MPSC™ Mass Timber
Point-Supported Column Connection

SIMPSON Strong-Tie®

High-Capacity Connection for Mass Timber Structures

The MPSC column connection unlocks the potential of post-and-plate mass timber buildings by supporting mass timber floor panels while simultaneously transferring download from the column above without crushing the floor. The top and bottom halves of the connection easily slot together on site and are connected in seconds with a single bolt. Post-and-plate structures use the mass timber panels' two-way span capabilities, eliminating the need for floor beams and girders. These structures have reduced column grid spacing, optimized clear floor height, and simplified horizontal mechanical, electrical and plumbing routing.

Features:

- High download capacity in five load ratings from 100 to 300 kips.
- Configurable to accommodate a range of panel thicknesses and panel support area requirements.
- Innovative design aligns and guides two halves of the connection for fast and accurate column installation.
- Fast onsite connection with a single bolt to minimize crane time.
- Allows column rocking to provide seismic deformation compatibility. See L-C-MPSCDRIFT for more information.
- Up to ¼" of vertical adjustability using shim plates.
- Bolt holes can be used as a rigging attachment point for column lifting.

Material: Steel

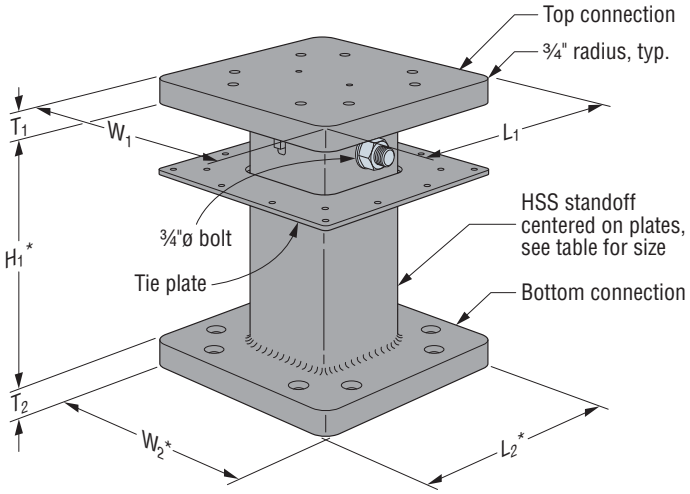
Finish: Gray paint

Options:

- MPSC100U is load-rated for uplift.
- Height of HSS standoff (H_1 dimension) and bottom plate length and width (L_2 and W_2 dimensions) are configurable. See Dimensions Table for range of allowable dimensions.

Ordering Information:

- Each model includes top connection, bottom connection, tie plate, and zinc-plated bolt, nut and washer assembly.
- Shim plates are sold separately in packs of 20 plates.
- Screws are sold separately.
- See page 6 for additional details.



Note: Dimensions marked with an asterisk (*) are configurable

MPSC200

(Others similar, US Patent Pending)

Dimensions

Model No.	Top Plate Size (in.)			Bottom Plate Size (in.)			Height (in.)	Standoff Dimensions (Standard HSS Sizes) (in.)
	W_1	L_1	T_1	W_2, min.	L_2, min.	T_2	H_1	
MPSC100	8 ¾	8 ¾	¾	8 ¾	8 ¾	¾	Configurable, 8" Min.–16" Max.	4 x 4 x 5/16
MPSC100U	8 ¾	8 ¾	¾	8 ¾	8 ¾	¾		4 x 4 x 5/16
MPSC150	9 ½	9 ½	⅞	9 ½	9 ½	⅞		5 x 5 x ⅜
MPSC200	10 ¼	10 ¼	1	10 ¼	10 ¼	1		5 x 5 x ½
MPSC250	11	11	1	11	11	1		6 x 6 x ½
MPSC300	11 ¾	11 ¾	1 ¼	11 ¾	11 ¾	1 ¼		6 x 6 x ⅝

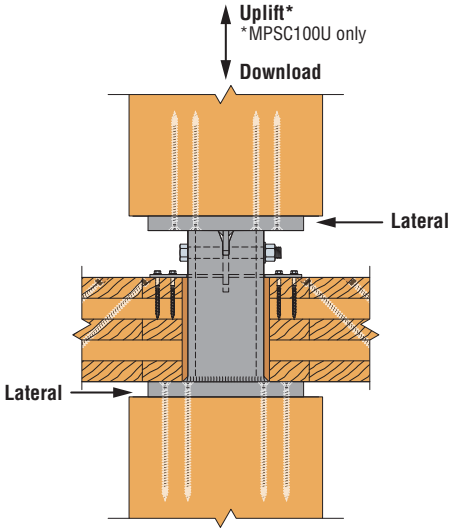
1. Minimum clearance from top of panel to bottom of top plate: 2¾" to 1". Clearance from top of panel to bottom of top plate: 2¾" minimum, 5½" maximum.
2. The bottom plate width/length dimensions, W_2 and L_2, are configurable. The minimum length/width dimensions are shown in the table. Maximum W_2 and L_2 dimensions: 18".

