METALWORKS™ Immix™ Blades System

Assembly and Installation Instructions

1. GENERAL

1.1 Product Description

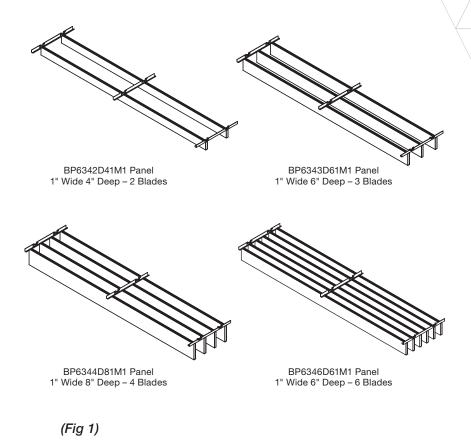
The MetalWorks™ Immix™ Blades System is an aluminum ceiling system comprised of downward accessible 24" x 96" panels, with blades available in 1" and 2" widths and 4", 6", and 8" depths. It is designed to install on a 15/16" Prelude® suspension system that is pre-slotted to accept the field-applied panel springs. All non-cut panels are 100% downward accessible. For the best visual, Black 360° grid with black painted plenum is recommended.

MetalWorks Immix Blades are produced with factory-applied powder coating available in Whitelume, Silverlume, and Gun Metal, as well as Sequels™ wood-look finishes including, La Jolla Oak, Cape May Cherry, Montauk Driftwood, and New Haven Walnut, and a wide range of custom colors. For acoustic solutions, panels also offer a perforated option with factory-applied acoustical fleece. Acoustical infill panels can be installed above the panels as well for added acoustics. The best aesthetics can be achieved with Calla®, Lyra®, and BioAcoustic™ Black infill panels. When combining MetalWorks Immix blade panels with acoustic panels, consider overall system weight for suspension system requirements. Panels are intended for interior use only (*Fig 1*).

1.2 Storage and Handling

MetalWorks Immix Blades panels should be stored in a dry interior location and should remain in their original crate prior to installation to avoid damage. IMPORTANT NOTE: Panels arrive in a crate with the hardware required for installation included, panel springs (Item BP7234). Ensure these are not misplaced during handling. When removed for installation, the vertical panels should be stored in a flat, horizontal position. Panels could potentially scratch one another, so keep back-to-back, and face-to-face for transporting. Proper care should be taken when handling the panels to avoid damage and soiling.

NOTE: Each panel has a clear protective film on the surface of the panel to protect it from dirt and scratching, as well as to indicate any directionality in the panel as noted by small arrows. The film should be removed after installation is complete. For any fingerprints which may need to be wiped clean, see Cleaning Section 1.9.





1.3 Site Conditions

Areas to receive ceilings should be free of construction dust and debris. Panels should only be installed in closed and acclimatized buildings. Such installations must not be exposed to abnormal conditions, namely: chemical fumes, presence of standing water, or contact with moisture, which could result in condensation or building leaks. These products cannot be used in exterior applications.

1.4 Fire Performance and Sprinklers

MetalWorks™ Immix™ Blades panels have Class A fire performance based on ASTM E-84 testing. Panels 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 protection engineer, NFPA 13, and their local codes for guidance on the proper installation techniques where fire detection or suppression systems are present. Refer to the Percent Open Area on the Panel Property Table found on the last page to determine if you can install sprinklers above the MetalWorks Immix Blades panel. Confirm with local code official.

1.5 Safety Considerations

Product arrives in a crate – make arrangements for safe handling. 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 blades, 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 aluminum. If a project requires special size panels, consult Architectural Specialties.

MetalWorks Immix Blades panels require at least two people to handle each panel safely, minimize damage, and provide panel support during installation. Extra safety and caution should be taken into consideration when installing these large panels.

1.6 Warranty

The MetalWorks Immix Blades system has been tested based on the installation method described in this document. Warranty will be voided if you do not follow 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 Plenum

Although panels are installed from below and never travel into the plenum, MetalWorks Immix Blades panels will require a minimum 5" clearance above the suspension system. This allows enough room for the springs to travel into the plenum space during installation or removal.

NOTE: Light fixtures and air handling systems require more space and will usually determine the minimum plenum height for the installation. It is required that MEP be independently supported. There must not be weight from any lights, diffusers, speakers, or similar devices supported by the aluminum panels or the suspension system.

