

WoodWorks® Linear Veneered Closed

Assembly and Installation Instructions



1. GENERAL

1.1 Product Description

WoodWorks® Linear Veneered Closed is a ceiling plank system that is available in nominal 4" and 6" width, 8' long, and 3/4" thick. The two long sides interlock with a tongue-and-groove detail. The two short ends are cut square. Clips are designed to install and hold the panel to a Prelude® XL® 15/16" suspension system.

1.2 Material and Surface Finish

All planks are constructed of fire-retardant medium-density fiberboard. Finishes feature face-cut veneers and a semi-gloss coating.

1.3 Veneer Finish Options

WoodWorks Linear Veneered Closed planks are made with real wood veneers. Veneered products have natural variations in color and grain that are characteristic of wood products. To maximize visual consistency, planks should be unpacked and examined collectively to determine the most desirable arrangement for installation. Consult the Hardwood Plywood and Veneer Association (HPVA) for additional information on veneers.

1.4 Storage and Handling

All ceiling and wall components should be stored in a dry interior location and remain in the original packaging before installation to avoid damage. The materials must be stored off the floor in a flat, level condition. Do not store in unconditioned spaces with a 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.

1.5 Site Conditions

Building areas that will receive a ceiling must be free of construction dust and debris. Installation of the products must 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 may also tend 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 planks have stabilized to the current building conditions, the planks must be placed in an environmentally stable building location for a minimum of 72 hours prior to their installation.

1.6 Safety Considerations

This product is made of wood fibers. Sawing, sanding, or machining these products can produce wood dust. Airborne dust can cause respiratory, eye, and skin irritation. Respirable wood dust is classified as a carcinogen. Personal protective equipment includes safety glasses or goggles, and impervious gloves. Respiratory protection may be required and depends on how the product is being cut and handled. Job site environmental conditions must be evaluated in determining what type of respiratory protection is required. In all cases, cutting is to be performed in a well-ventilated area and power tools must be equipped with a dust collection system. Refer to the Safety Data Sheet www.armstrongceilings.com/woodworks for additional information.

1.7 Warranty

The WoodWorks® Linear Veneered Closed system has been tested based on the installation method described in this document. The warranty will be voided if instructions and guidelines are not followed.

1.8 Ordering Consideration

Be sure to account for extra material that is normally needed for wood installations. Consider ordering at least 5% extra material for typical installations. 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, considering the design and the dimensions of the nominal plank modules.

1.9 Fire Performance and Sprinklers

As with other architectural features located at the ceiling, WoodWorks Linear Veneered Closed planks 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.

1.10 Plenum

Installation of WoodWorks Linear Veneered Closed planks require no additional space in the plenum than that which is required to install the hanger wires for the suspension system. Three inches (3") is generally accepted as the minimum practical space that is needed to attach these wires.

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

1.11 Cleaning

WoodWorks Linear Veneered Closed planks can be cleaned with a soft, dry cloth.

2. DESIGN AND INSTALLATION CONSIDERATION

2.1 Installation with Runs Longer than 24"

Because WoodWorks Linear Veneered Closed planks are a natural building material that reacts to changes in humidity, and planks are butted together end-to-end, installations are required to account for 1/2" of movement for every 8' of run in the plank length direction. In addition, the following needs to be considered:

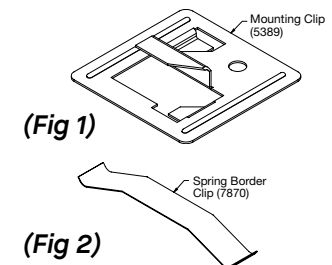
- Runs up to 24' can account for this movement at the perimeters. Available molding includes 1-1/2" Angle Molding (Item 7805) and 2" Shadow Molding (Item 7823) for seismic zones.
- Runs greater than 24' must account for movement by using expansion joints so there are no runs of plank longer than 24'. See Section 4.1.2 for additional details on expansion joints.

2.2 Wall-to-Wall Border Plank

Plan for and take into account the 1-1/2" size angle molding when determining your border plank size for cuts made to the long side of the plank.

