

## METALWORKS™ Mesh™

### Installation & Cutting Instructions

#### 1.0 GENERAL

##### 1.1 Product Description

MetalWorks Mesh ceilings are nominal 24" x 24" lay-in panels designed to install on a conventional 15/16" wide T-bar suspension system. There are a variety of design patterns available in welded wire, woven wire and expanded metal. Most of the panels are made of cold-rolled steel; one is made of aluminum.

##### 1.2 Surface Finish

Available finishes include a range of smooth, factory-applied powder-coated (post-coated) finishes. Anodized finishes are available on the Cascades product only.

##### 1.3 Storage and Handling

The ceiling panels shall be stored in a dry interior location and shall remain in cartons prior to installation to avoid damage.

The cartons shall be stored in a flat position. Proper care should be taken when handling to avoid damage or soiling.

##### 1.4 Site Conditions

###### 1.4.1 Interior Applications

Building areas to receive ceilings shall be free of construction dust and debris. Products may be installed where temperatures are between 32°F (0°C) and 120°F (49°C) and in spaces before the building is enclosed, where HVAC systems are cycled or not operating. Such installations shall not be exposed to abnormal conditions, namely: chemical fumes, presence of standing water, or contact with moisture, as could result from condensations or building leaks. These products cannot be used in exterior applications.

###### 1.4.2 Plenum

Installation of Wire Mesh panels requires 3" of clearance above the suspension system.

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

##### 1.4.3 Fire Sprinklers

MetalWorks Mesh panels, as with other architectural features located at the ceiling, may obstruct or skew the planned fire sprinkler water distribution pattern, or possibly delay or accelerate the activation of the sprinkler or fire detection systems by channeling heat from a fire either toward or away from the device.

For panels that do not meet the criteria for open-grid ceilings as defined by NFPA 13, placement of solid mineral fiber ceiling panels over the entire expanded metal ceiling may help fulfill the requirements of NFPA 13.

Please consult a fire protection engineer, NFPA 13, and their local codes for guidance where automatic fire detection and suppression systems are present.

#### 2.0 PANEL EDGES

##### 2.1 General

The edges of MetalWorks Mesh panels feature unique detailing. The panels are designed to provide safe handling for installation. All edges are welded or prepared to minimize sharp edges. Use caution and wear appropriate hand and eye protection when installing metal panels.

**2.1.1** The square Welded Wire panels (items 6131 through 6134) will have a wire along each edge.

**2.1.2** The diamond Welded Wire Panels, Woven Wire panels, and the Expanded Metal Scallop and Lattice panels will have a continuous wire frame on the back side of each panel.

**2.1.3** The Expanded Metal Trellis and Cascades panels are the shape of the expanded metal design.

### 3.0 SUSPENSION SYSTEM

#### 3.1 General

The suspension system shall be standard 15/16" duty exposed tee grid. The suspension system, whether new or existing, shall be properly installed and leveled using not less than 12-gauge galvanized steel wire. Suspension system installation shall conform to ASTM C-636 requirements.

#### 3.2 Suspension Grid

MetalWorks Mesh panels install in a 2' x 2' module. The main beams shall be spaced 48" o/c. The 48" cross tees shall intersect the main beams at 90° every 24". The 24" cross tees shall be installed at the midpoints of the 48" tees. The suspension system must be leveled to within 1/4" in 10'.

#### 3.3 Panel Penetrations

Holes cut for sprinkler heads and other services that penetrate the ceiling panel must be cut 1/4" larger to maintain the proper panel alignment. Additionally, trim rings for these devices must be wide enough to accommodate this 1/4" gap.

**NOTE:** Severe seismic conditions may require increased clearance around penetrations.

### 4.0 PANEL INSTALLATION & REMOVAL

#### 4.1 General

MetalWorks Mesh ceiling panels install and remove like conventional lay-in ceiling panels. Panels are flat and should rest on the grid flange. If a panel does not rest completely on the grid flange, gently bend the edge until it is straight.

#### 4.2 Installing Full Size Panels

MetalWorks Mesh panels are directional. It is important to install in the correct direction to provide a uniform visual (unless other patterns are desired). See table below for description of directional characteristics of the panels.

### 5.0 PERIMETER DETAILS

#### 5.1 General

Cut edges will rest on and be concealed by some form of molding or trim.

#### 5.2 Full Panel Border Installations

In all cases, the size of the perimeter opening must be maintained at 23-1/16" for full panel perimeter installations.

##### 5.2.1 Floating Clouds

MetalWorks Mesh panels can be used in floating clouds with trim options but must be full size panels.

#### 5.3 Cut Panel Installations

MetalWorks Mesh is a collection of metal ceiling panels that consists of steel and aluminum with a variety of face patterns and opening details. Cutting procedures will vary depending on the type of MetalWorks Mesh panel to be installed.

See table below for panel cutting recommendations and Section 6 for a description of the different cutting options.