1.9 Cleaning

Use a mild detergent diluted in warm water, applied with a soft cloth, rinsed, and wiped off with a chamois. This will maintain the panels in good condition. **DO NOT USE** an abrasive or strong chemical detergent. 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. The protective film that comes on the panels may leave a slightly sticky residue once removed. Fantastik and a micro-fiber cloth are effective at removing the residue.

2. DESIGN AND INSTALLATION CONSIDERATIONS

2.1 Panel Properties

MetalWorks Immix Blades panels are available in a variety of standard slat heights and widths as well as custom options. Panel ends are finished with end caps that are inserted into the blades. Because of how end caps are installed, they do not cover the exposed metal where blades were cut during manufacturing. The exposed cut metal end is more noticeable with darker finishes.

2.2 Suspension System

For a clean visual, Black 360° grid with Black painted plenum is recommended.

2.3 Exterior Installations

MetalWorks Immix Blades panels are not intended for exterior use.

2.4 Directionality

MetalWorks Immix Blades panels are directional. Panel length runs perpendicular to the main, with panel springs installing to main beams only.

3. ACCESSORIES

3.1 Infill Panels

Add acoustics and hide the plenum and suspension system. The best aesthetics can be achieved with 24" x 48" lay-in black Calla®, Black Lyra®, and BioAcoustic™ infill panels. To make removal of panels easier, infill panels may need to be trimmed down in areas where repeated access is needed.

3.2 MetalWorks™ Immix™ Perimeter Cut Kit (Item BP5604)

Used when projects require panels to be field cut and field-applied support bars are needed for hanging.

3.3 MetalWorks Immix Blades End-Caps (Item BP5458___M1___)

Recommended to finish exposed cut panel ends on 90° straight cuts only.

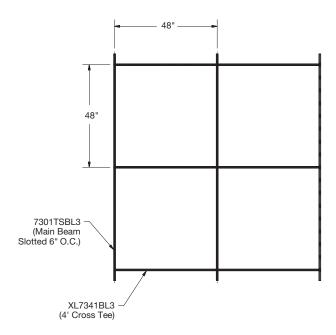
4. SUSPENSION SYSTEM (WALL-TO-WALL)

The requirements listed here represent the manufacturer's minimum acceptable installation requirements established by the local authority having jurisdiction. All installations should follow ASTM C636. All references to suspension component duty ratings are per ASTM C636. Hangers and bracing are to comply with all local code requirements. The suspension system must be properly installed and leveled using not less than 12-gauge galvanized steel wire. Suspension system installation must 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'. 90° Alignment Clips (Item 7134) can be used to assure the grid system meets the squareness requirement.

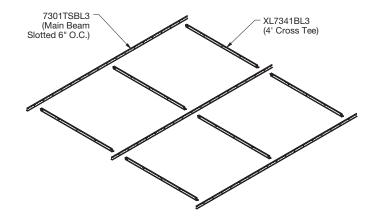
4.1 Suspension System Layout

Prelude® XL® HD main beams that are pre-slotted 6" O.C. (Item 7301TSBL3) for MetalWorks Immix Blades panels are installed every 48" O.C. Then 48" Prelude cross tees (Item XL7341BL3) should intersect the main beams at 90° every 48" creating a 48" x 48" module. Springs on the panel will be inserted into main beams only. Panels will run parallel to the main beams (*Figs 2 & 3*).

Location of the first main beam should be as detailed on the reflected ceiling plan to provide borders that are equal in size and greater than 1/2 of the full panel width. Pay close attention when cutting this first main beam to length; make sure that the slots in the main beam are in the correct position to accept the springs attached to the panel size being installed.



(Fig 2)



(Fig 3)

4.2 Perimeter Solutions (Wall-to-Wall)

4.2.1 Wall Molding

At the perimeter where panel length meets the wall, perimeter is trimmed with two standard wall moldings (Item 7800) at 1-1/4" apart. The suspension system will rest on the upper wall molding, while the panel support bar will rest on the bottom wall molding. The spacing where panel sides meet the wall is determined by the first and last blade that is installed. It is recommended to have a screw within 3" from where support bar and lower molding meet, so an additional screw may be required (*Figs 4 & 5*).

Where panel ends meet the wall there should be allowance of 1" border in the ceiling (Fig 6).