3. ACCESSORIES

- 3.1 5389 Mounting Clip (*Fig 1*)
- 3.2 7870 Spring Border Clip (*Fig 2*)
- 3.3 #8 - 1/2" Low Profile Lath Truss Washer Head Screws (by others)
- 3.4 Wood Glue (by others)



4. NON-SEISMIC INSTALLATION

For wall-to-wall installations, the natural expansion and contraction of wood products must be considered when planning the installation. Because the planks are butted together end-to-end, installations are required to account for 1/2" of movement for every 8' of run in the plank length direction. This space can be at the moldings or by introducing expansion joints within the field of the ceiling (see Section 4.1.2). Refer to Section 9 for Seismic Installation.

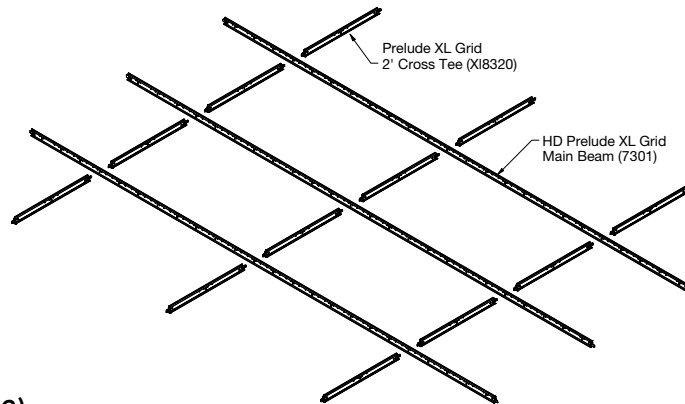
4.1 Suspension System Wall-to-Wall

Use heavy-duty 15/16" Prelude® XL® T-Bar suspension system, main beams, cross tees, and wall molding to support the WoodWorks Linear Veneered Closed planks. All installations should follow ASTM C636. All references to suspension component duty ratings are per ASTM C636. The suspension system is directional; WoodWorks Linear Veneered Closed planks are installed perpendicular to the main beams. Hangers and bracing are to comply with all local code requirements. The suspension system must be properly installed and leveled using no less than 12-gauge galvanized steel wire. 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.

4.1.1 Suspension Layout

Install 1-1/2" wall molding (Item 7805) on a level line around the room at the finished ceiling height. Item 7805 Molding will accommodate the 1/2" clearance requirement for the planks at the walls. If more clearance is required due to the size of the run, increase the size of the molding accordingly.

The first main beam should be no more than 12" off the wall and then 24" O.C. across the installation (**Fig 3**).

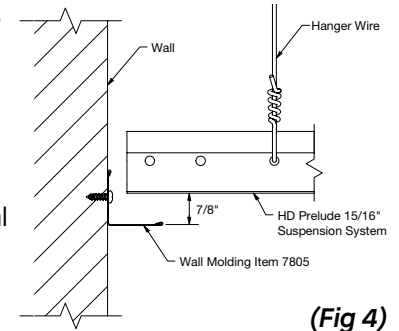


(Fig 3)

- Item 7301 12' main beams are installed 24" O.C. with hanger wires supporting at no more than 48" O.C. along the mains
- Item XL8320 2' cross tees must intersect the main beam at 90° every 48", creating a 24" x 48" module

Bend the hanger wires so the bottoms of the mains are 7/8" above the face of the molding (**Fig 4**). In addition to the above requirements, also follow ASTM C636 requirements.

Additional cross tees can be installed in the system as needed for mechanical fixtures such as lights and speakers. Additional wires may also be required for support.



(Fig 4)

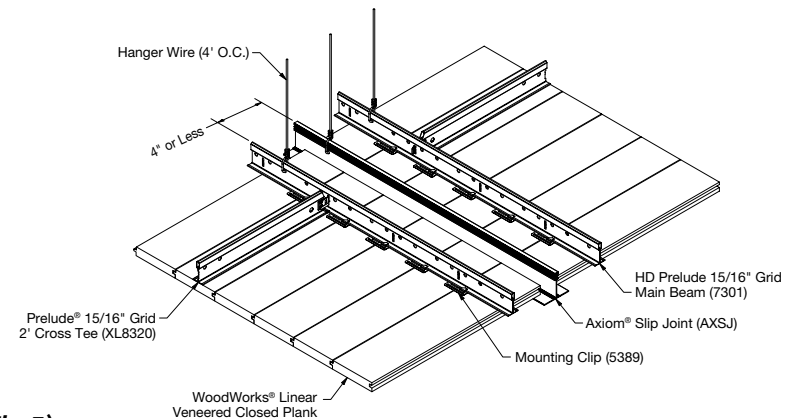
4.1.2 Expansion Joint

As referenced in Section 2, the natural expansion and contraction of wood must be considered when planning the installation. Because the planks are butted together end-to-end, installations are required to account for 1/2" of movement for every 8' of run in the plank length direction.

