

WOODWORKS® Grille

Assembly and Installation Instructions

1.0 GENERAL

1.1 Product Description

WoodWorks Grille is a solid wood ceiling system available standard in two blade heights and four warm wood finishes – Grille Maple, Light Cherry, Dark Cherry, and Walnut. Both the nominal 1' x 8' panels and installation system are provided by Armstrong. Panels can be installed on standard Prelude® 15/16" suspension system with a Dowel or Backer. Custom finishes, and blade heights, as well as a flexible backer for curved applications, are offered through the Architectural Specialties department.

1.2 Material and Surface Finish

Blades, Backers and Dowels are constructed from solid Poplar. Blades have a clear or semi-gloss coating. Backers and Dowels have a black factory finish.

1.3 Storage and Handling

All ceiling components should be stored in a dry interior location and shall remain in the original packaging prior to installation to avoid damage. The materials shall be stored off the floor in a flat, level condition. Do not store in unconditioned spaces with humidity greater than 55% or lower than 25% or with temperatures above 86°F or lower than 50°F. Use proper care when handling to avoid damage or soiling.

CAUTION: Use proper care and caution when handling suspension systems due to the sharp edges on all exposed clips.

1.4 Site Conditions

Building areas that will receive a ceiling shall be free of construction dust and debris. Installation of the products shall be carried out where the temperature is between 50°F and 86°F and relative humidity levels maintained between 25% RH and 55% RH. These temperature and humidity conditions must be met throughout the lifetime of the ceiling.

Real wood and wood composite products are natural building materials and they will react to changes in humidity. (Wood tends to contract with lower humidity and expand with higher humidity.)

Wood could also have a tendency to warp, twist, or bow, due to the natural stresses in the components and these humidity changes. Be aware of these natural tendencies when evaluating the products.

It is also necessary for the area to be enclosed and for the HVAC systems to be functioning and in continuous operation. All wet work (plastering, concrete, etc.) must be complete and dry. These products cannot be used in exterior applications.

To ensure that the ceiling panels have stabilized to the current building conditions, prior to their installation, the planks must be placed in an environmentally stable building location for a minimum of 72 hours.

1.5 Color

WoodWorks Grille panels are made of solid wood and are available in 4 standard finishes; custom options available. Natural variations in color and grain are characteristic of wood products. To maximize visual consistency, panels should be unpacked and examined collectively to determine the most desirable arrangement for installation.

1.6 Ordering Considerations

Be sure to account for extra material that is normally needed for wood installations. When installing WoodWorks Grille panels, you should consider ordering at least 5% extra material.

Up to 10% more may be needed for odd size or diagonal installations. It is the customer's responsibility to plan each layout and order the correct amount of installation material needed, taking into account their design.

1.7 Fire Performance

As with other architectural features located at the ceiling, WoodWorks Grille 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. Designers and installers are advised to consult a fire protection engineer, NFPA 13, and their local codes for guidance where automatic fire detection and suppression systems are present.

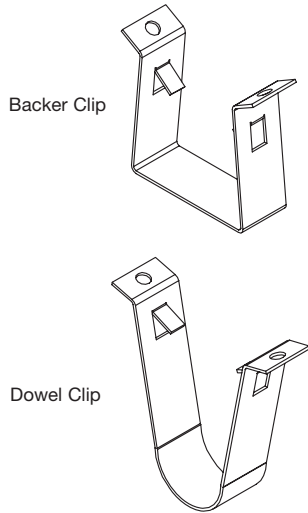
2.0 WOODWORKS GRILLE PANELS AND ACCESSORIES

2.0.1 Wood Grilles

Two standard blade heights: 1-3/8" and 2-1/4"
(width is 5/8").

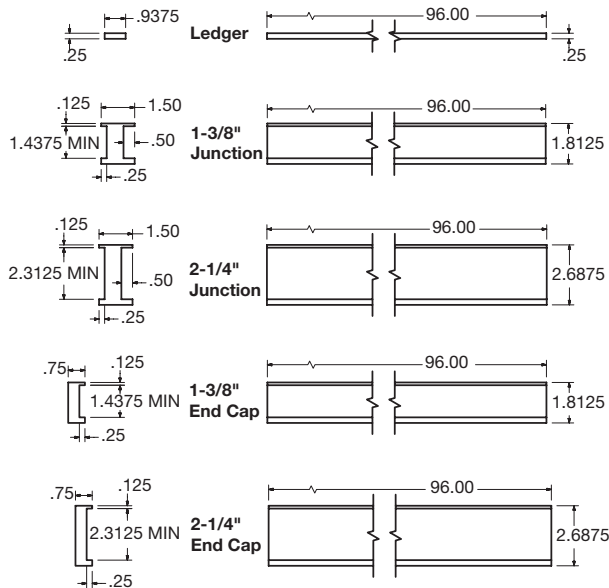
2.0.2 Backer Clips and Dowel Clips

Metal spring clips to attach panels to 15/16" T-Bar suspension system.



2.0.3 Trim Accessories

Wood trim available in matching finishes. Ledgers for wall molding trim. Junctions for panel joints. End caps for exposed panel trim.



2.0.4 Infill Panel

2' x 2' x 5/8" black bioacoustic infill panel to improve acoustical performance.

