

WOODWORKS® Linear – Solid Panels

Exterior Installation Instructions

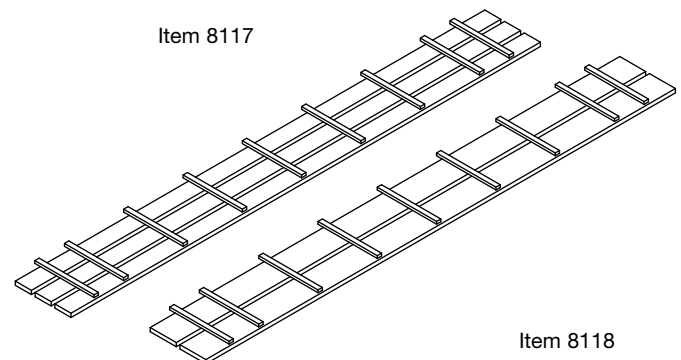
WOODWORKS LINEAR PANELS – SOLID WOOD ITEMS				
Item #	Item Name	Included with planks	Sold by the:	Pcs/Ctn
8117W1H_ _2	Exterior/Interior 1' x 8' Panel with nominal 3" planks	–	Piece	bulk shipped
8118W1H_ _2	Exterior/Interior 1' x 8' Panel with nominal 5" planks	–	Piece	bulk shipped
WOODWORKS LINEAR PANELS – SOLID WOOD SUSPENSION AND ACCESSORIES				
Item #	Item Name	Included with planks	Sold by the:	Pcs/Ctn
7301G90ABL	Main	no	carton	20
XL7341G90ABL	4' Prelude® Cross Tee for Exterior – Black	no	carton	60
XL7321G90ABL	2' Prelude Cross Tee for Exterior – Black	no	carton	60
HD7801G90BL	10' wall molding	no	carton	30
7891	12-guage hanger wire	no	bundle	
ARBRKT or 6495BL	Rigid Attachment Clip	no	carton	
	Exterior Grade Screws (e.g.: #6x1" Zinc Aluminum Coated with Bugle Head (head must be larger than 5/16"))	no	sold by others	

1. GENERAL

1.1 Product Description

Woodworks® Linear Solid Wood Exterior/Interior panels are intended for use either indoors, or in exterior applications under an overhang or a soffit to protect the panels from direct contact with the elements. Panel dimensions are 12 x 95 x 3/4" (with a 1/2" backer, total panel thickness is 1-1/4") and install on a 96" module. Panels are also available in two plank widths and four wood finishes: Maple, Light Cherry, Dark Cherry, and Walnut, as well as White finish. Additionally, Exterior/Interior Hemlock panels are available in a clear coat finish. NOTE: finishes are similar to interior finishes, but not meant to match. Exterior installations use the Exterior Prelude® 15/16" suspensions system along with exterior-grade screw fasteners. Custom finishes and plank widths are offered through the Architectural Specialties department.

Armstrong World Industries does not have a felt or fleece backer available for Exterior applications, as black painted overhangs are most common in exterior installations with wood products.



1.2 Material and Surface Finish

Exterior/Interior panels (Items 8117 and 8118):

Planks and backers are constructed from solid Western Hemlock. All exterior panels are 360-coated with Exterior grade coating, then finished with a clear or tinted semigloss. Our White (HWH2) finish is an opaque white with lacquer finish. Regardless of plank finish, the backers have a black factory finish.

1.3 Storage and Handling Prior to Installation

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.

Exterior/Interior panels are designed for use in both interior and exterior applications. Materials and construction of the product, as well as installation methods, have been tested to withstand outdoor conditions, however natural expansion and contraction of the product can be expected.

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

1.4 Site Conditions for Installation

Exterior Installations with Items 8117 or 8118:

Prior to installation, allow panels to rest in the install location off the floor or the ground in a flat, level condition for 72 hours to stabilize.

Panels are to be stored and installed under overhangs or soffits to protect panels from direct contact with the elements. As with other solid wood exterior products, maintenance may be required to sustain desired aesthetic.

