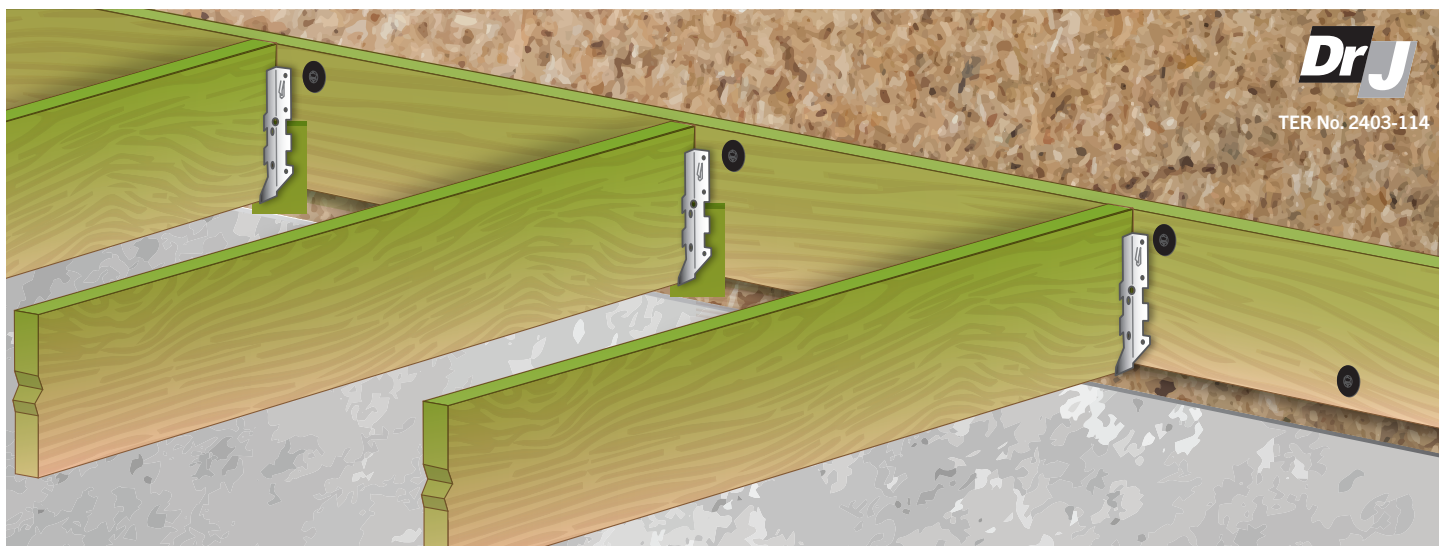




DECK LEDGER FASTENING SOLUTION WITH SPAX® POWERLAGS® XF

SPAX® 5/16" PowerLags® XF fasteners have been tested for prescriptive solutions that are equivalent to the International Residential Code for deck ledger attachment. When installed per this technical bulletin, SPAX 5/16" PowerLags XF fasteners can be used in place of 1/2" lag screws as described in Table R507.9.1.3(1)+ of the 2018, 2021, and 2024 IRC.

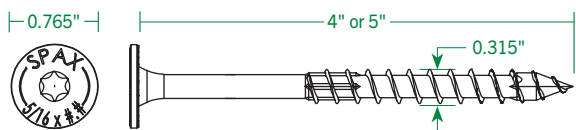
+ 2015 IRC Table R507.2, 2012 IRC Table R507.2

PRODUCT FEATURES

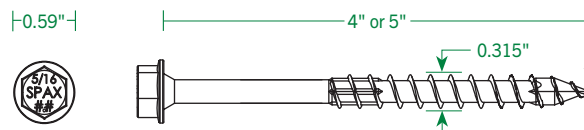
- Code compliant per DrJ TER No. 2403-114.
- Patented thread technology requires no pre-drilling, and drives faster and easier than conventional lag screws.
- Two head types to choose from:
 - Hex Washer Head
 - T-STAR Pancake Head
- HCR® Coating has been tested to ICC-ES standards (AC257) and has proven to be equivalent to code approved hot-dip galvanized coatings. HCR is suitable for many preservative-treated woods and exterior applications.
- Diameter and fastener length on head provides easy identification.

INSTALLATION INSTRUCTIONS

- 1) Select the preferred head style and appropriate length PowerLag fastener to ensure the threads fully engage the band joist and the fastener tip extends beyond the back face of the band joist.
- 2) Using an impact driver or a 1/2" low rpm/high torque electric drill and appropriate driver bit, install the PowerLag through the ledger and sheathing into the band joist until the built-in washer is drawn firm and flush to the ledger board. Do not overdrive.
- 3) Stagger the PowerLag fasteners from top to bottom along the length of the ledger while maintaining the required spacing, edge and end distances as found in Figure 1, 2 and Table 1.