2.1 Suspension System

Use standard 15/16" T-Bar suspension system, main beams, cross tees, and wall molding to support the WoodWorks Grille panels. Use black 360° Painted suspension system for the best overall visual in installations where the suspension system may be visible or in line of sight.

3.0 INSTALLATION

3.1 General

The suspension system shall be standard 15/16" exposed tee grid. The installation shall, in all cases, conform to ASTM C636 requirements and the International Building Code.

If WoodWorks Grille panels weigh in excess of 2.5 lbs/sf, the ceilings shall be installed per Cisca Seismic Zones 3-4, as modified by the IBC.

WoodWorks Grille panels install perpendicular to the main beams. The main beams shall be spaced 48" O.C. The 48" cross tees shall intersect the main beams at 90° every 48", creating a 4' x 4' module. Then 48" cross tees shall be installed parallel to the main beam as required for panel attachment. (Extra route holes in 48" 360° Painted cross tees may need to be ordered.)

The suspension system must be leveled to within 1/4" in 10' and must be square to within 1/16" in 2'. Installation on suspension systems that do not meet this tolerance will produce unacceptable panel alignment.

WoodWorks Grille panels require two people to handle each panel safely, minimize damage, and provide panel support during installation.

See the last page of this document for ceiling layout example.

3.2 Suspension System

3.2.1 Refer to the reflected ceiling plan to determine the suspension system layout. Main beams must run perpendicular to the panel length.

3.2.2 Refer to the reflected ceiling plan for the finished height of the ceiling. Add the overall height of the WoodWorks Grille panel to determine the elevation of the suspension system. Grille panel height and weight is listed on the data sheet.

3.2.3 Install wall molding along the perimeter at the established suspension system elevation.

3.2.4 Refer to the reflected ceiling plan to determine the panel orientation and size. Main beams must be installed directly under a backer/dowel location. The first main beam should be no more than 36" off the wall and then 48" on center across the installation. Use 12 gauge hanger wire 48" on center to support the main beams. Follow ASTM C636 requirements.

3.2.5 Install 4' cross tees at 48" on center between the main beams. This will create a 4' x 4' grid module.

3.2.6 Next insert 4' cross tees at the midpoints of the cross tees in Section 3.2.5. You should now have a 2' x 4' suspension system module that is called bridged or "H". This is required to keep the WoodWorks® Grille panels perpendicular to the main beams and backers/dowels aligned along the suspension system for clip attachment.

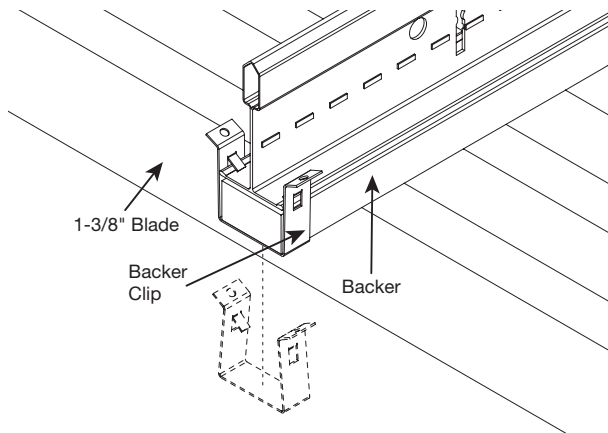
3.2.7 The end backers/dowels of the panel must be secured to the suspension system. These are 7 feet apart. You will need to install an additional 4' cross tee at the 7' location for each row of grilles.

3.2.8 Additional cross tees can be installed in the system as needed to support mechanical fixtures such as lights and speakers.

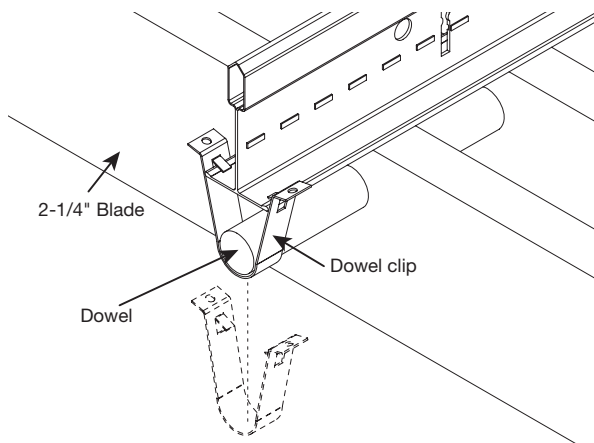
3.3 WoodWorks Grille Panels

3.3.1 WoodWorks Grille panels are installed in sequence across the room. The first row of panels will have the male side towards the wall. Backer/dowel may need to be trimmed for proper panel alignment.

