

TILT MOUNT — SolarHot Hot Water Collectors

Collectors	Minimum Design uplift force in # per mounting foot as a function of design wind pressure ⁽¹⁾		
	20 psf	30 psf	35 psf
4' x 80" (26.7 ft ²)	267	400	467
4' x 8' (32 ft ²)	320	480	560
4' x 10' (40 ft ²)	400	600	700

Structural Member Species	Specific Gravity	Design Pull-Out ⁽⁵⁾ (#/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 to 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.

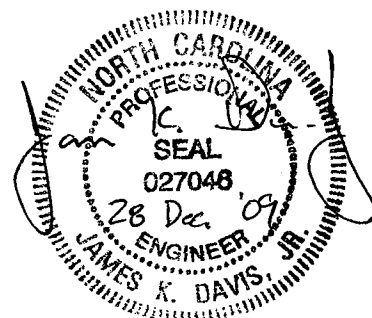
⁽³⁾ Pull-out values incorporate a 1.6 safety factor and a 1.6 load duration factor as recommended by the American Wood Council (AWC).

⁽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 34% greater than the wind requirements for a 50 psf condition. $940/700 = 1.34$.



FLUSH MOUNT — SolarHot Hot Water Collectors

Collectors	Minimum Design uplift force in # per mounting foot as a function of design wind pressure ⁽¹⁾			
	20 psf	30 psf	40 psf	50 psf
4' x 80" (26.7 ft ²)	134	201	268	335
4' x 8' (32 ft ²)	160	240	320	400
4' x 10' (40 ft ²)	200	300	400	500

Structural Member Species	Specific Gravity	Design Pull-Out ⁽⁵⁾ (#/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 88% greater than the wind requirements for a 50 psf condition. $940/500 = 1.88$.

