

STEEL STRONG-WALL®: Garage Portal Systems on Concrete Foundations



Simpson Strong-Tie now offers a Steel Strong-Wall® panel option for garage portal systems which combines simplified installation with superior performance.

- Higher capacity with reduced concrete anchorage requirements (see *Alternate Garage Front Options* on page 17 for other options)
- Same anchor bolt template
- Complete kit available to simplify the connection to the header or beam

MATERIAL & FINISH: See page 10.

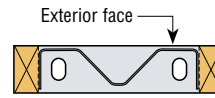
For product data and naming scheme information, see pages 10 and 11.

Suggested Example Specification: SSW12x7 with SSWP-KT

GARAGE HEADER ROUGH OPENING HEIGHT

Model No.	H Curb	Rough Opening Height
SSW12x7 SSW15x7 SSW18x7	5½"	7'-1½"
	6"	7'-2"
SSW12x7.4 SSW15x7.4 SSW18x7.4	0"	7'-1½"
SSW12x8 SSW15x8 SSW18x8	5½"	8'-2¾" ³
	6"	8'-3¼" ³

1. The height of the garage curb above the garage slab is critical for rough header opening at garage return walls.
2. Shims are not provided with Steel Strong-Wall®.
3. Furring down garage header may be necessary for correct rough opening height.



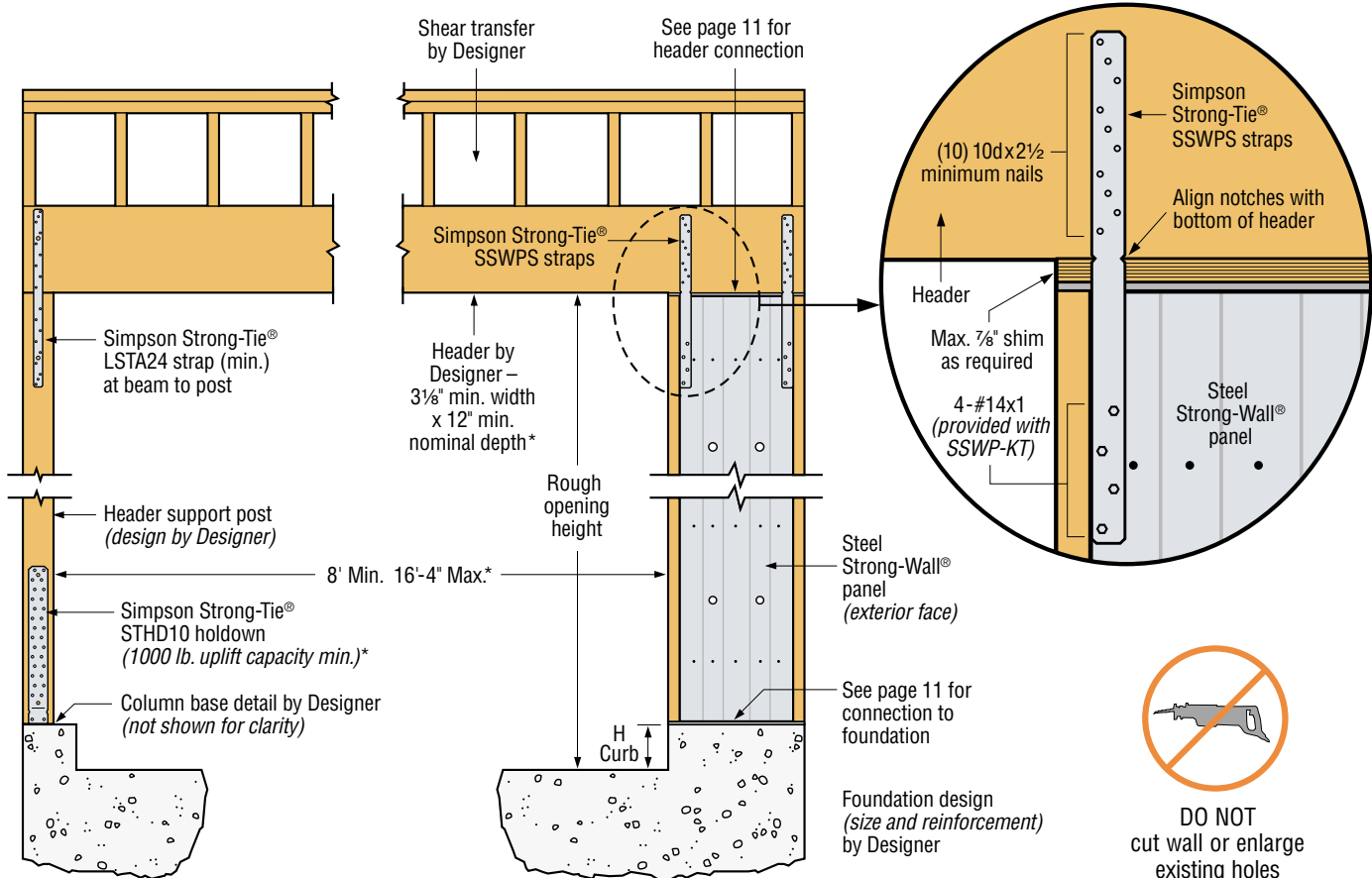
For a complete set of wall profile drawings, see page 10.

