MetalWorks™ Torsion Spring for Behavioral Health

Assembly and Installation Instructions

TABLE OF CONTENTS

1. **GENERAL**
   - **1.1** Product Description
   - **1.1.1** NYS-OMH Acceptance
   - **1.2** Surface Finish
   - **1.3** Perforations
   - **1.4** Storage and Handling
   - **1.5** Site Conditions
   - **1.6** Safety Considerations
   - **1.7** Maintenance & Cleaning Recommendations
2. **SUSPENSION SYSTEM INSTALLATION**
   - **2.1** Perimeter Channel
   - **2.2** Main Beam
   - **2.3** Cross Tees
   - **2.4** Vertical Metal Studs
   - **2.5** Locking Clip
3. **PANEL INSTALLATION**
   - **3.1** Border Panel Installation
   - **3.2** Field Panel Installation
   - **3.3** Locking Clip
   - **3.4** Cutting Metal Panel
   - **3.5** Panel Removal

1. GENERAL

1.1 Product Description

MetalWorks™ Torsion Spring for Behavioral Health is a tamper-resistant ceiling system available in 30" × 30" × .064" thick aluminum panel. The system includes concealed locking clips that, when unlocked, allow for downward access. Panels are designed to install on an extruded aluminum suspension system that is pre-slotted to accept the factory-applied panel springs.

1.1.1 NYS-OMH Acceptance

NOTE: This installation system as described in these instructions has been tested and accepted by the New York State Office of Mental Health (NYS-OMH) Patient Standards, Materials and Systems Guidelines. Whitelume (WHA) with M1 or M17 perforations are the only options currently accepted by the NYS-OMH. When using M17 perforated panel, 1" fiberglass infill (BP8200D3030T10) must be used to maintain NYS-OMH compliance.

1.2 Surface Finish

MetalWorks Torsion Spring for Behavioral Health panels are pre-coated aluminum.

1.3 Perforations

Panels may be perforated or unperforated. Field installed acoustic infill pads are required for perforated panels as part of the tamper-resistant performance and will additionally increase sound absorption.

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World Industries

1.4 Storage and Handling

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

NOTE: MetalWorks Torsion Spring for Behavioral Health panels may be packaged in a crate. Exercise care in moving and opening the crate to prevent damage to the panel face.

1.5 Site Conditions

Areas to receive ceilings shall be free of construction dust and debris. Panels should only be installed in closed and acclimatized buildings. Store all materials on site in unopened packaging away from contact with water and debris.

Review project scope and schedule with the general contractor and all subcontractors who must work above areas to be treated with behavioral health ceilings. Review work that must be completed prior to installation of the ceiling and work that must be completed after installation. All the above ceiling work for plumbing, sprinklers and HVAC must be completed before the ceilings are installed.

1.6 Safety Considerations

This product arrives in a crate. Please plan for safe handling. MetalWorks™ Torsion Spring for Behavioral Health requires 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 panels, exposed raw edges of metal can be a safety hazard. Deburring/sanding might be required based on the quality of the cut for proper fit and safety. Cutting tools should be appropriate for aluminum when cutting the panels and suspension system. See specific cutting guidance in Section 5. Improper cutting equipment could damage or dent the metal panels.

1.7 Maintenance & Cleaning Recommendations

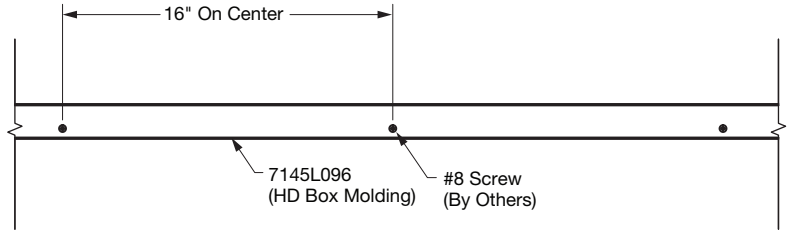
DO NOT USE an abrasive or strong chemical detergent. A mild detergent diluted in warm water, applied with a soft cloth, rinsed, and wiped off with a chamois will maintain the panels in good condition.

2. SUSPENSION SYSTEM INSTALLATION

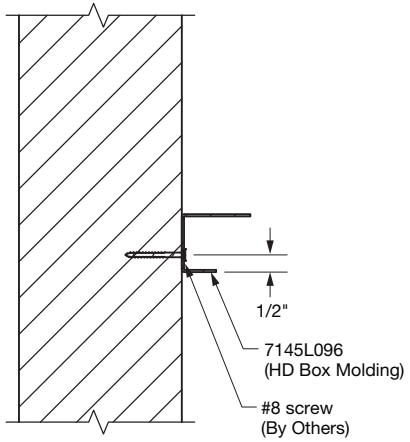
Hangers and bracing are to comply with all local code requirements. The suspension system shall be properly installed and leveled using not less than 12-gauge galvanized steel wire. Suspension system installation shall conform to ASTM C636 requirements. The suspension system must be leveled to within 1/4" in 10' and must be square to within 1/16" in 2'.

2.1 Perimeter Channel

Install the Perimeter Channel (Item 7145L096) at the specified elevation in the construction documents. Use #8 fasteners (by others) suitable for the wall type. Space the fasteners 16" O.C., but do not exceed 24" O.C. on solid walls, and place them at each stud for frame construction. Position the screws approximately 1/2 inch from the bottom leg of the Channel ***(Figs 1 & 2)***.

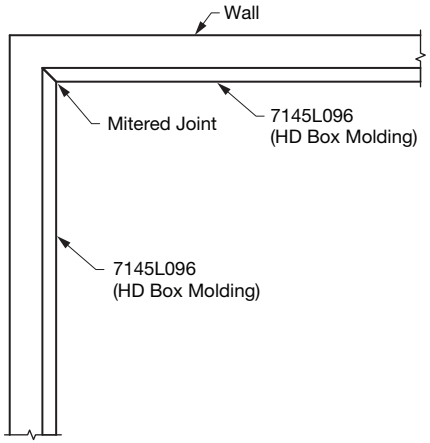


(Fig 1)



(Fig 2)

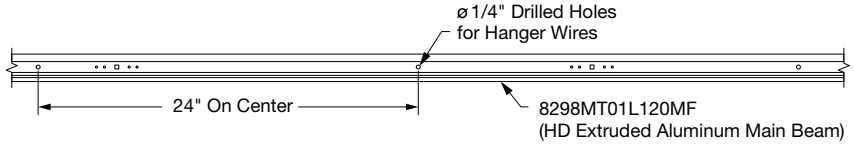
Miter all perimeter trim at the corners. Do not butt or overlap the bottom flanges ***(Fig 3)***.