- Runs up to 24' can account for this movement at the perimeters (as addressed in Section 4.1.1).
- Runs greater than 24' must account for movement by using expansion joints so there are no runs of plank longer than 24'.

4.1.2.1 Expansion Joint Guidance:

- Main beam must be installed within 4" of each side of the expansion joint
- If cut plank ends are exposed at the expansion joint, they should be edge banded
- Cut plank ends can alternatively be concealed by an independently supported component, such as the Axiom® Slip Joint (Item AXSJ). Bracing is required when using Axiom Slip Joint; the joint must be a fixed location (**Fig 5**).

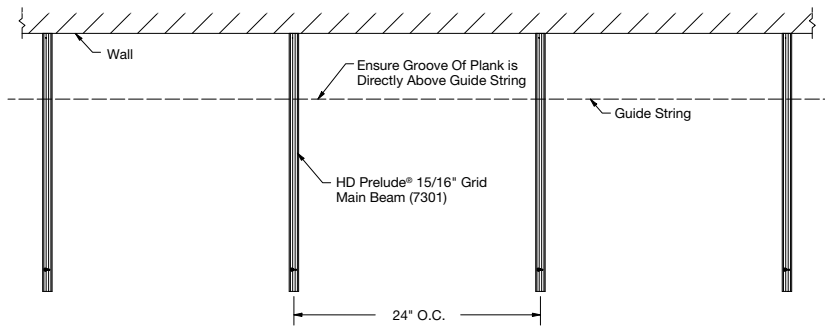


(Fig 5)

5. PLANK INSTALLATION

Measure the width of the room in the direction perpendicular to the length of the planks. Divide this dimension by the width of the plank and determine the remainder in inches. Add the width of a single plank to the remainder and divide by two. This is the width of your border planks.

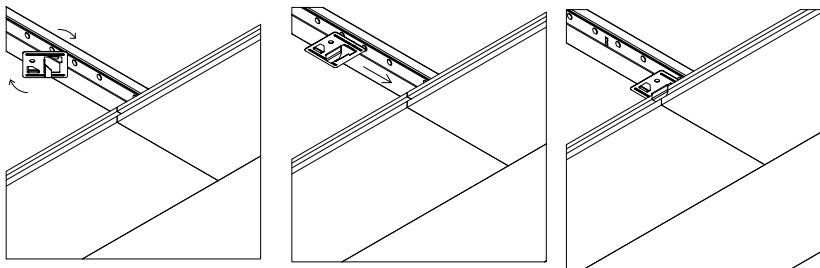
Measure off of the starting wall the dimension determined above and stretch a guide string from one side of the room to the other. Measure from the end wall to the string several times and mark the first plank so you can cut it to width. Lay the plank on the molding against the end wall and leave 1/2" clearance at the end of the plank against the adjacent side wall. The groove edge of the plank should be directly above the guide string (**Fig 6**).



(Fig 6)

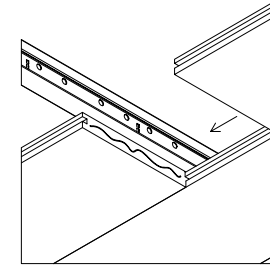
After the width is adjusted, make another cut to the length of the plank so the end of the plank ends under a main beam. Once the first panel ends under a main beam, the rest of the panels in that row will also.

Twist an installation clip onto the flange of the main beam and slide the clip into the grooved edge of the plank (**Figs 7 - 9**). Use #8-1/2" low profile lath truss washer head (by others) to screw-attach the first two rows of clips to the grid to keep proper alignment of the wood.



