

FLUSH MOUNT – SolarHot Hot Water Collectors

Minimum Design uplift force in # per mounting foot as a function of design wind pressure (1)									
Collectors	20 psf	30 psf	40 psf	50 psf	60 psf	70 psf	80 psf	90 psf	100 psf
4' x 80" (26.7 ft ²)	134	201	268	335	402	469	536	603	670
4' x 8" (32 ft ²)	160	240	320	400	480	560	640	720	800
4' x 10" (40 ft ²)	200	300	400	500	600	700	800	900	N/A

Structural Member Species	Specific Gravity	Design Pull-Out (2) (#/in penetration)	SolarHot Flush Mount Capacity Per Foot in # (2)(3)(4)
Southern Pine	0.55	352	1408
Spruce, Pine, Fir	0.42	235	940
Spruce, Pine, Fir (MSR and MEL)	0.50	305	1220

(1) Each SolarHot collector to be mounted with four (4) mounting feet. Flush mounted collectors **DO NOT** share a common set of (2) mounting feet between panels.

(2) Based on 2-3/8" lag screws per mounting foot embedded 2" in a rafter or other structural roof member.

(3) Pull-out values incorporate a 1.6 safety factor and a 1.6 load duration factor as recommended by the American Wood Council (AWC).

(4) See the International Building Code or the AWC National Design Specification for Wood Construction for required edge distances.

(5) Value for one (1) 3/8" diameter lag screw with one inch (1") of penetration. Self-drilling lag screws should be used or pilot holes drilled to prevent splitting of the structural wood members.

Conclusion:

Based on the above numbers, the worst case scenario (4' x 10" collector mounted in SPF lumber) provides an available pull out value greater than the applied wind pressure up to 100 psf (except as noted).