See Section 5.4 for more information on how to cut the MetalWorks[™] Immix[™] blade panels.

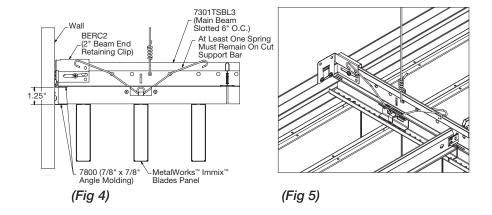
5. PANEL INSTALLATION

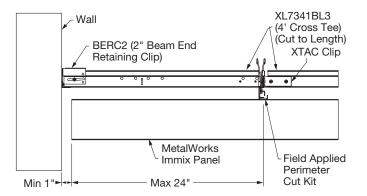
5.1 Panel Assembly

Springs will need to be installed on the panel bracket prior to installation. These springs (BP7234) are included in the panel packaging. Ensure you have the number of springs required for each panel. Insert springs to each bracket following the three steps shown (*Fig 7*).

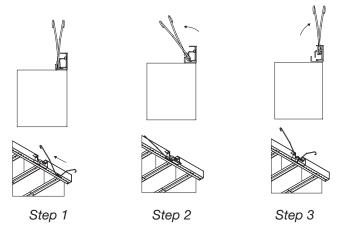
5.2 Directionality

Panels are mechanically directional; they will install perpendicular to the main beam. Panels have 3 support bars with 2 sets of springs per bar that engage the main beam and retain the panel.





(Fig 6)



(Fig 7)

5.3 Installing Panels on Suspension System

Panels require a minimum of two people for safe 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 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 grid and seat the panel into place (*Figs* 8 & 9).

To balance the engagement of the springs on the middle main beam, it is recommended to rotate every other panel 180°. Doing so will allow the springs on the middle support bar to engage the opposite side of the main beam flange every other panel (Fig 10).

5.4 Cut Panels

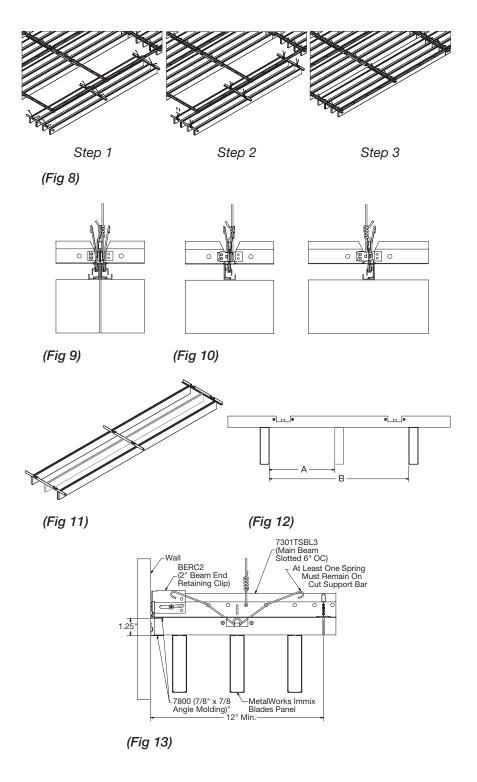
5.4.1 Cut panels should never occur within the field of the ceiling. Ceiling-mounted services can be integrated with panels in two ways: 1) if gap between blades is wide enough, fit services between blades without modifying panel, or 2) remove a full blade from panel *(Figs 11 & 12)*. Refer to the Panel Property Table on the last page to find panel A and B dimensions. The panel support bar should never be cut unless the cut is being made to address perimeter conditions. Refer to Section 5.4.3.

5.4.2 Cutting Guidelines

MetalWorks[™] Immix[™] Blades can be cut to size at the perimeter using standard tools and methods for metal panels. It is recommended to use a metal cutting circular saw or band saw with a new non-ferrous metal cutting blade (consult blade manufacturer for specific recommendation). Due to the depth of the blades, panels may require multiple cuts (front and back), or a larger blade is recommended to cut through the entire panel. Depending on the quality of the cut, the edge may also need to be filed and deburred for a clean edge. A clean edge will improve ease of installation for end caps.