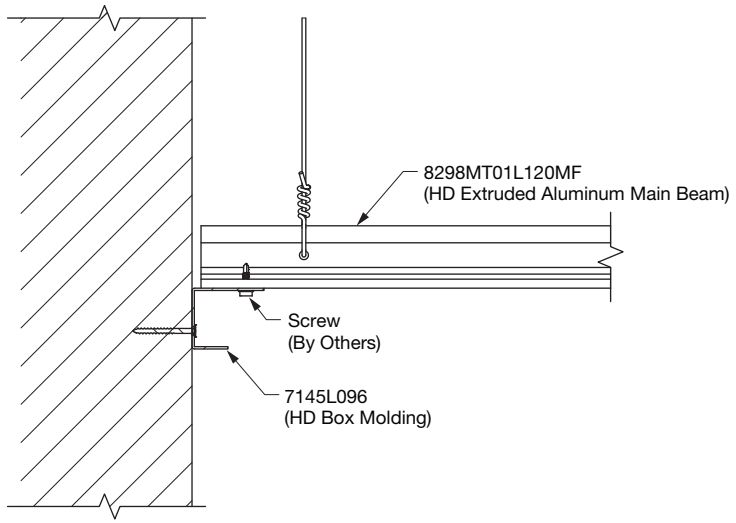
(Fig 3)

2.2 Main Beam

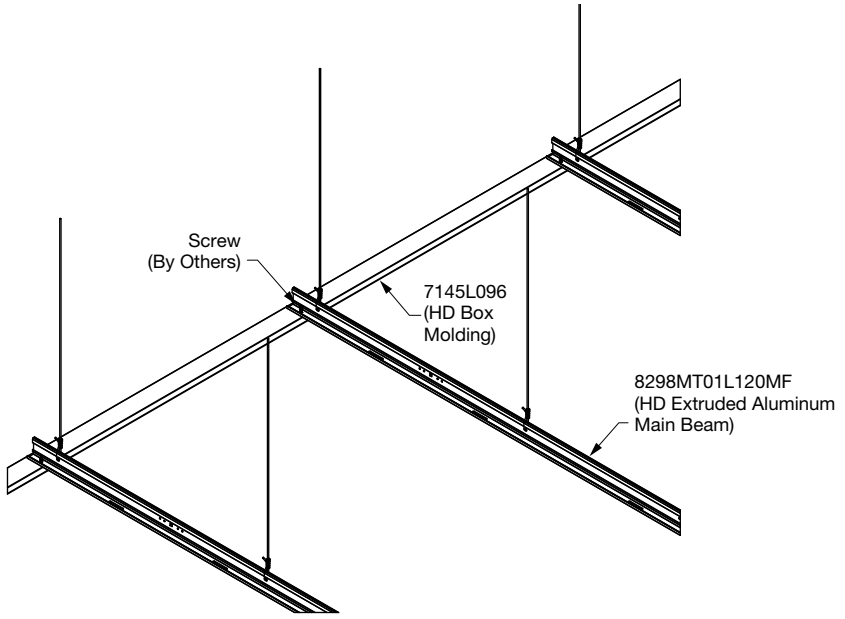
Using a 1/4" drill bit, pre-drill holes on the mains for hanger wires every 24" O.C. ***(Fig 4)***. Main beams (Item 8298MT01L120MF) are supported by 12-gauge wires spaced 24" O.C. across the main. The main beam will rest on the upper flange of the perimeter channel ***(Figs 5 & 6)*** fastened with #10 × 3/4" hex head self-drilling screws, while the panels will rest on the bottom flange. Avoid screwing direct through the middle of the main, is recommended to screw on either side of the main beam flange. The location of the first main beam should be as detailed in the reflected ceiling plan. Pay close attention when cutting this first main beam to length, ensure the slots are correctly positioned to accept the springs attached to the panel being installed.



(Fig 4)

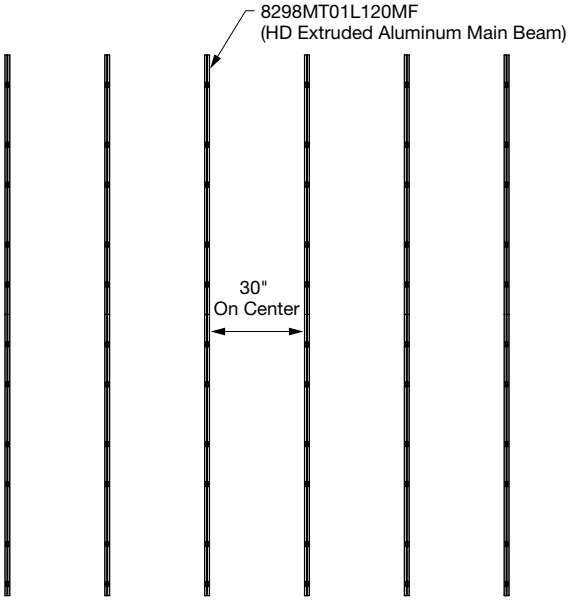


(Fig 5)

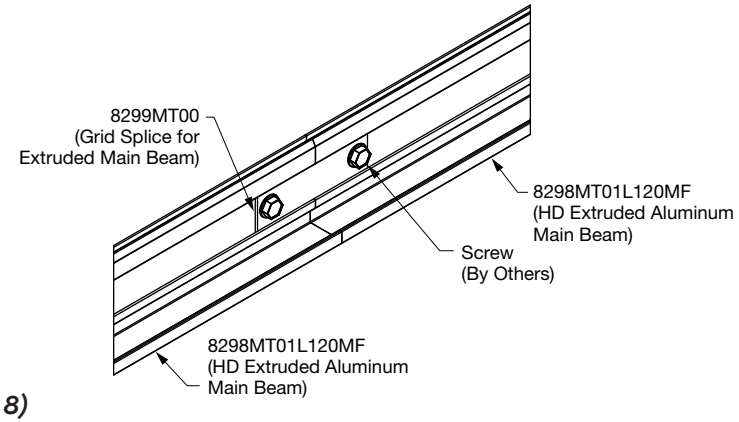


(Fig 6)

Install the main beam 30" O.C. across the room ***(Fig 7)***. Main beam to Main beam connection will require a splice (Item 8299MT00). Slide the splice into the main beam channel as shown, and fasten splice with #10 × 3/4" hex head self-drilling screws ***(Fig 8)***.



