MetalWorks™ Linear – Synchro® Panels

Assembly and Installation Instructions

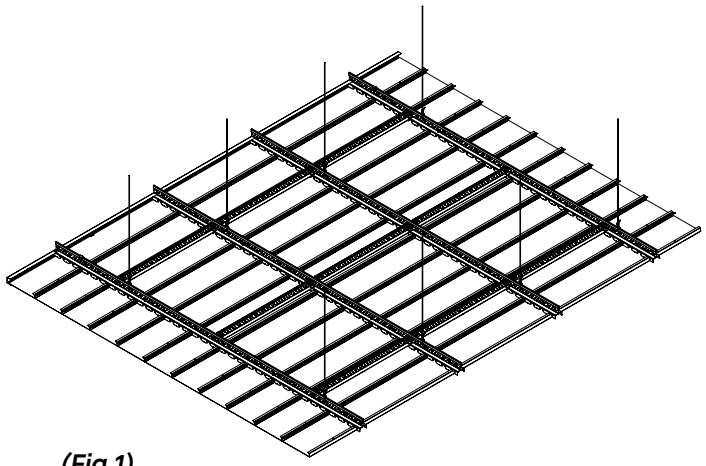
1. GENERAL

1.1 Product Description

MetalWorks™ Linear – Synchro® walls are interior only.

MetalWorks™ Linear – Synchro® is a metal ceiling and wall system that utilizes linear planks that are available in 96" lengths and nominal 2", 4", 6", and 9" widths with a no-reveal design from plank to plank. The Linear planks are made of 0.028" thick, 24-gauge electrogalvanized steel. Their post-production, powder-coated finish is available in White, Silver Grey, Gun Metal Grey, Black, Effects™ Wood Look finishes, and a wide range of custom colors and finishes. Perforated options with a plain border and acoustical fleece backing are available.

The Main Beam Carrier (MBC, Item 7277S3MF) used to suspend the planks is non-directional and has hanging features at 2-1/4" increments. All plank sizes can be installed on the same carrier system which allows for design and installation flexibility ***(Fig 1)***.



(Fig 1)

1.2 Storage and Handling

The ceiling planks should be stored in a dry interior location and should remain in cartons prior to installation to avoid damage. The cartons should be stored in a flat, horizontal position. The planks should not be removed from the carton until the suspension system is installed. Proper care should be taken when handling the planks to avoid damage and soiling. It is recommended to hold the planks in the vertical orientation to avoid possibly bending the plank. White cotton or latex gloves are recommended for handling. It is recommended that two installers handle the 96" planks.

1.3 Site Conditions

Areas to receive ceilings must be free of construction dust and debris. MetalWorks Linear – Synchro planks should only be installed in closed and acclimatized buildings. Interior systems cannot be used where standing water is present or where moisture will come in direct contact with the ceiling.

1.4 Fire Performance

MetalWorks Linear – Synchro planks may obstruct or skew the existing or planned fire sprinkler water distribution pattern, or possibly delay the activation of the fire sprinkler or fire detection system. Designers and installers are advised to consult a fire production engineer, NFPA 13, and their local code officials for guidance on the proper installation techniques where fire detection or suppression systems are present.

Armstrong®
World Industries

1.5 Safety Considerations

This product arrives in a crate. Please plan for safe handling. MetalWorks™ Linear – Synchro® planks require two people to install safely.

Edges of metal parts can be sharp. Handle metal carefully to avoid injury. Always wear safety glasses and cut-resistant gloves when handling or cutting metal.

When cutting planks, exposed raw edges of metal can be a safety hazard. The end cap is designed to give a finished edge appearance, however, deburring/sanding might be required based on the quality of the cut for proper fit. Cutting tools should be appropriate for steel. See specific cutting guidance in Section 5.0. Improper cutting equipment could damage or dent the metal planks.

1.6 Warranty

The MetalWorks Linear – Synchro system has been tested based on the installation method described in this document. Warranty will be voided if you do not follow these instructions and guidelines.

1.7 HVAC Design & Operation and Temperature & Humidity Control

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

1.8 Cleaning

An abrasive or strong chemical detergent should not be used. (A mild detergent diluted in warm water, applied with a soft cloth, rinsed, and wiped off with a chamois will maintain the planks in good condition.) Oily or stubborn stains, if not removed by washing, can be wiped with products like Fantastik®, but care is necessary to avoid affecting the gloss level of the paint finish.

2. DESIGN CONSIDERATIONS

2.1 Ceiling Plank Layout

2.1.1 The layout of the ceiling planks should be centered in the room and have equal width planks on opposite ends. The center line will fall either in the middle of a plank or on a seam between two planks, depending on the number of plank rows. The border cut plank width should be more than 50% of the original width. Follow the steps below for planks less then 50%:

- Measure the room and divide the room dimension by the actual width of the plank (refer to chart in Section 2.1.3 for actual plank dimension)
- Take the remainder and add a full plank width
- Divide the total by half. This is the calculated perimeter plank width

Centered Plank Layout & Perimeter Plank Width Calculation Example: For 6" nominal plank width; room dimensions being 10' 4". Divide 10' 4" by 6-3/4" = 18 Full sections with 2-1/2" remainder. Add 2-1/2" to 6-3/4" = 9-1/4" divided by 2 = 4-5/8" border planks with 17 full rows of planks. This will create the best visual and easiest installation.

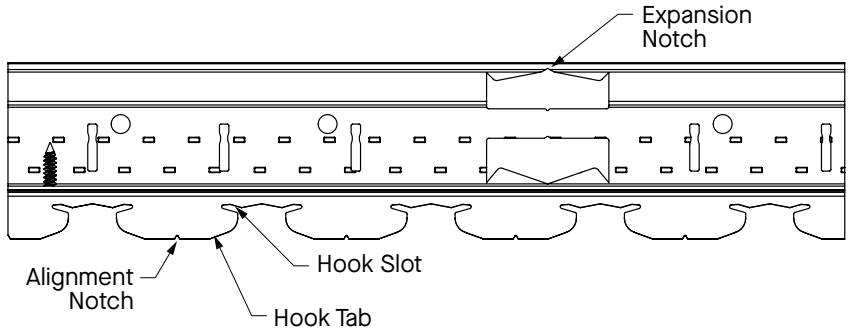
Perimeter consideration for 2" planks: full-size 2" wide planks should not be used as a perimeter plank. Order and use 4" planks to create your perimeter solution for installations using 2" planks.

2.1.2 Planks varying in widths can be installed in the same ceiling to create a striated visual.

2.1.3 The following chart shows how many hooks are spanned per panel:

Nominal Plank Size	Plank Actual Size	Number of Hooks Spanned per Panel
2" Plank	2-1/4"	1
4" Plank	4-1/2"	2
6" Plank	6-3/4"	3
9" Plank	9"	4

2.1.4 Following detail ***(Fig 2)*** highlights crucial features of the carrier that you need to be aware of and understand during installation.



(Fig 2)

2.2 Plenum

MetalWorks™ Linear – Synchro® 2", 4" and 6" widths require a minimum 4" clearance above the suspension system. The 9" plank however will require a minimum of 8" clearance. While the planks themselves do not extend into the plenum space, accessories and tools required for installing 9" planks will need additional space.

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

2.3 Accessibility

See Section 6 for more information on how to create access areas.

2.4 Exterior Applications

See Section 11 of these instructions for exterior application installations.

2.5 Sloped Applications

It is not recommended to install any MetalWorks Linear – Synchro planks in a sloped application at this time.

2.6 Curved Installations

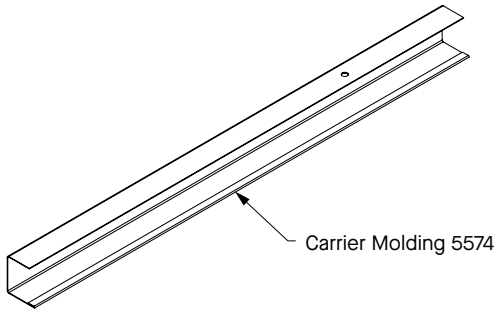
It is not recommended to install any MetalWorks Linear – Synchro planks in a curved application at this time.

2.7 For optimum visual design, backlighting planks is not recommended.

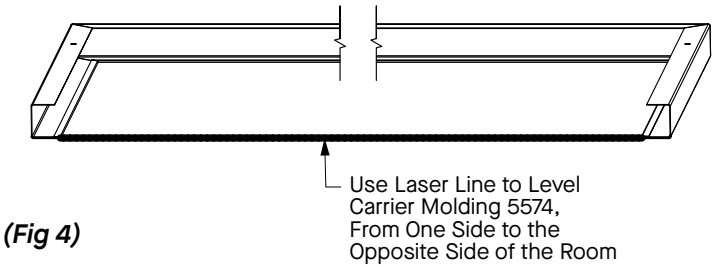
3. SUSPENSION SYSTEM INSTALLATION

3.1 Perimeter Molding

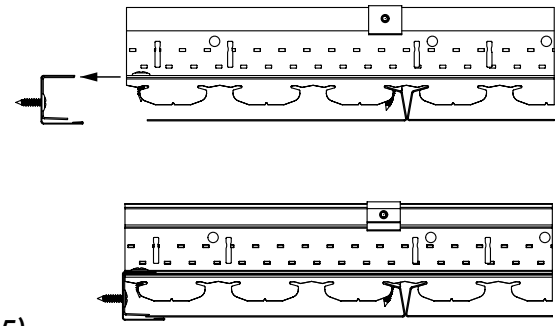
Install the Carrier Molding (Item 5574) on the perimeter walls ***(Figs 3 & 4)*** and using a laser line, ensure molding is leveled across the room. Molding should be secured to the wall every 16" to 24". The bottom of the molding will be the finish height of the linear planks. The top flange of the Carrier Molding will slide in between the two components of the Main Beam Carrier (Main Beam Carrier) ***(Fig 5)***.