Backer Assembly

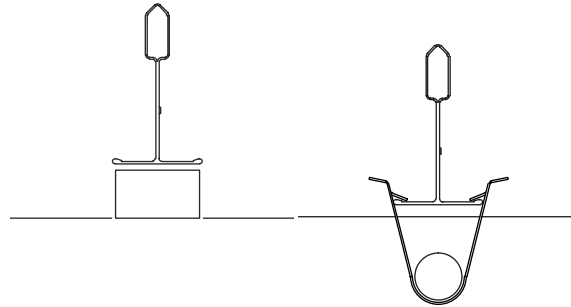


Dowel Assembly



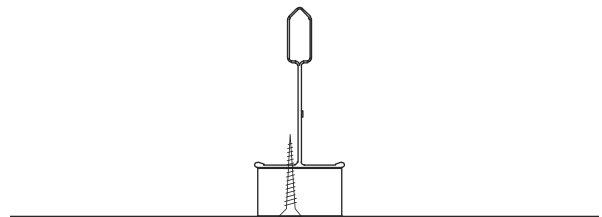
3.3.2 Begin at one wall, raise the panel up against the suspension system, and align the backers/dowels with the suspension system.

3.3.3 The WoodWorks Grille panel is attached to the suspension system with a clip. Insert a clip around the appropriate backer or dowel, and push upwards to engage the clip tabs onto the suspension system flange. Make sure both clip tabs engage the suspension system flange.



3.3.4 Insert two backer/dowel clips at the four corners of the panel, then insert two clips on each backer/dowel that align with the suspension system.

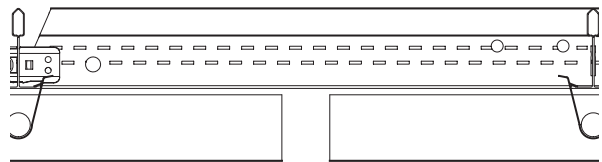
3.3.5 WoodWorks Grille panels with backers can be direct screw attached to the suspension system using #6 x 1-1/4" fine thread drywall screws.



3.3.6 Continue installing WoodWorks Grille panels — male to female — across the room.

3.4 WoodWorks Grille Reveal

3.4.1 WoodWorks Grille panels will have a 1" reveal between panel ends. This uniform spacing and alignment is maintained by the 15/16" suspension system assembly.

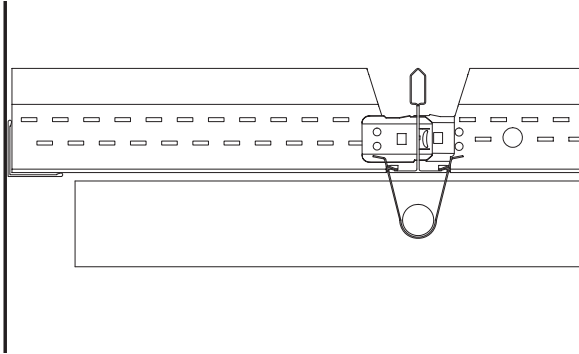


3.4.2 See accessory Section 3.6.2 for optional junction trim.

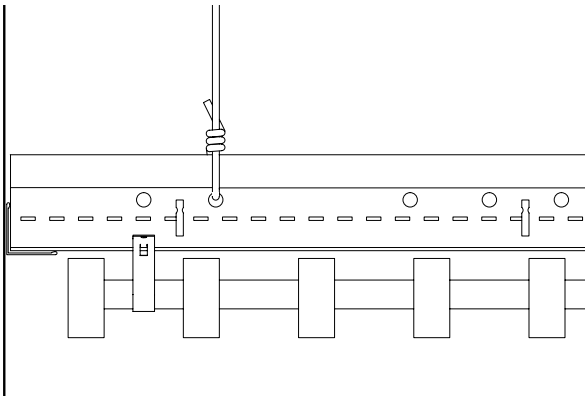
3.5 WoodWorks Grille Borders

3.5.1 Refer to the ceiling plan for border panel size and spacing.

3.5.2 The border at panel ends, perpendicular to the suspension system, will be controlled by the suspension system location. The border size was used in Section 3.2.4 when determining the suspension system layout.

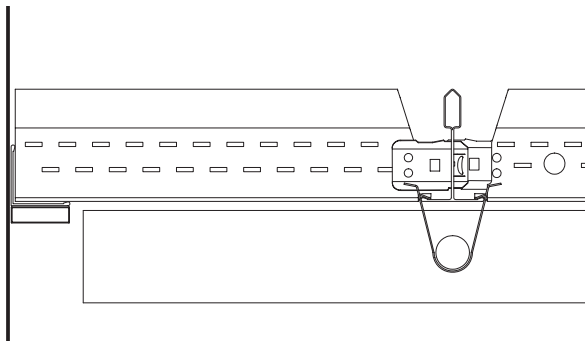


3.5.3 The border at panel sides, parallel to the suspension system, must be maintained at the specified dimension by using a mechanical fastener to secure the clip or panel to the suspension system. This can be a direct screw attachment or a wire tie attachment to the clip.

