

Installing Weyerhaeuser Diamond™ Floor Panels

Achieving optimum performance with Weyerhaeuser Diamond™ floor panels depends heavily on correct installation. End-user complaints can be avoided by practicing quality work and installing Diamond™ floor panels according to the techniques recommended here.

Minimize the chance for accidents by installing panels with the correct side up.

Safety

Always make safety a priority on the job site. Follow all OSHA requirements for proper personal protection equipment (PPE), fall protection, forklift safety, and the use of equipment. Adhere to Weyerhaeuser installation details, including the installation of safety bracing on unsheathed floors.

Consider that Diamond™ floor panels may be slippery when wet. Make sure workers have clean, slip-resistant shoes and use all safety restraints required by OSHA. To help minimize the chance for accidents, install panels with the correct side up. Each Diamond™ floor panel is stamped “This side down” to facilitate safe installation.

Storage

Like any wood product, wood-based panels are at risk of fungal decay or rot if exposed to repeated wetting or high-moisture environments. Panels that are exposed to such conditions may deteriorate, lose strength, or support mold growth. For these reasons, protection from these conditions must be provided.

Keep all building materials dry and out of standing water prior to installation. Diamond™ floor panels should be stored at least 4" off the ground. During transit and storage, make sure the panels are not damaged.

Floors

Laying Panels

Before installing flooring, make sure the framing underneath is level and not twisted. Add shims or blocking as necessary to create a smooth, flat surface. Verify that the panel's

span rating meets or exceeds job requirements. Soft spots may occur if joist on-center spacing exceeds panel span rating.

Diamond™ floor panels should be installed with the 8' length perpendicular to support members. When laying out flooring, make certain that each panel covers at least two spans and the panel edges fall at the center of the support. It may be necessary to trim some panels. Make sure that the “This side down” stamp is on the underside. Lay out rows of panels so that end joints are offset by at least one on-center spacing of the supports.

Gapping Panels

The panel industry recommends spacing wood-based panels to allow for the expansion that occurs when they are exposed to moisture. When installing Diamond™ floor panels, maintain a $\frac{1}{8}$ " gap at panel ends and edges. See *Figure 3* on page 2.

Diamond™ floor panels are manufactured with a self-gapping tongue-and-groove (T&G) profile that automatically gaps the edges as the floor is assembled. See *Figure 1*. A 10d box nail can be used to gauge the $\frac{1}{8}$ " gap between panel ends.

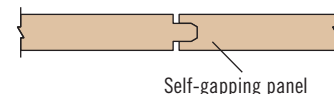


Figure 1

These spacing recommendations may not be adequate for buildings over 80' in length or width. See the recommendations for installing temporary **Expansion Joints for Floors in Large Buildings** on page 3.



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To help prevent standing water on flooring, and minimize moisture issues, Diamond™ floor panels have self-draining Down Pore® drainage grooves. Patented Down Pore® technology channels water through the panel and off the joists below without the need to plug or patch later. If additional drainage is needed, either sweep water off the floor or drill extra holes through floors to allow water to escape. Extra holes should be patched later with wood dowels or non-shrink grout and backer plates. See Figure 2.

Generally, when concrete topping is applied, Down Pore® grooves do not need to be covered. However, if minor concrete seepage must be avoided, covering grooves with tape is recommended.

If spacing recommendations are not followed, the flooring may buckle as it expands. While buckling itself may not cause any loss of structural integrity, it can result in other problems, including cracks in tile work and squeaks under hardwood floors.

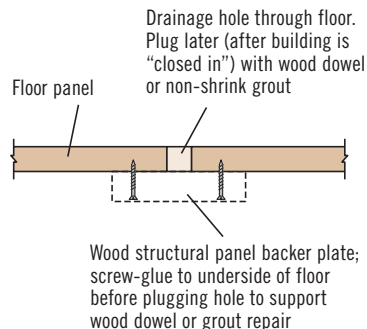


Figure 2

Gluing and Nailing

Weyerhaeuser recommends gluing and nailing flooring to the joists and other applicable

