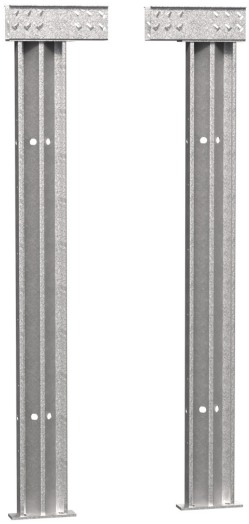
Technical Sheet

SSP

Steel Strong-Portal for Timber Frame Racking Resistance

Developed to offer enhanced racking resistance in timber structures, Steel Strong-Portal is available in a range of heights and widths to suit various sizes of openings.

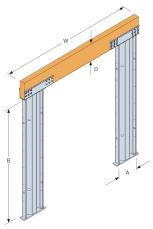




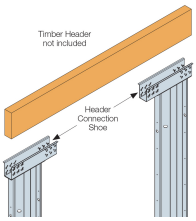
Close up of Steel Strong-Portal Shoe and Column



Steel Strong-Portal Left and Right Columns



Dimensions Legend



Header connection to shoe. Please note: timber header not included



Close up of Steel Strong-Portal Shoe and Column



Steel Strong-Portal Left and Right Columns

Features

Benefits

- Easily intergrated with existing timber frame designs.
- Secures directly to foundation and adjacent timber frame panels.
- Easy to handle - no need for cranes or mechanical handling equipment.
- No additional framework , simple connects to adjacent elements.
- All fixings and adhesives are provided with the system.

Material

- Steel Strong-Portal: Galvanised milld steel - Z275
- AT-HP Mortar Adhesive: Styrene free, metharcylate resin
- Threaded Rods: Grade 8.8 carbon steel, zinc plated
- Nuts and washers: carbon steel, zinc plated
- Screws: ESCR8.0X120 and SDS25112

Applications

Applications

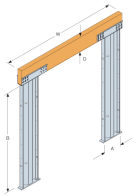
- Suitable for minimum wall thicknesses of 140mm
- Around openings such as garages, patio doors and bay windows
- Narrow piers
- Internal walls
- External walls
- Fix into timber studs and concrete foundation

Technical Sheet

SSP

Steel Strong-Portal for Timber Frame Racking Resistance

Technical Data



Product Range & Performance Values for BS Design Methods (Height (B) Range 1900mm - 2200mm)

Reference	Connector Dimensions				Racking capacity					
	Product Dimensions[mm]				Number of Fasteners		Product Capacity			
	A[mm]	W[mm]	B[mm]	Depth[mm]	Anchors		Permissible loads[kN]		Anchor Loads at Racking Loads[kN]	
					Qty	Specification	Racking Rb	Axial	Tension	Shear
SSP300	300	1500 - 3600	1900 - 2200	315	4.0	M20 x 210	7.5	15.0	9.5	1.876
SSP450	450	1500 - 3600	1900 - 2200	315	4.0	M24 x 210	19.5	25.0	25.0	4.875
SSP600	600	1500 - 3600	1900 - 2200	315	4.0	M24 x 250	31.5	30.0	40.0	7.875

Product Range & Performance Values for BS Design Methods (Height (B) Range 2201mm - 2500mm)

Reference	Connector Dimensions			Racking capacity		
	Product Dimensions[mm]			Number of Fasteners		Product Capacity
	A[mm]	W[mm]	Depth[mm]	Anchors		Permissible loads[kN]
				Qty	Specification	Axial
SSP300	300	1500 - 3600	315	4.0	M20 x 210	15.0
SSP450	450	1500 - 3600	315	4.0	M24 x 210	25.0
SSP600	600	1500 - 3600	315	4.0	M24 x 250	30.0

Table Notes:

1. Fasteners and anchors are supplied with Steel Strong-Portal
2. R_b is the racking resistance determined from tests carried out in accordance to BS EN 594:2011
3. It is the responsibilty of the building engineer/designer to ensure the foundation and hold down achors can take the applied tension and compression loads.
4. It is recomended to use either Glulam or LVL as the head timber. Width = 90mm and Height = 315mm
5. Axial loads have been determined when maximum racking load is being applied. The building engineer/designer to consider header timber can resist applied vertical loads.

SSP
Steel Strong-Portal for Timber Frame Racking Resistance

Installation

General Information

- The Steel Strong-Portal column should be fixed directly to the concrete foundation.
- DO NOT sit the Steel Strong-Portal on a timber sole plate.
- A DPC is required between the Steel Strong-Portal column and the concrete foundation.
- The concrete foundation should be designed by the engineer repsonsible for the structure to accommodate the hold down anchors and resist the applied loads.

Equipment Required

- 1 off 22mm (SSP300) or 28mm (SSP450/SSP600) masonry drill, min. 300mm long.
- 1 off Dust Brush (item code BR17/30).*
- 1 off Dust Pump (item code PUMP).*
- 1 off Resin Dispensing Gun (item code DT380).*
- 1 off 30mm (SSP300) or 36mm (SSP450/SSP600) A/F, Long Length Socket
- 1 off Torque Wrench (min. capacity 150Nm (SSP300) or 200Nm (SSP450/SSP600).
- 1 off SDS 1/4 Hex Drive (SDSD3/8-RB).*
- 1 off T30 drive bit (included).

