

Mass Timber Washer Strap (MTWS) for CLT



Simpson Strong-Tie developed the MTWS48 strap to utilize MTW45-8 washers and Strong-Drive® SDCF TIMBER-CF (SDCF) fully-threaded, countersunk-head screws. The combination provides a tension strap with high strength and stiffness that can be used in a variety of CLT diaphragm and CLT wall applications.

Features

- High capacity reduces the need for expensive shop-fabricated steel plates.
- Use of inclined SDCF screws and MTW45-8 washers reduces the number of fasteners needed to achieve the load.
- Strap can be used for either CLT panel-to-panel connection or CLT panel-to-steel connection.

Material: 7 gauge (ASTM A653 Grade 33)

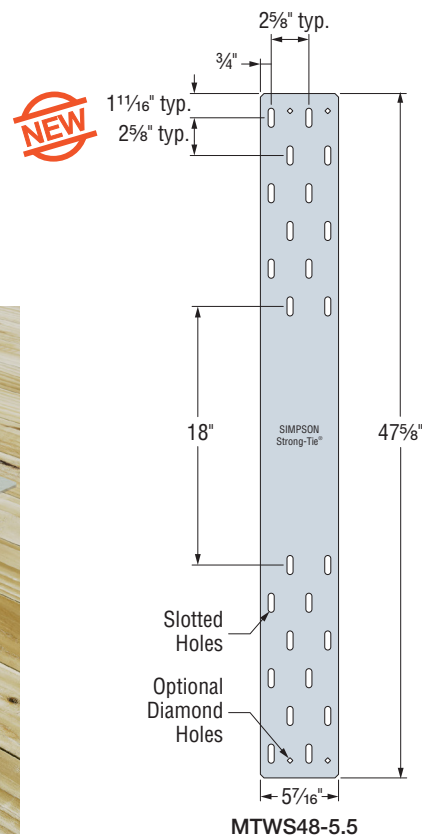
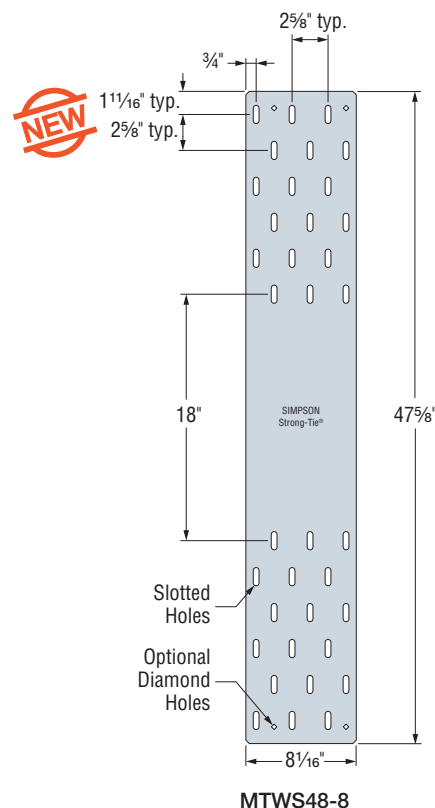
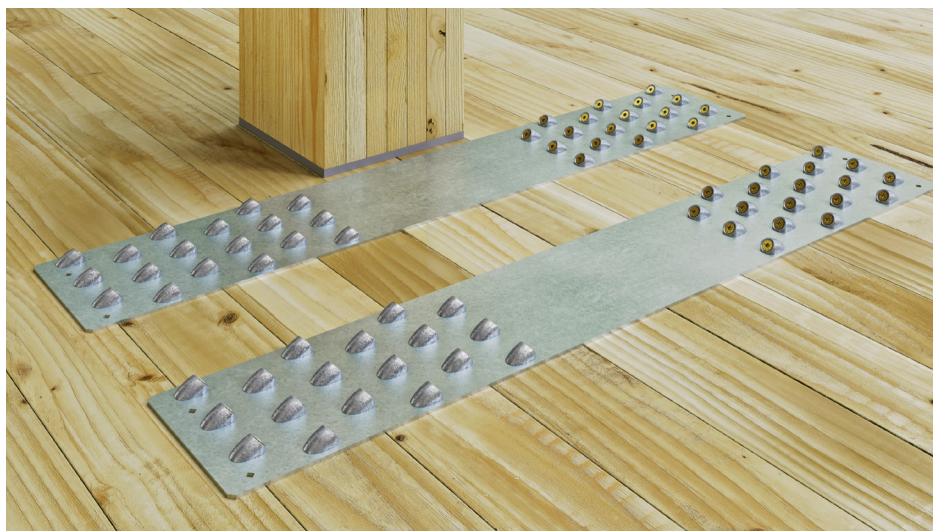
Finish: Galvanized