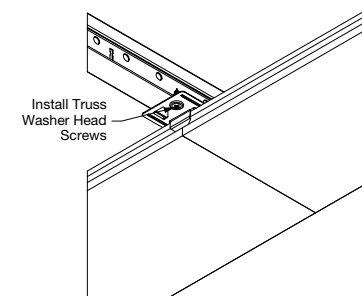
(Figs 7 - 9)

Butt the end of the second panel against the end of the first with a small amount of wood glue at the butt joint (**Fig 10**). **NOTE:** For seismic installation additional steps are required for clip-to-grid connection, refer to Section 9.



(Fig 10)

Use factory ends when butting ends together and screw the clip to the main at each butt joint location (**Fig 11**).



(Fig 11)

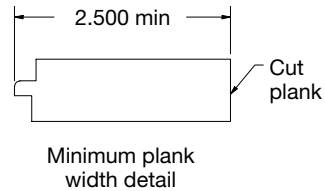
Finish the first row by cutting the last panel 1/2" short of the other side wall and add spring border clips at both ends of each row.

After installing the first row of planks, start the second row with full-width planks. It is recommended to have the butt joint stagger across the room and butting plank ends should always fall under a main beam. Clips can be screwed to the main where it is deemed necessary.

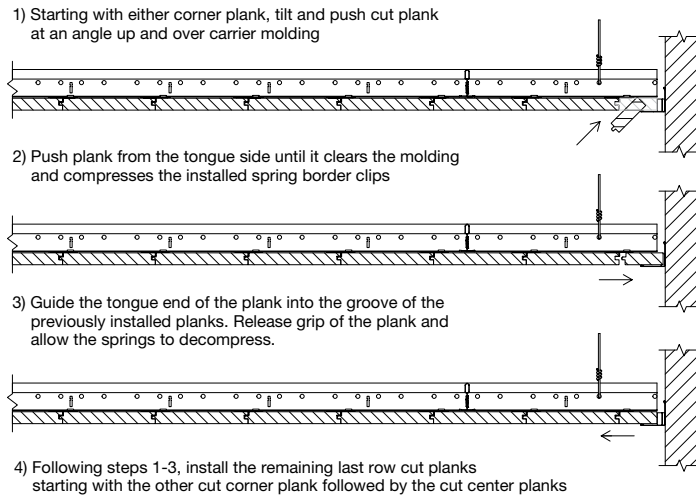
Continue in this manner to the other end of the room.

5.1 Last Plank Installation

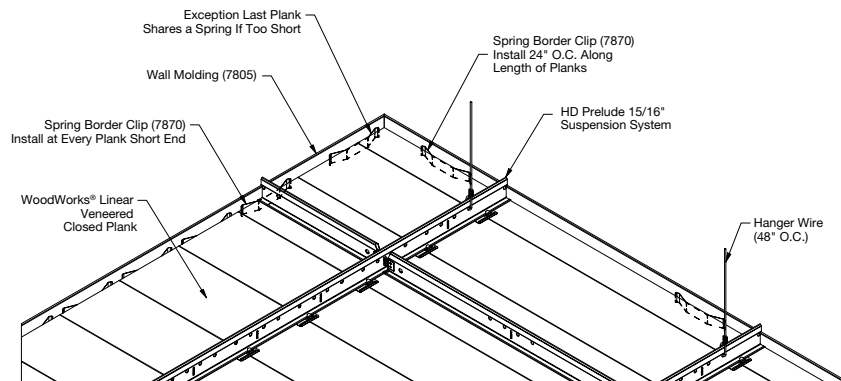
Cut the last row of panels 1" short of the end wall. Insert spring border clips. Spring border clips will hold the last row against the second to last row of planks, and springs will install 24" O.C. It is recommended to always start with corner planks and follow these steps (**Figs 12 - 14**).



(Fig 12)



(Fig 13)



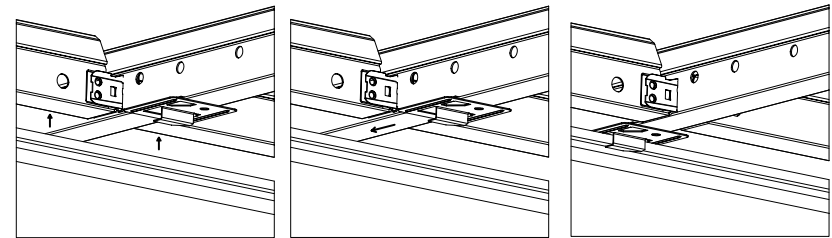
(Fig 14)

1. Plank will need to go up at an angle to clear the molding.
2. Push the plank from the tongue side to compress the installed spring border clips.
3. Once the plank is in place, release the grip on the plank to allow the springs to decompress. Plank should bounce back, and the tongue of the plank will engage the groove of the previously installed plank.
4. Follow steps 1 – 3 to the remaining planks and ensure wood glue is added to butting plank ends.