Real wood 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 may 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.

1.5 Warranty

The WoodWorks Linear Solid Wood Panels for Exterior Applications have been tested based on the installation method described in this document. The warranty will be voided if you do not follow these instructions.

1.6 Color

WoodWorks Linear Solid Wood Panels for Exterior/Interior applications (items 8117 and 8118) are made of Western Hemlock wood and are available in five standard finishes, as well as clear coat to show the beautiful natural graining.

Custom finishes are available for the Western Hemlock wood through the Architectural Specialties department. Natural variations in color and grain are characteristic of wood products. Knots of up to 1/2" in diameter can be expected in this product. To maximize visual consistency, panels should be unpacked and examined collectively to determine the most desirable arrangement for installation.

While the Interior-only (items 6193 and 6194) and Exterior/Interior panels (items 8117 and 8118) have coordinating finishes, they are not intended to match.

1.7 Ordering Considerations

Be sure to account for extra material that is normally needed for wood installations. When installing WoodWorks® Linear Solid Wood 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.

1.8 Fire Performance

As with other architectural features located at the ceiling, WoodWorks Linear Solid Wood panels 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.

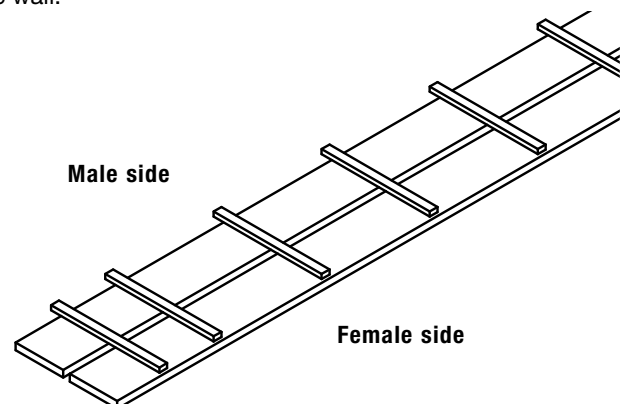
1.9 Cleaning Recommendations

WoodWorks® Linear Solid Wood panels can be cleaned with a soft, dry cloth.

2. DESIGN AND INSTALLATION CONSIDERATIONS

2.1 Directionality

WoodWorks Linear Solid Wood Panels have a female and male side. Installation should be started with the Male side closest to the wall.



Grain direction runs parallel with the length of the panels. The length of the panels must be installed perpendicular to the main beams (see ceiling layout and section details on the last page of this document).

2.2 Sprinklers

Linear wood, 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. Designers and installers are advised to consult a fire protection engineer, NFPA 13, and local codes for guidance where automatic fire detection and suppression systems are present.

2.3 Plenum

Panels are screw attached to the face of the suspension system and do not need to travel above the suspension system during installation.

2.4 Approximate System Weight (lbs/SF) and Attachment to Deck

Exterior/Interior panels weigh approximately 1.25 lbs/SF. Note: weight of solid wood can increase to approximately 2 lbs/SF as panel moisture content increases in extremely humid conditions. Fasteners for grid connection to deck should be specified by contractor to hold system weight plus safety factor required by local code.

The weight of the suspension system ranges between 0.2 – 0.3 lbs/SF based on grid layout and components used.

2.5 Accessibility

Interior or Exterior Panels installed with screws to the suspension system are accessible but are not intended for repeated access. Panels can be un-screwed and re-attached to allow access. For areas that require planned repeated accessibility an access panel can be field fabricated. Contact TechLine for details.

3. ACCESSORIES

3.1 Exterior Grade Fasteners (provided by contractor)

Panels require attachment to grid with #6 x 1" to 1-1/4" Exterior Grade Screws, such as Zinc-Aluminum coated sheet metal screws (Stainless Steel screws not allowed). Screw head diameter must be greater than 0.3125" or 5/16." Screw tip must be sharp point, not self-drilling.

