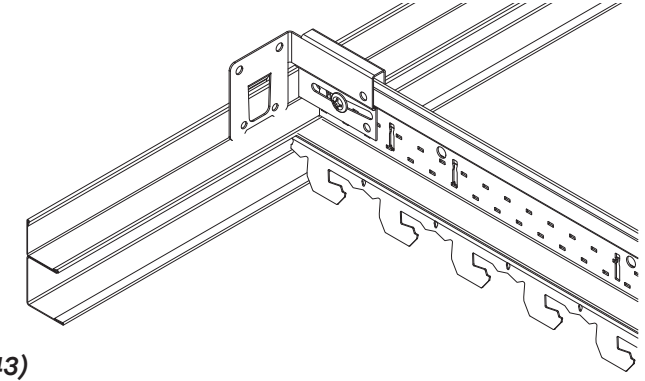
9.3 Suspension System General Requirements

- Install Item 7800 Wall Molding on top of Item 5574 Carrier Molding ***(Fig 42)***.



(Fig 42)

- Main Beam Carriers must be installed 48" O.C., perpendicular to the desired plank length direction.
- The first and last Main Beam Carrier must be installed within 24" of the perimeter wall.
- Install XL8945P 48" DGS cross tees at 48" O.C. with the first tee no more than 24" from the wall.
- Install BERC2 over all grid connections to the wall ***(Fig 43)***.



(Fig 43)

- Main Beam Carriers and cross tees must be mechanically attached to the molding on two adjacent walls.
- The opposite unattached walls must have 3/4" clearance.
- Perimeter wires must be installed to support all Main Beam Carriers and cross tees within 8" of the wall.
- All continuous ceilings over 1,000 SF will require compression post per ASTM – E580.

9.4 Seismic Linear Plank Installation – General

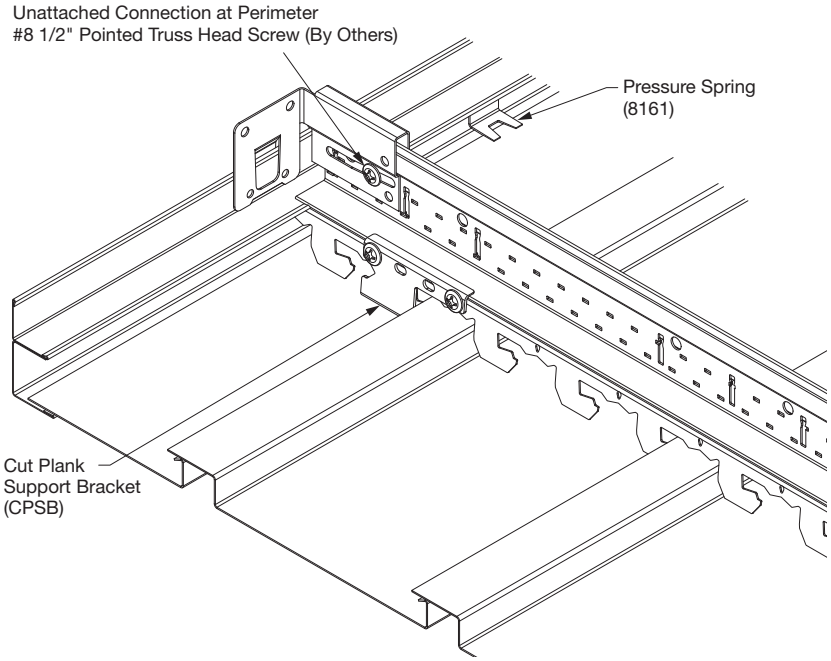
All plank sizes have been successfully tested in all IBC seismic categories.

9.5 Seismic Linear Plank – Field

MetalWorks™ Linear – Classics planks in the field require no additional considerations. Please follow installation as described in Section 3 of this guide for general requirements.

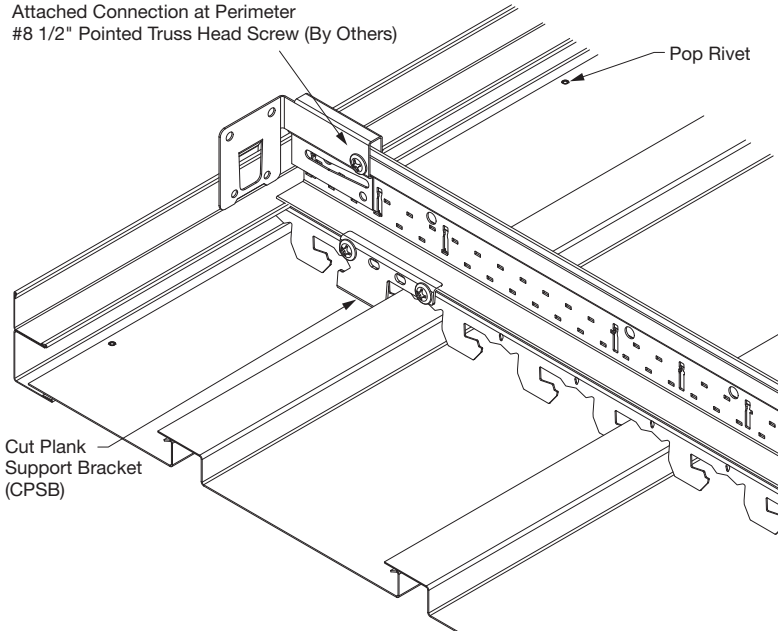
9.6 Plank Interface with Wall Molding – Borders