(Fig 3)



(Fig 4)



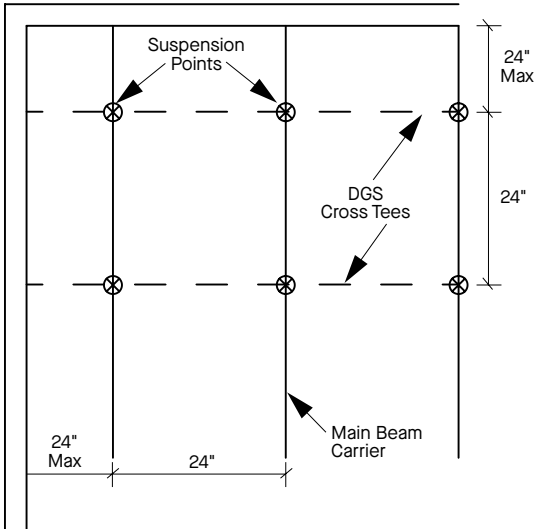
(Fig 5)

3.2 Hanger Wires

Secure hanger wires to the structure above to support the Main Beam Carrier (Item 7277S3MF). Wire spacing for Main Beam Carriers should be within 24" of the perimeter wall and then 48" O.C.

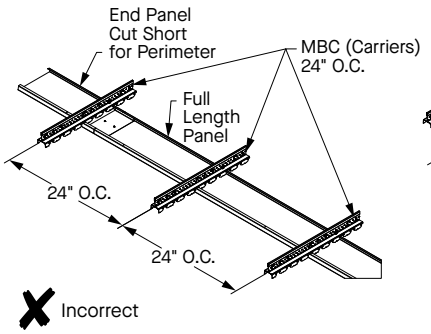
3.3 Main Beam Carriers

3.3.1 The Main Beam Carriers will be installed 24" O.C. perpendicular to the desired plank length direction. The first and last carrier must be installed within 24" of the perimeter ***(Fig 6)***.

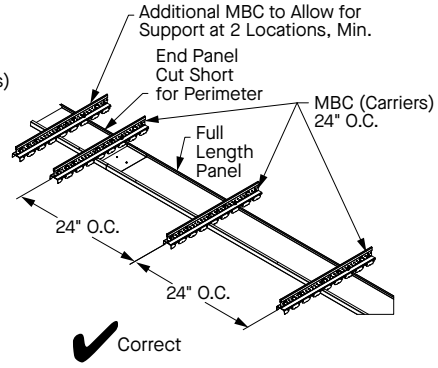


(Fig 6)

3.3.2 Ensure that every plank has a minimum of two connection points. Depending on the plank size and room layout, you may need an additional Main Beam Carrier between the Carrier (Item 7277S3MF) and the first main when the plank length only engages one carrier ***(Figs 7 & 8)***.

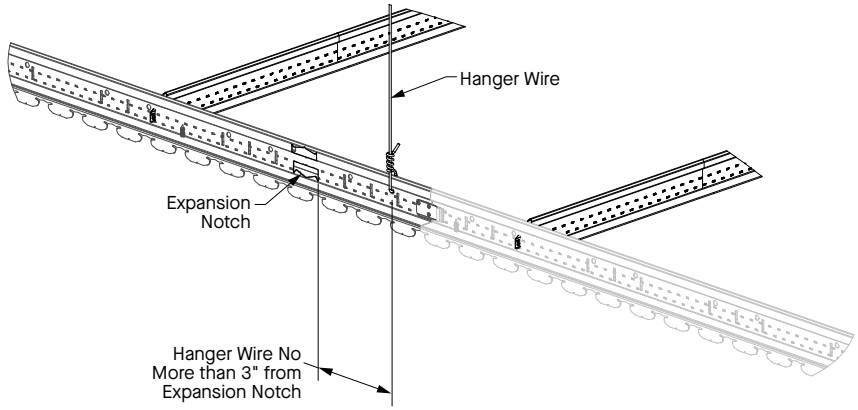


(Fig 7)



(Fig 8)

3.3.3 Main Beam Carriers are directional. Carriers splice together with the superlock end detail just like standard drywall grid main beams. Pay close attention to the expansion notch found on the main beam. Avoid making end-to-end connections with two expansion notches next to each other. It is recommended to add a wire no more than 3" from the expansion notch location ***(Fig 9)***.



(Fig 9)

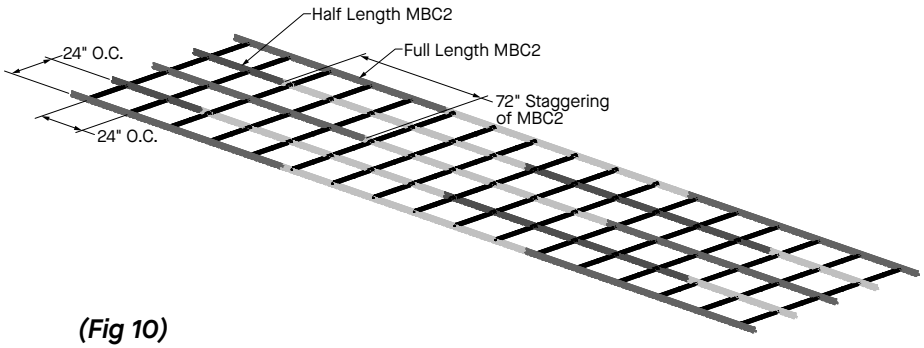
3.3.4 Main Beam Carrier Installation

3.3.4.1 Main Beam Carriers can be installed in one of two ways:

1) Alternating the splice locations row to row
2) Having all the splice locations line up

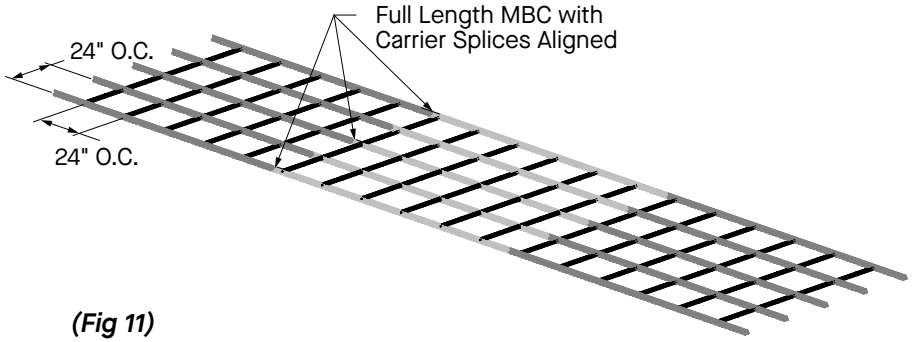
IMPORTANT NOTE: All Main Beam Carrier tails/splices must line up or be staggered by 72". Any other measurements may result in misalignment, unsatisfactory visuals, or difficulties during plank installation.

Main Beam Carrier Tails/Splices Staggered ***(Fig 10)***



(Fig 10)

Main Beam Carrier Tails/Splices Aligned ***(Fig 11)***



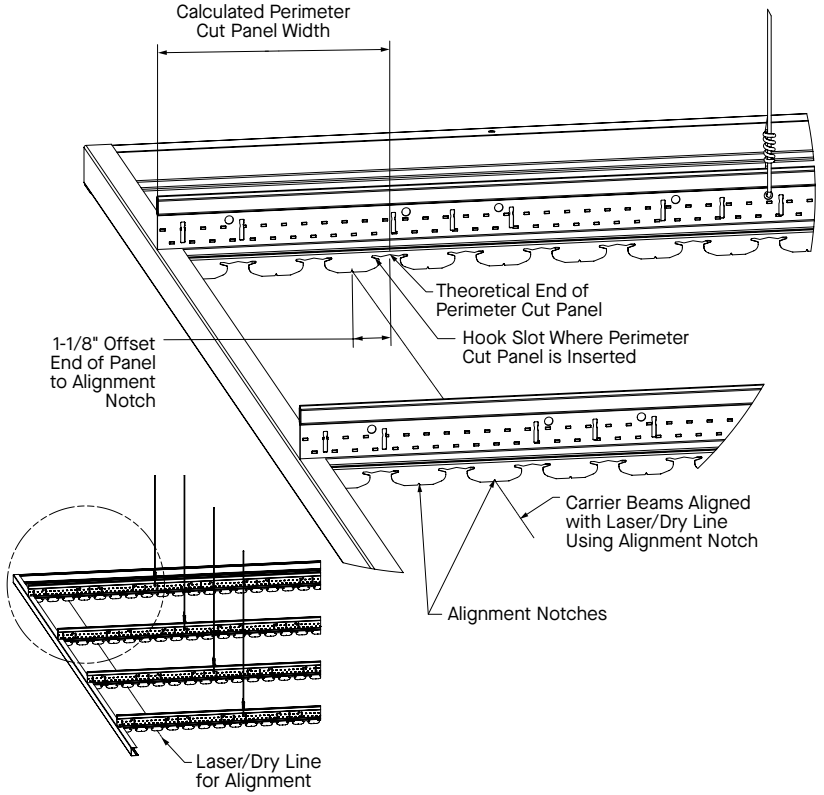
(Fig 11)

3.5 Aligning and Cutting the Main Beam Carrier

3.5.1 Run a dry line from one side of the room to the other, positioned at the bottom of the molding. The dry line should be perpendicular to the carriers. Offset the line from the "end" wall by 1-1/8" less than the calculated width of the border planks. Refer to Section 2.1.1 for width of border planks.

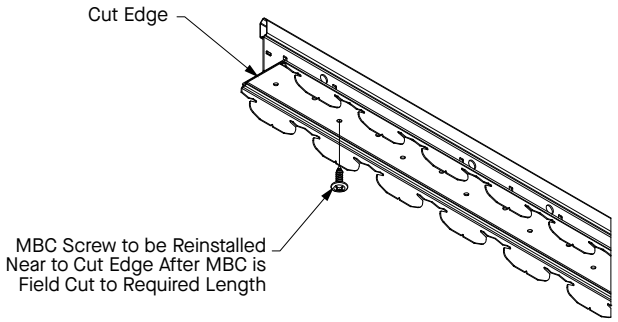
3.5.2 Measure from the dry line to the wall. Cut the first Main Beam Carrier in each row so that the alignment notch on the desired hook tab lines up with the dry line ***(Fig 12)***.

IMPORTANT NOTE: MetalWorks™ Linear – Synchro® aligns differently than traditional acoustical ceiling systems. Unlike traditional systems, which utilize the rout holes to align and square the system, MetalWorks Linear – Synchro utilizes the alignment notches to align the carrier mains to ensure uniformity throughout the installation.



(Fig 12)

3.5.3 When cutting a Main Beam Carrier (MBC), add a self-drilling screw near the new cut end of the underside of the carrier to keep the two pieces of the main beam secure ***(Fig 13)***.