5.4.3 Cutting Long Side of Panel

When the long side of a panel must be cut to address perimeter conditions, support bar should not be cut less than 12", a minimum of one spring is required per support bar along the length of the panel (*Fig 13*). Blade should not be cut lengthwise, instead the entire blade must be removed to address perimeter conditions.



5.4.4 Cutting Short Panel End

When short panel ends require cutting, a perimeter cut kit (Item BP5604) may be required for hanging, when the remaining support bar is more than 24" from the cut. Refer to Section 5.4.4.1 for perimeter cut kit installation instructions. Additional pre-slotted main beams will be required to receive the new field-applied support bar and panel springs. Panels will require a minimum of two support bars per panel for hanging (Figs 14 & 15).

5.4.4.1 Installing Perimeter Cut Kit BP5604

When a factory-applied support bar is removed, a perimeter cut kit (Item BP5604) is available to install a new support bar in the field. The perimeter cut kit is required when the new cut is more than 24" from remaining factory-applied support bar. Panel blades come with factory pre-drilled pilot holes (spaced every 6") along the top of the blades to ease installation to the new support bar. The kit includes all the required components for assembly.

Perimeter Cut Kit Components

Ensure you have the following components prior to cutting and installing:

- 120 Aluminum Domed Head Pop Rivets (used for fastening support bar to blades)
- 40 Stainless Steel Countersunk Pop Rivets (used for fastening the Torsion Spring Bracket to support bar)
- 20 Torsion Spring Brackets
- 10 Support Bars

Additional Tools Required for Installation

- Rivet Gun
- Optional: An air compressor for air-powered rivet gun

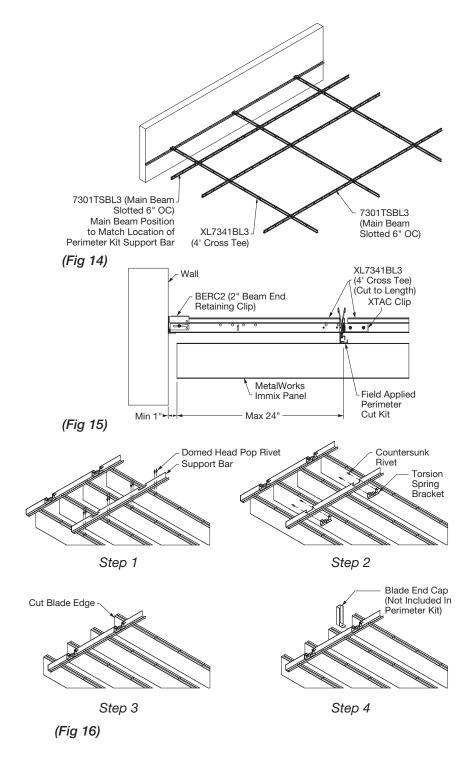
Additional Accessories

- End Caps
- 3M[™] Super 77[™] Multipurpose Spray Adhesive (by others to glue end cap to new cut end)

Ensure the panel is placed on a flat surface or sawhorse face down. Once cut location has been confirmed, fastening the support bar to the panel prior to cutting is recommended. Panels and support bar have pre-drilled pilot holes to ease installation.

If a panel requires multiple cuts or the new cut is too close to where the new support bar will be fastened, it is recommended to install the support bar after the cut has been made. Ensure the support bar is properly lined up to the blade pre-drilled holes prior to fastening in place. This will ensure that the panel's correct blade spacing and dimensions are maintained.

Once you have located and matched the pre-drilled holes on the bars and the blades, follow the four steps to assemble and fasten the support bar to the panel (Fig 16).



Step 1: Using the rivet gun and domed head rivets, attach the support bar to the blade. Two (2) rivets are required per blade.

Step 2: Using the rivet gun and countersunk rivets, attach the torsion spring bracket to the support bar. Flat head rivets must be riveted through support bar and into torsion spring bracket so flat head is flush with support bar. Two (2) rivets are required per bracket.

Step 3: Cut panel at the desired location.

Step 4: Add field-cut end cap to the cut end. Refer to Section 5.4.5.

5.4.5 Installing Field-Cut End Caps

The field-cut end cap enables MetalWorks™ Immix™ Blades panels to be cut to length and finished onsite. Alternatively, custom length panels can be ordered with factory-applied end caps as a custom to help expedite installation. Any field-cut ends of the panels should be finished with the field-cut end cap to ensure best visual and aid in safe handling (*Fig 17*).