Installation

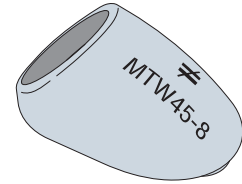
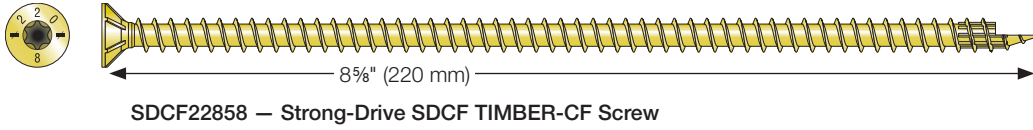
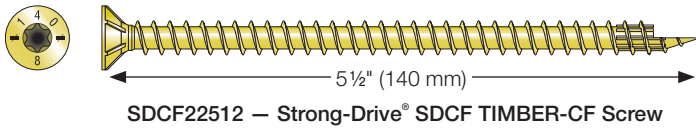
- Install optional fasteners in diamond holes to hold strap in desired location.
- Orient washers so the screws point away from the centerline of the strap and toward the end of the strap.
- Install inner fasteners first and work toward the ends of the strap.
- Reference L-F-SDCFPIN22 for additional fastener installation information.
- Use all specified fasteners and washers.

Options

- Full straps may be used to connect CLT panels together.
- Full straps may be cut into half straps. These half straps may be used to connect CLT panels to steel attachment points (designed by others).



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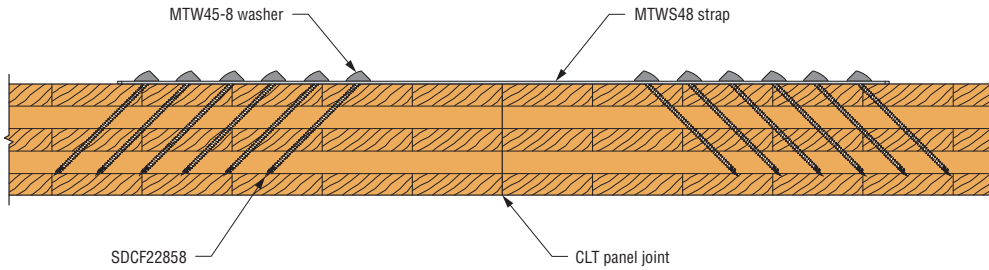