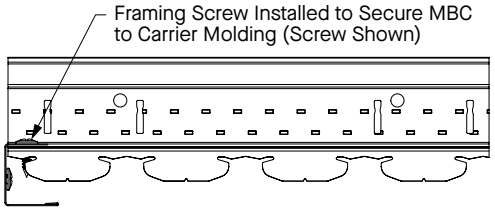
(Fig 13)

IMPORTANT NOTE: Make sure each MBC is cut at the same exact location to ensure that the hooks and rout holes will stay aligned. Any other measurement could cause misalignment and unsatisfactory visuals or the inability to install the planks. Check the MBC's alignment by lining up the laser and the same hook on each carrier.

3.5.4 Ensure that the suspension system is leveled as accurately as possible.

3.6 Main Beam Carrier Attachment

3.6.1 Slide the top flange of the molding between the two components of the Main Beam Carrier. Align each MBC with the dry line described in Section 3.5, and then fasten them to the perimeter molding using framing screws ***(Fig 14)***.



(Fig 14)

3.6.2 Complete the run of the Main Beam Carriers across entire space, while installing the 2' drywall cross tees (Item XL8926) at 24" O.C. with the first tee no more then 24" from the wall, creating a 2' × 2' grid module.

4. METALWORKS™ LINEAR – SYNCHRO® PLANK INSTALLATION

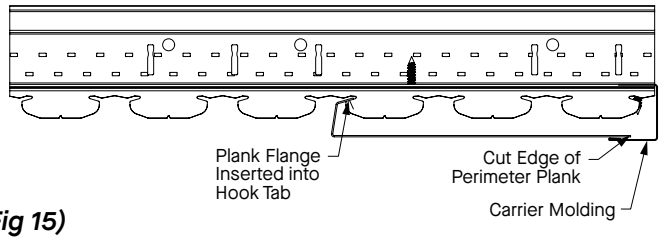
4.1 Starting Perimeter Row

4.1.1 In order to determine the cut width of the first plank, measure from wall to the dry line and alignment notch in several places. Then add 15/16" to the dimension. This adjustment should provide a 3/16" clearance from the wall. The resulting width should be approximately 3/16" less than the calculated perimeter plank width determined in Section 2.1.1.

NOTE: The last perimeter plank should be cut to similar dimensions, allowing 3/16" clearance from wall.

4.1.2 Mark the plank and cut to width. Either side of the plank can be cut off. See Section 5.0 for cutting recommendations.

4.1.3 Slide the cut edge of the plank into the perimeter carrier molding. The opposite factory hook edge of the plank will fit into the hook slot feature of the hook tab ***(Fig 15)***.



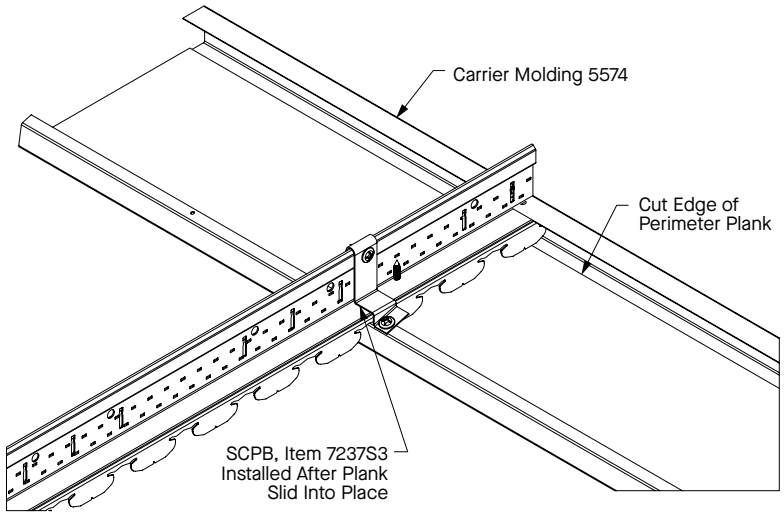
(Fig 15)

4.1.4 The MetalWorks™ Linear – Synchro® Cut Plank Bracket (SCPB, Item 7237S3) must be used to secure planks to the carrier system when one of the plank's factory engagement edges has been removed. The function of the clip is to keep the remaining factory edge of a cut plank engaged with the carrier, while the cut edge is supported by the carrier molding.

The SCPB is intended to replace the use of visible pop rivets into the bottom flange of the carrier molding.

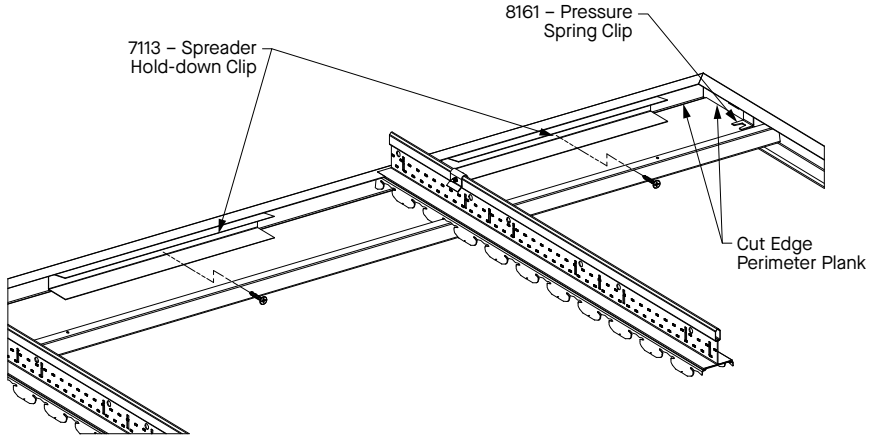
To install the SCPB:

1) Cut and install the planks as described in Section 4.1.1
2) Install the SCPB before installing the second row of planks
3) Place the SCPB over the bulb of the grid and align it so it rests on the flange of the plank
4) Fasten the SCPB to the carrier with one #8 × 1/2" framing screw through the top hole in the SCPB
5) Attach the SCPB to the plank with one #8 × 1/2" framing screw through the lower hole in the SCPB ***(Fig 16)***

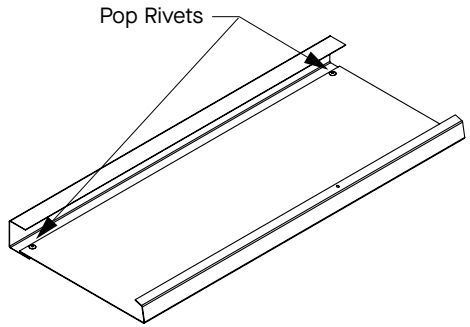


(Fig 16)

4.1.5 For the long edge of plank, insert the Spreader Hold-down Clip (Item 7113) or use pop rivets to secure the plank to the molding. Add the Spreader Hold-down Clip or Pop rivets at regular intervals (Every 24" or as needed). For the short end of the planks, insert Pressure Spring Clips (Item 8161) or use pop rivets to secure the planks to the molding. The number of Pressure Spring Clips or pop rivets can be added as necessary ***(Figs 17 & 18)***.



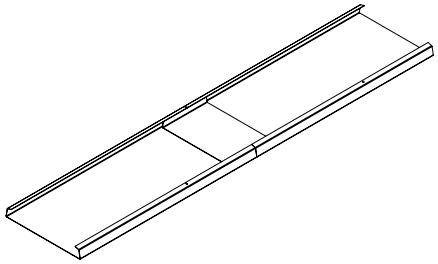
(Fig 17)



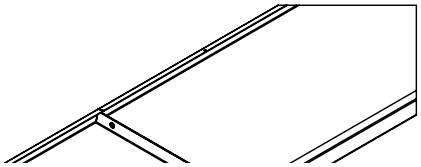
(Fig 18)

4.2 Plank Splices

4.2.1 When 2", 4", and 6" planks do not reach across the space in one piece, use a splice plate to join and align adjacent planks. Install planks so the factory ends are at the splice location and assure the joint is tight. Install the splice by sliding it into the end of the first installed plank. Once the adjacent plank is installed, slide the splice so it is split evenly between the two planks ***(Fig 19)***. Splices can fall within the field of the system or under a carrier ***(Fig 20)***.

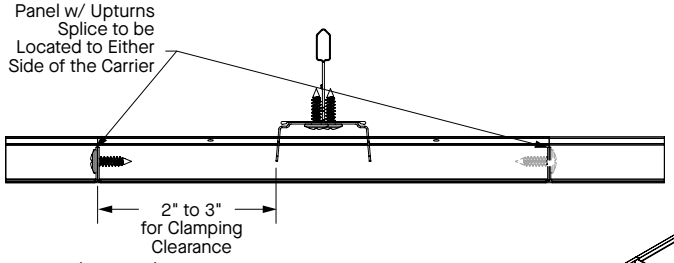


(Fig 19)

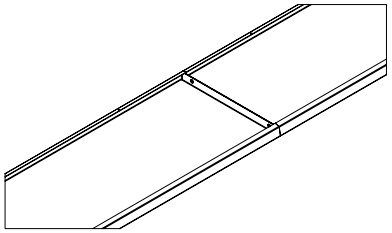


(Fig 20)

4.2.2 The 9" wide planks have factory upturns on the short ends and are spliced differently. Install planks so that the factory ends are tight and use vise grip clamps to temporarily hold them together. Insert sheet metal framing screws through the plank upturns. This requires a clear plenum to work with a drill motor above the plank, so when installing, planks should install so splices fall to either side of the carrier (2" to 3" away) or mid-span between carriers ***(Fig 21)***.
Two screws are required at each splice ***(Fig 22)***.