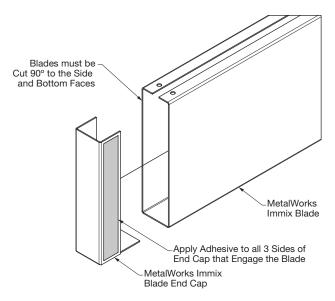
- MetalWorks Immix Blades can only be cut in 90° straight cuts (not mitered or angled cuts) to be compatible with the field-cut end cap.
- Perforated panels contain a factory-applied black acoustical fleece.
- Field-cut end caps will require adhesive to adhere to the cut blade edge. It is recommended to use 3M[™] Super 77[™] Multipurpose Spray Adhesive (by others) and spray around the section of the end cap that will be inserted into the cut blade. Depending on the quality of the cut, the edge may also need to be filed and deburred for a clean edge. A clean edge will improve ease of installation for end-caps.
- Check for any excess adhesive that may have smeared outside the blade and field-cut end cap. Refer to Section 1.9 for cleaning instructions and remove adhesive and any sticky residue.

5.5 Panel Removal

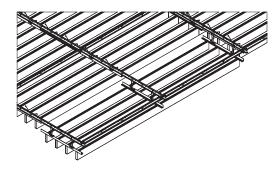
5.5.1 All panels are removable without moving up into the plenum. While panels are downward accessible, these panels should never be allowed to swing down. When access to the plenum is needed, the entire panel should be disengaged and removed from the suspension system.

5.5.2 A tool is not needed for panel removal. The spacing between the blades allows enough room to use your hands to remove the panels. Wear cut - resistant gloves and hold the back of the blades within 12" from the support bar.

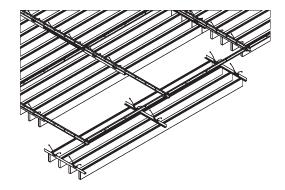
5.5.3 Pull down on the panels until springs catch on the flange of the grid and can be seen. Do not press arms against the sides of the blades when removing panel. Otherwise dents or other deformations may occur. Disengage all springs from all sides of the panel and remove the entire panel. Panels should be handled by at least two people during removal and re-installation for safety. Be sure to guide the panel into its resting position to avoid introducing unnecessary forces into the panel or system (*Figs 18 & 19*).



(Fig 17)



(Fig 18)



(Fig 19)

6. FLOATING PERIMETER/DISCONTINUOUS SYSTEMS

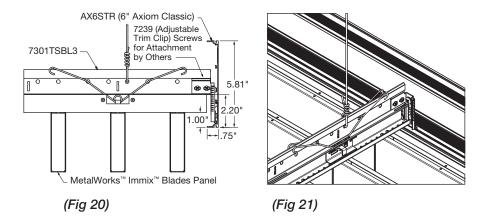
The suspension layout for floating perimeters or cloud applications should be the same as detailed in Section 4.0.

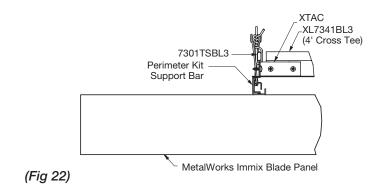
6.1 Floating Perimeter with Trim

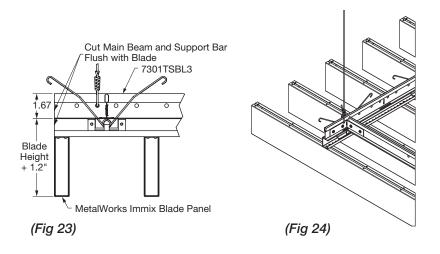
Please note that main beams and cross tees need to be in place around the entire perimeter so perimeter trim can be attached to the suspension system. Axiom® Classic painted Black or painted 360° Black is recommended for straight conditions. A 6" trim height is the minimum trim height recommended and will create the best visual. The 6" height will help hide the suspension system and the panel springs (Figs 20 & 21).

6.2 Floating Perimeter Without Trim

Floating perimeters can also be achieved without the use of a perimeter Trim. Perimeter Kit (Item BP5604), end caps, and cutting the ends of the support bar may be required depending on your design. Refer to Section 5.4.4.1 for installing perimeter cut kit. Panels should be supported within 24" of panel ends (*Figs 22 – Fig 24*).