- Planks cut to width along an attached wall require pop rivets 24" O.C. or the Cut Plank Support Bracket (CPSB) 48" O.C. to keep the planks fully engaged.
- The Cut Plank Support Bracket (CPSB) is a bracket used in conjunction with wall molding, to secure MetalWorks Linear – Classics planks to the carrier system when one of the plank's engagement edges has been removed. The function of the bracket is intended to keep the remaining plank edge engaged with the carrier feature, while the other edge is supported and allowed to float on the wall molding flange ***(Figs 44 & 45)***.



Unattached wall, cut plank retaining flange edge

(Fig 44)



Attached wall, cut plank retaining hook edge

(Fig 45)

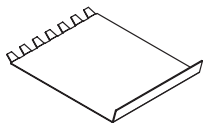
NOTE: The CPSB will not work with 2" planks. For installations using 2" planks it is recommended to start and finish the install with two rows of 4" planks to enable use of the CPSB.

- Short ends of the planks along both attached and unattached walls only require Pressure Springs (1 per 4", 6", 8" plank and 2 per 12" plank).
- Unattached long side of the planks will require additional border clips to keep the planks engaged during a seismic occurrence. The CPSB attaches to the Main Beam Carrier and will lock onto the cut edge of the planks to allow 3/4" movement.

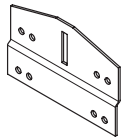
Testing conducted at the Structural Engineering Earthquake Simulation Laboratory, located at the State University of New York – Buffalo campus, produced satisfactory results with the guidelines listed above.

Item No.	Description	Incl. with Planks	Sold by the:	Pcs/Ctn
MetalWorks™ Linear – Classics Items				
8121	96 × 2 × 5/8" MetalWorks Linear Plank, Microperforated	Yes	CTN	24
5492	96 × 4 × 5/8" MetalWorks Linear Plank, Microperforated	Yes	CTN	16
7161	96 × 6 × 5/8" MetalWorks Linear Plank, Microperforated	Yes	CTN	12
5493	96 × 8 × 5/8" MetalWorks Linear Plank, Microperforated	Yes	CTN	10
8123	96 × 10 × 5/8" MetalWorks Linear Plank, Microperforated	Yes	CTN	8
5571	96 × 12 × 5/8" MetalWorks Linear Plank, Microperforated	Yes	CTN	6
8120	96 × 2 × 5/8" MetalWorks Linear Plank, Unperforated	Yes	CTN	24
5490	96 × 4 × 5/8" MetalWorks Linear Plank, Unperforated	Yes	CTN	16
7160	96 × 6 × 5/8" MetalWorks Linear Plank, Unperforated	Yes	CTN	12
5491	96 × 8 × 5/8" MetalWorks Linear Plank, Unperforated	Yes	CTN	10
8122	96 × 10 × 5/8" MetalWorks Linear Plank, Unperforated	Yes	CTN	8
5570	96 × 12 × 5/8" MetalWorks Linear Plank, Unperforated	Yes	CTN	6
MetalWorks Linear – Classics Suspension System – suspension separate*				
7177	Main Beam Carrier 1 (MBC1)	No	CTN	10
XL8945P	4' DGS Cross Tees	No	CTN	36
5574	Carrier Molding (10')	No	CTN	10
6459BL	RAC rigid attachment (walls only)	No	CTN	25
For exterior, reference section 8				
Accessories				
Various	Splice plates (see data page)	No	CTN	50
Various	End caps (see data page)	No	CTN	50
RC2	RC2 Clip (curved installations only)	No	CTN	205
8161	1" Pressure spring	No	CTN	50
7237	Cut Plank Support Bracket (CPSB)	No	Pail	25
5494	Contrast Filler Strip Black	No	CTN	16

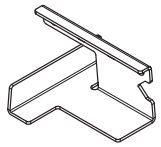
* See alternative suspension options in Walls, Curved, and Exterior Installation Sections



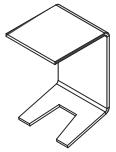
Splice Plate



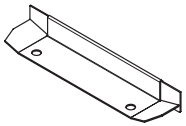
RC2



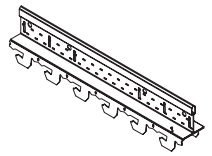
Cut Plank Support Bracket
7237



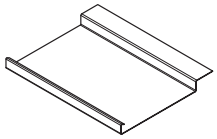
Pressure Spring
8161



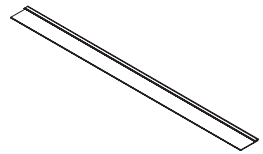
End Cap



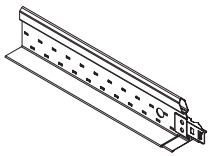
Main Beam Carrier 1
7177



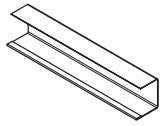
Plank



Contrast Filler Strip Black
5494



DGS Cross Tee
XL8945P



Carrier Molding
5574

MORE INFORMATION

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

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