INSTALLATION

- Portal Frame Connection Kit is required to achieve increased load values listed for portal frame system.
- SSWPS straps must be installed on exterior face of the Steel Strong-Wall® panel. Position header flush with exterior face of the Steel Strong-Wall panel.
- Do not cut the Steel Strong-Wall or enlarge existing holes. Doing so will compromise the performance of the wall.
- Do not use an impact wrench to tighten nuts on the anchor bolts.
- Maximum shim thickness between the Steel Strong-Wall and header is ⅞" using Simpson Strong-Tie® Strong-Drive® ¼" x 3½" screws (SDS).
- Walls with 2x4 pre-attached studs may also be used in 2x6 wall framing. Install the wall flush to exterior face of the framing and add furring to the opposite side.
- Walls may be installed with solid or multi-ply headers, see detail 11/SSW2 page 58 for details.

PORTAL FRAME CONNECTION KIT

Model No.	Contents
SSWP-KT	(2) 10 gauge SSWPS straps (8) #14x1 self-drilling screws Installation instructions



This installation reflects lateral load requirements of a Single-Wall Portal System.* It is the Designer's responsibility to provide a complete load path for all loads in accordance with the governing codes.

*Refer to footnotes 2, 4 and 9 on page 17.

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2006 INTERNATIONAL BUILDING CODE®

SSW Model	Allowable Axial Load (lbs)	SINGLE-WALL GARAGE PORTAL SYSTEM ²					
		Seismic ³			Wind		
		Allowable ASD Shear Load V (lbs)	Drift at Allowable Shear (in.)	Max. Uplift at Allowable Shear ⁴ (lbs)	Allowable ASD Shear Load V (lbs)	Drift at Allowable Shear (in.)	Max. Uplift at Allowable Shear ⁴ (lbs)
SSW12x7 w/ SSWP-KT	1000	1350	0.42	11550	1645	0.51	15390
	4000	1350	0.42	11550	1435	0.45	12560
	7500	1185	0.37	9750	1185	0.37	9750
SSW15x7 w/ SSWP-KT	1000	2210	0.38	15930	2210	0.38	15930
	4000	2000	0.34	13925	2000	0.34	13925
	7500	1760	0.30	11835	1760	0.30	11835
SSW18x7 w/ SSWP-KT	1000	3865	0.40	25785	3865	0.40	25785
	4000	3610	0.38	23125	3610	0.38	23125
	7500	3315	0.35	20405	3315	0.35	20405
SSW12x7.4 w/ SSWP-KT	1000	1275	0.45	11695	1535	0.54	15320
	4000	1275	0.45	11695	1310	0.46	12135
	7500	1045	0.37	9055	1045	0.37	9055
SSW15x7.4 w/ SSWP-KT	1000	2065	0.42	15900	2065	0.42	15900
	4000	1855	0.37	13765	1855	0.37	13765
	7500	1590	0.32	11330	1590	0.32	11330
SSW18x7.4 w/ SSWP-KT	1000	3615	0.45	25770	3615	0.45	25770
	4000	3380	0.42	23150	3380	0.42	23150
	7500	3100	0.38	20390	3100	0.38	20390
SSW12x8 w/ SSWP-KT	1000	1180	0.46	11845	1375	0.55	14770
	4000	1140	0.45	11305	1140	0.45	11305
	7500	875	0.35	8110	875	0.35	8110
SSW15x8 w/ SSWP-KT	1000	1865	0.42	15570	1865	0.42	15570
	4000	1640	0.37	13130	1640	0.37	13130
	7500	1380	0.31	10600	1380	0.31	10600
SSW18x8 w/ SSWP-KT	1000	3280	0.47	25325	3315	0.48	25775
	4000	3100	0.45	23160	3100	0.45	23160
	7500	2840	0.41	20365	2840	0.41	20365