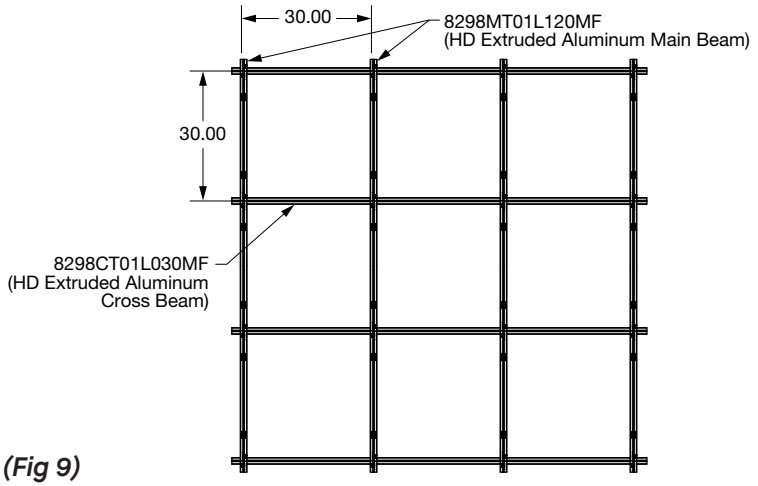
(Fig 7)



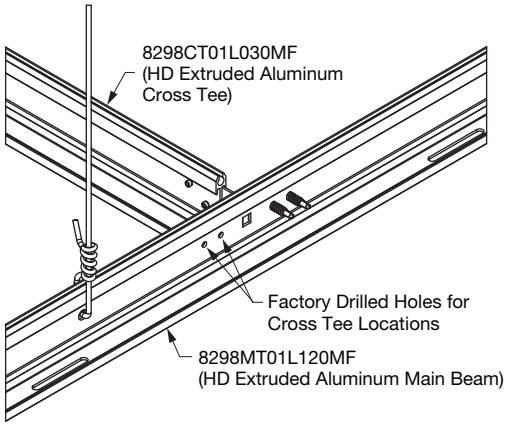
(Fig 8)

2.3 Cross Tees

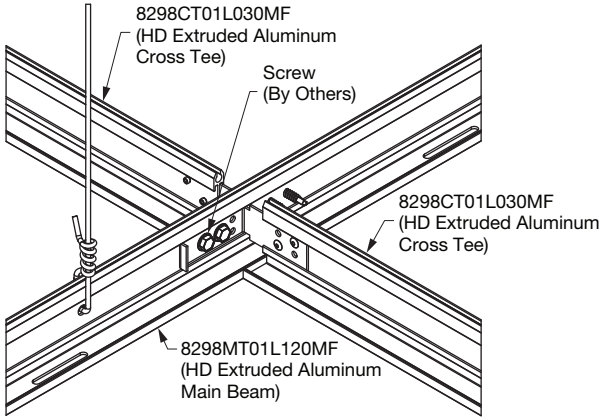
Install 30" cross tees, which will intersect the main beams at 90 degrees every 30" O.C. creating a 30" × 30" grid module. Fasten the 30" cross tees to the main beam using factory-assembled angle brackets into the pre-drilled holes on the main beam with #10 × 3/4" hex head self-drilling screws ***(Figs 9 - 11)***.



(Fig 9)



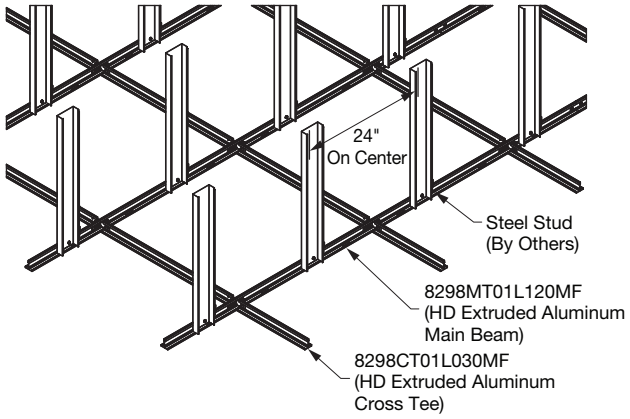
(Fig 10)



(Fig 11)

2.4 Vertical Metal Studs

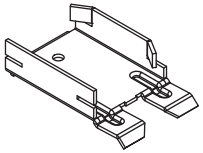
Vertical metal studs (by others) are required at intervals no greater than 24" O.C. across the main beam ***(Fig 12)***. Ensure that the placement of the metal studs does not interfere with the slotted areas on the main beam, which could affect spring engagement with the suspension system. Ensure you leave minimum of 4" clearance from main beam and cross tee intersection and that the bottom of the stud is tight to the back side of the main beam flange. Use 20-gauge metal studs if the plenum height is under 6 feet. For heights above 6 feet, consult the project engineer for guidance on the appropriate gauge and size of the metal studs.