MTW45-8 Washer

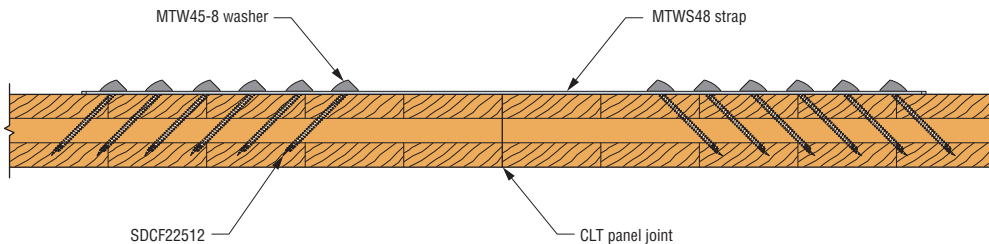
Allowable Tension Loads

Model No.	Ga.	Dimension (in.)		CLT Layout (min.)	Fasteners (Total)	Allowable Tension (lb.) (160)
		W	L			
MTWS48-5.5	7	5 7/16	47 5/8	Three-Ply	(24) SDCF22512	10,060
MTWS48-8		8 1/16			(36) SDCF22512	15,090
MTWS48-5.5		5 7/16		Five-Ply	(24) SDCF22858	17,885
MTWS48-8		8 1/16			(36) SDCF22858	26,825

1. The allowable loads are based on the use of cross-laminated timber (CLT) grades E1-E4 and V1-V4 material conforming to APA PRG-320.
2. Allowable loads have been increased for wind or seismic loading with no further increase allowed; reduce where other loads govern.
3. Predrilling is typically not required. Predrill diameter is 3/16" maximum.
4. Use all specified fasteners and washers. Use half of the required fasteners in each member being connected to achieve the listed loads.
5. Tension loads apply for uplift when installed vertically.
6. Fasteners: SDCF22512 and SDCF22858 = 0.230" shank diameter x 5 1/2" long and 8 5/8" long Strong-Drive SDCF TIMBER-CF screw, respectively.
7. CLT panel minimum thickness is: three-ply = 4.125"; five-ply = 6.875".
8. Tabulated values are applicable for parallel and perpendicular to the outer layer of CLT.

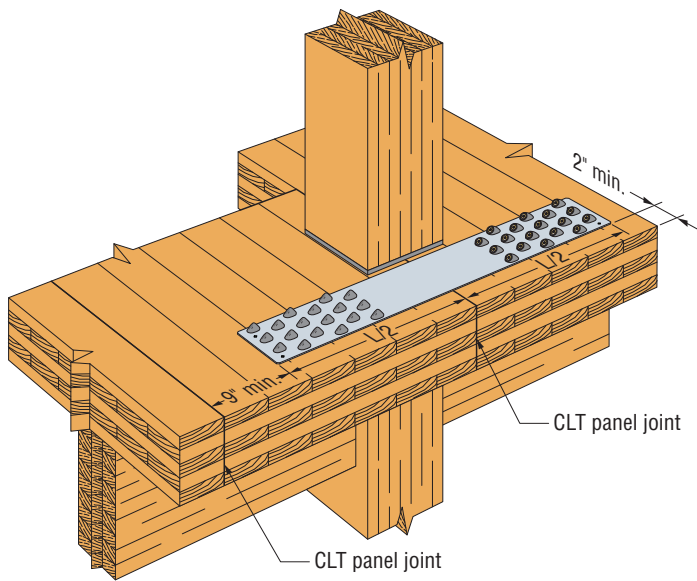


MTWS48 Strap on 5-ply CLT Panel (7-ply similar)