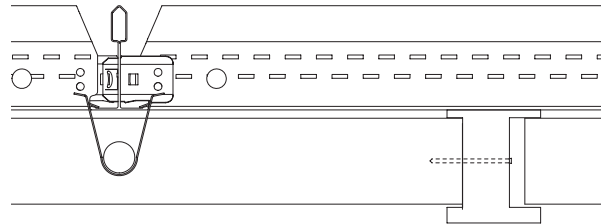


3.6 WoodWorks Grille Accessories

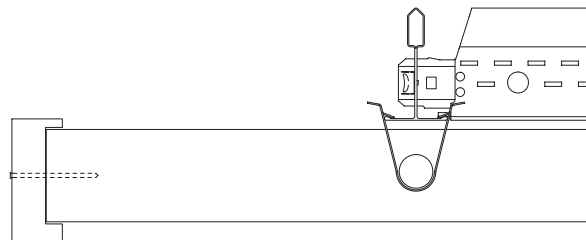
3.6.1 Ledger trim can be used to cover the wall molding with the same finish as the WoodWorks® Grille panel when required. The ledger can be fastened to the molding with adhesive or screwed from above with 1/4" long screws.



3.6.2 Junction trim can be used between WoodWorks Grille panels to fill the 1" reveal. This option will be specified on the ceiling plan. The junction trim must be installed progressively as the panels are installed. Install the first row of WoodWorks Grille panels. Slip the shallow side of the junction trim over the panel blades. Use 1-1/2" 4d finish nails every 16" to fasten the junction trim to the panel end. Install the next row of panels. The panel end will fit part way into the deep side of the junction. This panel end will float free in the junction trim to allow for expansion and contraction of the WoodWorks Grille panels.



3.6.3 End caps can be used as trim for the panel end when the installation is not wall to wall, a floating cloud, or trim around a fixture. Cut the end cap trim to fit as required and use 1-1/4" 3d finish nails every 16" to fasten the end cap to the panel end.

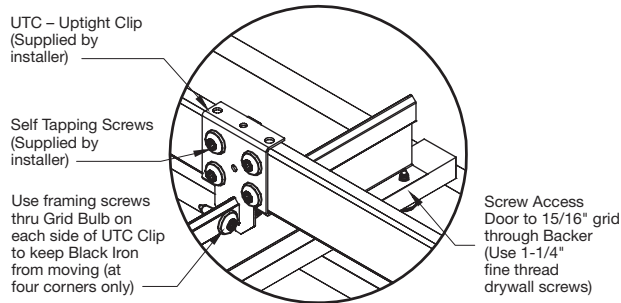


3.7 Mechanical Fixtures

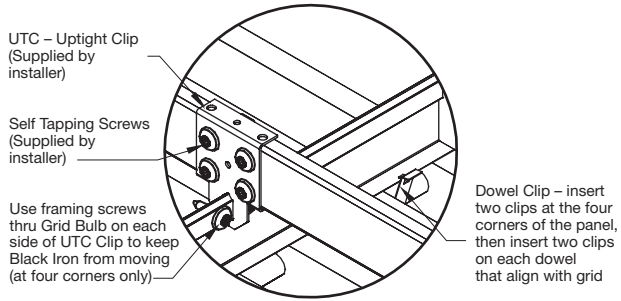
3.7.1 Mechanical fixtures such as lights, speakers, and sprinklers should be installed into the acoustical suspension system before installing the WoodWorks Grille panels. Fixtures can be installed at the suspension system height or flush with the bottom of the panel. Fixture weight or housing must be supported by the acoustical suspension system. Install additional cross tees for support as needed. Refer to the ceiling plans for specific details. WoodWorks Grille panels can be cut to fit around fixture openings. Use the WoodWorks Grille end cap to trim the cut blades or sand and stain exposed field cut edges to match the panel finish.

3.8 Access Options

3.8.1 To create an access door in the field: For a panel with backers, attach several pieces of 15/16" grid to the backer with 1-1/4" fine thread drywall screws. For a panel with dowels, insert two clips at the four corners of the panel, then insert two clips on each dowel that align with the grid

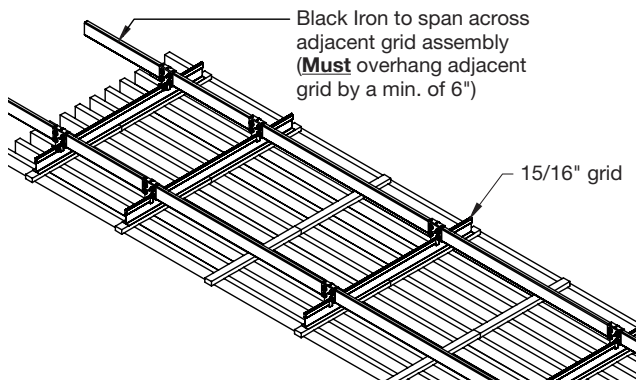


WoodWorks with Backer



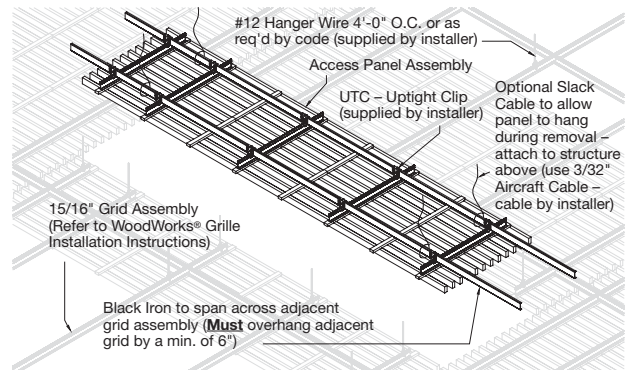
WoodWorks with Dowel

Next use two pieces of 1-1/2" channel to act as outriggers to support the access panel. These channels should be attached to the top of the grid with UTC clips. The weight of the access door will rest on the adjacent suspension system.