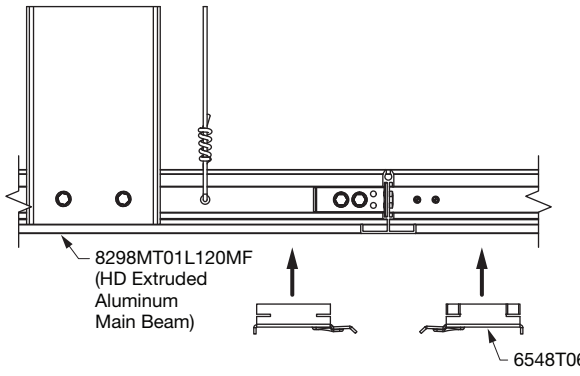
(Fig 12)

2.5 Locking Clip

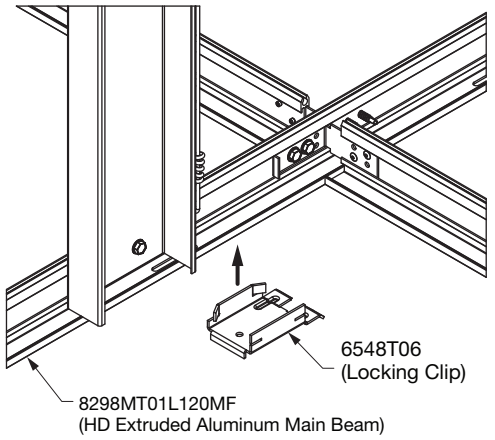
Install the Locking Clip (Item 6548T06) ***(Fig 13)*** only on the main beam. Ensure the side of the clip that will engage the panel flange is facing towards the main beam and cross tee intersection as shown ***(Fig 14)***. Use pliers to bend the tab and lock the clip to the main beam flange ***(Figs 15-17)***.



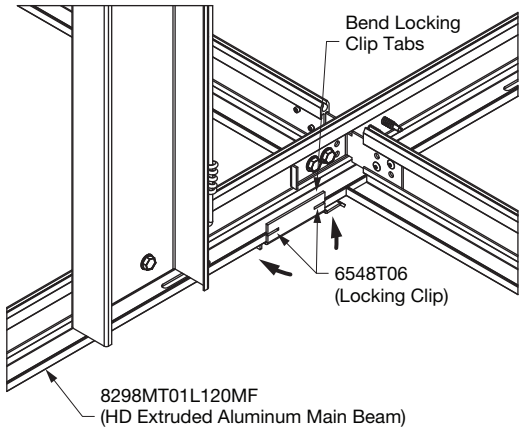
(Fig 13)



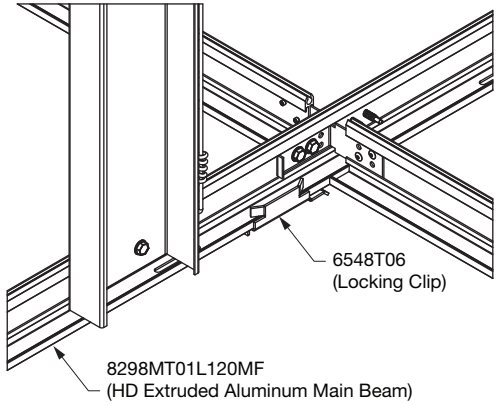
(Fig 14)



(Fig 15)



(Fig 16)



(Fig 17)

3. PANEL INSTALLATION

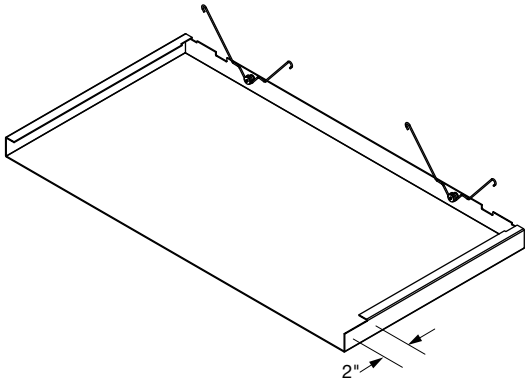
Panels are mechanically directional. Two opposite sides feature a set number of springs that engage the main beam and retain the panel.

3.1 Border Panel Installation

Install all border panels before moving on to the field panels. For easier installation, start with the corner panels.

Remove the FASTPeel™ protective film from the panel upturns before installation. This is crucial as it becomes very difficult to remove once the panels are installed. You can leave the film on the panel faces until installation is complete; only the upturns are critical or any part of the panel that will be sitting within the Perimeter Channel.

When cutting panels to size, leave an 1/8" gap between the cut edge and the back of the perimeter channel. This spacing allows enough room for panel installation and ensures a snug fit between panels. If the panel flange falls directly under the screw that fastens the grid members to the perimeter channel, you will need to cut a maximum of 2" notch from the upper flange of some panels ***(Fig 18)***. This notch prevents interference during panel installation.

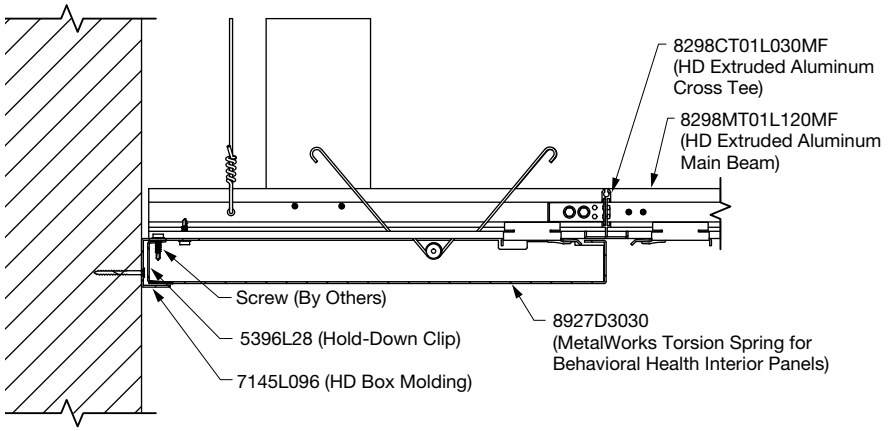


(Fig 18)

Once ready for installation, align the springs with the slots in the flange of the main beam. Compress the spring and insert it into the corresponding slot. Follow this same process for each spring on the panel. Then press up into place with the palm of the hand. The springs should spread apart in the slots of the suspension system and seat the panel into place. Refer to Section 3.2 for details, the process of panel to grid steps are the same as shown in this section.

After installing all border panels, secure the cut edges by adding the Hold-Down clip (Item 5396L28). At the mid-point of the hold-down clip, fasten using #10 × 3/4" hex head self-drilling screws through the upper leg of the perimeter channel ***(see Fig 19)***.