- Allowable shear loads and anchor uplifts are applicable to Single-Wall Garage Portal System installation on concrete with minimum $f'_c = 2500$ psi using the ASD basic (Section 1605.3.1) or the alternative basic (Section 1605.3.2) load combinations. Load values include evaluation of bearing stresses.
- A Double-Wall Garage Portal System consists of two walls with a header continuous across both panels. The allowable load is twice the Single-Wall Portal value.
- For seismic designs based on the 2006 IBC using $R = 6.5$. For other codes, use the seismic coefficients corresponding to light-frame bearing walls with wood structural panels or sheet steel panels.
- The minimum header size shown in the details is the minimum required for lateral rigidity of the portal system. Larger headers may be required due to vertical loading. Support post uplift connectors may be reduced where justified by calculations.
- Recommended header moisture content is 19% or less at time of installation.
- Allowable shear, drift, and uplift values may be interpolated for intermediate height or axial loads.
- High-strength anchor bolts are required for anchor tension (uplift) forces exceeding the allowable load for standard-strength bolts tabulated on pages 32-33. See pages 32-37 for SSWAB anchor bolt information and anchorage solutions.
- Tabulated anchor tension (uplift) loads assume no resisting axial load. For anchor tension loads at design shear values and including the effect of axial load, refer to the Strong-Wall Selector™ software or use the equations on page 15 (include K factor in uplift calculations). Drifts at lower design shear may be linearly reduced.
- Longer header spans can be accommodated if larger headers are used such that equivalent stiffness is equal to or greater than that provided by the minimum header size and maximum length indicated.

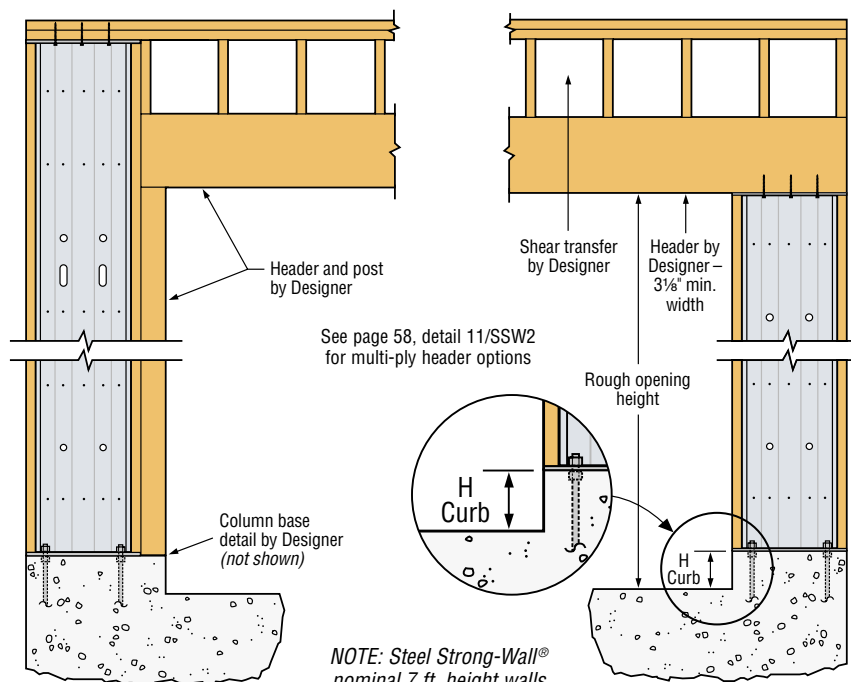
STEEL STRONG-WALL®: Alternate Garage Front Options

These alternate garage front options may be used for applications when the Steel Strong-Wall® panel is installed at the full height (*option 1*) or without the additional Portal Frame Kit (*option 2*), when higher capacity or reduced concrete anchorage are not needed. Refer to the Standard Application on Concrete Foundations pages 10-13 for product data and allowable load values.

FOR GARAGE WALL OPTION 2

Designer shall design for:

- Shear transfer
- Out-of-plane loading effect
- Increased overturning and drift due to additional height



GARAGE WALL OPTION 1

GARAGE WALL OPTION 2

NOTE: Steel Strong-Wall® nominal 7 ft. height walls are 80", that is 2" taller than Wood Strong-Wall® shearwalls.