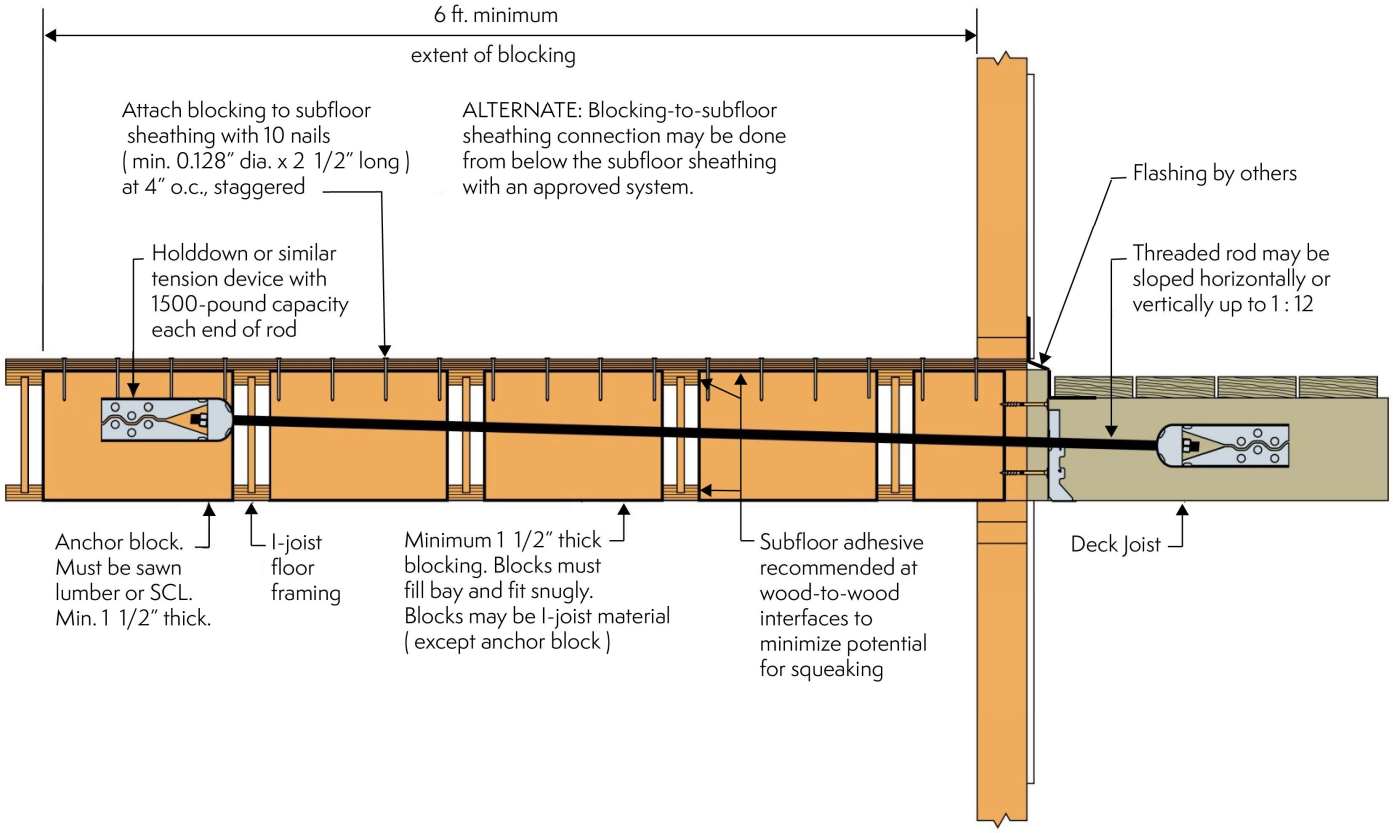
WOOD I-JOIST MANUFACTURERS ASSOCIATION

October 2020

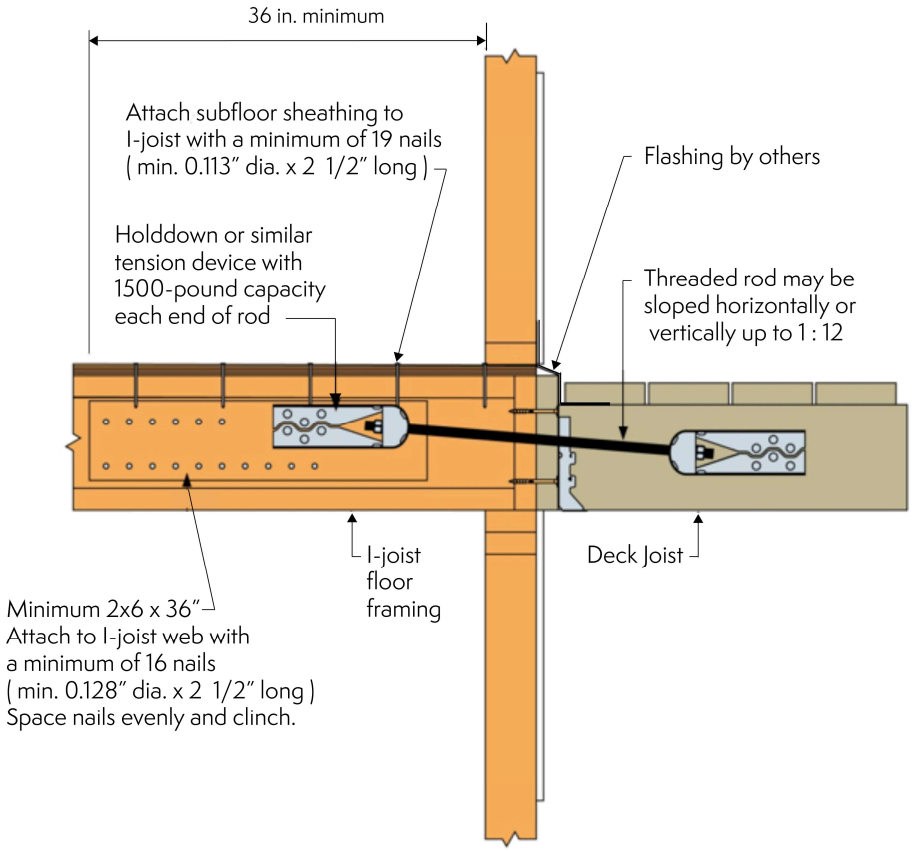
Deck Lateral Load Connection to Prefabricated Wood I-Joist Floor System

The International Residential Code (IRC) includes provisions for resisting lateral forces of an exterior deck that is attached to a structure. Specifically, 2009 IRC R502.2.2.3, 2012 IRC R507.2.3, 2015 IRC R507.2.4, and 2018 IRC R507.9.2 each detail deck lateral load attachment connections at a minimum of two locations that resist a minimum lateral load of 1500 lbs per connection. The IRC only addresses the situation where solid sawn floor framing is parallel to the deck framing. The following two details show methods of properly detailing a connection to drag the lateral load from the deck to a floor system consisting of Prefabricated Wood I-Joists that are oriented either perpendicular or parallel to the deck framing. The connections associated with these lateral load details were developed using a duration of load increase of 1.6 and a minimum specific gravity of 0.42 for all wood components, with the exception of the I-joist web, which has an assumed specific gravity of 0.50.



Deck Framing Perpendicular to I-Joist Floor Framing

Deck Lateral Load Connection to Prefabricated Wood I-Joist Floor System (cont.)



Deck Framing Parallel to I-Joist Floor Framing

The 2015 IRC R507.2.4 and 2018 IRC R507.9.2, alternatively permit anchorage for the parallel-to-joist framing condition to be installed using a minimum of four-750 lb anchors positioned outside the wall and attached to the framing with lag screws. Use of this alternate detail with any light-frame construction should include consideration of whether attachment to concealed framing can be reliably achieved, whether the framing is anchored in a way that provides a continuous load path with sufficient capacity for each anchor, and if using four-750 lb connections spread out along the deck rather than two-1500 lb connections, one near each end of the deck, is sufficient to provide anchorage for racking resistance of the deck.