High-Capacity Connection for Mass Timber Structures

Allowable Loads

Model No.	Minimum Column Width/Depth (in.)	Column Material	Fasteners (Per Member)	Allowable Load (lb.)			
				Download (100/125)	Uplift (160)	Lateral	
						(100)	(160)
MPSC100	8¾	DF/SP Glulam	(4) SDCF10x200	100,500	—	1,915	2,785
		MPL			—	1,850	2,785
MPSC100U	8¾	DF/SP Glulam	(4) SDCF10x200	100,500	4,300	1,915	2,785
		MPL			4,300	1,850	2,785
MPSC150	9½	DF/SP Glulam	(8) SDCF10x200	158,500	—	4,090	4,880
		MPL			—	3,915	4,245
MPSC200	10¼	DF/SP Glulam	(8) SDCF10x200	201,000	—	4,090	4,880
		MPL			—	3,915	4,245
MPSC250	11	DF/SP Glulam	(12) SDCF10x200	256,000	—	6,510	6,545
		MPL			—	6,045	6,045
MPSC300	11¾	DF/SP Glulam	(12) SDCF10x200	300,000	—	6,510	6,545
		MPL			—	6,045	6,045

1. Fasteners: SDCF10x200 = 10 mm (0.394") OD x 200 mm (7⅞") long Strong-Drive® SDCF TIMBER-CF screw.
2. Download shall be reduced where limited by the capacity of the column.
3. Connection lateral capacity is the lesser of the lateral value in the Allowable Loads table, and the lateral value in the Tie Plate Allowable Bracing Loads table.
4. Uplift and Lateral loads have been increased for wind or seismic with no further increase allowed. Reduce where other loads govern.
5. Column Width/Depth must be greater than or equal to top plate and bottom plate minimum width/length to achieve tabulated allowable download capacity.
6. Allowable downloads are based on minimum compression parallel to grain Fc = 2,200 psi for MPSC250 and MPSC300, and Fc = 1,950 psi for all others. For lower Fc, reduce allowable download proportionally.
7. Allowable loads for Mass Plywood Laminate (MPL) are based on MPL Grade F19.
8. For simultaneous uplift and lateral loads, the connector must be evaluated using the Unity Equation: Design Uplift/Allowable Uplift + Design Lateral/Allowable Lateral ≤ 1.0.



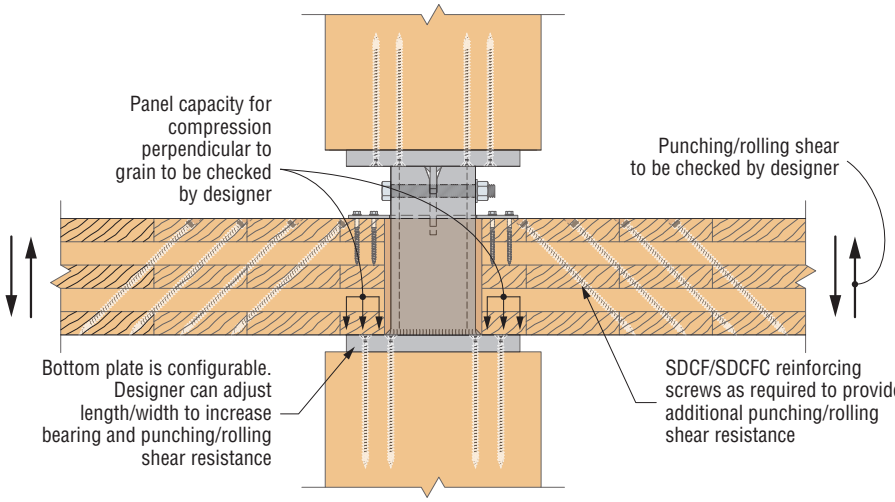
MPSC Loading Diagram

(See p. 8 for installation details)