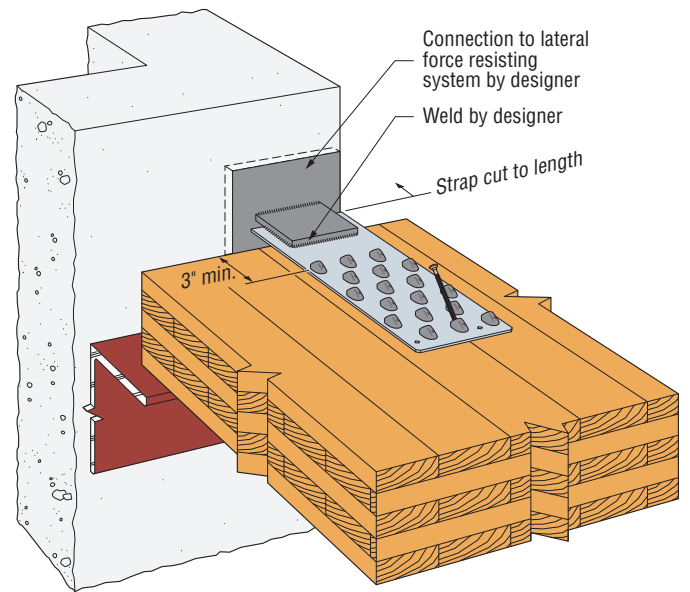


MTWS48 Strap on 3-ply CLT Panel

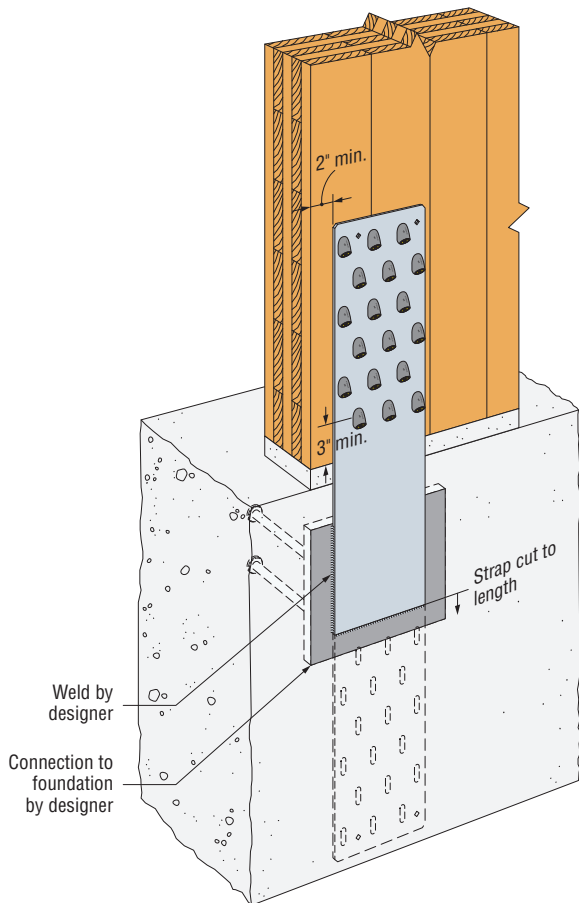
Mass Timber Washer Strap (MTWS) for CLT



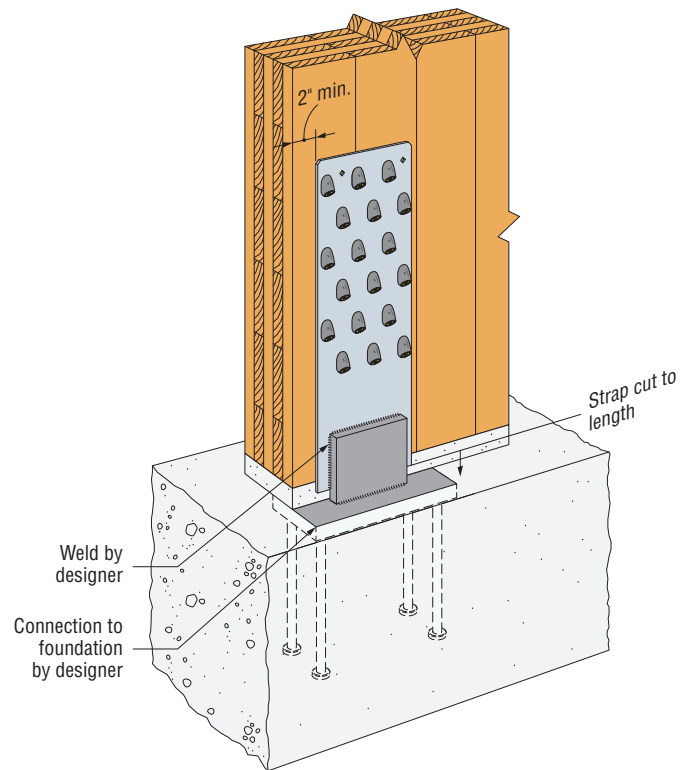
Typical MTWS48-8 Installation for Diaphragm Chord Tension Across a 5-ply CLT Panel Joint (3-ply and 7-ply CLT similar; other strap options similar)