5.2 Main Beam & Cross Tee Intersection Interference with Clip

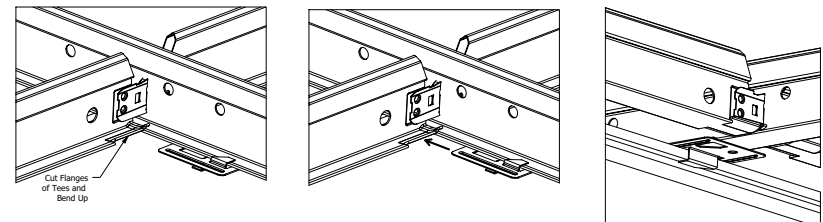
Main beam and cross tee intersections may interfere with clip connection to the grid and plank. When this occurs, the following steps should be taken.

1. The cross tee has an override that rests on the main beam. Clips should be able to slide under the cross tee allowing the clip to maintain the main beam engagement and clip into the grooved edge of the plank (**Figs 15 - 17**).



(Fig 15 - 17)

2. If Option 1 does not work or if there are difficulties sliding the clip under the cross tee override, the use of pliers can help. Using pliers, bend the section of the cross tee that rests on the main upwards. This will make room for the clip tabs that engage the main to slide across the main beam with much ease. Any bend on the cross tees will be hidden by the planks once installed (**Figs 18 - 20**).



(Fig 18 - 20)

6. CUTTING

When you cut a plank to length, you can use normal woodworking tools (e.g., circular saws, saber saws, hole 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.

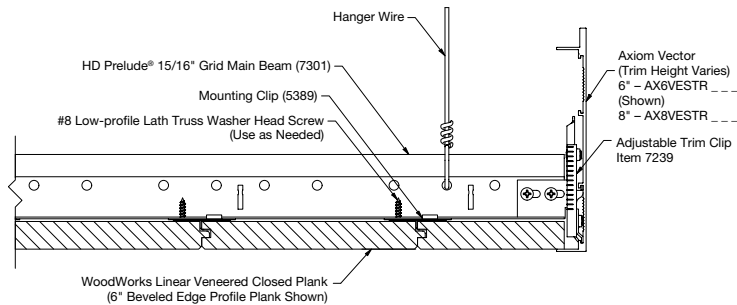
Precautionary measures: If power tools are used, they should be equipped with a dust collector. If high dust levels are encountered, use an appropriate NIOSH-designed dust mask. Avoid dust contact with eyes and skin.

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

7. FLOATING/DISCONTINUOUS INSTALLATIONS

7.1 Axiom® Vector Trim

Axiom® Vector trim inverted can be used for cloud installations with WoodWorks® Linear Veneered Closed system. The use of the Adjustable Trim Clip (Item 7239) will fasten trim to the suspension system and allow for trim height adjustments, as needed. It is recommended to use a minimum of 6" height trim and for best visual a black finish on the trim (Fig 21).



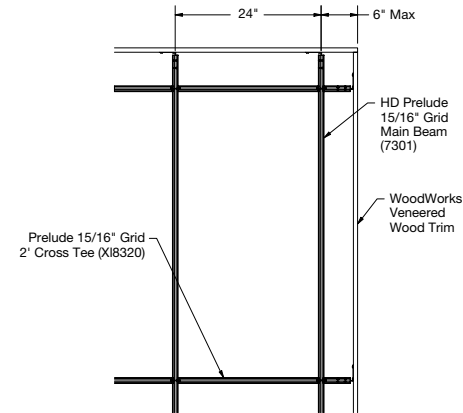
(Fig 21)

7.2 Wood Veneer Trim

Wood veneer trims can also be used with WoodWorks Linear Veneered Closed in a cloud installation. The trim can install with or without angle molding; refer to Section 7.2.1 (Trim without angle molding) and Section 7.2.2 (Trim with angle molding).