Panel Bearing Capacities

Model No.	Panel Material	Allowable Load (lb.)
		Perp-to-Grain Bearing (100/125)
MPSC100/ MPSC100U	CLT	21,900
	MPP	25,700
MPSC150	CLT	23,000
	MPP	27,100
MPSC200	CLT	29,350
	MPP	34,500
MPSC250	CLT	30,600
	MPP	36,000
MPSC300	CLT	37,800
	MPP	44,500

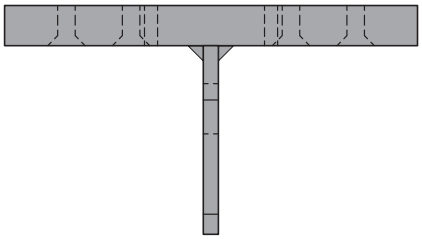
1. Allowable loads are based on minimum compression perpendicular to grain for CLT grades SPF E2 ($F_{c\perp}$=425psi), and Mass Plywood Panel (MPP) Grade F16 ($F_{c\perp}$=500psi).
2. Perp-to-grain bearing capacity assuming uniform load distribution and minimum bottom plate size using "W2, min." and "L2, min." shown in the Dimensions table. Bearing capacity of panel can be increased by increasing dimensions of bottom plate. The table loads also assume a gap of ½" between the panel and all sides of the HSS standoff.



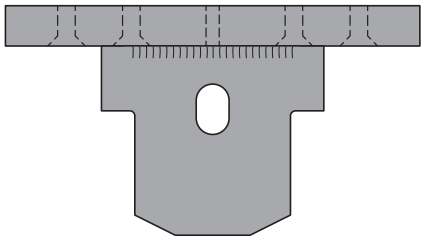
MPSC Panel Support

Top Connection

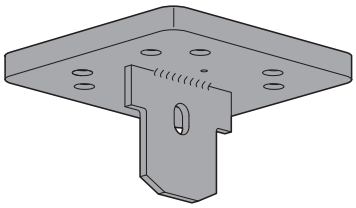
The top connection is composed of a knife plate welded to a bearing plate with countersunk screw holes. The knife plate has a vertically slotted hole on all models, except the MPSC100U, which has a round hole to allow the connection to resist uplift. The top connection **is not** configurable.



Side Elevation

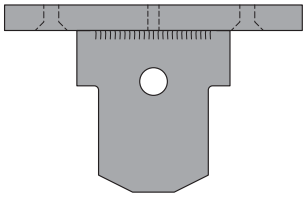


Front Elevation



Perspective View

MPSC200 Top Connection
(Other models similar)



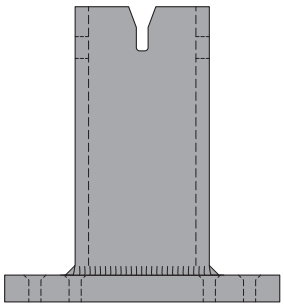
Front Elevation

MPSC100U Top Connection

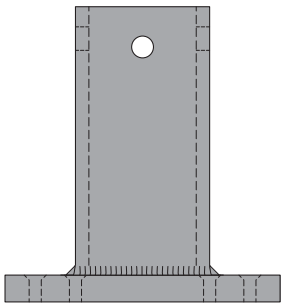
Bottom Connection

The bottom connection is composed of an HSS standoff welded to a bearing plate. The HSS has specific notch detailing to mate with the knife plate of the top connection.

The bottom connection **is configurable**. A specifier must select the height of the HSS standoff as well as the length and width of the bottom plate. The allowable range of configurable dimensions are provided in the Dimensions table on p. 2.