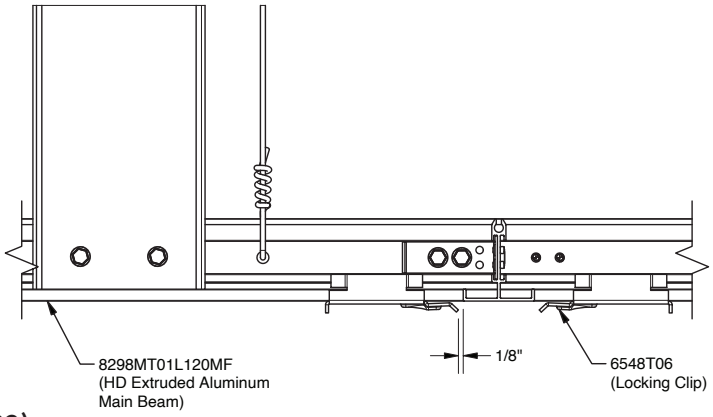
NOTE: For perforated panels, add the acoustic infill pad to the back of the panel, cut and tape it as needed.



(Fig 19)

3.2 Field Panel Installation

Before installing the panels, position the locking clips about 1/8" from the cross tee at the grid intersection, as shown. This placement ensures the clip will be near the corner flange of the panel it needs to engage ***(Fig 20)***.

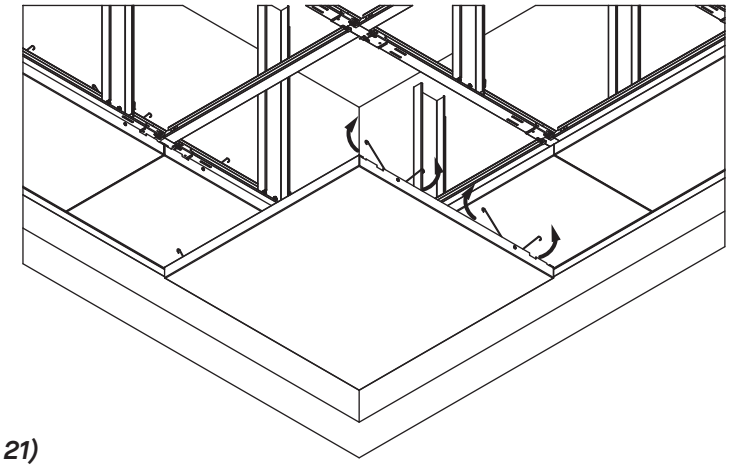


(Fig 20)

Remove the FASTPeel™ protective film from the panel upturns before installation. You can leave the film on the panel faces until installation is complete; only the upturns are critical.

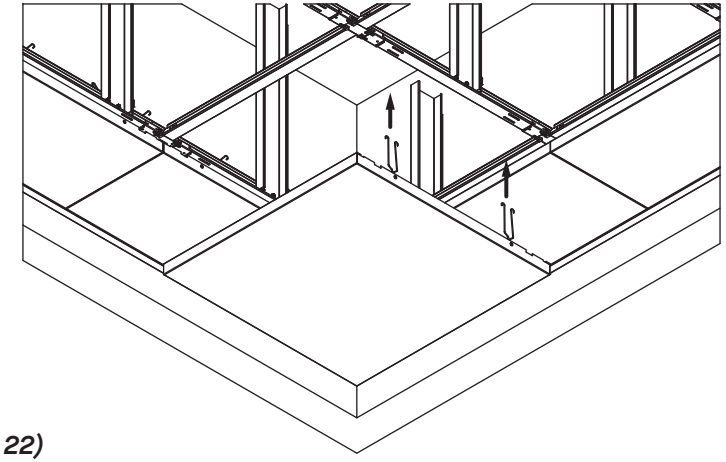
Align the springs with the slots in the flange of the main beam. Compress the spring and insert it into the corresponding slot. Follow this same process for each spring on the panel. Then press up into place with the palm of the hand. The springs should spread apart in the slots of the suspension system and seat the panel into place ***(Figs 21 - 23)***.

STEP 1



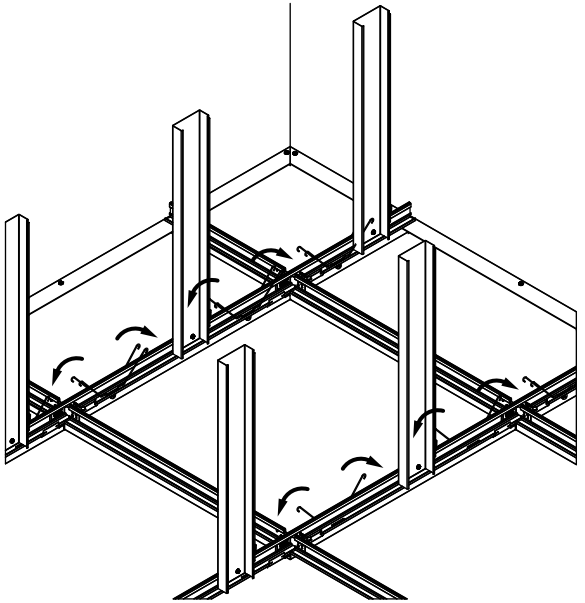
(Fig 21)

STEP 2



(Fig 22)

STEP 3

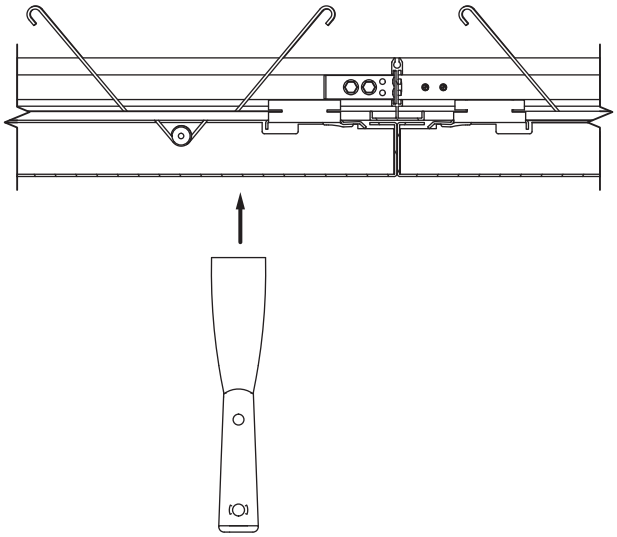


(Fig 23)