3.2 Trim Accessories (Custom Only)

Trim and Ledgers for Exterior installations can be ordered as a custom item through Armstrong AS Order.

4. SUSPENSION SYSTEM

The requirements listed here represent the manufacturer's minimum acceptable installation recommendations, and may be subject to additional requirements established by the local authority having jurisdiction.

- All installations should follow ASTM C636.
- All references to suspension component duty ratings are per ASTM C635 and E3090.

4.1 System Components

For exterior installations WoodWorks® Linear Solid Panels must be installed on 15/16" Prelude® XL® for Exterior Applications.

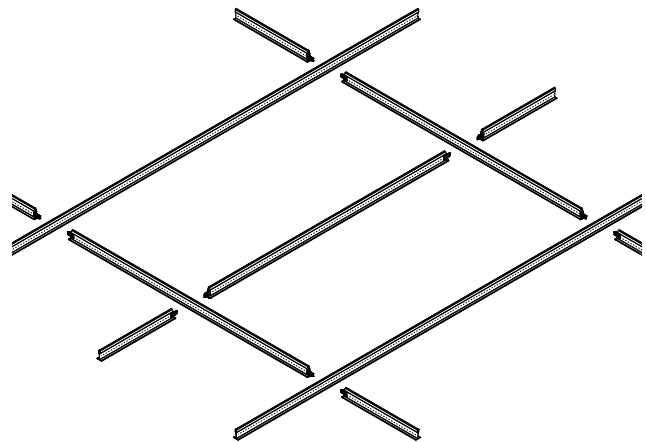
- Main beams must be 7301G90AXX
- Cross tees must be item XL7341G90AXX
- Wall molding must be HD7801G90XX

4.2 Suspension Rules (Wall to Wall)

- Main beams must be installed within 36" of the perimeter and then at 48" OC (On Center)
- Hanger wires must be installed within 24" of the perimeter and then no more than 48" OC
- The Rigid Attachment Clip (6459BL, available in black) can be substituted for hanger wires in uptight to deck installations and must follow the same rules for spacing

4.3 Layout

Due to the weight of the panels (1.25lbs/SF), WoodWorks Linear Solid Wood Panels can be installed on a 2' x 4' "H" or "cross-hatched" layout. Main beams are installed at 48" OC, with 4' cross tees installed perpendicular to the main beams every 48" OC. 4' cross tees are then installed parallel to the mains at the midpoints of the perpendicular 4' cross tees.



- Main beams must run perpendicular to the panel length.
- The suspension system must be leveled to within 1/4" over 120" and must be square to within 1/8" in a 48" x 48" module. Installation on suspension systems that do not meet this tolerance will produce unacceptable panel alignment.

See the last page of this document for a grid and panel layout example.

4.4 Installation Steps

1. Refer to the reflected ceiling plan for the finished height of the ceiling. Add the overall height of the WoodWorks Linear panel to determine the elevation of the suspension system. The face of the linear panels drops 1-1/4" below the face of the grid.
2. Install wall molding along the perimeter at the established suspension system elevation.
3. Refer to the reflected ceiling plan to determine the panel orientation and border panel sizes. Main beams are installed perpendicular to the panel length.
4. Install grid components per the layout in section 4.3. This layout is required to keep the WoodWorks Linear Solid Wood Panels perpendicular to the main beams and backers aligned along the suspension system for screw attachment.

4.5 Additional cross tees can be installed in the system as needed to frame out mechanical fixtures such as lights and speakers. 2' Prelude Exterior cross tees (XL7321G90AXX) are available as an optional item.

5. FLOATING PERIMETER / TRIM FOR DISCONTINUOUS INSTALLS

WoodWorks Linear Solid Wood Panels drop 1-1/4" below the face of the grid. Trim options in Exterior Hemlock solid wood (item BP8111) are available through ASQuote.