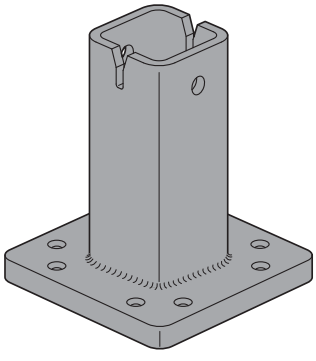


Side Elevation

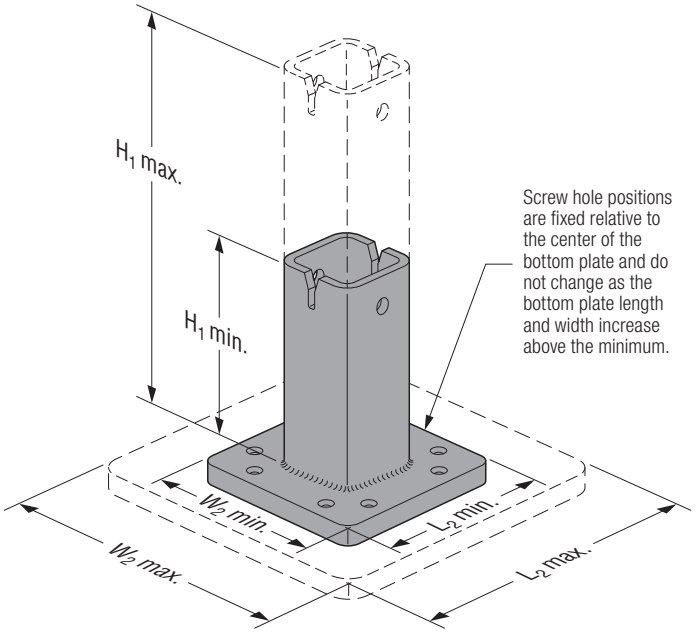


Front Elevation

MPSC200 Bottom Connection
(Other models similar)



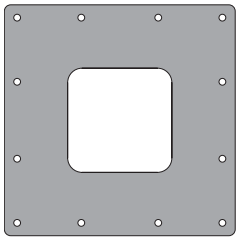
Perspective View



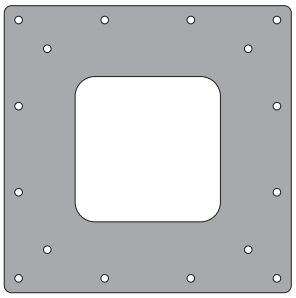
Configurability of MPSC200 Bottom Connection
(Other models similar)

Tie Plate

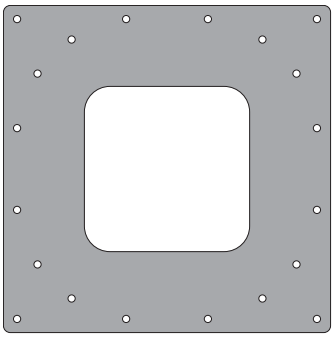
The tie plate fits around the HSS of the bottom connection and attaches with screws to the top of the mass timber floor panel. This attachment to the horizontal diaphragm provides out-of-plane bracing for the column.



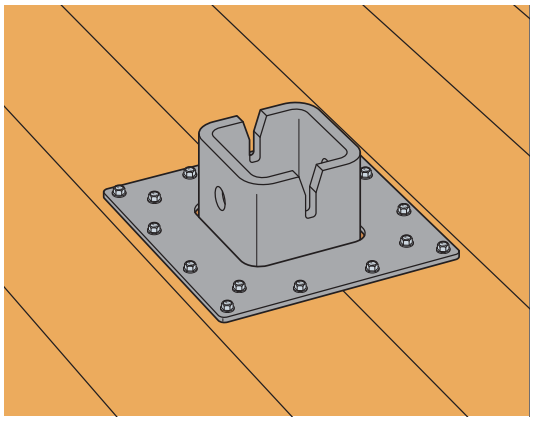
MPSC-TP4
(provided with MPSC100 and MPSC100U)



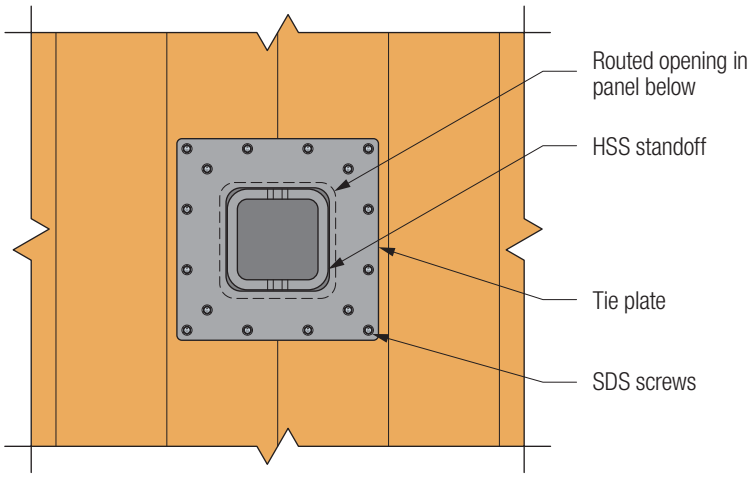
MPSC-TP5
(provided with MPSC150 and MPSC200)



MPSC-TP6
(provided with MPSC250 and MPSC300)