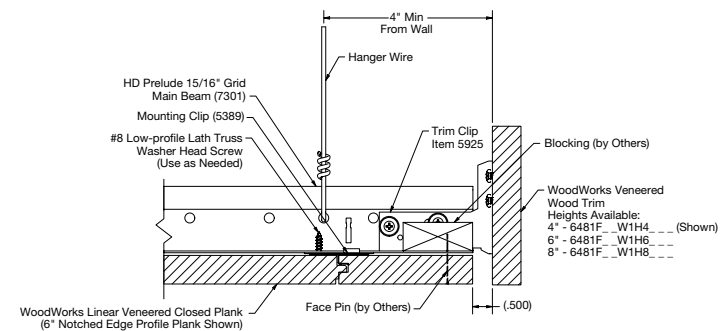
7.2.1 Wood Veneer Trim without Angle Molding

WoodWorks Linear Veneered Closed planks installed without angle molding in a cloud installation will require mains to be spaced no more than 6" from perimeter and then 2' O.C. across the room (Fig 22). All perimeter tees will require hanger wires at the mid point of the tee.



(Fig 22)

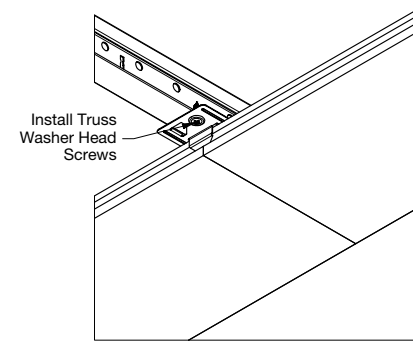
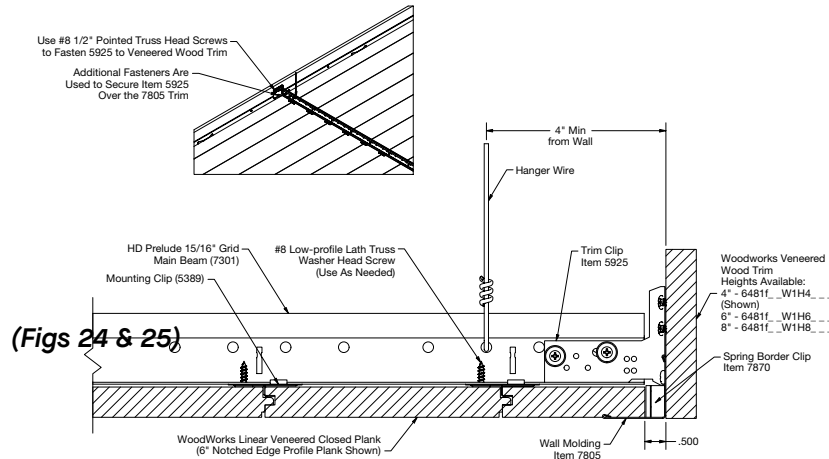
The suspension system is fastened to the wood trim using the 5925 clips and #8-1/2" pointed truss head screws (by others). When starting your first row of planks, the planks are fastened using a pin head nail to the face of the planks and into a wood block that rests on the suspension system. The planks will continue to be installed with mounting clips (Item 5389) across the the installation up until the last row of planks. The last row of planks will be installed like the first row: fastened using a pin head nail to the face of the planks and into a wood block resting on the suspension system (Fig 23).



(Fig 23)

7.2.2 Wood Veneer Trim Paired with Angle Molding

Fasten angle molding (Item 7805) to the suspension system at the desired height using #8-1/2" pointed truss head screws (by others). The suspension system layout is detailed in Section 4.1.1 and will be fastened to the wood trim using the 5925 clips and #8-1/2" pointed truss head screws, overlapping the 7805 angle molding. For runs of trim that are longer than the full length of a single piece of trim, it is recommended to install Item 5925 clips first and fasten to the suspension system, then install angle molding which will need to be notched at every clip location (**Figs 24 & 25**).



(Fig 26)

- The maximum ceiling slope must not exceed 30°
- Main beams install parallel (up/down the incline) of the slope. They MUST NOT be installed perpendicular to the slope as this may result in suspension system failure.
- Main beams must be spaced 2' O.C.
- 12-gauge hanger wire must comply with ASTM C636 requirements and should be suspended vertically and plumb. Wires are spaced 4' O.C.