Shown on WoodWorks Backer

Additional hanger wire may be required on the adjacent suspension system. Channels must overhang adjacent grid by a minimum of 6".



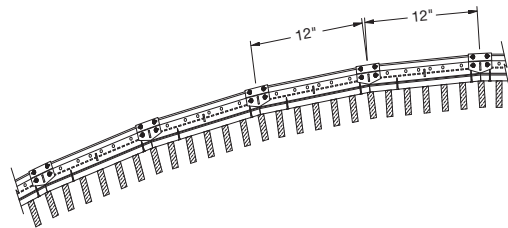
Shown on WoodWorks Dowel

3.9 Acoustical Blankets

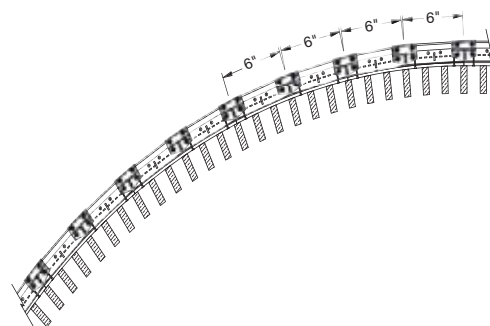
3.9.1 Acoustical blankets will add acoustical performance to the WoodWorks Grille panels. See CS-4172 Acoustical Infill Panels data sheet for specific data. The acoustical blanket is placed on top of the panel and must be installed progressively with the panel installation.

4.0 WOODWORKS® FACETED/CURVED INSTALLATIONS

WoodWorks Grille panels can be installed to create a curved or vaulted ceiling by faceting the suspension system. To achieve the best visual of a curved or radius ceiling, use the following recommendation: WoodWorks Grille ceiling with a radius of 12-1/2' or greater, use standard panels and 15/16" T-Bar main beams faceted 12" on center.



WoodWorks Grille ceiling with a radius between 5' and 12-1/2', use a custom flex backer panel and 15/16" T-Bar main beams faceted 6" on center.



WoodWorks Grille panels are not recommended for radius less than 5'. When a WoodWorks Grille transition is less than 5', it will be a segmented arc. Note the reveal between panels (blade side) will vary according to the tightness of the curve.

Follow these guidelines for faceted applications.

4.1 Faceting the Suspension System

4.1.1 To facet the main beam, field-cuts must first be made to the suspension system.

For 12" facets, cut the bulb and web of the main beam at every other cross tee route.

For 6" facets, cut the bulb and web of the main beam centered exactly between each cross tee route.

4.1.2 Make a template for your desired curve.

It is recommended to use an appropriate background material, like plywood. Lay out the curve and then screw a flexible drywall track or blocking to the backer to match the curve.

4.1.3 Bend the suspension system at the field-cuts and clamp it to the template.

4.1.4 Position an RC2 radius clip (typically used in drywall suspension system installations) over each cut in the suspension system to stabilize the curve. Screw the RC2 clip over each cut with four #6 x 7/16" sharp point screws per clip — one screw at each corner.

For tips on creating a faceted curved suspension system, see the Drywall Grid Technical Guide, CS-3540. A copy is available on the web at armstrong.com/drywall.

4.2 Install the Faceted Suspension System

Curved WoodWorks® Grille installations require a different suspension system layout than described in Section 3.2 because the panels can only be fastened to faceted main beams. Main beams must run perpendicular to the panel length.

4.2.1 Refer to the reflected ceiling plan and elevation view to determine the suspension system layout and height.

4.2.2 Install wall molding along the perimeter at the established suspension system elevation. **NOTE:** Molding along the curved side must be cut, faceted, and fastened to the wall to match the faceted main beams.

4.2.3 Refer to the reflected ceiling plan to determine the panel orientation and size. Main beams must be installed directly above each backer that gets attached to the suspension system.

4.2.4 Faceted main beam spacing — a main beam is required at each outer backer and then no more than 24" on center. Typical main beam spacing will be four main beams at 24" on center and then one main beam at 12" on center. This will require five main beams per 8' grille panel to place main beams at the 1st, 3rd, 5th, 7th, and 8th backer.

Use 12 gauge hanger wire 48" on center along the arc to support the main beams.

Continue installing the remaining faceted main beams at this spacing or as needed for cut perimeter panels.

4.2.5 Faceted installations require 1' and 2' cross tees.

Install cross tees as needed to stabilize the suspension system but not more than 48" on center.

4.3 WoodWorks Grille Panels – Curved Installations

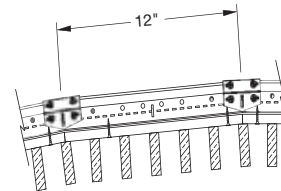
Only WoodWorks Grille panels with backers (not dowels) must be used for curved installations

4.3.1 WoodWorks Grille panels are installed as per Section 3.3 with the following modifications:

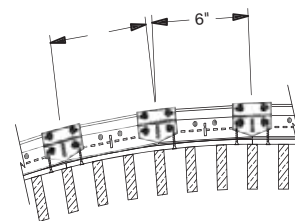
4.3.2 All panels must be direct screw attached to the faceted main beams.

