

WHY ⁷/₈" EDGE GOLD[™] SUBFLOOR



Code Compliance

Cool Enough for Energy

Energy losses in homes can be substantial. According to the U.S. Department of Energy, ductwork in unconditioned spaces can account for a 20-40% loss in cooling/heating capacity and increase energy costs by 15%.1 Section 403 of the 2012 IECC sets considerable goals to eliminate distribution system losses in residential and commercial buildings.²

As builders respond by moving ductwork from an unconditioned space into floor cavities, %" Edge Gold[™] subfloor at 24" on center creates an ideal spacing to meet this challenge for the building community. Material usage is also optimized by the use of deeper TJI[®] Joists with the capacity for larger hole cutting to accommodate HVAC ductwork.

Hardwood Flooring's Recommended Option

Although ²³/₃₂" panels are span-rated for floor systems spaced at 24" on-center, the National Wood Flooring Association (NWFA) suggests a thicker subfloor is necessary to reduce deflection of the subfloor and minimize pops and squeaks in the wood flooring. Therefore, the NWFA recommendation is to use a %" panel such as Edge Gold[™] subfloor for floor systems spaced at 24" on center.³

In addition, 7/8" panels have a 20% increase over ²³/₃₂" panels in fastener withdrawal capacities assuming similar installation conditions.

Performance*

Better Performance for Tile

One of the most overlooked characteristics of successful tile installations is the tile industry's expectation for sufficient stiffness in the underlying wood framing. It requires more stiffness from subfloor panels than the typical L/360 calculation in the building code. In APA's Technical Topics: Ceramic Tile Over Wood Structural Panel Floors (Form No. TT-006C), they provide guidelines for two-layer wood residential tile assemblies based on those included in the Tile Council of North America Handbook.⁴

Weyerhaeuser's ⁷⁄₈" Edge Gold[™] satisfies the recommended capacity for those twolayer wood residential tile assemblies across typical joist on-center spacing. Further, compared to a ²³/₃₂" OSB panel, ⁷/₈" Edge Gold subfloor is more than twice as stiff and produces less than half the expected subfloor curvature between joists, which can help prevent tile and grout cracking. Continue to use a suitable underlayment such as a cementitious tile backer or a backer recommended by the tile manufacturer, and see APA's publication for more information.

L/360 Uniform Load Capacity (PSF) of Residential Floor Panel Systems*

Nominal Subfloor	Normal Orientation, Strength Axis Perpendicular to Supports				
INICKNESS	16" o.c.	19.2" o.c.	24" o.c.		
APA Recommendation	550	450	250		
7/8"	1064	582	282		

*Based on APA publication Technical Topics: Ceramic Tile Over Wood Structural Panel Floors, Form No. TT-006C.





Floor Panel Deflection and Curvature

Specification of thicker Edge Gold[™] subfloor can result in less panel deflection and therefore a longer radius of curvature of the floor panel between joists, even when floor joists are designed at greater on center spacing. The result of specifying thicker Edge Gold[™] subfloor can be a "flatter" floor system, which results in less flex of the finished flooring material as well as a more economical floor system with fewer TJI[®] Joists.

The diagram to the right illustrates the typical effect on two floor systems, both featuring TJI[®] Joists. The floor system on the left uses ⁷/₈" Edge Gold[™] subfloor with TJI[®] joists spaced at 24" on center while the floor system on the right uses ⁵/₈" Douglas fir plywood subfloor with TJI[®] Joists at 16" on center. The ⁵/₈" Douglas fir plywood subfloor illustrated on the right results in a much shorter radius of curvature and therefore a less flat floor.



The floor panel system with a short radius of curvature results in a much "sharper" curve, therefore, a floor finish will be required to flex more than a system with a large radius of curvature.

Cost Effective

Spacing engineered wood floor joists 24" on center can reduce the number of joists required by 30 percent as compared to conventional 16" floor joist spacing.

As illustrated below in the Floor Assembly Cost Comparison table, in many cases ⁷/₈" Edge Gold[™] subfloor can result in a marginal price increase or even reduce the costs of a floor system by allowing the selection of factors such as floor joists with wider on-center spacing.