MPSC-TP5 Installation — Perspective



MPSC-TP5 Installation — Plan View

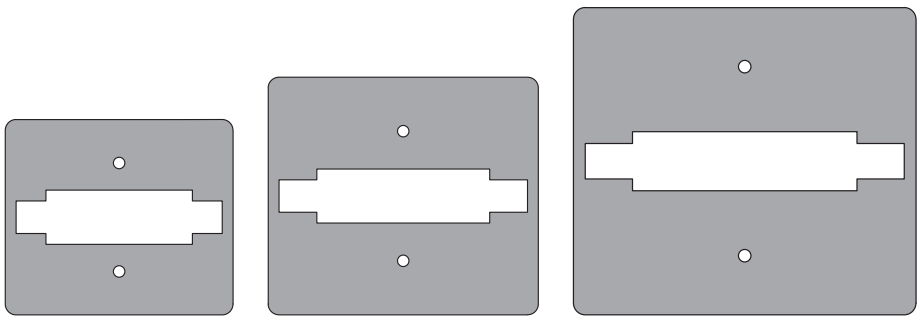
Tie Plate Allowable Bracing Loads

Model No.	Applicable Model No.'s	Tie Plate Size	Fasteners		Allowable Load (lb.)	
			Type	Quantity	Panel Material	Lateral (100)
MPSC-TP4	MPSC100	9" x 9" x 7 ga.	SDS25300	12	SPF CLT	3,600
	MPSC100U				DFL CLT/MPP	5,040
MPSC-TP5	MPSC150	10" x 10" x 7 ga.	SDS25300	16	SPF CLT	4,800
	MPSC200				DFL CLT/MPP	6,720
MPSC-TP6	MPSC250	12" x 12" x 7 ga.	SDS25300	20	SPF CLT	6,000
	MPSC300				DFL CLT/MPP	8,400

1. Allowable loads may not be increased for duration of load.
2. Connection lateral capacity is the lesser of the lateral value in the Allowable Loads table, and the lateral value in the Tie Plate Allowable Bracing Loads table.
3. Fasteners: SDS25300 = 0.250" (6.5 mm) OD x 3" (76 mm) long Strong-Drive® SDS Heavy-Duty Connector Screw.
4. Screw capacities are based upon SPF CLT (SG = 0.42), and DFL CLT/Mass Plywood Panel (MPP) (SG ≥ 0.50).

Optional Accessory — Shim Plate

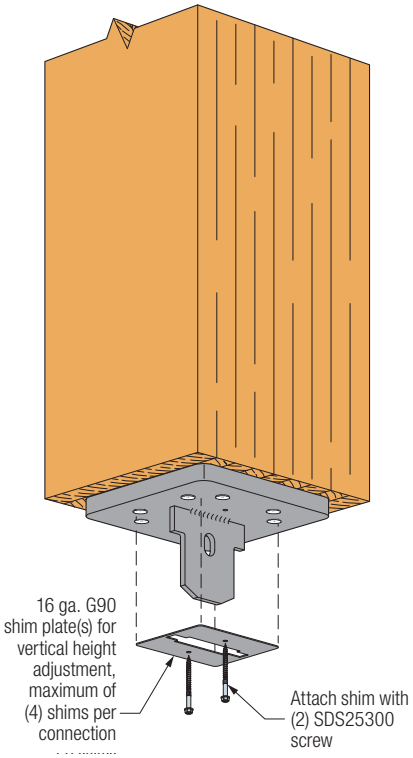
The slotted hole in the top connection (provided on all MPSC sizes except the MPSC100U) allows for vertical height adjustment of the connection with the use of shim plates. Shim plates slot around the knife plate of the top connection and attach with screws through the top plate into the column above.



MPSC-SP4
(Use with MPSC100)

MPSC-SP5
(Use with MPSC150 or MPSC200)

MPSC-SP6
(Use with MPSC250 or MPSC300)

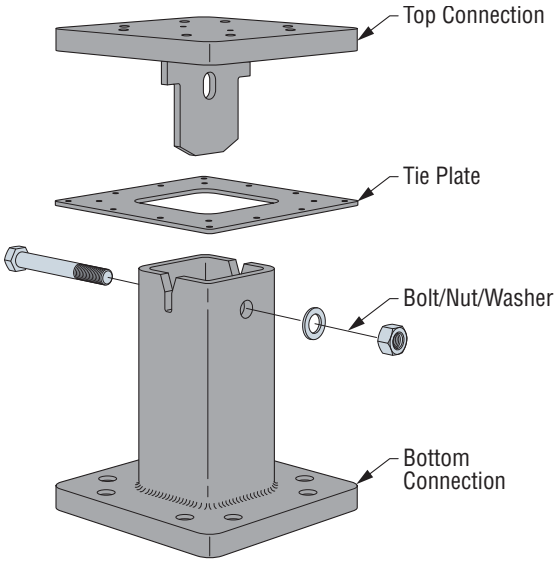


MPSC200 Top Connection with MPSC-SP5 Shim Plate Installation
(Other models similar, except MPSC100U)