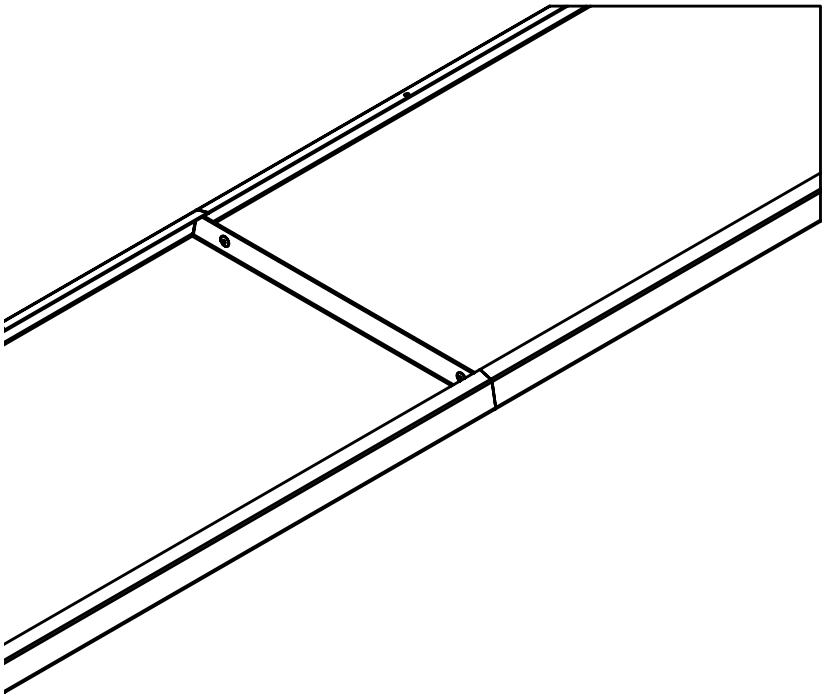
(Fig 21)



(Fig 22)

4.3 Field Plank Installation

4.3.1 Install the second row of planks by inserting the closer flange in the top hook on the carrier and swing the further flange up while pushing it into the top hook until it snaps in the carrier. Repeat these steps to continue installing rows of planks across the space ***(Fig 23)***.



(Fig 23)

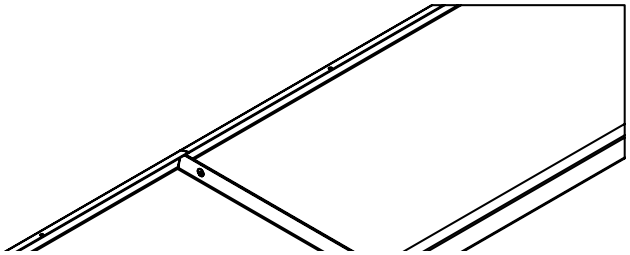
It is recommended that two installers handle the 96" planks. When you get near the opposite perimeter, make sure to leave enough room for access to the carrier molding as this will be necessary for the last perimeter row.

4.3.2 It is recommended that the plank splices should be staggered by 12" minimum or more for optimal visual.

4.3.3 Each plank must have attachment points to two or more carriers. Additional Main Beam Carriers may be necessary (depending on the layout) to achieve this.

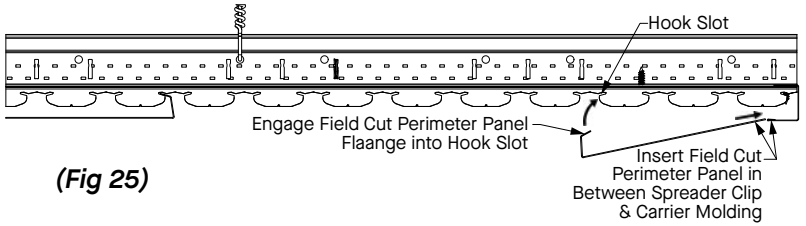
4.4 Last Perimeter Row

4.4.1 As you approach the installation of the last perimeter row, leave the last row or two rows (depending on plank width) of full-sized field planks uninstalled. This allows enough space for using a screw gun during the installation of the MetalWorks™ Linear – Synchro® Cut Panel Bracket as described in Section 4.1.4. Field cut the last perimeter row to be the same width as the first perimeter row. Cutting approximately 1/8" less than the calculated width determined in Section 2.1.1. Verify the cut width by measuring as shown ***(Fig 24)***. Follow the recommendations in Section 5.0 for cutting the planks.



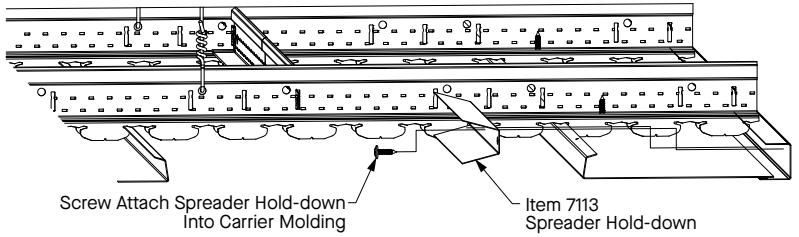
(Fig 24)

4.4.2 Place the cut perimeter plank's edge on top of the lower flange of Carrier Molding. Make sure to engage the plank's bent flange into the hook slot ***(Fig 25)*** and temporarily clamp the plank into position.



(Fig 25)

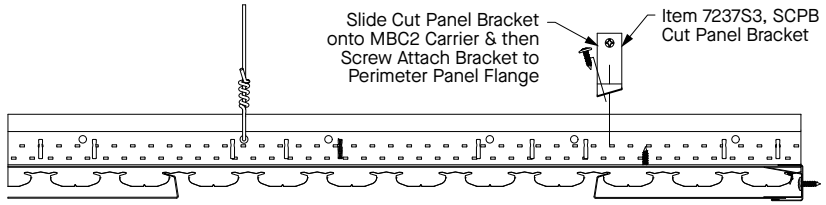
4.4.3 Insert Spreader Hold-down Clip (Item 7113) into the Carrier Molding (Item 5574) using two screws per clip. You can also choose to insert Spreader Hold-down Clips after Section 4.4.5 (After adding SCPB) following the same steps as described in first perimeter row, Section 4.1 ***(Fig 26)***.



(Fig 26)

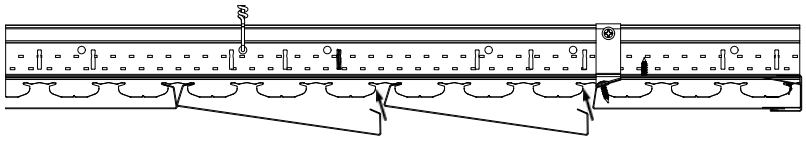
4.4.4 To secure the cut plank to the carrier system, attach MetalWorks™ Linear – Synchro® Cut Plank Bracket (SCPB, Item 7237S3):

1) Place the SPCB over the bulb of the carrier system, aligning it so it rests on the flange of the plank
2) Attach the SCPB to the carrier using a #8 × 1/2" framing screw through the top hole of the SCPB
3) Attach the SCPB to the plank using one #8 × 1/2" framing screw through the lower hole of the SCPB ***(Fig 27)***



(Fig 27)

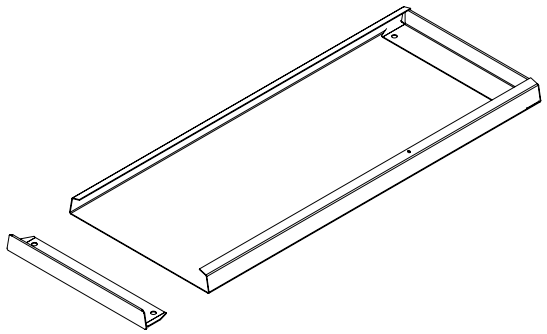
4.4.5 Once the SCPBs and Spreader Hold-down Clips are in place, proceed to install the remaining rows of field planks ***(Fig 28)***.
CAUTION: When installing the last full field rows of planks, be careful not to bend the hook tab or plank flange while engaging the last flange into the carrier hook slot.



(Fig 28)

4.5 Optional Plank End Caps

Plank end caps can be used when the plank end is not covered by molding. This may occur at a ceiling penetration or custom perimeter treatment, such as a floating installation. The plank end must be cut square and clean. Press the cap into the plank until it is flush with the end ***(Fig 29)***.



(Fig 29)

5. FIELD CUTTING INSTRUCTIONS

5.1 Use the following tools to make cuts in the field:

- Circular Saw: Recommend using a cordless metal cutting circular saw with 52 + blade.
  NOTE: Cuts are best achieved with the plank face up and when started at the corner of the plank.
- Band Saw: Field cutting method for cross cuts. Use a non-ferrous metal cutting blade for thin-walled material.
- Nibbler: Field cutting method for rip cuts. Use a nibbler such as Hilti SPN 6-A22 or equal.
- Tin Snips: Field cutting method for cross cuts.
- Hole Saw: Field cutting method for use in can light or sprinkler locations.

5.2 Safety

CAUTION: Cut edges of metal parts can be extremely sharp. Handle metal carefully to avoid injury. Always wear safety glasses, a safety shield, and gloves when working with metal.

5.3 Make sure plank is supported on a clean surface when making cuts to minimize the risk of blemishes or scratches.

5.4 Make sure plank is properly held down with clamps to minimize movement while cutting.

5.5 It may be necessary to deburr the edge for proper fit and safety if a clean cut is not achieved.

5.6 When cutting out openings in the center of the planks, exercise caution during this procedure as the hand will be near the cut edge of the plank. This procedure can be followed for cutting in can lights. Sprinkler cutouts can be made with a hole saw with appropriate metal blade.

5.7 Made-to-Order Planks

Made-to-order planks that eliminate the need for field modification of standard planks are available. Contact ASQuote@armstrongceilings.com for more information.

6. ACCESS DOOR

6.1 Access door must be installed in a 2' × 2' or 4' × 4' grid opening. Maximum access door size is dependent on the size of the plank installed in the space but must fit within a 4' × 4' grid opening. Follow the chart below for the recommended access door size based on the plank width. Plan the size and location carefully to ensure that all above-ceiling equipment requiring service is reachable.

NOTE: An access door larger than 2' × 2' will require grid modification. Please plan accordingly. Additional hanger wires surrounding the access door may be required.