4.3.3 Panel installation should start at the bottom and work up the curve with the male end down.

4.3.4 Standard 12" wide panels are aligned with the 12" faceted main beam and require two screws per backer into each main beam.



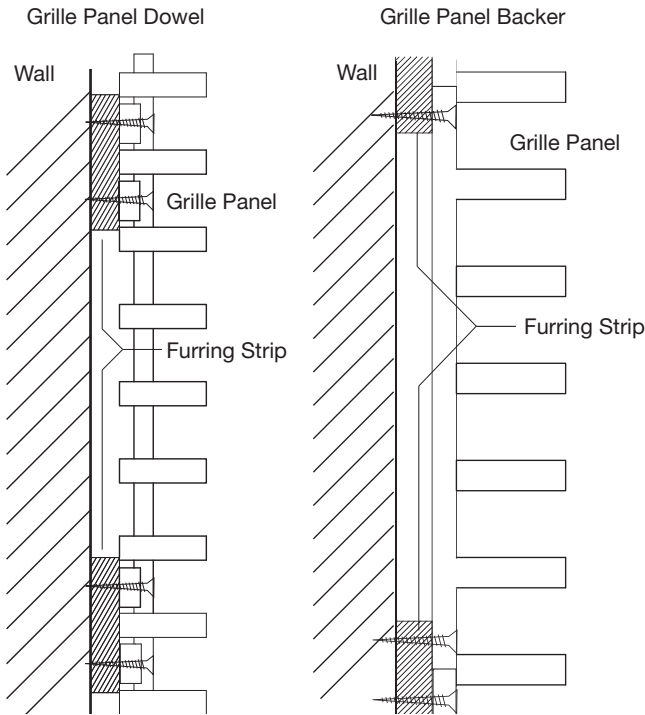
4.3.5 Custom flexible 12" wide planks are aligned with the 6" faceted main beam. These panels require three screws per backer into each main beam. First, insert the bottom screw, then insert a screw at the midpoint to draw the flex backer snug against the main beam, and then insert the top screw. This will gently bend the flex backer to the tighter radius for a smooth curve.



4.4 WoodWorks Grille Accessories – Curved Installations

Use of WoodWorks Grille accessories for curved installations is not recommended. When trim accessories are required, the installer must field miter, join, and attach the trim to exactly match the faceted panels.

4.5 Wall Installations



4.5.1 Panel orientation can be horizontal or vertical.

4.5.2 Panel type – when attaching the Dowel system to the wall, use a wooden spacer (by others) between the dowel and furring for rigid attachment.

4.5.3 Furring should be attached to wall structure and then the WoodWorks Grille should be attached to the furring. Pre-drill clearance hole in backer and dowel.

4.5.4 Furring spacing – for Dowel and Backer panels, furring spacing is 12" O.C. The seam of the two panels should meet at the center of the furring.

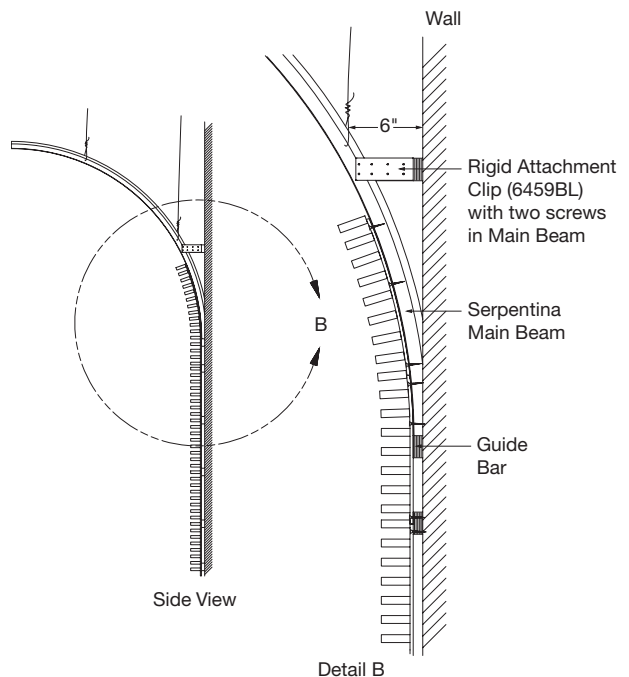
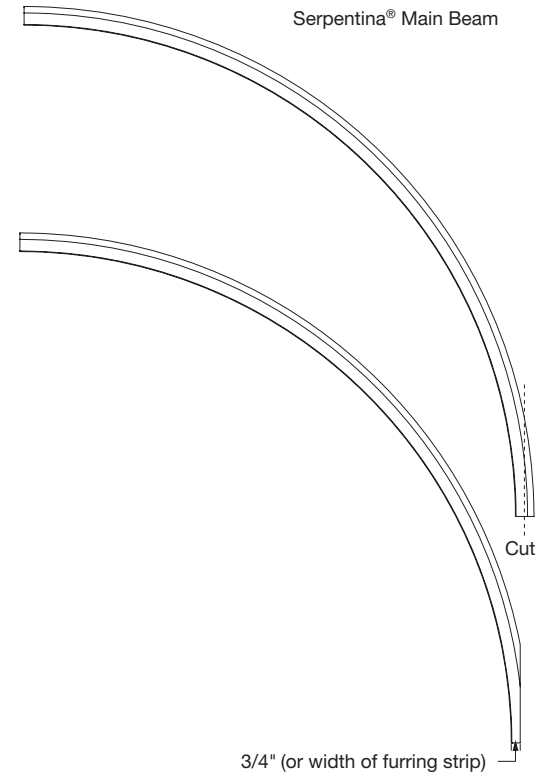
4.5.5 For panel attachment, use two fasteners per backer – both end backers and then 2' on center (10 screws per full WoodWorks Grille panel).