Product Information

Ordering SKU	Description	Quantity
MPSC100-X	(1) MPSC100 Top Connection (1) MPSC100 Bottom Connection (1) MPSC-TP4 Tie Plate (1) ¾" Bolt/Nut/Washer	1
MPSC100U-X	(1) MPSC100U Top Connection (1) MPSC100 Bottom Connection (1) MPSC-TP4 Tie Plate (1) ¾" Bolt/Nut/Washer	1
MPSC150-X	(1) MPSC150 Top Connection (1) MPSC150 Bottom Connection (1) MPSC-TP5 Tie Plate (1) ¾" Bolt/Nut/Washer	1
MPSC200-X	(1) MPSC200 Top Connection (1) MPSC200 Bottom Connection (1) MPSC-TP5 Tie Plate (1) ¾" Bolt/Nut/Washer	1
MPSC250-X	(1) MPSC250 Top Connection (1) MPSC250 Bottom Connection (1) MPSC-TP6 Tie Plate (1) ¾" Bolt/Nut/Washer	1
MPSC300-X	(1) MPSC300 Top Connection (1) MPSC300 Bottom Connection (1) MPSC-TP6 Tie Plate (1) ¾" Bolt/Nut/Washer	1
SDCF10X200	Strong-Drive® SDCF TIMBER-CF 10mm x 200mm Screw	250
SDS25300	Strong-Drive SDS HEAVY-DUTY CONNECTOR Screw ¼" x 3"	950
MPSC-SP4-R20	16-gauge shim plate for MPSC100	20
MPSC-SP5-R20	16-gauge shim plate for MPSC150/200	20
MPSC-SP6-R20	16-gauge shim plate for MPSC250/300	20

Note: Screws and shim plates are sold separately from the connectors.



MPSC Components

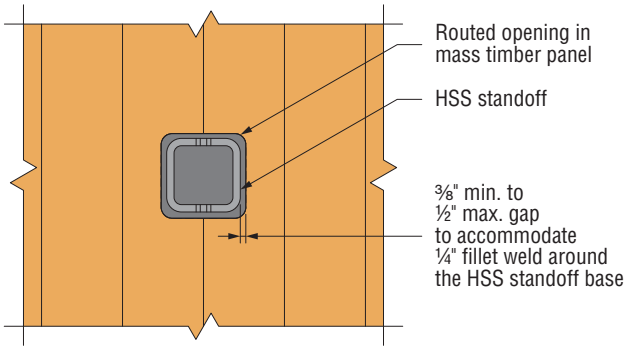
SDCF10X200 — Strong-Drive SDCF TIMBER-CF Screw
(Used to attach top and bottom connections to columns)

SDS25300 — Strong-Drive SDS HEAVY-DUTY CONNECTOR Screw
(Used to attach tie plate to mass timber floor)

Routing, Installation and Lifting

Mass Timber Fabrication Notes:

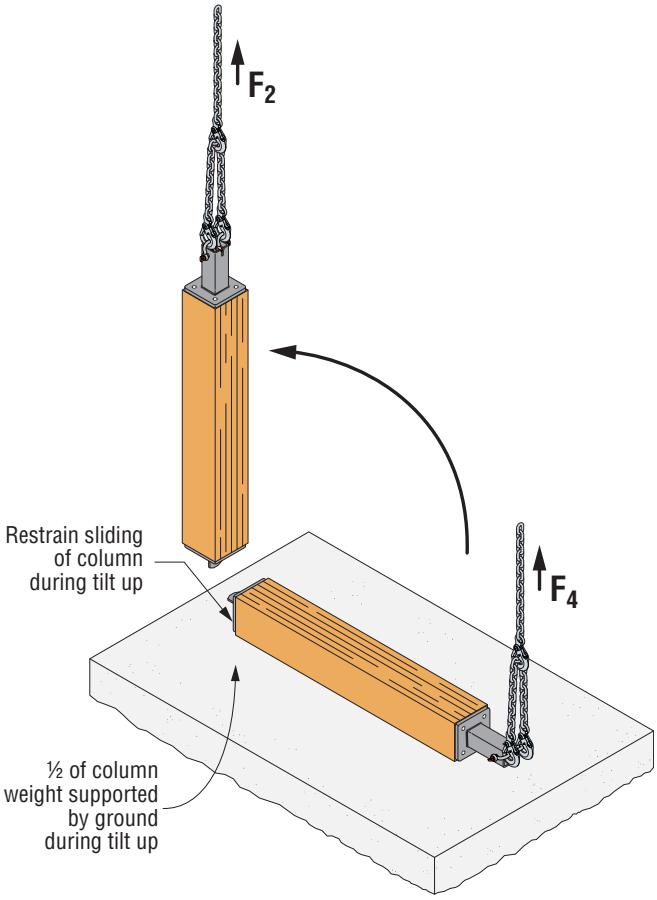
1. It is recommended to use CNC fabrication equipment to process the mass timber columns and panels. Accurate fabrication with hand tools is possible, but extra care must be taken to ensure precision.
2. The column ends must be cut level to ensure proper bearing between the two halves of the connection.
3. Routing of the mass timber panels shall consider additional space requirements of fillet weld around the standoff of the bottom connection. See **Panel Routing Detail**.