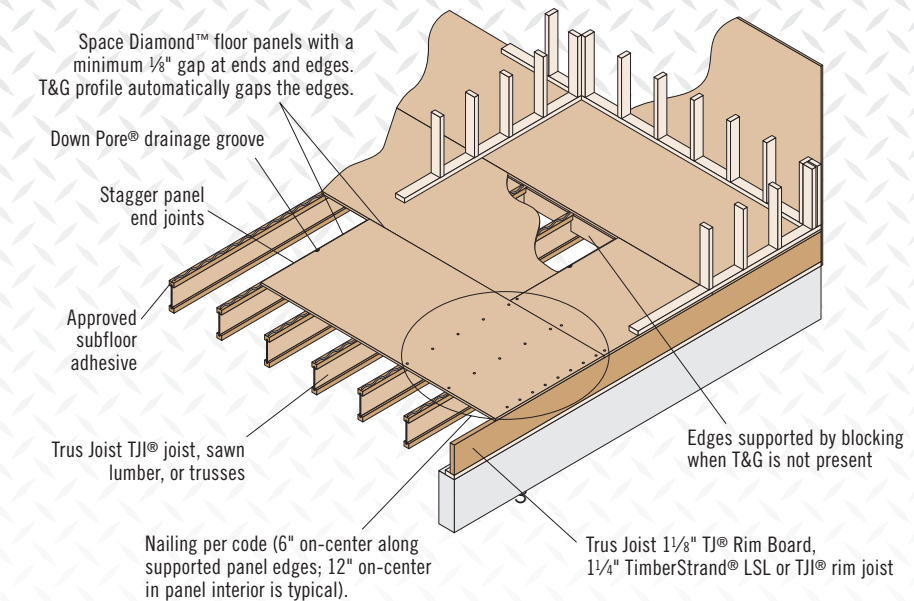


Figure 3

structural components. A glue-nailed floor assembly not only improves floor stiffness, especially with T&G panels, but also helps eliminate nail pops, floor squeaks, vibrations, and bounce. Weyerhaeuser recommends using solvent-based subfloor adhesives that meet ASTM D 3498 (AFG-01) performance standards. When latex subfloor adhesive is required, careful selection is necessary due to a wide range of performance between brands.

Start by snapping chalk lines across joists every 4' as a visual aid for aligning panels and spreading glue. Before gluing, make sure joists are dry and free of dirt. Apply a 1/4" bead of adhesive to the top of the joists and blocking (if used); use a serpentine pattern on supports that are 3 1/2" or wider.

Apply only enough adhesive to install one or two panels at a time. Use two beads of adhesive on joists where panels meet to ensure that both panels will adhere to the framing.

Install the first panel with the tongue edge toward the perimeter. This protects the tongues on the remaining panels from being damaged when they are slid into place.

Apply a thin 1/8" bead of glue in each groove and tap panels together. To reduce bumps in the finished floor, remove any excess glue that may squeeze out.

Nail the flooring in place before the glue sets; follow the adhesive manufacturer's instructions for allowable cure time. Remember that cure time is dependent on temperature, climate, and other conditions.

Begin nailing by starting a row 3/8" from one edge and work across the flooring in rows. Continue working in rows until the flooring is completely fastened. This technique keeps internal stresses—which could contribute to buckling later—from building up inside the flooring.

Drive nails flush to the panel face. Avoid over-driving nails through the panel surface, especially when using a power-driven tool. Refer to the recommendations under **Special Considerations for Power-Driven Fasteners** on page 3. While nailing flooring, straddle the fastener location to ensure contact between the flooring and the framing.

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Nailing schedules and types of fasteners will vary depending upon the application and the thickness of the panel. See the table below for Weyerhaeuser's recommended schedules for single- and double-layer floors. Other code-approved fasteners may be used, but verify the spacing requirements.

High-wind and seismic areas may require a different nailing schedule. In such cases, see section 2306.2 of the 2015 IBC for diaphragm connection requirements, and check local building codes for requirements.

Special Considerations for Power-Driven Fasteners

Pneumatic staplers and nail guns are light-weight and do not provide enough force on the panel to hold it tight to the framing as it is nailed. Poor contact can cause the nail to pop or become loose enough to squeak against the panel later on. Avoid this by having the operator stand on the flooring, or apply hand pressure, next to the area being fastened as the nail is driven.

Most power-driven fasteners have adjustments for controlling pressure. If the pressure is set too high, it will countersink the fastener—something that should be avoided when installing flooring or sheathing. Adjust the pressure until the nails drive flush to the panel face.

Expansion Joints for Floors in Large Buildings

Dimensional changes in large buildings can be significant when the flooring absorbs surrounding moisture and expands. The installation of temporary expansion joints can help reduce these problems.

The typical 1/8" panel gaps used in smaller structures may not be adequate for build-

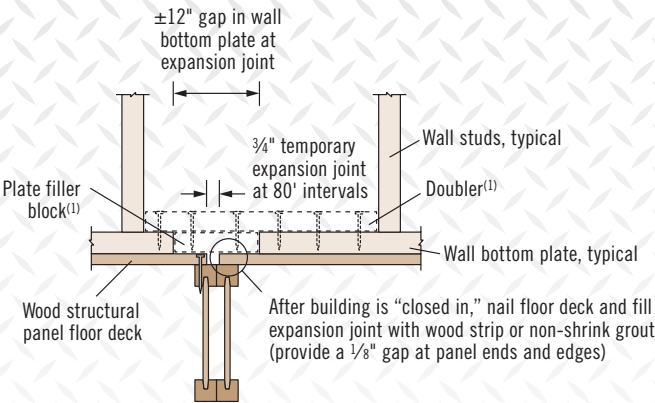
ings over 80' in length or width. In these buildings, add 3/4" gaps at 80' intervals (or as specified on the plan). Alternatively, do not nail the flooring at double joist locations until after the building has been dried in. After drying-in, fill the expansion joints with a wood filler piece or non-shrink grout.