NOTE: When installed to the suspension system, the panels have a 1" gap.

4.5.6 WoodWorks Grille can be cut to fit receptacles or other wall fixtures. Use normal woodworking tools to achieve desired opening. Attach backer (by others) for extra support as needed.

4.5.7 Use the WoodWorks Grille end cap to trim cut blades or sand and stain exposed field-cut edges to match the panel finish.

4.6 Ceiling to Wall Transitions



4.6.1 Serpentina® main beams or faceted Prelude® main beams can be used.

4.6.2 Panel type – only WoodWorks® Grille with backers can be used for curved installations (flexible backers may be needed for certain radii, see Section 4.0).

4.6.3 Select the curved installation option, faceted (Sections 4.0 and 4.6) or Serpentina main beam (Section 4.6) for the transition instructions.

4.6.4 Determine the transition tangent points for the wall and ceiling.

4.6.5 Install the wall furring – attach a piece of furring as a transition guide at the transition point from the wall to the ceiling for the faceted main beam or Serpentina main beam to rest on.

4.6.6 Fit the curved transition support to match the furring 12" O.C.

4.6.7 Use 6459BL Rigid Attachment Clip to attach the bottom of the curved transition to the wall. Use hanger wires to support midpoint and top to structure. Curved transitions must be installed to align with the backer of the WoodWorks Grille panels.

4.6.8 Cross tees, 24" and 12", can be used to maintain spacing between curved transitions.

4.6.9 Install the WoodWorks Grille ceiling suspension system as detailed in Section 3.2.

4.6.10 Use a RC2BL splice plate to join the curved transition to the ceiling suspension system.

4.6.11 Install the WoodWorks Grille panels. Start at the bottom of the wall and work progressively up to the ceiling. Use the appropriate screw for the different supports. For wood furring strip, use a self-drill screw. For extruded aluminum main beam and suspension system, use a 2 x 3/4" fine thread drywall screw or black self-tapping screws (item #92715A620).

5.0 CUTTING

When you cut a panel to length, you can use normal woodworking tools, (e.g., circular saws, saber saws, coping saws, etc.).

Penetrations for sprinklers (or other fixtures) can be accomplished by simple interruption of the wood planks at those locations or by using normal woodworking tools to cut access in the planks.

▲CAUTION: WOOD DUST. Sawing, sanding, and machining wood products can produce dust. Airborne wood dust can cause respiratory, eye, and skin irritation. The International Agency for Research on Cancer (IARC) has classified wood dust as a nasal carcinogen in humans.

Precautionary measures: If power tools are used, they should be equipped with a dust collector. If high dust levels are encountered, use an appropriate NIOSH-designed dust mask. Avoid dust contact with eyes and skin.

First Aid measure in case of irritation: In case of irritation, flush eyes or skin with water for at least 15 minutes.

6.0 SEISMIC INSTALLATION

WoodWorks Grille systems have been engineered and tested for application in all seismic areas based on these installation procedures. The following installation guidelines are required in areas where anticipated seismic activity will be moderate to severe (IBC Seismic Design Categories C, D, E, and F). Consult the local building department to ensure compliance with their unique requirements.

6.1 Suspension System Installation

The suspension system shall be standard 15/16" exposed tee grid. The installation shall, in all cases, conform to ASTM C636 requirements and the International Building Code. When using WoodWorks Grille panels weighing in excess of 2.5 lbs/sf, the ceilings must be installed per Seismic Design Categories D, E, and F. The requirements listed here represent the manufacturer's minimum acceptable installation recommendation, and may be subject to additional requirements established by the local authority having jurisdiction.

6.2 WoodWorks Grille Panel Installation

WoodWorks Grille panels must be mechanically secured to the suspension system for installations in IBC Seismic Design Categories C, D, E, and F.

6.2.1 Option 1 – Direct Screw Attachment

This option is for WoodWorks Grille panels with backers only. Position the WoodWorks Grille panels on the suspension system and direct screw attach to the suspension system using #6 x 1-1/4" fine thread drywall screws. See detail in Section 3.3.5. For best results, drill clearance holes in the backer to prevent splitting. Use two screws in each backer that aligns with the suspension system, typically 10 fasteners per 8' panel. Panels are accessible with this option.

6.2.2 Option 2 – Clip Attachment

This option is for WoodWorks Grille panels with backers or dowels. Attach the panel to the suspension system as described in Section 3.3. with the appropriate clip. Next, use an 18 gauge wire tie to securely tie the clip to the suspension system. This is a progressive installation and the wire ties should be done in sequence for ease of installation.