Panel Routing Detail

MPSC Installation Notes:

1. Install the bottom connection at the center of the upper end of the lower column, and the top connection at the center of the lower end of the upper column. Use all specified Strong-Drive™ SDCF Timber-CF screws and reference L-F-MTINSTALL for guidance on screw installation through steel side plates.
2. After the floor panel has been set on the lower column, place the tie plate around the HSS standoff and attach to the panel using all specified Strong-Drive SDS Heavy-Duty Connector screws as shown in the **MPSC-TP Installation Details**. *The tie plate must be installed before the upper column is placed.*
3. While the column is laying horizontal, attach rigging to the bolt holes in the bottom connection. Some contractors may choose to attach the upper end of temporary braces to the column at this stage. Tilt and lift the column.
4. Lower the upper column onto the column below, inserting the knife plate of the top connection into the HSS standoff of the bottom connection.
5. To fasten the top and bottom connection together, insert the thru-bolt and attach the nut and washer. Tighten the nut so it is snug tight.
6. Install temporary bracing and remove the rigging.



MPSC Column Tilting and Lifting

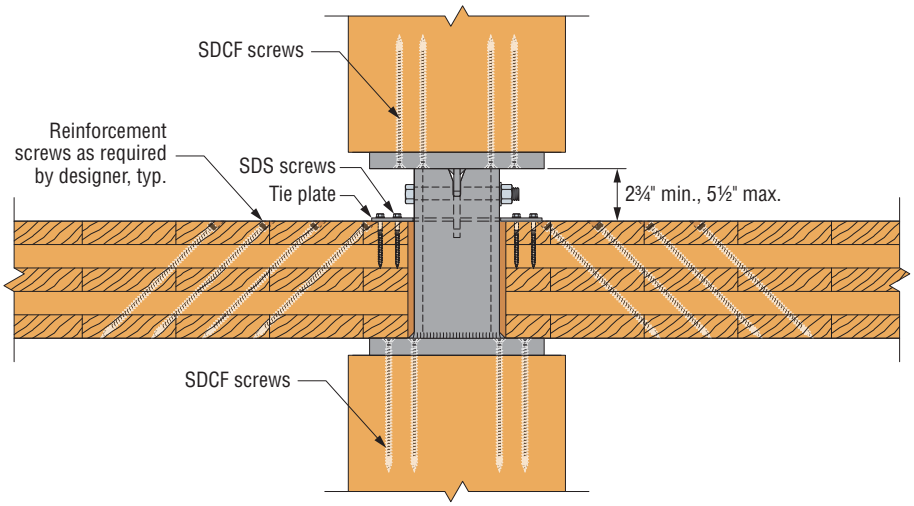
Allowable Loads — Column Lifting

Model No.	Minimum Column Width/Depth (in.)	Column Material	Fasteners	Allowable Load (lb.)	
				F_2	F_4
All	8¾	DF/SP Glulam	SDCF10x200	3,630	1,280
		MPL		3,735	1,045