Make sure that the wall bottom plates do not cross expansion joints. After drying-in, splice the bottom plate of the wall together by adding a filler block and a doubler between

the wall studs. See *Figure 4* above for one framing possibility.

Subflooring

Weyerhaeuser Diamond™ floor panels are designed and rated for use as a combination subfloor and underlayment in single-layer floor construction, providing cost savings and improved floor performance over multi-layer installations. Diamond™ floor panels are manufactured to meet or exceed Voluntary Product Standard PS 2.



(1) Install plate filler block and doubler to splice bottom plate after floor deck is nailed and building is "closed in."

Figure 4

Fastening Schedule(1) for Flooring

	Panel Thickness	Nail Type	Nail Spacing	
			At Panel Edge(2)	Intermediate Supports(3)
Single-Layer Flooring	19/32" – 1"	8d (0.131" x 2½")	6" o.c.	12" o.c.
	1½" – 1¾"	10d (0.148" x 3")	6" o.c.	12" o.c.
Subflooring in Double-Layer Flooring	¾" and less	6d deformed-shank (0.120" x 2")	6" o.c.	12" o.c.
	7/8" – 1"	8d (0.131" x 2½")	6" o.c.	12" o.c.
	1½" – 1¾"	10d (0.148" x 3")	6" o.c.	12" o.c.

(1) Minimum per code. Tighter spacings may be required by the design professional of record.

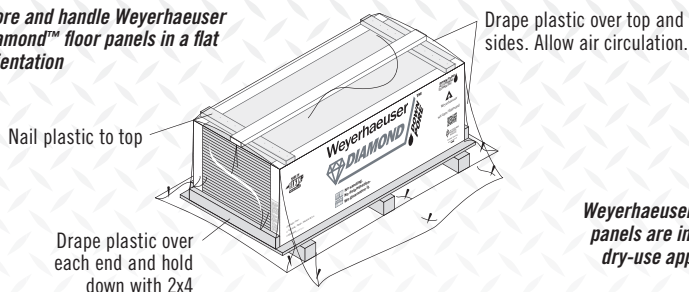
(2) Nail spacing at panel edges applies to edges supported by framing members and edges at floor perimeters.

(3) Nails must be spaced no more than 6" on-center at all supports where spans are 48" or greater.

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Storing Weyerhaeuser Diamond™ Floor Panels

Store and handle Weyerhaeuser Diamond™ floor panels in a flat orientation



Weyerhaeuser Diamond™ panels are intended for dry-use applications

Installing Finish Flooring

Diamond™ floor panels do not require an additional underlayment beneath a pad and carpet or a hardwood flooring finish. In all other applications—such as fully adhered carpet, tile, or sheet flooring—the floor panels should be supplemented with an underlayment. Check the manufacturer's recommendations before installing. To ensure tight joints and smooth appearance of the finish floor covering, be sure to glue the T&G joints.

Allow the subfloor to dry before installing underlayment or finish flooring. Sand any uneven areas, making sure to check the joints thoroughly. Inspect the fasteners, making sure they are flush, and reset any nail pops that may have occurred during construction. Do not fill nail holes, but do fill and sand edge joints and any damaged areas or gaps as necessary.

Installing Non-Load-Bearing Partition Walls

Due to the strength and stiffness of Diamond™ floor panels, a typical partition wall can be supported anywhere along the flooring without additional blocking provided that the flooring is installed in accordance with its labeled span rating (verify that the floor joists can carry the additional load).

For the best performance and to minimize squeaks, we recommend nailing the bottom plate of the partition wall only where it intersects with a joist. The optimal placement of non-load-bearing partitions that are parallel to the joists is directly over a joist. When it is necessary to nail directly to the flooring, clinch all nails while they are still accessible. Placing a bead of subfloor adhesive between the bottom plate and the flooring will enhance the connection and help prevent squeaks.

Floor Performance

Floor panels are an important component in creating a floor system that feels good to customers. The span rating shown on a panel represents a structurally acceptable performance level. Performance can be enhanced to meet higher customer expectations in several ways. Glue and nail

flooring for improved connections that help resist vibrations, minimize nail pops, and transfer loads more evenly. Overall floor performance can also be enhanced by using stiffer joists or narrower joist spacing.

Choosing the optimal combination of these parameters is difficult. However, Trus Joist® TJ-Pro™ Ratings provide a reliable method for accurately predicting floor performance. Contact your Weyerhaeuser representative for more information.



WARNING: This product can expose you to chemicals including wood dust which are known to the State of California to cause cancer, and methanol, which are known to the State of California to cause birth defects or other reproductive harm. Drilling, sawing, sanding or machining wood products can expose you to wood dust. Avoid inhaling wood dust or use a dust mask or other safeguards for personal protection. For more information go to www.P65Warnings.ca.gov and www.P65Warnings.ca.gov/wood.



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