2' × 2' Access Door			
Plank Size	**Access Door Size**	**Number of Planks Needed**	**Main Beam Carrier Length**
2" Plank	20" × 22-1/2"	10	22-1/2"
4" Plank	20" × 22-1/2"	5	22-1/2"
6" Plank	20" × 20-1/4"	3	20-1/4"
9" Plank	20" × 18"	2	18"

4' × 4' Access Door			
Plank Size	**Access Door Size**	**Number of Planks Needed**	**Main Beam Carrier Length**
2" Plank	44" × 45"	20	45"
4" Plank	44" × 45"	10	45"
6" Plank	44" × 40-1/2"	6	40-1/2"
9" Plank	44" × 45"	5	45"

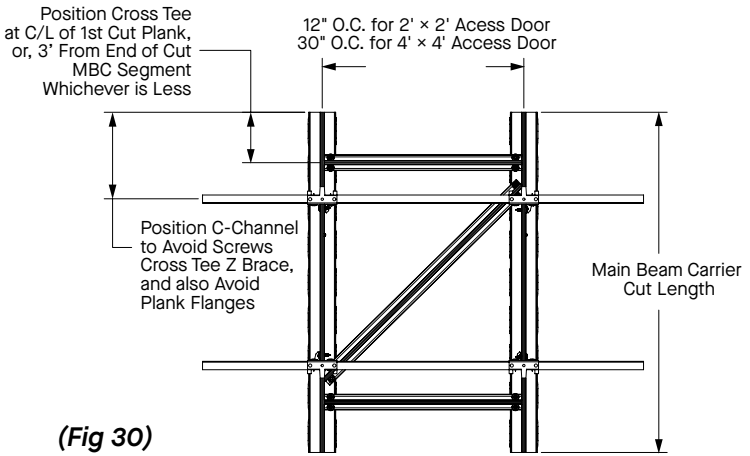
6.2 Access Door Constructions

6.2.1 Door Frame Constructions

Cut the Main Beam Carriers to the specified length according to the Access Door Size charts in Section 6.1. Ensure that you cut the Main Beam Carriers mid way between the hook tabs, so the hook tabs remain intact. All hook tabs supporting and engaging with the plank flanges must be full-sized and uncut.

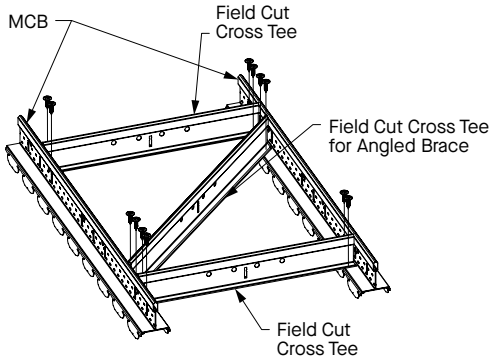
Cut the two pieces of drywall cross tees to 11-3/4" (for a 2' × 2' door) or 29-3/4" (for a 4' × 4' door).

Position the cut Main Beam Carriers parallel to each other at 12" O.C. for a 2' × 2' door or 30" O.C. for a 4' × 4' door ***(Fig 30)***. Install the two cross tees near the end to the Main Beam Carriers following the Access Door Frame layout.



(Fig 30)

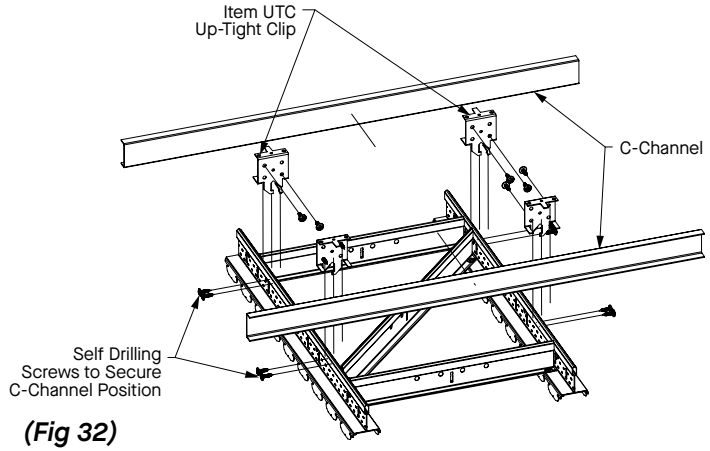
Fasten each end of the cross tees to the Main Beam Carriers with two screws (one through each flange). Cut a third cross tee to serve as an angle brace. Trim the corners at an angle on opposite sides to allow overlap and Main Beam Carriers flanges. Fasten the angled cross tee brace with two screws through the cross tee and Main Beam Carriers flanges at each end ***(Fig 31)***.



(Fig 31)

Attach Up-tight Clips (UTC) to the Main Beam Carriers in four places as shown ***(Fig 32)***. Bend one of the tabs at the slit at the bottom of the clip to create a gap, allowing the clip to fit over the top of the Main Beam Carriers bulb feature. Once in place, bend the tab back to secure it snugly to the Main Beam Carriers.

Cut Steel C-Channels to the following lengths: 30" long for a 2' × 2' door and 54" long for 4' × 4' door. Position a C-Channel centered across the UTCs and securely attach it with two screws into each clip ***(Fig 32)***. Repeat this for the second C-Channel.



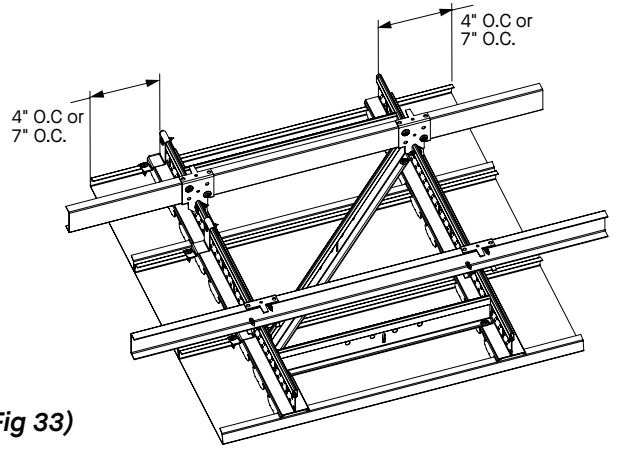
(Fig 32)

Install a screw into the bulb feature of the Main Beam Carriers on both sides of each UTC to prevent sliding along the Main Beam Carriers.

6.2.2 Installing Plank into Assembled Door Frame

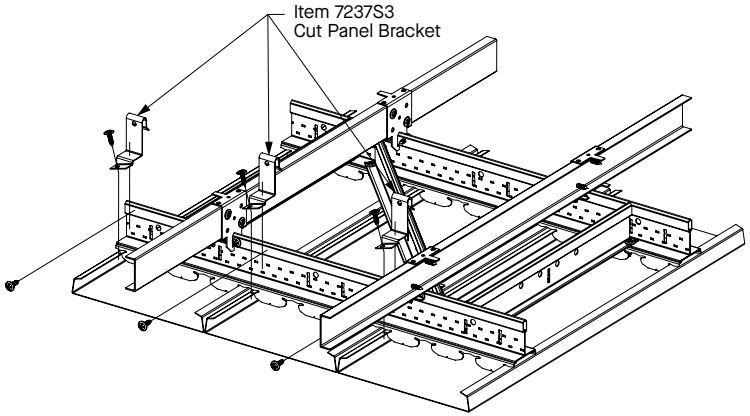
Cut the planks to the following lengths: 20" long for a 2' × 2' door and 44" long for a 4' × 4' door. If possible, leave the factory finish end on one end of the planks. Refer to the Access Door Size chart in Section 6.1 to determine the quantity of planks needed.

Place the cut planks onto the hook tabs of the assembled Access Door Frame. Ensure that the planks are centered as dimensioned ***(Fig 33)***.



(Fig 33)

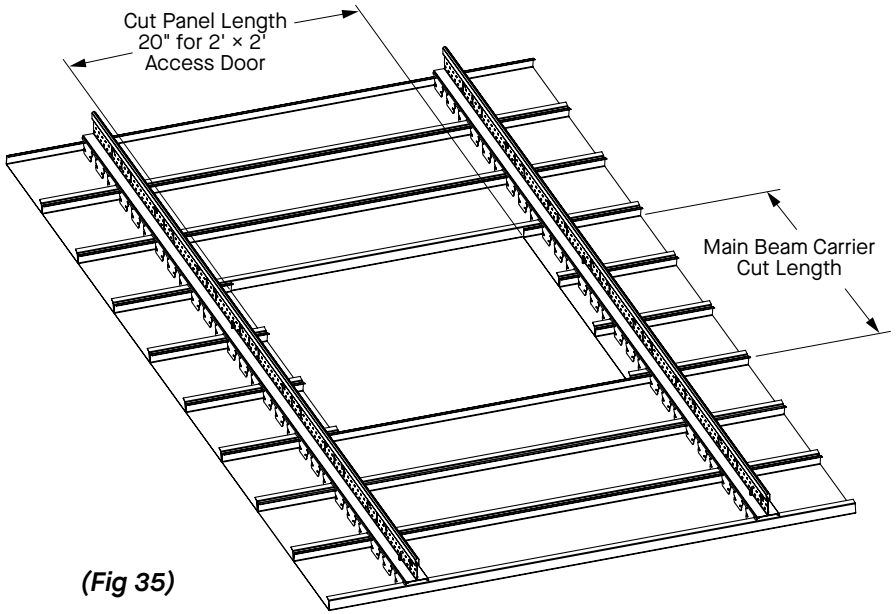
Attach a MetalWorks™ Linear – Synchro® Cut Plank Bracket (SPCB, Item 7237S3) to each plank. Use two screws per bracket, following the placement shown ***(Fig 34)***. The SCPB will secure the planks to the Main Beam Carriers.



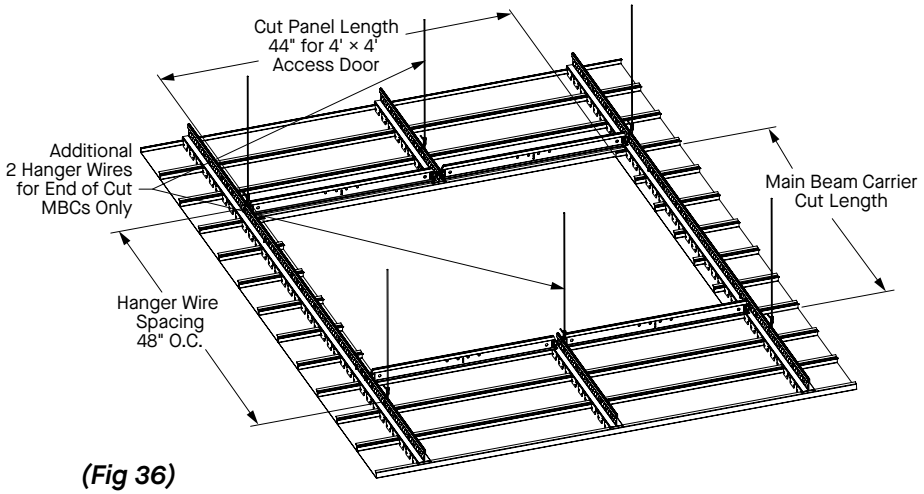
(Fig 34)

6.2.3 Creating Access Door Opening

Cut the opening for the access door into the ceiling system as dimensioned ***(Figs 35 & 36)***.