Actual construction of a sloped suspended ceiling may require engineering documents by code officials/authorities having jurisdiction in your area. The structural engineer of record is responsible for verifying and approving the use of Armstrong Ceilings components in these unique installations. For additional information, refer to our sloped ceilings technical guide, BPCS-5618.

8. NON-SEISMIC SLOPE INSTALLATION

Safe installation of a sloped ceiling requires project-specific evaluation for compliance with building codes. Sloped ceilings are not addressed in current building codes, but the current building code states that suspended ceiling main beams must be leveled to within 1/4" on a 10' span. Alternate designs are acceptable when approved by the authority having jurisdiction. This responsibility, as well as the final design and installation parameters, is the responsibility of the project design team.

When considering WoodWorks Linear Veneered Closed planks for sloped ceilings, the minimum requirements that must be met are listed below. Planks in sloped installations will require clips to be screwed to the suspension system at all clip locations (**Fig 26**):

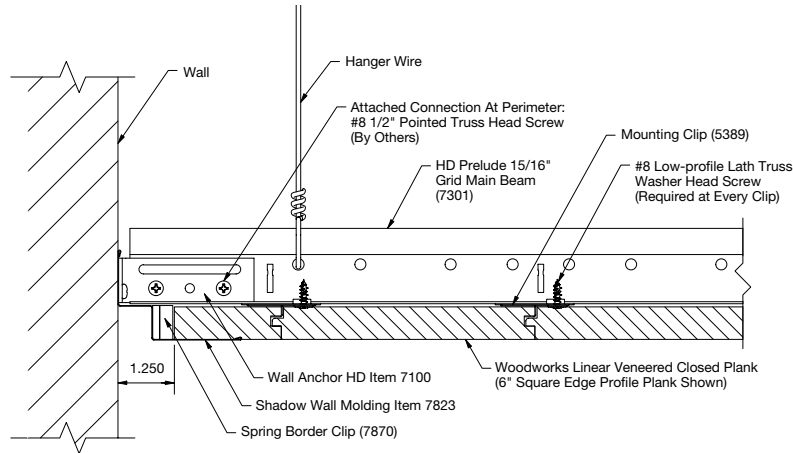
9. SEISMIC INSTALLATION

WoodWorks® Linear Veneered Closed system has been engineered for application in seismic areas. This system has been successfully tested in applications simulating seismic design categories C, D, E, and F. For applications in seismic zones, review the following guidelines.

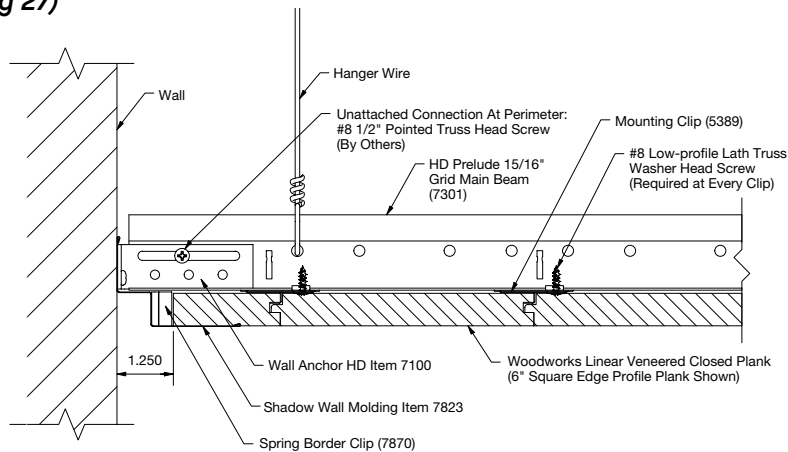
9.1 Suspension System

The installation should, in all cases, conform to the International Building Code Seismic Design Category C, D, E, and F. Refer to Armstrong Seismic Ceiling Installation Guide BPCS-4141 for more details. Refer to the reflected ceiling plan to determine the plank orientation, planks will run perpendicular to the main beams. In addition to the above requirements, also follow ASTM C636 requirements. 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.

Install 2" Shadow Wall Molding (Item 7823). On two adjacent walls, the grid must be connected to the wall with Heavy-duty Wall Anchors (Item 7100). Insert two screws into the wall and two into the web of the grid (**Figs 27 & 28**).