7. SEISMIC

7.1 Attachment to Grid

For more details on seismic installations please see our Seismic Design: What You Need to Know brochure.

7.2 Seismic Rx Cat C

- Ceiling installation should conform to basic minimums established in ASTM C636
- Minimum 7/8" wall molding
- Suspension system may be cut tight on two adjoining walls
- Minimum 3/8" clearance on two unattached walls
- BERC2 on all main beams and cross tees
- BERC2 maintains main beam and cross tee spacing; stabilizer bars not required
- Safety wires required on light fixtures
- Maximum ceiling weight of 2.5lb/ft²

7.3 Seismic Rx Cat D, E & F

- Ceiling installation should conform to basic minimums established in ASTM C636
- Minimum 7/8" wall molding
- Suspension system must be attached on two adjacent walls opposite walls require BERC2 with 3/4" clearance
- BERC2 maintains main beam and cross tee spacing; no other components required
- Heavy-duty systems as identified in ICC-ESR-1308
- Safety wires required on light fixtures
- Perimeter support wires within 8"
- Ceiling areas over 1,000 SF must have horizontal restraint wire or rigid bracing
- Ceiling areas over 2,500 SF must have seismic separation joints or full height partitions
- Ceilings without rigid bracing must have 2" oversized trim rings for sprinklers and other penetrations
- Changes in ceiling plane must have positive bracing

7.4 Suspension Layouts

Suspension layouts are the same as described in Section 4.

7.5 Connection to Wall

See BPCS-4141 Seismic Design: What You Need to Know – Code Requirements Seismic Rx® Suspension Panels Tested Solutions – Seismic Rx® Suspension Panels Approaches To Category C and D, E, & F Installations.

7.6 Special Bracing Required

See BPCS-4141 Seismic Design: What You Need to Know – Code Requirements Seismic Rx® Suspension Panels Tested Solutions – Bracing and Restraint

for Seismic Installations Seismic Separation Joints.

See BPCS-4141 Seismic Design: What You Need to Know – Code Requirements Seismic Rx® Suspension Panels Tested Solutions – Seismic Separation Joints.

SUSPENSION AND ACCESSORIES TABLE

Item No.◆	Description	Order Separately	Required for Install	Sold by the	Pcs/Ctn
SUSPENSION SYSTEM					
7301TSBL3	Prelude® XL® 12' HD Main Beam – Slotted Painted Black 360°	Х	Yes/Based on Design	Ctn	20
XL7341BL3	Prelude XL 4' Cross Tee Painted Black 360°	X	Yes/Based on Design	Ctn	60
7301TS	Prelude XL 12' HD Main Beam – Slotted	X	Yes/Based on Design	Ctn	20
XL7341	Prelude XL 4' Cross Tee	X	Yes/Based on Design	Ctn	60
7891	12-gauge Hanger Wire	Х	Yes	Bundle	_
PERIMETER TRIM					
7800†	12' Angle Molding – White, Black	Х	Based on Design	Ctn	30
HD7801	10' Angle Molding – Silver Grey, Gun Metal Grey	Х	Based on Design	Ctn	30
AX_STR*†	Axiom® Classic Straight Trim – Recommend 6" and up	Х	Based on Design	Pcs	10 LF
ACCESSORIES					
5458D41M1	MetalWorks Immix Blades End Caps 4" D x 1" W	X	Based on Design	_	_
5458D61M1	MetalWorks Immix Blades End Caps 6" D x 1" W	X	Based on Design	_	_
5458D81M1	MetalWorks Immix Blades End Caps 8" D x 1" W	X	Based on Design	_	_
5458D42M1	MetalWorks Immix Blades End Caps 4" D x 2" W	X	Based on Design	_	_
5458D62M1	MetalWorks Immix Blades End Caps 6" D x 2" W	X	Based on Design	_	_
5458D82M1	MetalWorks Immix Blades End Caps 8" D x 2" W	X	Based on Design	_	_
By others	3M [™] Super 77 [™] Multi-Purpose Spray Adhesive	X	Based on Design	_	_
7239	Adjustable Trim Clip (ATC)	X	Based on Design	Pail	50
BERC2	2" Beam End Retaining Clip	Х	Based on Design	Pail	200
5604	Perimeter Cut Kit	X	Based on Design	_	1
INFILL PANELS				·	
8373PBBK	Lyra® Square Lay-in 24" x 48" in Black Finish	X	Based on Design	Ctn	6 pcs
2821BK	Calla® Square Lay-in Panel – 24" x 48" in Black Finish	X	Based on Design	Ctn	6 pcs
1319	Backstage Noir™ Lay-in Panel 24" x 48"	Х	Based on Design	Ctn	6 pcs