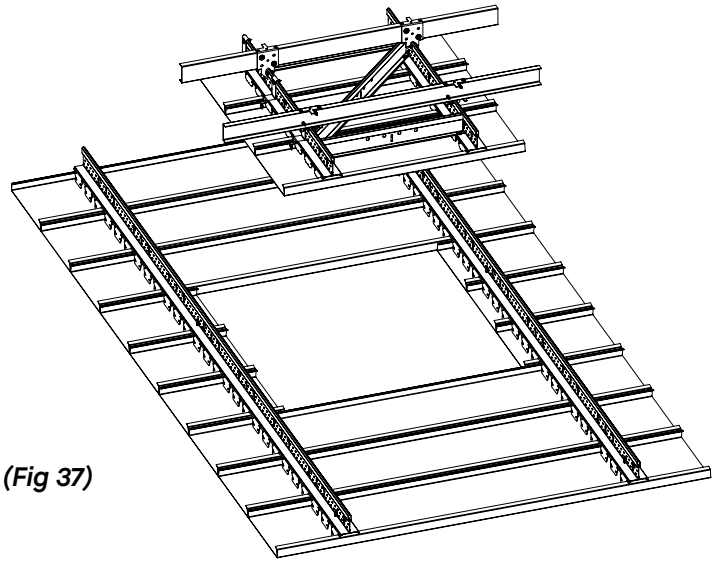
(Fig 35)



(Fig 36)

6.3.4 Installing the Access Door

Treat the access door like a normal acoustical ceiling tile, with the bottom of the cold-rolled channel resting on the top of the neighboring carriers ***(Fig 37)***.



(Fig 37)

SAFETY NOTE: Due to the size and potential weight of the access door, it is recommended to have two people assist with both installation and removal of the access door. In addition, all doors weighing 20 lbs. and up, will require two safety cables on each end of the access door, placed diagonally from each other.

6.3 Custom-Sized Access Doors

6.3.1 A custom-sized access door can be created in the field if so desired if it fits within the prescribed grid size opening.

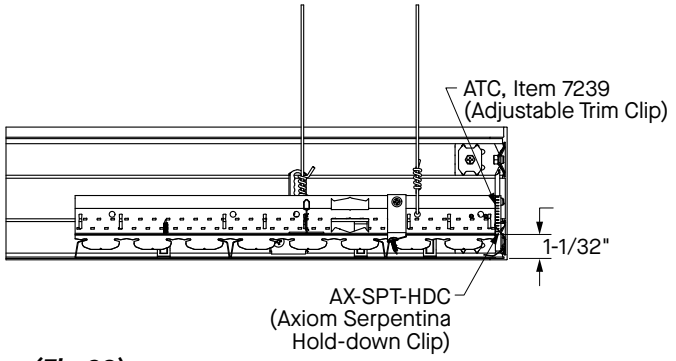
6.3.2 It is recommended to keep the 20" or 44" length described above, but the width of the access door can be adjusted, or the “Number of Planks Needed” as shown in the charts in Section 6.

6.3.3 Once the width has been selected, cut the Main Beam Carriers so there are enough full-size hooks to house the number of planks needed.

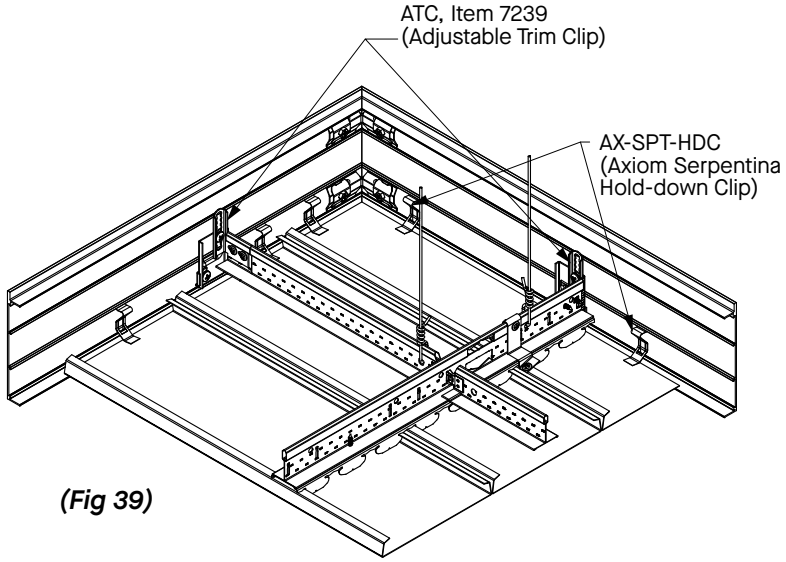
6.3.4 Follow the same instructions listed in Section 6.2 to construct the access door.

7. FLOATING TRIM / DISCONTINUOUS CEILINGS

For a cloud or discontinuous installation, the MetalWorks™ Linear – Synchro® system can be capped with Axiom® trim ***(Figs 38 & 39)***. The offset from the plank face to the carrier flange is about 1-1/32". The Adjustable Trim Clip (Item 7239) must be used to accommodate this drop to rest the cut planks on the Axiom flange. This clip takes the place of AXTBC clips and can adjust to within 1/8" increments to hold the trim at different heights relative to the carrier flange. Refer to the Axiom Classic installation instructions for detailed trim, clip, and support wire installation instructions.



(Fig 38)



(Fig 39)

8. MEP INTEGRATION

8.1 Mechanical fixtures such as diffusers, speakers, and sprinklers should be installed into the plenum area before installing the MetalWorks Linear – Synchro system. Fixture weight or housing must not be supported by the planks. Any integrated MEP fixtures must be independently supported.

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.

8.2 See the supplemental installation instructions for MetalWorks Linear – Synchro lighting Integration. The installation of this ceiling system and the integrated lighting solution will require coordination between the ceiling contractor and the electrical contractor. MetalWorks Linear – Synchro planks with the integration is a progressive installation, meaning the lights and the planks must be installed at the same time. The general contractor should work with the electrical contractor and ceiling contractor to clearly assign responsibilities.

9. SEISMIC INSTALLATION

MetalWorks Linear – Synchro has been engineered and tested for applications 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 installation instructions listed in this guide, ASTM E580, and the Armstrong Seismic Ceiling Installation Guide requirement for a ceiling system.

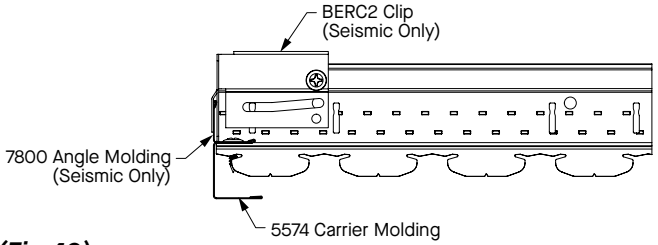
Layout of the grid system is the same regardless of the linear plank selected. MetalWorks Linear – Synchro has only been tested for a flat installation in IBC Seismic Categories (C, D, E, and F).

9.2 Seismic Components

- 12' Main Beam Carrier (Item 7277S3MF)
- 2' Drywall Grid Cross Tee (Item XL8926)
- BERC2 Clip (Item BERC2)
- 7/8" Wall Angle Molding (Item 7800)
- Carrier Molding (Item 5574)
- Spreader Hold-down Clips (Item 7113)
- Pressure Spring Clips (Item 8161)
- MetalWorks™ Linear - Synchro® Cut Plank Bracket (SCPB, Item 7237S3)

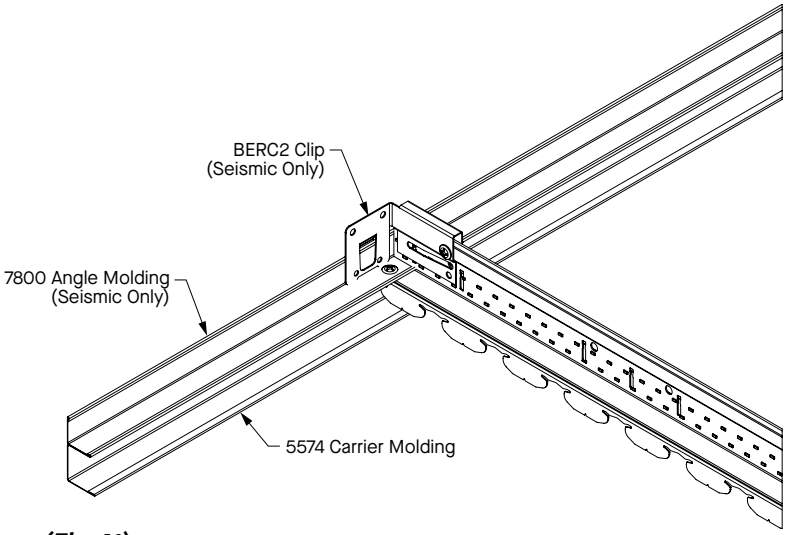
9.3 Suspension System General Requirements

- Install Angle Molding (Item 7800) on top of Carrier Molding (Item 5574) ***(Fig 40)***.



(Fig 40)

- Main Beam Carrier must be installed 24" 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 2' Drywall Grid Cross Tee (Item XL8926) at 24" O.C. with the first tee no more than 24" from the wall.
- Install BERC2 Clips over all grid connections to the wall ***(Fig 41)***. Two screws must fasten the BERC2 Clip to the wall.



(Fig 41)

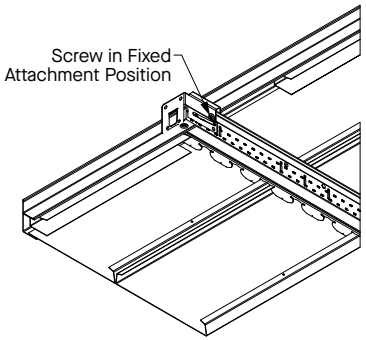
- Main Beam Carrier and cross tees must be mechanically attached to the molding on two adjacent walls.
- The opposite unattached walls must have 3/4" clearance.
- Perimeter wires must be installed to support all Main Beam Carriers and cross tees within 8" of the wall.
- All continuous ceilings over 1,000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

9.4 Seismic Linear Plank – Field

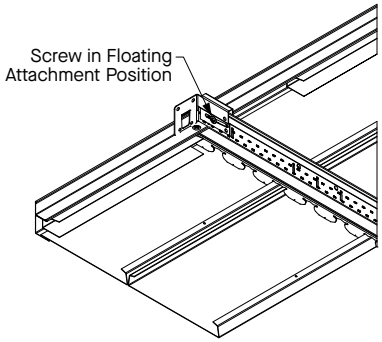
MetalWorks™ Linear – Synchro® planks in the field require no additional considerations. Please follow the installation steps described in Sections 3.0 and 4.0 of this guide for general requirements.