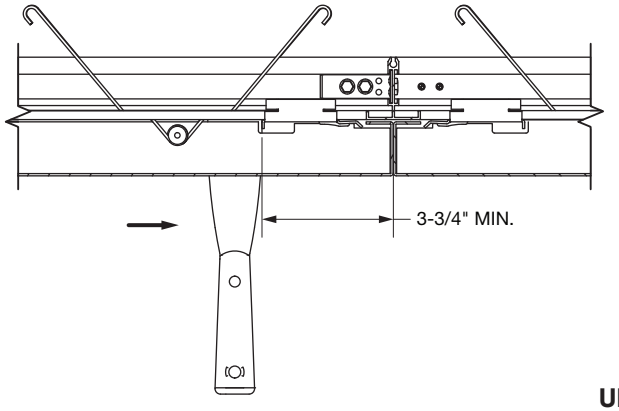
3.3 Locking Clip

NOTE: Ensure that all the above ceiling work for plumbing, sprinklers and HVAC are completed before ceiling panels are locked in place.

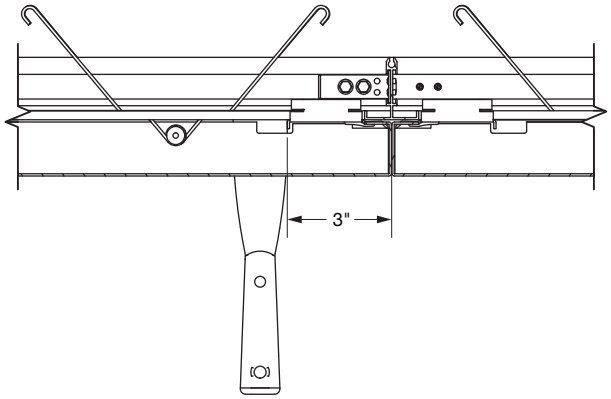
Use a flexible metal putty knife (by others) to slide the locking clip toward the factory edge of the panel to secure it in place. The clip engages the upper back flange of the panel. Insert the putty knife, then use a hammer or mallet tap the clip toward the panel corner, engaging it with the panel flanges ***(Figs 24 & 25)***. Once the clip is fully engaged, the clip end should be about 3" from the panel edge. You can measure this, as shown, to confirm the clip's engagement with the panel ***(Fig 26)***.



(Fig 24)

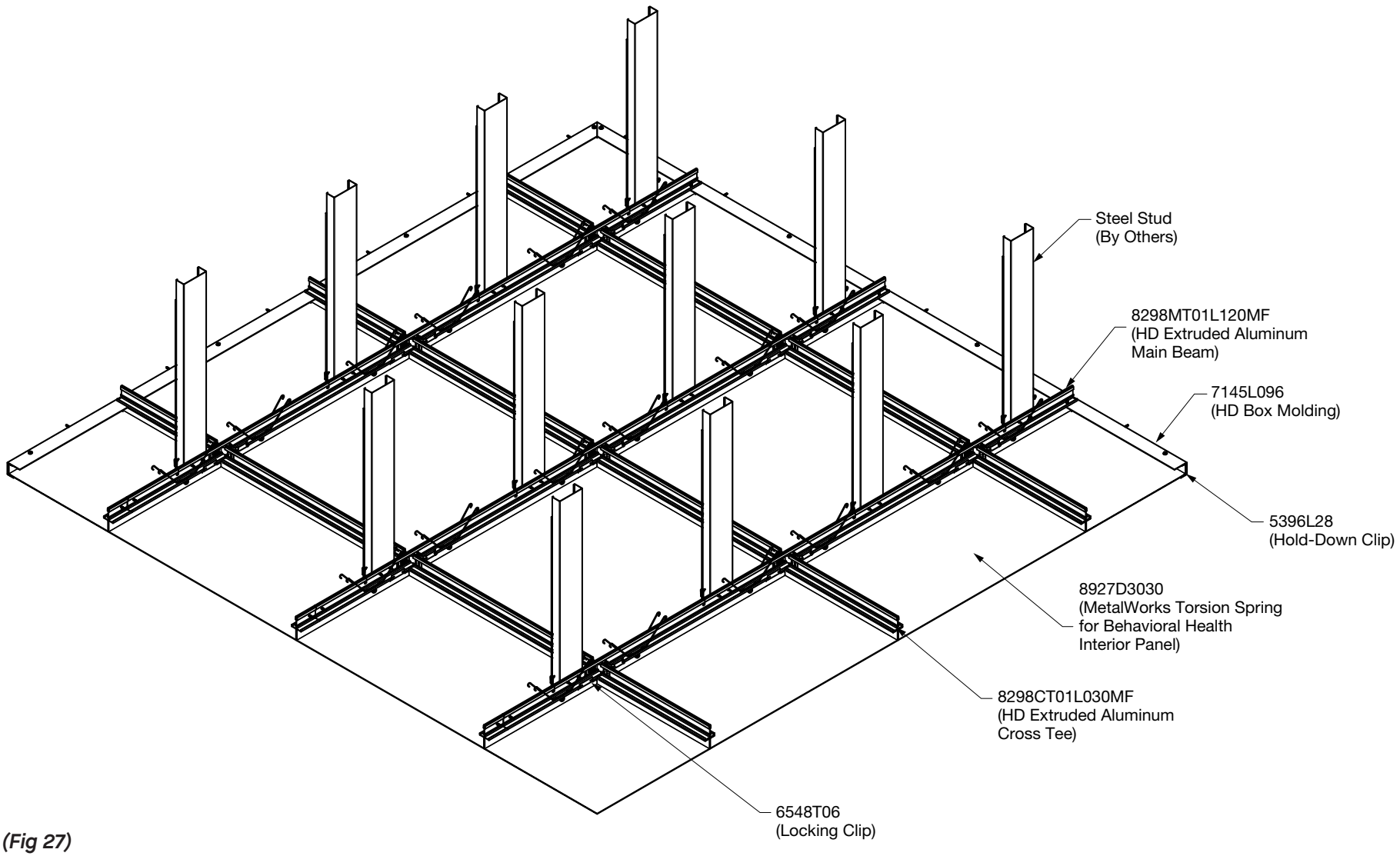


(Fig 25) **UNLOCKED**



(Fig 26) **LOCKED**

Full Panel Installation Detail ***(Fig 27)***



(Fig 27)

