



How To Figure Snaptie Pressure

There are *three* basic factors in determining how much pressure a snaptie is carrying during a concrete pour.

1. Rate of Pour

This is how fast the concrete is placed vertically into the forms per hour. The thickness of the wall is not a factor, only the vertical height of pour (lifts). Ideally concrete should be placed at 3' to 4' per hour.

2. Outside Temperature

Concrete will set-up (harden) faster at a higher temperature, slower at a lower temperature. The quicker concrete hardens the quicker pressure is relieved on snapties. The faster concrete sets up the faster concrete can be poured into forms.

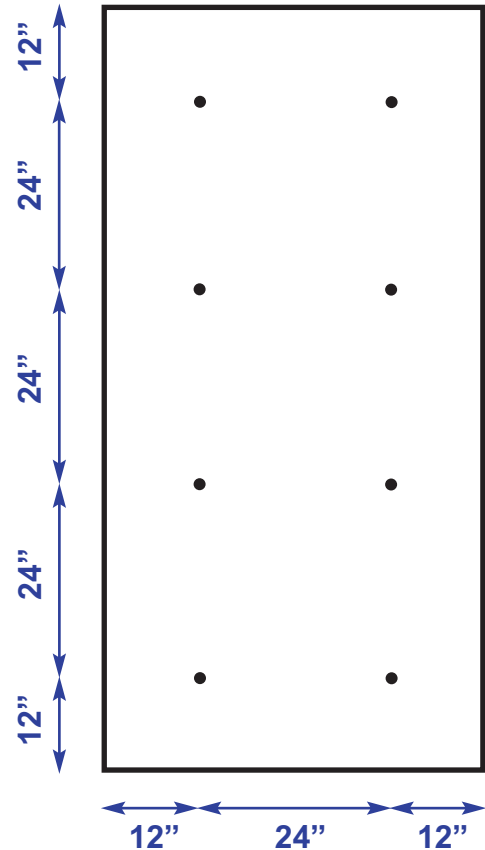
Example:

At 70 degrees concrete sets up in 1 hour.

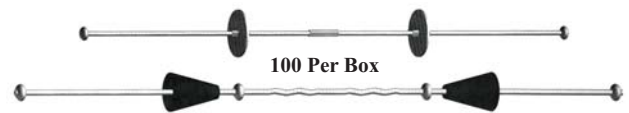
At 45 degrees concrete sets up in 1 hour and 45 minutes.

3. Snaptie Spacing

The snaptie spacing is how many ties are placed into 4' x 8' plywood form panels and the spacing between ties. The further apart a snaptie is spaced the greater the area of form, or load, that the snaptie must carry. Snapties should not be spaced more than 24" apart. Ideally, snapties should be placed at 16" on center to assure form strength and steady pour rate. Rap-I-Form snapties are rated as 4500 pound snapties. O.S.H.A. and the American Concrete Institute require a 2 to 1 safety factor on all snapties. This means a 4500# snaptie has a safe working strength of 2250# per square foot.



Plastic Cone or Metal Washer Snaptie



"Short End"

3/4" Plywood = 4 3/4" Ends
 1 1/8" Plywood = 5 1/8" Ends

"Stubbie"

3/4" Plywood = 1 1/4" Ends
 1 1/8" Plywood = 1 5/8" Ends

"Long End" 3/4" Plywood = 8 1/4" Ends

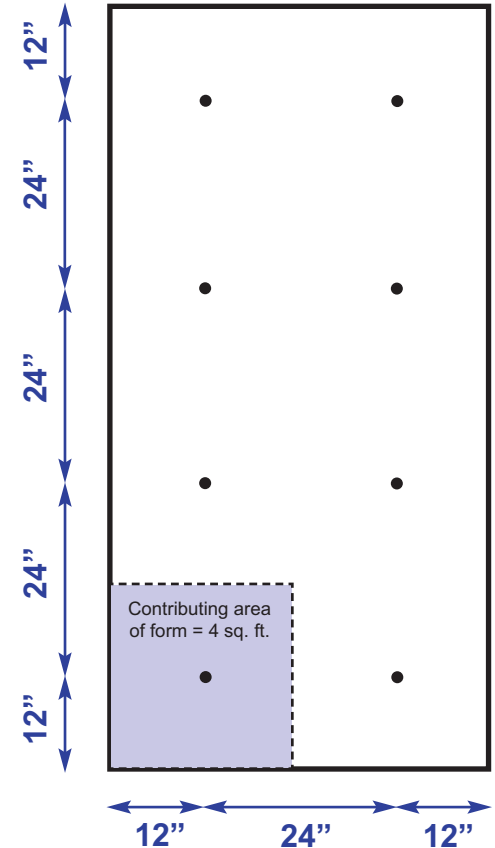
Determining the Load

To determine the total load on a snaptie, figure the contributing area of form (equal to the distance between ties horizontally times the vertical distance between ties.)

Then multiply that number by the unit pressure PSFT of the concrete on that area of form (see chart).

Rate of Placement R. ft. per hr.	P. maximum lateral pressure, psf for temperature indicated.					
	90F	80F	70F	60F	50F	40F
1	250	262	278	300	350	375
2	350	375	407	450	510	600
3	450	488	536	600	690	825
4	550	600	664	750	870	1050
5	650	712	793	900	1050	1275
6	750	825	921	1050	1230	1500
7	850	938	1050	1200	1410	1725
8	881	973	1090	1246	1466	1795
9	912	1008	1130	1293	1522	1865
10	943	1043	1170	1340	1578	1935

Table based upon formulas devised by A.C.I Committee 622



Example #1

- 8' of form panel with snapties at 24" o.c. (8' ties per 4' x 8' panel)
- Poured at 5' per hour (rate of pour) at a 70 degree temperature.
- Contributing area of form = 2' 0" x 2' 0" = 4 sq. ft.
- 5' rate of pour at 70 = 793 lbs. of pressure per sq. ft.
- 4 (area of form) x 793 (unit pressure per sq. ft.) = 3,172 lbs. per sq. ft. pressure of load on snaptie.