*** Available from Simpson Strong-Tie, call 01827 255600 for prices.**

Installation

1a - Position the first Steel Strong-Portal column on top of the foundations in the required position, ensuring the correct orientation of the column with the fixing holes facing internally. Mark the foundation through the holes.

1b - Drill vertical holes to the stated diameter and depth:

SSP300 = Ø22mm x 160mm
SSP450 = Ø28mm x 160mm
SSP600 = Ø28mm x 200mm

1c - Ensure the holes are cleaned thoroughly using a pump and brush.

1d - Install the anchor bolts supplied: AT-HP resin with LMAS threaded rods:

SSP300 = M20 x 210mm
SSP450 = M24 x 210mm
SSP600 = M24 x 250mm
2a - Position the Steel Strong-Portal column over the anchor bolt rods and level by using steel shims and structural grout if required. Plumb and, where necessary, provide temporary bracing, which can be adjacent timber frame panels if already installed.

2b - Install nuts and washers and tighten by hand. Once the AT-HP resin has cured (see cartridge label for cure times) tighten the nut to the recommended torque (M20:150 Nm torque, using torque wrench with a 30mm socket. M24: 200 Nm torque, 36mm socket). Do not over-tighten nuts as this may lead to premature failure.

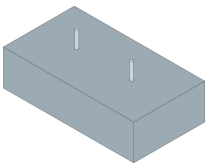
2c - It is recommended to fix timber studs to the outside of the column. These can be fixed in place using the SDS25112 screws supplied.Note: Where necessary to aid levelling of the column, steel shims are available to order in widths 300, 450 and 600mm and thicknesses 1, 2 and 3.5mm. Contact Simpson Strong-Tie for details.
3a - Place the timber header (not supplied) between the left hand (LH) and right hand (RH) columns. It is recommended to use either Glulam or LVL structural timber for the header.

SSP

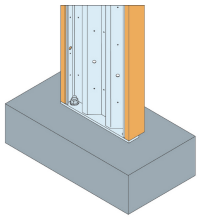
Steel Strong-Portal for Timber Frame Racking Resistance

See performance table for minimum size.

3b - Connect the timber header to the column using the ESCR screws provided via the angled holes in the header connection shoe (Fig 3b1). Ensure that the angle between the header and column is 90° (Fig. 3b2) and that there is no gap between the bottom of the header and the section of the column (Fig. 3b3).



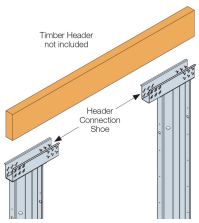
Threaded rods (included) installed into concrete



Threaded rod nut fixing Strong-Wall into concrete. Please note: timber studs are not included with the system



Steel levelling shims



Header connection to shoe. Please note: timber header not included

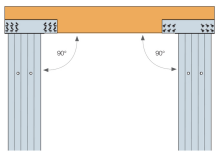


Fig. 3b2: Ensure right angled connection of timber header (not supplied) and steel Strong-Portal columns.

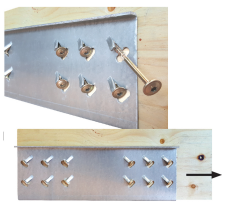


Fig 3b1: Note how the screws are installed into the guided slots at an angle. Below image:Steel Strong-Portal shoe with all screws installed. Example shows LH column, arrow indicates direction to RH column

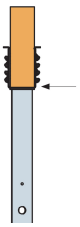
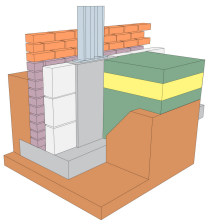
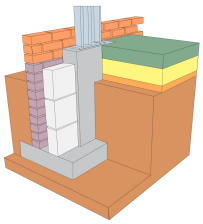


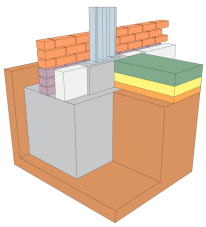
Fig 3b3: Side view. No gap between the bottom of the header and the Steel Strong-Portal shoe



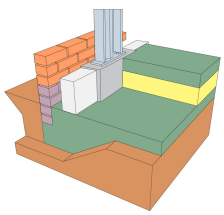
Strip foundations with ground supported floor slab



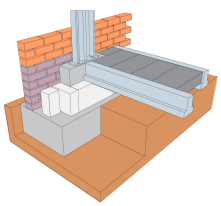
Strip foundations with suspended floor slab



Trench fill foundations with ground supported floor slab



Raft foundations and floor slab



Strip or trench fill foundations with precast concrete beam and block floor

Technical Sheet

SSP
Steel Strong-Portal for Timber Frame Racking Resistance

Winchester Road Cardinal Point
Tamworth Staffordshire B78 3HG
tel: +44 1827 255600
fax: +44 1827 255616

Copyright by Simpson Strong-Tie®
Information presented on this document is the exclusive property of Simpson Strong-Tie®
It is valid only when associated with products supplied by Simpson Strong-Tie®