3.4 Cutting Metal Panel

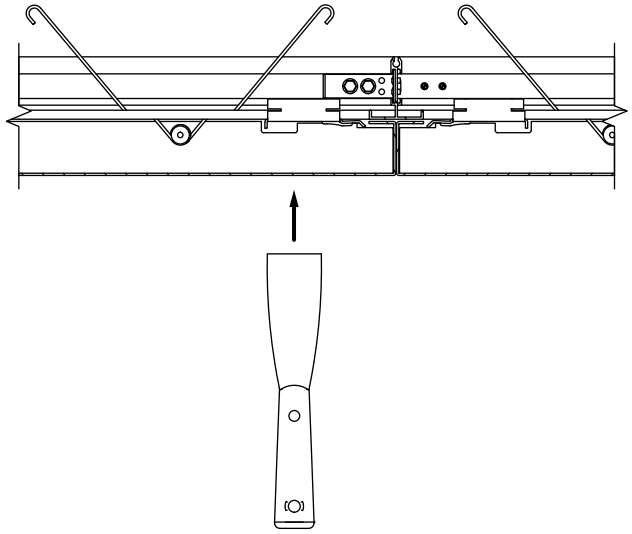
Cut panels should never occur within the field of the ceiling. All ceiling mounted services must be installed into a hole that is cut into a panel or be mounted through the face of a panel.

MetalWorks™ panels can be cut to size at the perimeters using standard tools and methods for aluminum panels:

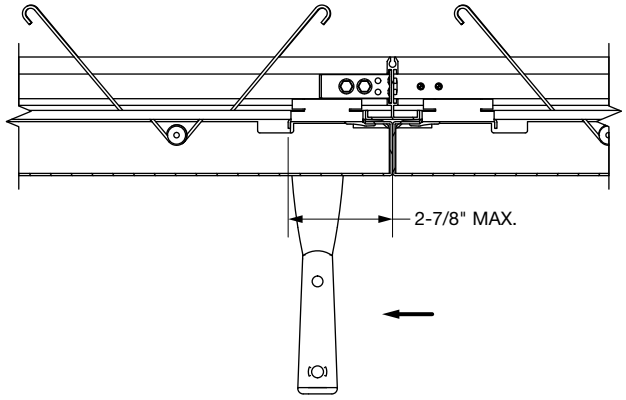
- For straight cuts: A metal cutting circular saw is recommended with a non-ferrous metal cutting blade (consult blade manufacturer for specific recommendation).
- For curved cuts: A jig saw is recommended with an aluminum cutting blade or electric metal cutting shears.

3.5 Panel Removal

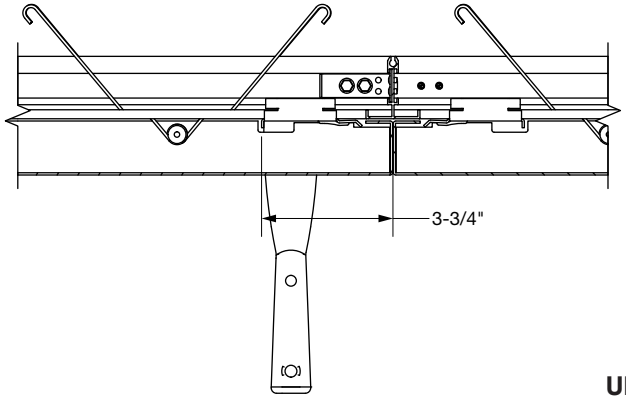
Before removing the panel, first disengage the locking clip from the upper back flange to unlock it. Insert a flexible metal putty knife (by others) and, using a hammer or mallet, tap the knife to slide the locking clip away from the panel corner, disengaging it from the panel flanges ***(Figs 28-30)***.



(Fig 28)