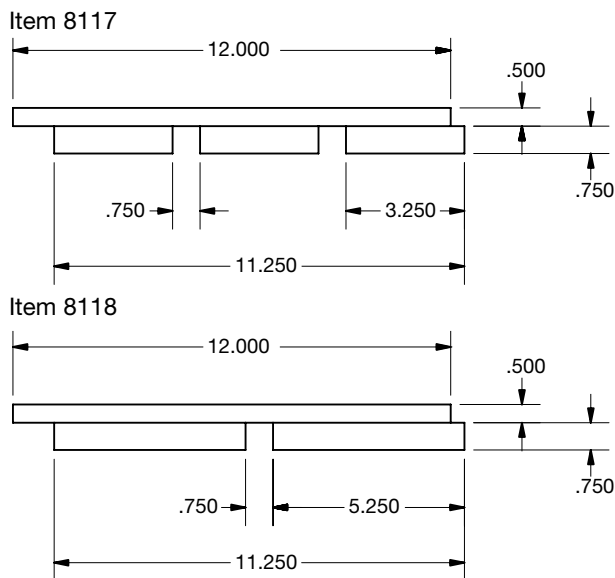
6. TRANSITIONS

Any transitions between WoodWorks® Linear Solid Wood Panels and other products / ceiling will have to account for the 1-1/4" panel drop below the face of the grid.

7. PANEL INSTALLATION

7.1 Edge Detail/Interface

Two standard plank widths: 3-1/4" and 5-1/4" (slat thickness is 3/4", backer thickness is 1/2")



7.2 Attachment Methods

WoodWorks Linear Solid Wood Panels for Exterior applications are attached to the grid with exterior-grade screws through factory pre-drilled holes. Panels require attachment to grid with screws meeting the requirements in section 3.1. Four of the backers will align with the grid system. See Ceiling Layout at the end of this document.

Screw through the factory pre-drilled holes for eight total attachment locations per full size panel. Caution is necessary when screwing panels to the suspension system; over insertion of fasteners could cause backers to splinter.

7.3 Panel Attachment

WoodWorks Linear Solid Wood Panels are installed in sequence across the room. The first row of panels will have the male side towards the wall. Backer may need to be trimmed for proper panel alignment

1. Begin at one wall, raise the panel up against the suspension system, and align the backers with the suspension system.
2. The WoodWorks Linear Solid Wood panel is attached to the suspension system by screwing through the backer directly into the suspension system using the screws specified in section 3.1.

Factory-provided Pilot holes are drilled in the backers for installation of the panel. However, 1/8" diameter holes can be drilled in the field if pre-drilled holes are obstructed. Caution is necessary when screwing panels to the suspension system; over insertion of fasteners could cause backers to splinter.

3. Continue installing WoodWorks Linear Solid Wood panels — male to female — across the room.

7.4 End to End Panel Reveal

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

7.5 WoodWorks Linear Solid Wood Panel Borders

Refer to the ceiling plan for border panel size and spacing. Panels require support within 12" of the panel end. When panels are cut to length, additional cross tees may need to be installed for backer attachment. If a backer without factory pre-drilled holes needs to be screw attached, pre-drill with a 1/8" drill bit prior to screw attachment.

7.6 Cutting Panels

When you cut a panel to length, you can use normal woodworking tools (e.g., circular saws, saber saws, coping saws, etc.). Cut through the face of the panels to the back to avoid visible rough edges.

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.

7.7 Treating Exposed Panel and Backer Edges

All WoodWorks Linear Solid Wood Panels and Backers are fully finished from the factory to protect from the elements.

All exposed panel and backer edges from cuts or penetrations must be finished following the steps below:

1. Use the Fil-Stik® to fill any tearout on top or bottom face.
2. Drag the Fil-Stik sideways along the cut end to enhance the overall color, but stopping short of full coverage; the trick is to highlight the end grain just a bit.
3. Wipe the top and/or bottom faces carefully with a cloth to remove any Fil-Stik residue in excess of what is needed to fill the gouges.
4. Use the stain marker to cover all Fil-Stik sections on the top and/or bottom faces.
5. Use the stain marker to fully cover the exposed cut end; start at the bottom of one side and stain straight up making a stain line about 1/8" wide. Repeat right next to it and keep working until you get the entire way across the cut end.