[◆] When specifying or ordering, include the appropriate 3 or 4-letter color suffix (e.g., 5458D61M1 M Y A)

★ When specifying or ordering, include the 2-digit color suffix to the item number (e.g., AX6STR § ©); add an extra digit "3" before the color suffix if paint is required inside and outside of trim (e.g. AX6STR § ©).

[†] Black is recommended for Sequels™ panel finishes

PANEL PROPERTIES TABLE

Item No.◆	Description	Number of Blades Per Panel	Order Separately	Required for Install	% Open Area	Spacing Between Blades (A)	Spacing Between w/ Blade Removed (B)	Lbs Per SF		
METALWORKS™ IMMIX™ BLADES PANELS										
6342D41	MetalWorks Immix Blades 4" D x 1" W	2	Х	Based on Design	92%	11"	23"	0.36 lbs		
6343D41	MetalWorks Immix Blades 4" D x 1" W	3	Х	Based on Design	88%	7"	15"	0.54 lbs		
6344D41	MetalWorks Immix Blades 4" D x 1" W	4	Х	Based on Design	83%	5"	11"	0.73 lbs		
6346D41	MetalWorks Immix Blades 4" D x 1" W	6	Х	Based on Design	75%	3"	7"	1.08 lbs		
6342D61	MetalWorks Immix Blades 6" D x 1" W	2	Х	Based on Design	92%	11"	23"	0.51 lbs		
6343D61	MetalWorks Immix Blades 6" D x 1" W	3	Х	Based on Design	88%	7"	15"	0.77 lbs		
6344D61	MetalWorks Immix Blades 6" D x 1" W	4	Х	Based on Design	83%	5"	11"	1.03 lbs		
6346D61	MetalWorks Immix Blades 6" D x 1" W	6	Х	Based on Design	75%	3"	7"	1.54 lbs		
6342D81	MetalWorks Immix Blades 8" D x 1" W	2	Х	Based on Design	92%	11"	23"	0.66 lbs		
6343D81	MetalWorks Immix Blades 8" D x 1" W	3	Х	Based on Design	88%	7"	15"	1.08 lbs		
6344D81	MetalWorks Immix Blades 8" D x 1" W	4	Х	Based on Design	83%	5"	11"	1.33 lbs		
6342D42	MetalWorks Immix Blades 4" D x 2" W	2	Х	Based on Design	83%	10"	22"	0.5 lbs		
6343D42	MetalWorks Immix Blades 4" D x 2" W	3	Х	Based on Design	75%	6"	14"	0.7 lbs		
6344D42	MetalWorks Immix Blades 4" D x 2" W	4	Х	Based on Design	67%	4"	10"	0.9 lbs		
6342D62	MetalWorks Immix Blades 6" D x 2" W	2	Х	Based on Design	83%	10"	22"	0.65 lbs		
6343D62	MetalWorks Immix Blades 6" D x 2" W	3	Х	Based on Design	75%	6"	14"	0.93 lbs		
6344D62	MetalWorks Immix Blades 6" D x 2" W	4	Х	Based on Design	67%	4"	10"	1.2 lbs		
6342D82	MetalWorks Immix Blades 8" D x 2" W	2	Х	Based on Design	83%	10"	22"	0.8 lbs		
6343D82	MetalWorks Immix Blades 8" D x 2" W	3	Х	Based on Design	75%	6"	14"	1.15 lbs		
6344D82	MetalWorks Immix Blades 8" D x 2" W	4	Х	Based on Design	67%	4"	10"	1.5 lbs		

[♦] When specifying or ordering, include the appropriate 6 or 7-digit perforation suffix and color suffix (e.g., 6342D61 M 1 5 W H A).

MORE INFORMATION

For more information, or for an Armstrong Ceilings representative, call 1 877 276-7876.

For complete technical information, detail drawings, CAD design assistance, installation information, and many other technical services, call TechLine customer support at 1 877 276-7876 or FAX 1 800 572-TECH.