9.5 Plank Interface with Wall Molding – Borders

- Planks cut to width along an attached wall require pop rivets 24" O.C. or the MetalWorks™ Linear – Synchro® Cut Plank Bracket (SCPB, Item 7237S3) at every carrier to keep the planks fully engaged.
- The SCPB is a clip used in conjunction with wall molding to secure MetalWorks™ Linear – Synchro® planks to the carrier system when one of the planks engagement edges has been removed. The function of the clip 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.
- Perimeter consideration for 2" planks: full-size 2" wide planks should not be used as a perimeter plank. Cut 4" planks to create your perimeter solution for installations using 2" planks.
- Short ends of the planks along both the attached and unattached walls only require one Pressure Spring Clip (Item 8161) per each 4", 6" and 9" plank.
- The unattached long side of the planks will require Hold-down Clips (Item 7113) to keep the planks engaged during a seismic occurrence ***(Figs 42 & 43)***.



(Fig 42)



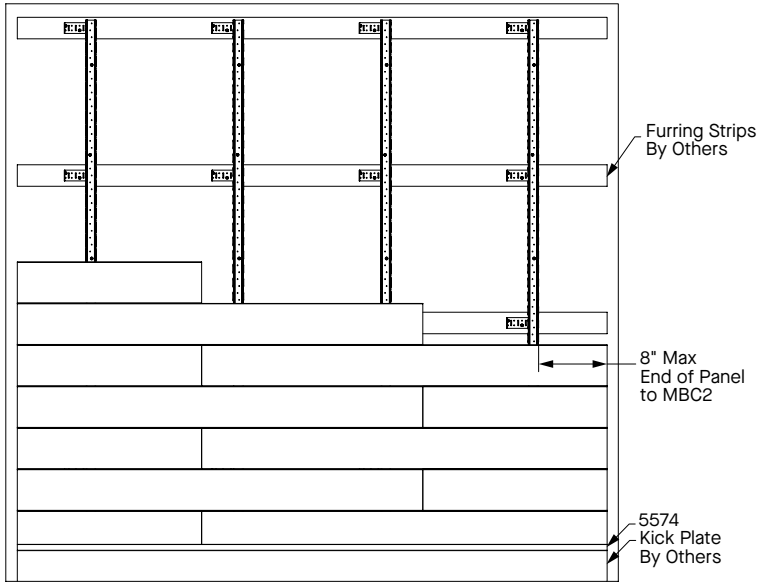
(Fig 43)

9.6 Seismic 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 in Section 9.

9.7 Please contact Techline for a White Paper if positive connection from the plank to the carrier in seismic areas is required.

10. WALL INSTALLATIONS

10.1 MetalWorks Linear – Synchro planks can be installed on the wall horizontally and vertically. The Main Beam Carrier (MBC) will be installed perpendicular to the desired plank length direction ***(Fig 44)***. The 2" planks are not able to be installed in wall applications.



(Fig 44)

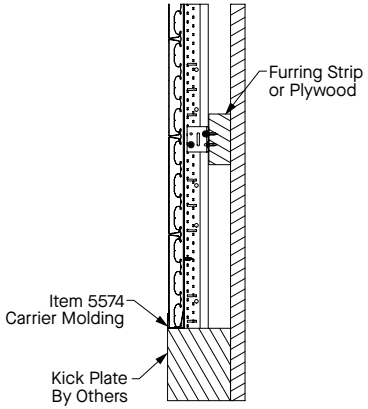
10.2 Wall Leveling and Alignment

Ensure that the suspension system is leveled within 1/8" in 12' and is aligned as accurately as possible. Installations on suspension system that do not meet this tolerance will produce unacceptable plank alignment.

10.3 Main Beam Carrier Installation

10.3.1 Install Quick Stick Uptight Clip (QSUTC) to furring strips or 5/8" plywood, securing them with appropriate fasteners for the substrate to the structure ***(Fig 45)***. 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 or kick plate by no more than 6". The last row of clips at the top should be within 6" from the existing ceiling.

When installing panels in the vertical orientation with Main Beam Carriers running horizontally, the Main Beam Carriers should be resting on top of the QSUTCs.



(Fig 45)

10.3.2 Perimeter Molding

It is recommended to have a 6" – 8" kick plate installed along the floor to minimize the possible damage to planks installed at floor level.

Install Carrier Molding (Item 5574) around the perimeter. Molding should be secured to the wall every 16 to 24 inches. The bottom of the molding will be the finish height of the linear planks. The top flange of the Carrier Molding will slide in between the two components of the Main Beam Carrier.

When installing panels in the vertical orientation with Main Beam Carriers running horizontally, cross tees may be needed on the top and bottom of most Main Beam Carriers in order to attach Carrier Molding, if so desired.

10.3.3 Install the Main Beam Carrier directly to the QSUTCs 24" O.C. The first and last Main Beam Carrier must be within 8" from the end to control plank twist. Every plank needs at least two connection points, so two Main Beam Carriers may be needed at the perimeters depending on the length of the plank.

10.3.4 Aligning and Cutting the Main Beam Carrier

Stretch a dry line or set a laser from one side of the room to the other at the bottom of the molding (string/laser perpendicular to the carrier). The line should be out from the "end" wall by the calculated width of the first plank. Refer to Section 2.1.1 for width of border planks.

Measure from this line to the wall. Cut the first Main Beam Carrier in each row so the desired hook lines up with the line. Add a self drill screw in the second hole from the end on the underside of the carrier if the factory screw is cut off. Refer to Section 3.5 for more information.

IMPORTANT NOTE: Make sure each Main Beam Carrier is cut at the same exact location to ensure that the hooks will stay aligned. Any other measurement could cause misalignment and unsatisfactory visuals or the inability to install the planks. Check the carrier's alignment by lining up the laser to the same hook on each carrier.

The suspension system must be leveled to within 1/8" in 12' and the alignment notched on the desired hook on Main Beam Carrier must line up with the string line. Installation on suspension systems that do not meet this tolerance will produce unacceptable plank alignment.

10.4 MetalWorks™ Linear – Synchro® Plank Installation

10.4.1 Starting Perimeter Row

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

Mark the plank and cut to width allowing 3/16" clearance from wall. Either side of the plank can be cut off. See Section 5.0 for cutting recommendations.

The cut perimeter planks will be securely installed by utilizing the Spreader Hold-down Clip (Item 7113). Screw the Spreader Hold-down Clip to the inside of the Carrier Molding with a screw. It is recommended to install two Spreader Hold-down Clips per 24" grid module.

Once the Spreader Hold-down Clips are installed, slide the cut edge of the perimeter plank in between the bottom flange of the Carrier Molding and the bottom edge of the Spreader Hold-down Clips.

Once the entire cut edge of the perimeter plank is under the Spreader Hold-down Clips, push the remaining plank flange in and engage it in the top notch of the carrier.

10.4.2 Plank Splices
The 4" and 6" planks use a splice plate to join and align adjacent planks. Install planks so the factory ends are at the same splice location and ensure the joint is tight. Splice plate installation will be blind because of proximity to the wall structure. **NOTE:** Splice plates can be installed and fit under a Main Beam Carrier if a splice happens to be near a carrier.

The 9" planks have factory upturns on the short ends and are spliced differently. Install planks so that the factory ends are tight and use vise grip clamps to temporarily hold them together. Insert self-drill screws through the plank upturns. A pivot bit set might be required depending on the space between the plank and the wall. Two screws are required at each splice.

10.4.3 Install the field planks as described in Section 4.3.

10.4.4 Last Perimeter Row
Follow the same instructions described in Section 4.4, utilizing the Spreader Hold-down Clip (Item 7113). It is recommended to install the perimeter planks so the splices occur under a carrier.

NOTE: The tabs on the perimeter planks may need to be slightly bent up to help engage with the carrier.

NOTE: All field planks should be installed prior to installing the final cut perimeter planks.

10.5 Finishing Trim

If the installation is not wall-to-wall or covered by molding, use end caps on planks, but all other components may be in line of sight. Border trim finish to be completed by others.

10.6 Framing Out for Wall Feature

Please see the following recommendations if there is a need for a framed-out section in the wall for a design feature, such as a television or sign:

- Prior to installing the planks, measure the space needed for the design feature since there will need to be grid modification.
- Cut the Main Beam Carriers to the desired length, making sure to add a sharp point screw in the second hole from the end on the underside of the carrier if the factory screw is cut off.
- There should be a QSUTC within 6" of the end of the cut Main Beam Carrier.
- Every plank needs at least two connection points, so additional Main Beam Carriers may be needed at the perimeters depending on the length of the plank.

Horizontal Plank Installations:

- It is best to use full size planks on the top and bottom of the frame-out. If that is not possible due to needed dimensions, Carrier Molding can be installed to hide the cut edge of the plank.
- Use end caps for the cut planks on the left and right of the frame-out.

Vertical Plank Installations:

- It is best to use full size planks on the left and right of the frame-out, but if that is not possible due to needed dimensions, Carrier Molding can be installed to hide the cut edge of the plank.
- Install MetalWorks™ Linear – Synchro® Cut Plank Bracket (SCPB, Item 7237S3) on each cut plank on the top of the frame-out to prevent panels from sliding down. A pivot bit set or a flexible drill extension may be needed.
- Use end caps for the cut planks on the top and bottom of the frame-out.

11. EXTERIOR INSTALLATION

MetalWorks™ Linear – Synchro® planks, 2", 4", 6", and 9" widths (unperforated) are recommended for non-exposed exterior applications.