6. Dip a paint brush into the stirred urethane (Minwax Based Helmsman Spar Urethane or equivalent), wipe the excess on the inside lid of the can and coat all newly stained surfaces.
7. Wait 15 seconds.
8. Wipe away any excess urethane from the top and bottom surfaces that extend more than 1/8" beyond the Fil-Stik® repairs.
9. Wipe away and drips that have accumulated along the bottom edge of the cut edge.
10. Set to dry for 4 hours.

8. SPECIAL CONSIDERATIONS

8.1 Sloped Installations

Refer to the Sloped Ceilings Technical Guide for general installation instructions for the suspension system build (seismic and non-seismic).

All sloped installations require a standard 2' x 2' grid layout, with 4' cross tees spaced 2' OC.

Main beams must be installed parallel with the slope, resulting in the planks running perpendicular to the slope.

Panels are attached to the grid the same way as in a flat ceiling installation.

8.2 MEP Integration

Mechanical fixtures such as lights, speakers, and sprinklers should be installed into the acoustical suspension system before installing the WoodWorks® Linear Solid Wood panels. Fixtures can be installed at the suspension system height or flush with the bottom of the panel.

- Fixture weight or housing must not be supported by the panels.
- Install additional 4' or 2' cross tees to frame out fixtures as needed. Reference component page for acceptable cross tees.
- Supplemental or independent support for the fixtures may be required to prevent the total load from exceeding the deflection capability of the grid.
- Refer to the ceiling plans for specific details.

WoodWorks Linear Solid Wood panels can be cut to fit around fixture openings. Use the WoodWorks Linear Solid Wood end cap to trim the cut blades or sand and stain exposed field cut edges to match the panel finish

8.3 Pools

WoodWorks Linear Solid Wood Panels cannot be installed in areas containing chemically treated water.

8.4 Exterior Installations

WoodWorks Linear Solid Wood Panels are approved for exterior installations, intended to be installed under soffits, overhangs, or covered areas where it is not in direct contact with the elements.

9. SEISMIC INSTALLATION

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

9.2 Suspension System

All seismic installations of WoodWorks Linear Solid Wood Panels must be installed per Seismic Design Categories D, E, F. This is regardless of the total system weight. Heavy-Duty Prelude® is required per ASTM E580.

The installation shall, in all cases, conform to the ASTM C636 requirements and the International Building Code. Installations may require independent engineering. 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.

9.3 Seismic Rx Cat D, E and 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.
- Suspended ceilings will be subject to special inspection.
- Suspension layouts are the same as described in section 4: Suspension System.
- Connection to wall – See BPCS-4141 Seismic Design: What You Need to Know – Code Requirements Seismic Rx® Tested Solutions – SEISMIC RX® APPROACHES TO CATEGORY C and D, E, AND F INSTALLATIONS.
- Special bracing required – See BPCS-4141 Seismic Design: What You Need to Know – Code Requirements Seismic Rx 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 Tested Solutions – Seismic Separation Joints.