- Bend an 8" to 10" piece of wire tie into a V
- Slip the wire over the suspension system and insert the wire ends into the holes of the clip
- Next, pull the wire ends up over the bulb of the suspension system and twist to secure the clip to the suspension system
- Wire ties are required on a minimum of eight clips per 8' panel



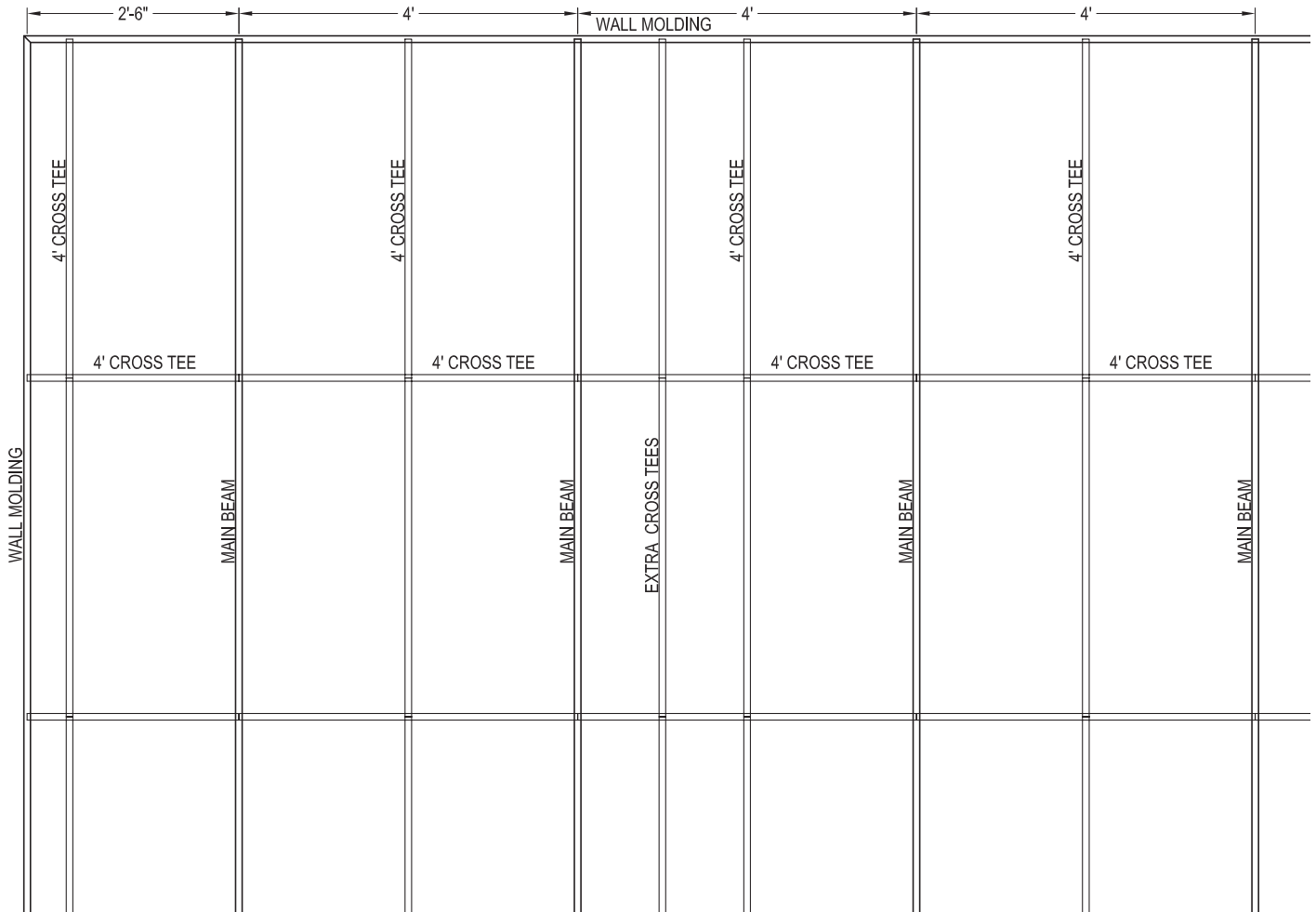
WoodWorks Grille panels installed with this option are not easily accessible. Use screw attachment option for last panel or accessible panels.

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

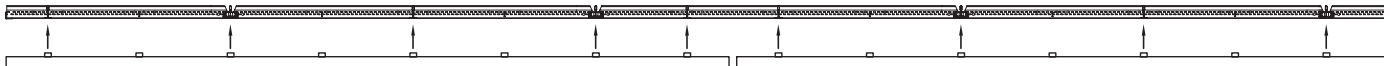
7.0 CLEANING RECOMMENDATIONS

WoodWorks® Grille panels can be cleaned with a soft, dry cloth.

CEILING LAYOUT



SECTION DETAIL



MORE INFORMATION

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

For complete technical information, installation information, and many other technical services, call Architectural Specialties at 1 877 ARMSTRONG, and select options 1-1-4.

For the latest product selection and specification data, visit armstrong.com/woodworks.