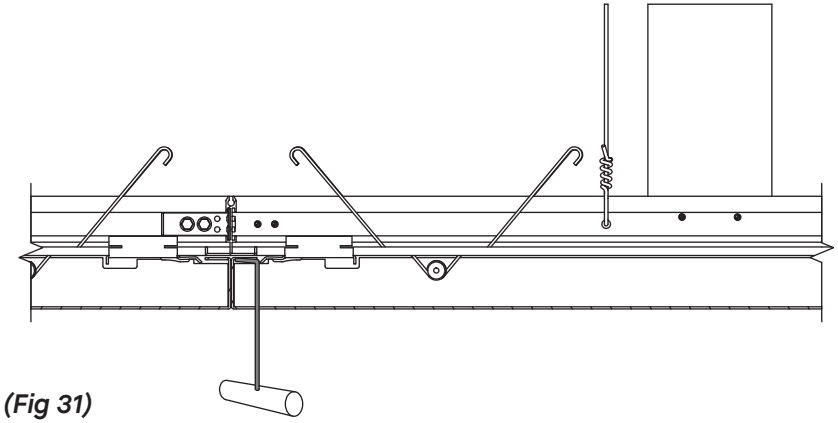


(Fig 29) **LOCKED**

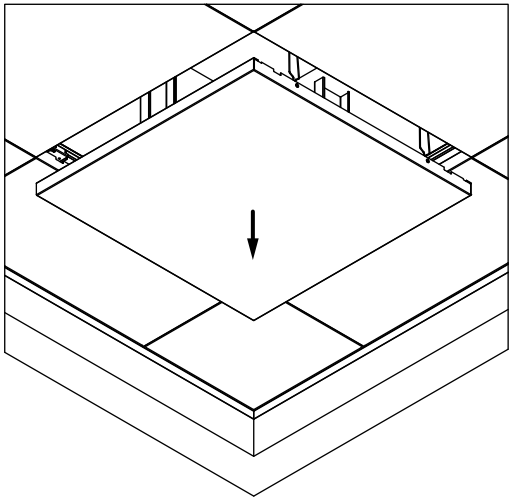


(Fig 30) **UNLOCKED**

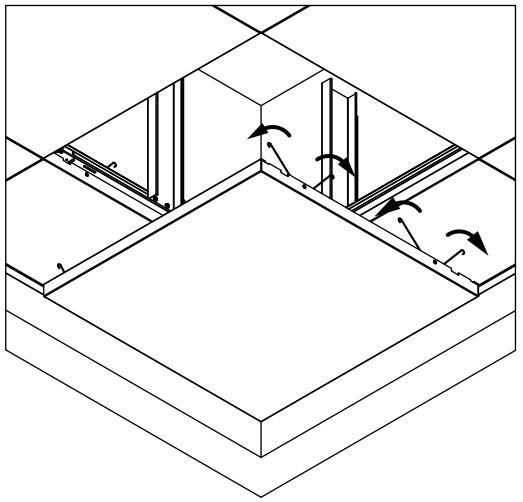
Unlock the clips at the four corners of the panel where access is needed. All panels can be removed without moving up into the plenum. For perforated or unperforated panels, use the Hook Panel Removal Tool (Item 7129). Insert the tool into the joint between two panels, ensuring it is within 1 inch of a panel intersection to engage the correct part of the panel. Twist the tool 90 degrees to hook the top of the panel, then pull the tool downward slowly until the spring catches on the flange of the grid and becomes visible. Once the spring is accessible, compress it, slide it down through the slot, and gently pull down to release the panel from the main beam ***(Figs 31-33)***.



(Fig 31)



(Fig 32)

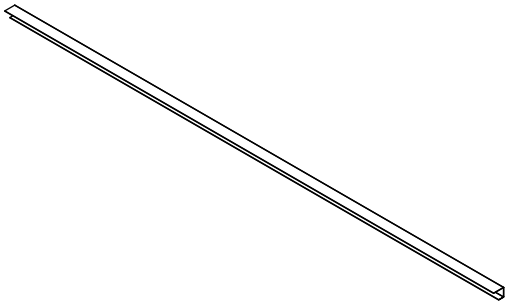


(Fig 33)

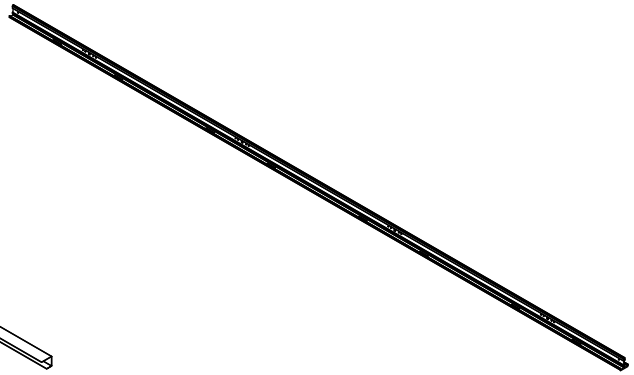
For unperforated panels, use the Suction Panel Removal Tool (Item 7130). Place the device on the corner edge of the panel and gently pull down until the spring is accessible. Compress the spring and gently pull down to release the panel from the main beam.

IMPORTANT NOTE: MetalWorks Torsion Spring for Behavioral Health panels do not have a swing down feature on the panels. Panels are not designed to be left hanging in the swing-down position and should always be removed from the space for access.

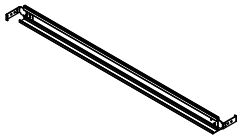
METALWORKS™ TORSION SPRING FOR BEHAVIORAL HEALTH PANEL PROPERTY TABLE					
Item No.	**Description**	**Ordered Separately/ Included with**	**Required for Install**	**Sold by the**	**Pcs/ Ctn**
30" × 30" Panels					
BP8297D3030M1WHA	MW TS 30" × 30" Behavioral Health Panel Unperforated	Ordered Separately	Yes/Based on Design	PC	1
BP8297D3030M17WHA	MW TS 30" × 30" Behavioral Health Panel Perforated	Ordered Separately	Yes/Based on Design	PC	1
Suspension System					
BP8298MT01L120MF	MW TS Grid Extrude MT Slotted 10'	Ordered Separately	Yes	PC	1
BP8298CT00L030MF	MW TS Grid Extruded CT Unslotted 30"	Ordered Separately	Yes	PC	1
BP7145L096WHA	MW TS Trim Behavioral Health 8'	Ordered Separately	Yes	PC	1
BP8299MT00MF	MW TS Grid-Splice for Extruded MT	Ordered Separately	Yes	PC	1
BP5396L28	MW TS Hold-Dwn Behavioral Health 28"	Ordered Separately	Yes	PC	1
Accessories					
BP6548T06	MW TS Locking Clip	Ordered Separately	Yes	CTN	250
BP8200D3030T10	AS Infill Fiberglass Poly 30 × 30 × 1"	Ordered Separately	Yes	CTN	12
BP7129	TS Removal Hook Tool	Ordered Separately	Yes/For removal	PC	1
Additional Components by Others					
By Others	20 Gauge Metal Studs	Ordered Separately	Yes	-	-
By Others	#10 × 3/4" Hex Head Self-drilling Screws	Ordered Separately	Yes	-	-



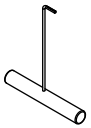
7145L096
(HD Box Molding)
SCALE 1 / 16



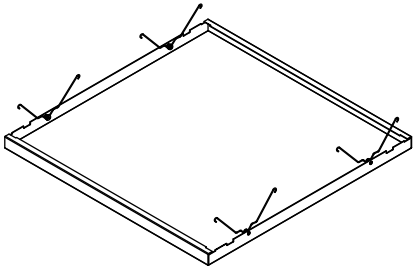
8298MT01L120MF
(HD Extruded Aluminum Main Beam)
SCALE 1 / 16



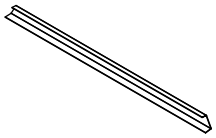
8298CT01L030MF
(HD Extruded Aluminum
Cross Tee)
SCALE 1 / 12



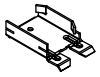
7129
(Torsion Spring Hook
Access Tool)
SCALE 1 / 4



8927D3030
(MetalWorks™ Torsion Spring for
Behavioral Health Interior Panel)
SCALE 1 / 12



5396L28
(Hold-Down Clip)
SCALE 1 / 12



6548T06
(Locking Clip)
SCALE 1 / 4



8299MT00
(Grid Splice for
Extruded Main Beam)
SCALE 1 / 4

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.

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