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

- Main Beam Carrier (Item 7277S3MF)
- 2' Drywall Grid Cross Tee cross tee (XL8926G90)
- MetalWorks™ Linear – Synchro® Carrier Molding (Item 5574)
- 20AWG 3-5/8" CSJ Compression Posts (not sold by Armstrong World Industries)
- BACG90 Clips
- XTAC (Cross Tee Adapter Clip)
- 2" Splice Plate (Item 8243W02)
- 4" Splice Plate (Item 8243W04)
- 6" Splice Plate (Item 8243W06)
- Pressure Spring Clip (Item 8161)
- Spreader Hold-down Clip (Item 7113)

11.2 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”.

11.2.1 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 locale of the installation to assure compliance with all legal requirements.

11.2.2 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.

11.3 Installation of Suspension System

11.3.1 Install the Carrier Molding (Item 5574) at the finish ceiling elevation.

11.3.2 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".

11.3.3 Cut Main Beam Carriers (MBC) to length as described in Section 3.

11.3.4 Main Beam Carriers need to be hung with #12-gauge galvanized steel wire at 24" O.C. to facilitate installation.

11.3.5 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 Section 3.5. The string should be out from the end wall by the calculated width of the first plank.

IMPORTANT NOTE: Make sure each Main Beam Carrier is cut at the same exact location to ensure that the hooks and rout holes will stay aligned. Any other measurement could cause misalignment and unsatisfactory visuals or the inability to install the planks. Check the carrier’s alignment by lining up the laser and the same hook on each carrier.

See Section 4 for border plank installation.

11.3.6 Drywall Grid Cross Tees must be installed adjacent to compression posts. See (Fig 33) for cross tee interface with compression posts. All single tee connections or cut cross tees must be reinforced with a Cross Tee Adapter Clip (XTAC).

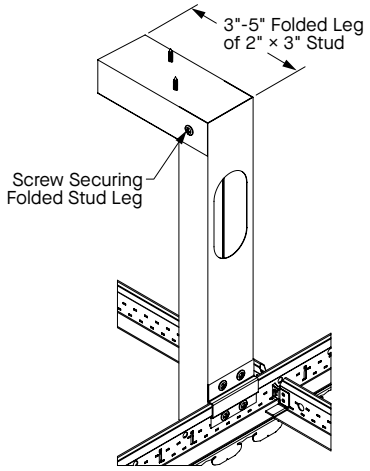
11.3.7 Attach the ends of the Main Beam Carriers to the Carrier Molding using #8 × 1/2" self-drilling screws.

11.4 Installation of the Compression Posts

11.4.1 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.

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

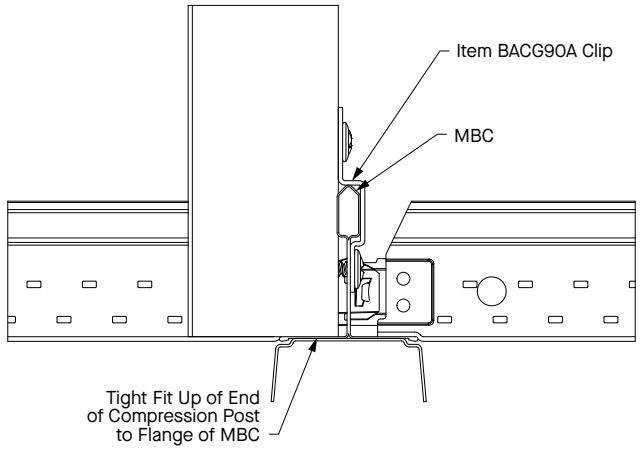
11.4.3 The top end of the post is made by cutting through the flanges of the stud and folding over a short horizontal leg of approximately 3" to 5" add a screw to secure the folded stud. The top end of the post must be attached to the structure by means of at least two metal fasteners of a type and size appropriate for the application ***(Fig 46)***.



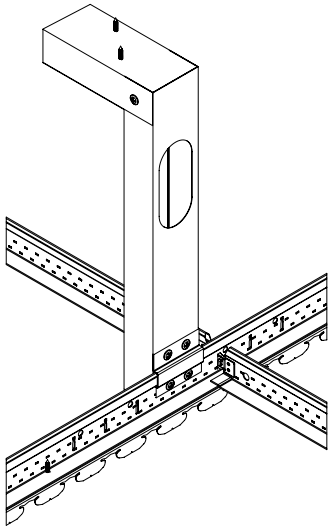
(Fig 46)

MetalWorks™ Linear – Synchro® Exterior: Suspension System and Compression Post Spacing for UL® Uplift Class Rating		
Class Rating	**Carrier Spacing**	**Compression Post and Cross Tee Spacing**
2" Planks		
30 (45 PSF)	24" O.C.	24"
60 (75 PSF)	24" O.C.	24"
90 (105 PSF)	24" O.C.	24"
4" Planks		
30 (45 PSF)	24" O.C.	24"
60 (75 PSF)	24" O.C.	24"
90 (105 PSF)	24" O.C.	24"
6" Planks		
30 (45 PSF)	24" O.C.	24"
60 (75 PSF)	24" O.C.	24"
90 (105 PSF)	24" O.C.	24"
9" Planks		
30 (45 PSF)	24" O.C.	24"
60 (75 PSF)	24" O.C.	24"
90 (105 PSF)	24" O.C.	24"

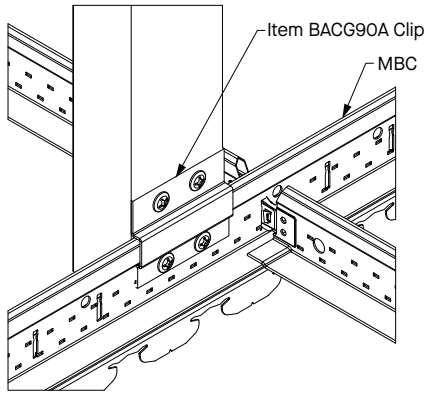
11.4.4 Attachment to the Main Beam Carrier shall be by means of the Armstrong® BACG90A clip. Begin by clamping the post and the BACG90A clip in position. Then use four #8 × 3/4" self-drilling sheet metal screws to fasten the post to the BACG90A clip. The top screws will fasten the strut to the clip and the bottom screws will fasten the strut and Main Beam Carrier to the clip ***(Figs 47 - 49)***.



(Fig 47)



(Fig 48)



(Fig 49)

11.5 Installation of the Planks

Please refer to Section 4 in this document for general information regarding the installation of MetalWorks™ Linear – Synchro® planks and suspension system.

11.5.1 Measure, cut, and install the first border plank as described in Section 4.1. Install Hold Down Clip (Item 7113) every 24" 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.

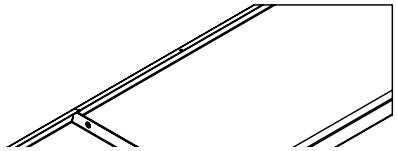
The end of the plank will fit into the Carrier Molding on the adjacent wall. One Pressure Spring Clip or pop rivet is required on the end for all 2", 4", and 6" wide planks. Two Pressure Spring Clips or pop rivets are required on the short ends of each 9" plank that rests on the wall molding.

11.5.2 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.

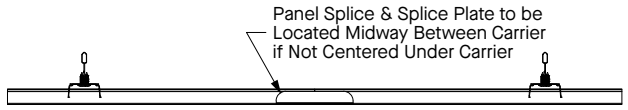
11.6 Plank Joints

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

- Splice locations are recommended to fall under Main Beam Carrier, otherwise, they must be centered between two Main Beam carriers ***(Figs 50 & 51)***.



(Fig 50)

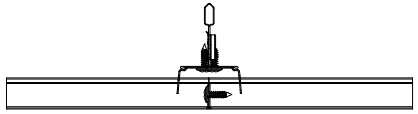


(Fig 51)

- Splice plates will be installed as normal

For 9" planks:

- Splice locations must be directly under MBCs ***(Fig 52)***
- Screws through the plank upturns can be added as detailed in Section 3.5.7 to secure the plank reveals.



(Fig 52)

11.7 Last Perimeter Row

- Refer to Section 4.4 on how to install the last perimeter row utilizing the Spreader Hold-down Clip (Item 7113) or pop rivets.
- **NOTE:** All field planks should be installed prior to installing the final cut perimeter planks, with the exception of the last or two last full row (depending on the width of the plank) to allow enough room to install the SCPB as detailed in Section 4.4.6.
- It is recommended to install the perimeter planks so the splices occur under a Main Beam Carrier.
- Install Hold-down Clips Clips every 24" along the border of the plank.
- Pop rivet the plank to the Carrier Molding every 12" in between the Main Carriers and within 3" of plank ends.

Item #	Description	Included with Planks	Required for Install	Sold by the:	PCS/ CTN
MetalWorks™ Linear – Synchro®					
8223W02	96 × 2 × 5/8" MetalWorks Linear – Synchro Plank	–	–	CTN	16
8223W04	96 × 4 × 5/8" MetalWorks Linear – Synchro Plank	–	–	CTN	12
8223W06	96 × 6 × 5/8" MetalWorks Linear – Synchro Plank	–	–	CTN	8
8223W09	96 × 9 × 5/8" MetalWorks Linear – Synchro Plank	–	–	CTN	6
Suspension System Components					
7277S3MF	12' Main Beam Carrier (Main Beam Carrier)	No	Yes	CTN	10
XL8926	2' Drywall Grid Cross Tees	No	Yes	CTN	36
5574	10' Carrier Molding	No	Yes	CTN	10
7800	12' Angle Molding	No	Seismic	CTN	30
Accessories					
Various	Splice Plates (see data page)	No	Based on design	CTN	10
Various	End Caps (see data page)	No	Based on design	CTN	10
8161	1" Pressure Spring Clip	No	Based on design	CTN	50
7237S3	MetalWorks™ Linear - Synchro® Cut Plank Bracket (SCPB)	No	Based on design	PAIL	25
7113	Spreader Hold Down	No	Based on design	CTN	40
BERC2	2" Beam End Retaining Clip	No	Seismic	CTN	200/50
UTC	Up-Tight Clip	No	Access Plank	CTN	250
7239	Adjustable Trim Clip	No	Based on Design	CTN	25
	Cold-Rolled Channel	No	Access Plank	Not sold by Armstrong	

MORE INFORMATION

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

Fantastik® is a trademark of. S.C. Johnson & Sons, Inc.; UL® is a registered trademark of UL, LLC, all other trademarks used herein are the property of AWI Licensing LLC and/or its affiliates.
© 2026 AWI Licensing Company Printed in the United States of America

BPLA-292540-226

Armstrong®
World Industries