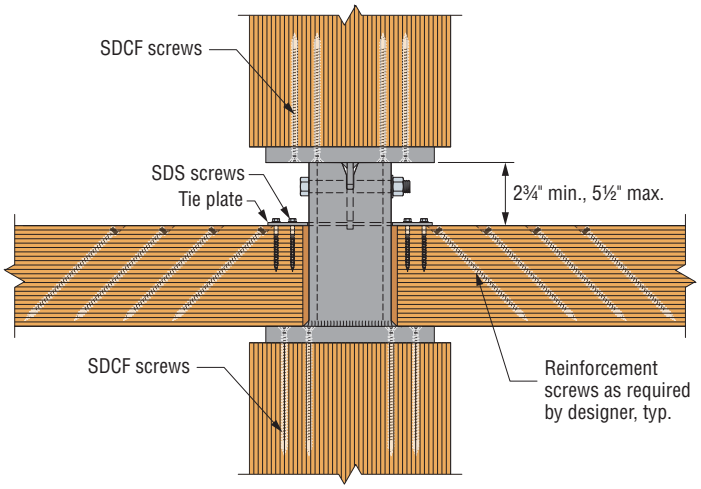
1. Fasteners: SDCF 10x200 = 10 mm (0.394") OD x 200 mm (7⅞") long Strong-Drive SDCF TIMBER-CF screw.
2. Allowable loads are based on the ultimate test load divided by a safety factor of 5.0.
3. Loads may not be increased for duration of load.
4. Allowable loads for Mass Plywood Laminate (MPL) are based on MPL Grade F19.
5. All rigging components that are used in conjunction with the MPSC shall be of sufficient strength and stiffness to carry the required load.
6. For quantity of fasteners, see MPSC Allowable Loads.

High-Capacity Connection for Mass Timber Structures

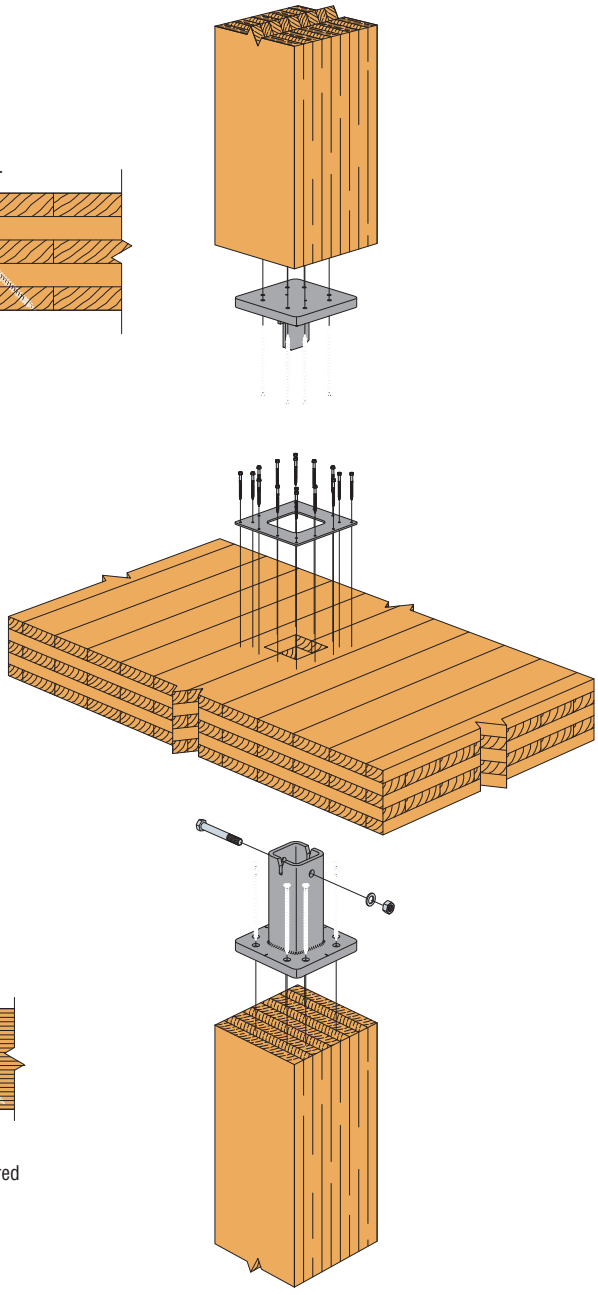
Typical Installation Details



MPSC Typical Installation with CLT Panels and Glulam Columns



MPSC Typical Installation with MPP Panel and MPL Column



MPSC Exploded View of Typical Installation

This flier is effective until December 31, 2027, and reflects information available as of August 1, 2025.
This information is updated periodically and should not be relied upon after December 31, 2027.
Contact Simpson Strong-Tie for current information and limited warranty or see strongtie.com.

(800) 999-5099
strongtie.com