(Fig 27)



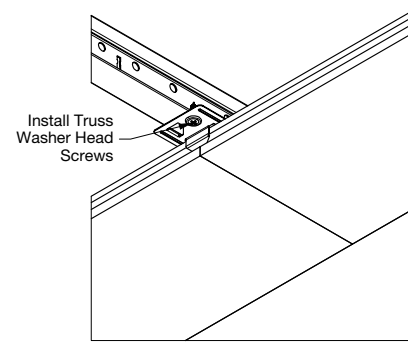
(Fig 28)

- Item 7301 12' main beams are installed 24" O.C. with hanger wires supporting at no more than 48" O.C. along the mains
- Item XL8320 2' cross tees must intersect the main beam at 90° every 48", creating a 24" x 48" module

Also, check local code for the need for lateral bracing and/or compression posts/splay wires, perimeter wires, and for additional installation requirements.

9.2 Plank Installation

In addition to installing planks as detailed in Section 5, a screw will be required at every clip connection to the grid for seismic D, E, and F installation. A #8 - 1/2" low profile lath truss washer head (by others) is recommended (**Fig 29**).



(Fig 29)

Seismic Rx® Suspension System

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 Item 7100 with 3/4" clearance
- Heavy-duty wall anchor maintains the main beam and cross tee spacing; no other components are 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
- Cable trays and electrical conduits must be independently supported and braced

- Suspended ceilings will be subject to special inspection
- Suspension layouts are the same as described in Section 6.1: Suspension System Installation
- Connection to wall – See *BPCS-4141 Seismic Design: What You Need to Know – Code Requirements Seismic Rx® Suspension System Tested Solutions – Seismic Rx Approaches to Category C, D, E, and F Installations*
- Special bracing required – See *BPCS-4141 Seismic Design: What You Need to Know – Code Requirements Seismic Rx Suspension System 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 System Tested Solutions – Seismic Separation Joints*

WOODWORKS® LINEAR VENEERED CLOSED			
Item No. ♦	Description – Sizes are Nominal not Exact	Ordered Separately/ Included with	Required for Install
6384F01E1W1_ _ _	4" x 96" Square Edge Plank	Ordered Separately	Based on Design
6384F01E2W1_ _ _	4" x 96" Beveled Edge Plank	Ordered Separately	Based on Design
6384F01E3W1_ _ _	4" x 96" Notched Edge Plank	Ordered Separately	Based on Design
6386F01E1W1_ _ _	6" x 96" Square Edge Plank	Ordered Separately	Based on Design
6386F01E2W1_ _ _	6" x 96" Beveled Edge Plank	Ordered Separately	Based on Design
6386F01E3W1_ _ _	6" x 96" Notched Edge Plank	Ordered Separately	Based on Design
Suspension System			
7301	Prelude® XL® 12' HD Main Beam	Ordered Separately	Yes
XL8320	Prelude XL 2' Cross Tee	Ordered Separately	Yes
7891	12-gauge Hanger Wire	Ordered Separately	Yes
Perimeter Trim			
7805	1-1/2" Angle Wall Molding	Ordered Separately	Based on Design
7823	2" Shadow Molding (Seismic)	Ordered Separately	Based on Design
6481F07W1H4_ _ _	4" Veneered Trim – For Veneer Panels/4 Clips included	Ordered Separately	Based on Design
6481F07W1H6_ _ _	6" Veneered Trim – For Veneer Panels/4 Clips included	Ordered Separately	Based on Design
6481F07W1H8_ _ _	8" Veneered Trim – For Veneer Panels/4 Clips included	Ordered Separately	Based on Design
AX_VESTR_ _ _	Axiom® Vector Straight Trim – Recommend in Black	Ordered Separately	Based on Design
Accessories			
5389	Mounting Clips	Ordered Separately	Yes
7870	Spring Border Clips	Ordered Separately	Yes
7239	Adjustable Trim Clip (ATC)	Ordered Separately	Based on Design
BERC2	2" Beam End Retaining Clip	Ordered Separately	Based on Design
7100	Heavy-duty Wall Anchor (Seismic)	Ordered Separately	Based on Design
5925	Replacement Clips	Ordered Separately	Based on Design

♦ When specifying or ordering, include the appropriate 3-letter veneer suffix (e.g., 6384F01E1W1 N M P)

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.

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