5/16" x 4" or 5" T-STAR Pancake Head
PowerLags® XF with HCR® Coating



5/16" x 4" or 5" Hex Washer Head
PowerLags® XF with HCR® Coating

Deck Ledger Technical Bulletin

Structural Applications

FIGURE 1

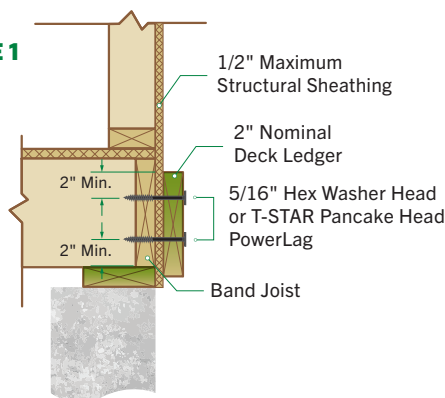
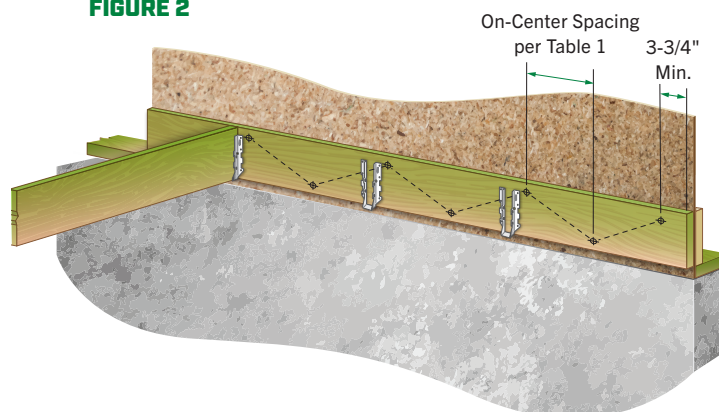


FIGURE 2



TER No. 2403-114

TABLE 1

LOADING CONDITION (psf)	FASTENER LENGTH ² (in)	2X NOMINAL LEDGER SPECIES ^{3,4,5,6,7}	BAND JOIST MATERIAL ⁸	MAXIMUM DECK JOIST SPANS						
				UP TO 6'	UP TO 8'	UP TO 10'	UP TO 12'	UP TO 14'	UP TO 16'	UP TO 18'
				MAXIMUM ON-CENTER SPACING (in) OF SPAX XF SERIES 5/16" POWERLAG FASTENERS ^{1,9}						
LL + DL 40 + 10	4" or 5"	DF/SP/HF/SPF	Sawn Lumber	18	13	11	9	7	6	6
			1½" min EWP*	14	11	8	7	6	5	4
LL + DL 50 + 10		DF/SP/HF/SPF	Sawn Lumber	15	11	9	7	6	5	5
			1½" min EWP*	12	9	7	6	5	4	4
LL + DL 60 + 10		DF/SP/HF/SPF	Sawn Lumber	13	9	7	6	5	4	4
			1½" min EWP*	10	8	6	5	4	4	3
SL + DL 70 + 10		DF/SP/HF/SPF	Sawn Lumber	11	8	6	5	4	4	3
			1½" min EWP*	9	7	5	4	4	3	3

*Engineered Wood Product (EWP)

- Based on load duration of 1.0.
- Fasteners are required to have full thread penetration into the main member. Fastener tip must extend beyond the back face of the band joist.
- Fasteners shall be staggered from the top to the bottom along the length of the ledger with fastener tip extending beyond while maintaining the required edge and end distances as shown in Figures 1 and 2.
- A maximum 1/2" structural sheathing fastened per code, may be installed between the ledger and the band joist.
- Minimum ledger board requirements: 1½" thick by 7½" depth. Must be greater than or equal to the depth of the deck joist and no greater than the depth of the band joist.
- Solid sawn ledger shall be HF/SPF or DF/SP species, designed by others.
- Ledger materials assumed to be in wet service condition.
- Minimum band joist requirements: SPF (specific gravity of 0.42) solid-sawn lumber 1½" thick and 7½" depth; Engineered Wood Product (EWP) 1½" thick by 7¼" depth.
- Tabulated on-center spacing values are applicable where a third party tested plastic washer (e.g. Deck2Wall® Spacer) is installed between the ledger board and band joist at each fastener location. The plastic washer shall be installed per the washer manufacturer's instructions and this TER. The plastic washer shall be 2" in diameter, 1/2" thick (max), with an approximate 5/16" hole in the center for the PowerLag and three 3/16" (approx.) holes for the #8 screws. The plastic washer shall be independently fastened to the ledger with three SPAX #8 x 1½" or three SPAX #8 x 2" screws.

- For guidance on designing a deck ledger to truss connection where a band joist is not used, see SBCA's Tech Note, "Attachment of Residential Deck Ledger to Metal Plate Connected Wood Truss Floor System" available at www.sbcindustry.com.
- Attachment of a deck ledger to concrete or CMU/masonry using PowerLags® is outside the scope of this technical bulletin.
- This technical bulletin is subject to periodic review and updates. For the most current version, visit www.spax.us.
- For a comprehensive review of SPAX PowerLags for use in deck ledger attachment, please see "DrJ TER No. 2403-114" available at www.drjengineering.com.