9.4 WoodWorks Linear Solid Wood Panel Installation

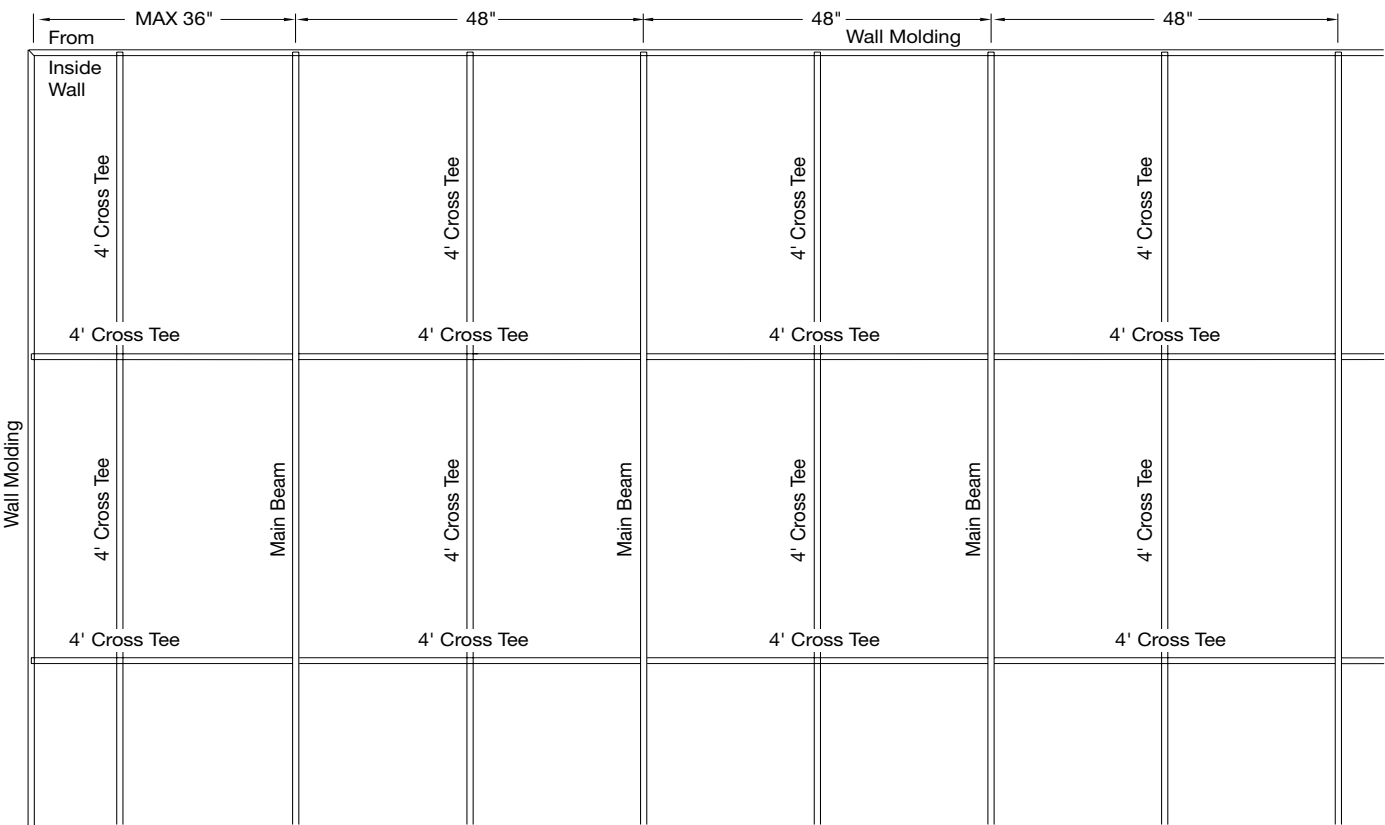
WoodWorks Linear Solid Wood panels must be mechanically secured to the suspension system for installations in IBC Seismic Design Categories C, D, E, and F.

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.

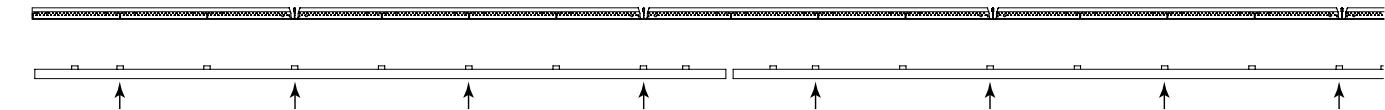
Direct Screw Attachment

Position the WoodWorks Linear Solid Wood panels on the suspension system and direct screw attach to the suspension system using exterior grade screws as specified in section 3. Use two screws in each backer that aligns with the suspension system.

CEILING LAYOUT



SECTION DETAIL



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.

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

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