Span	²³ / ₃₂ D.fir Plywood		²³ / ₃₂ SYP Plywood		²³ ⁄ ₃₂ Edge Gold™		% Edge Gold™	
	Joist Design TJ-Pro™ Rating	System Cost (per 1000 ft ²)	Joist Design TJ-Pro™ Rating	System Cost (per 1000 ft ²)	Joist Design TJ-Pro™ Rating	System Cost (per 1000 ft ²)	Joist Design TJ-Pro™ Rating	System Cost (per 1000 ft²)
14	9½" TJI® 210 @ 19.2" TJ-Pro™ Rating: 39	\$2,390	9½° TJI® 210 @ 19.2° TJ-Pro™ Rating: 39	\$2,142	9½° TJI® 210 @ 19.2° TJ-Pro™ Rating: 39	\$2,049	9½" TJI® 210 @ 24" TJ-Pro™ Rating: 41	\$1,856
15	9½" TJI® 210 @ 19.2" TJ-Pro™ Rating: 34	\$2,390	9½° TJI® 210 @ 19.2° TJ-Pro™ Rating: 34	\$2,142	9½° TJI® 210 @ 19.2° TJ-Pro™ Rating: 34	\$2,049	9½" TJI® 210 @ 24" TJ-Pro™ Rating: 37	\$1,856
16'	9½" TJI® 210 @ 16" TJ-Pro™ Rating: 36	\$2,680	9½" TJI® 210 @ 16" TJ-Pro™ Rating: 36	\$2,432	9½" TJI® 210 @ 16" TJ-Pro™ Rating: 36	\$2,339	9½" TJI® 210 @ 19.2" TJ-Pro™ Rating: 39	\$2,146
	117%" TJI® 210 @ 19.2" TJ-Pro™ Rating: 42	\$2,215	117⁄8" TJI® 210 @ 19.2" TJ-Pro™ Rating: 42	\$1,967	117%" TJI® 210 @ 19.2" TJ-Pro™ Rating: 42	\$1,874	11½" TJI® 210 @ 24" TJ-Pro Rating: 44	\$1,716
17	11%" TJI® 230 @ 19.2" TJ-Pro™ Rating: 40	\$2,328	11%" TJI® 230 @ 19.2" TJ-Pro™ Rating: 40	\$2,079	11%" TJI® 230 @ 19.2" TJ-Pro™ Rating: 40	\$1,987	11%" TJI® 230 @ 24" TJ-Pro™ Rating: 42	\$1,806
18'	117⁄%" TJI® 230 @ 16" TJ-Pro™ Rating: 42	\$2,605	11%" TJI® 230 @ 16" TJ-Pro™ Rating: 42	\$2,357	11½° TJI® 230 @ 16° TJ-Pro™ Rating: 42	\$2,264	117⁄8" TJI® 230 @ 19.2" TJ-Pro™ Rating: 45	\$2,083

FLOOR ASSEMBLY COST COMPARISON*

*Systems with wider joist spacing typically require less construction time and cost less with fewer framing members to install and fewer obstructions for mechanical trades. These savings have not been reflected in the table above. Pricing shown is for comparative purposes only, and is based on historical Mid-Atlantic pricing trends for panel products as of June 2014. Contact your local Weyerhaeuser representative for final pricing.

(1) Modera, Dr. Mark (2014). Remote Duct Sealing in Residential and Commercial Buildings: Saving Money, Saving Energy and Improving Performance (PowerPoint Slides) Retrieved from Lawrence Berkeley National Laboratory, State Energy Advisory Board; (2) energystar.gov/index.cfm?c=home_improvement.hm_improvement_ducts, International Code Council, 2012 International Energy Conservation Code, Section 403: Commercial/ Residential Energy Efficiency Code; (3) 7/8" Edge Gold or other subfloors with similar thickness; NWFA Installation Guidelines, Chapter 4 – Wood Subfloor Guidelines, Part IV – Panel Products Subflooring, Section E – Acceptable Panel Subfloors provides minimum acceptable thicknesses of panel subflooring, depending on spacing of the floor joists; (4) Tile Council of North America, Interior Floors Over Wood, Page 119; F149-12 and F155-12

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