**5.3.1** Measure the size of the border panel and transfer this dimension to the MetalWorks Mesh panel.

**5.3.2** Use the proper tool to cut the panel as marked.

**5.3.3** Install cut panel with the cut edge along the molding. Make sure the cut edge is straight so it lays flat on the molding.

**5.3.4** Perimeter Hold down option: If the panel does not lie flat, use a short piece of molding, 16" to 22" long, on top of the cut edge secured to the original molding with sheet metal screws. This will hold the cut edge snug along the molding for the correct visual and allow full access of the panel.

MetalWorks Mesh Pattern	Panel Orientation – Face	Panel Orientation – Direction	Cutting Recommendations
<b>WELDED WIRE</b>	Same on both sides	Install so wire resting on grid runs the same direction (180 degree directional)	Band saw, grinder with cutting wheel, bolt cutters. Bulldog aviation snips for penetrations.
<b>WOVEN WIRE</b>	Wire frame UP Woven wire rests on grid	Install so weave pattern in corners match. (wires over top or under bottom) (180 degree directional)	Band saw, grinder with cutting wheel, bolt cutters, bulldog aviation snips.
<b>EXPANDED METAL Scallops &amp; Lattice</b>	Wire frame UP Expanded metal rests on grid	Install so the pattern is in the same direction. (directional panel)	Band saw or bolt cutter for frame. Aviation snips for face.
<b>EXPANDED METAL Trellis &amp; Cascades</b>	Rough side (tooling marks) UP Smooth side rests on grid	Install so the pattern is in the same direction. (directional panel)	Band saw, grinder with cutting wheel, hole saw.

## 6.0 CUTTING OPTIONS

Different types of equipment are recommended for cutting MetalWorks Mesh panels. Each has its own set of advantages and limitations, and will be presented in order of preference based on speed.

### CAUTION

CUT EDGES OF METAL PANELS CAN BE EXTREMELY SHARP! HANDLE METAL CAREFULLY TO AVOID INJURY. ALWAYS WEAR SAFETY GLASSES AND GLOVES WHEN WORKING WITH METAL.

### 6.1 Band Saw

An electric band saw equipped with a fine toothed blade (14-18 tpi) is the fastest method for cutting border panels. For 2' x 2' panels, the saw must have a throat depth of at least 12" to allow a cut anywhere on the face of the panel.

#### 6.1.1 Procedure

Mark the cut line on the face of the panel and feed through the saw face up.

#### 6.1.2 Disadvantages

Band saws are not part of the normal "tool kit" of an acoustical installer. Although readily available, they tend to be more expensive than the other options listed here. Band saws are less portable than the other options, and will require that the panels be moved to the saw, cut, and then moved back to the installation site. This distance may not be great, but labeling of the panels may be necessary to ensure that they return to the correct location.

### 6.2 Electric Grinder with Metal Cutting Wheel

These grinders use a thin abrasive metal cutting wheel. Follow the manufacturer's recommendation for safe and proper use of equipment. Grinders are good for middle of the panel cutouts like a can light or sprinkler.

#### 6.2.1 Procedure

Mark the cut line on the face of the panel. Start the grinder and let it reach maximum RPM. Cut the line on the scrap side of the panel. Keep the cutting wheel perpendicular to the panel. Be cautious of metal sparks and sharp edges.

#### 6.2.2 Disadvantages

Grinders are not as fast as the band saw. Grinders are noisy, throw sparks and can produce sharp metal burrs on the cut edge. Most require the use of an extension cord.

### 6.3 Small Bolt Cutters

Small bolt cutters, approximately 14" in length, are used primarily for heavy gauge large open patterns and wire frames. This process is slow but easy, accurate and economical. It is the recommended process for large size woven patterns.

#### 6.3.1 Procedure

Mark the cut line on the panel. Cut each wire with bolt cutter.

#### 6.3.2 Disadvantages

Using bolt cutters is slow and laborious. It is the recommended tool for the Crimped Weave and Diamond welded patterns. They cannot be used on small or tight patterns due to the large size of the cutting jaws.

### 6.4 Bulldog Aviation Snips

Bulldog Aviation snips have a 1" jaw and are designed to cut or notch heavy gauge metal.

The narrow jaws make it ideal for notching operations and for cutting holes for penetrations through the panel face. Bulldog aviation snips are also very economical.

#### 6.4.1 Procedure

Mark the cut line on the panel. Cut each wire with Bulldog snips.

#### 6.4.2 Disadvantages

Bulldog snips are slow and laborious. Use this tool for notching at the edges or cutouts in the middle of the panel for ceiling penetrations. Exercise extreme caution during this procedure as the hand will be in close proximity to the cut edge of the wire.

## MORE INFORMATION

For more information, or for an Armstrong representative, call 1 877 ARMSTRONG.

For complete technical information, detail drawings, CAD design assistance, installation information and many other technical services, call TechLine™ services at 1 877 ARMSTRONG or FAX 1 800 572 TECH.

For the latest product selection and specification data, visit [armstrong.com/metalworks](http://armstrong.com/metalworks).

