Inspections Division
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TECHNICAL BULLETIN

Installation Options for Deck Lateral Load Connections

SIMPSON Strong-Tie®

Background

When decks are supported by attachment to the primary structure, the International Residential Code® (2000 through 2015 IRC) requires a positive attachment to that building to resist lateral loads. These loads can result from wind or seismic forces acting on a deck or from movements of the deck's occupants. If the band joist, deck ledger or deck joists were to pull away from the primary structure as a result of lateral forces, the deck would not be supported for gravity (vertical) loads and would likely collapse (see Figure 1).

To help builders achieve proper attachment, an approved method was added to the 2009 IRC to resist lateral loads by using holdown devices with a minimum allowable load of 1,500 pounds in at least two locations per deck. The 1,500-pound holdowns connect a deck joist to a floor joist in the supporting structure that is nailed to the floor sheathing above (see Figure 2). The 2015 IRC now includes a second approved method that permits a holdown with an allowable load of 750 pounds in at least four locations per deck to fasten the deck joists to the top plate, studs or headers within the supporting structure using a fully threaded ⅜" lag screw (see Figure 3). This new option allows a positive attachment for the deck that is ideal when the house joists are inaccessible.

Figure 1

Figure 2 (1,500 lb. requirement)

4-DTT1Z

Figure 3 (750 lb. requirement)

The Simpson Strong-Tie® DTT1Z and DTT2 deck tension ties have been developed to provide versatile and cost-effective solutions for these critical connections. The DTT1Z is supplied with a ZMAX® coating; the DTT2 is available in ZMAX (DTT2Z) or stainless steel (DTT2SS).

The DTT2 satisfies the 1,500-pound requirement and is installed in pairs. The DTT2 fastens to the wide face of the deck and house joists with Strong-Drive® SDS Heavy-Duty Connector screws (included), and the pair is anchored together with a ½" threaded rod (washers included).

The DTT1Z satisfies the 750-pound requirement and fastens to the narrow or wide face of the deck joist with Strong-Drive SD Connector screws or nails and attaches to the supporting structure with a fully threaded ⅜" lag screw and washer (not included) or a Strong-Drive SDWH Timber-Hex HDG screw with an integral washer.

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