Typical MTWS48-8 Half-Strap Installation for Diaphragm Collector to Steel Attachment Points at Walls or Frames

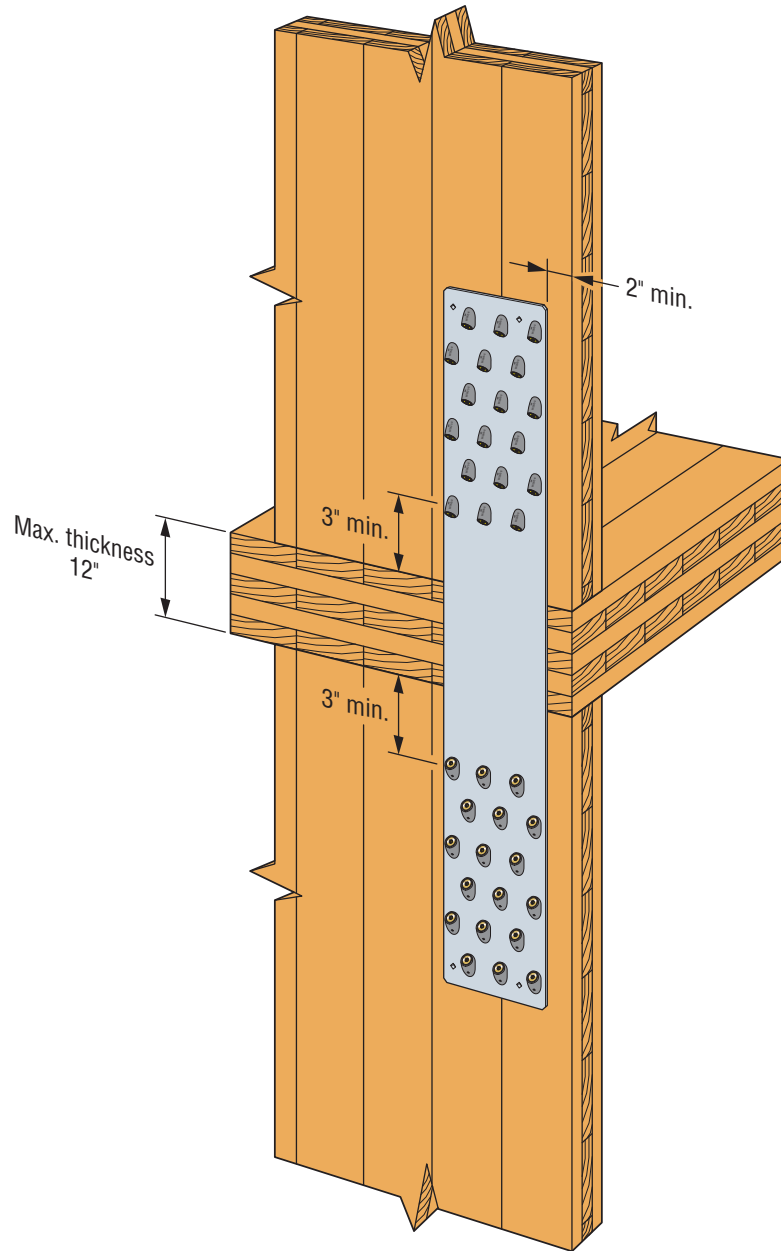


Steel Embed at Concrete Wall



Steel Embed at Concrete Slab/Foundation

Mass Timber Washer Strap (MTWS) for CLT



Typical Floor-to-Floor Tie Installation with
MTWS48-8 at 3-ply CLT Walls and 5-ply CLT Floor
(other strap options similar; other CLT ply combinations similar)