NOTE: This exceeds safe capacity of snaptie and **MUST BE REDUCED** by either slowing the rate of concrete poured per hour or by reducing the snaptie spacing.

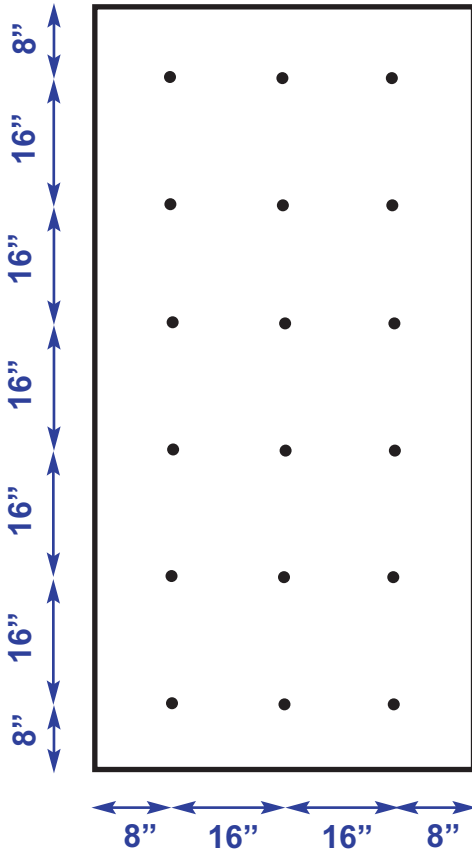
Example #2

- 8' of form panel with snapties at 16" o.c. (18' ties per 4' x 8' panel)
- Poured at 5' per hour (rate of pour) at a 70 degree temperature.
- Contributing area of form = 1.33 x 1.33 = 1.8 sq. ft.
- 5' rate of pour at 70 = 793 lbs. of pressure per sq. ft.
- 1.8 (area of form) x 793 (unit pressure per sq. ft.) = 1,427 lbs. per sq. ft. pressure of load on snaptie.

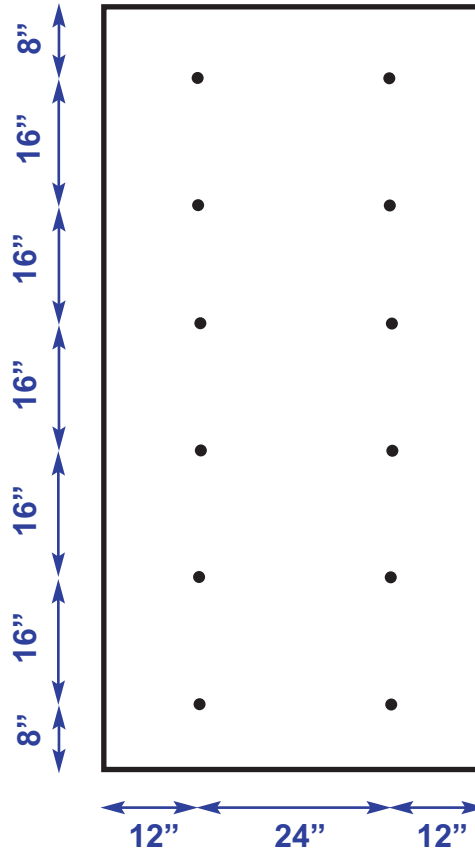
NOTE: Well within the 2250 lbs. per sq. ft. safe load on snapties.

Snaptie Spacing Alternatives for 4' x 8' Sheets

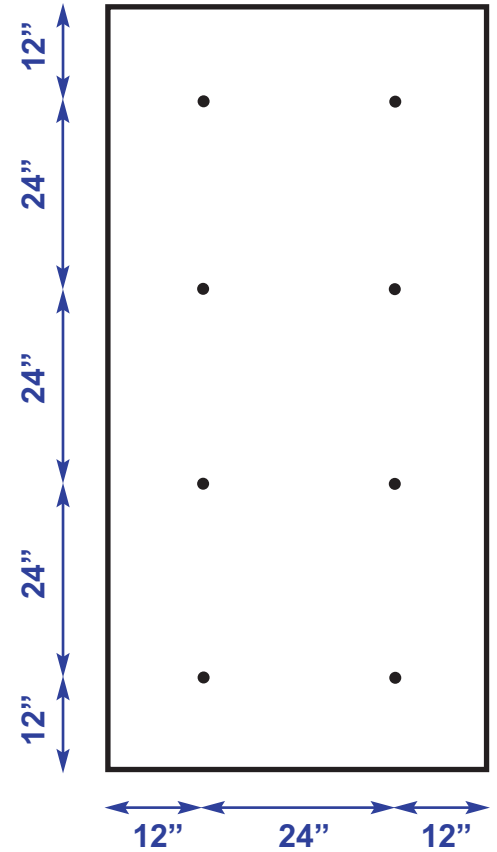
18 HOLES



12 HOLES



8 HOLES



Other common causes for snaptie failure in the field are through twisting or bending the snapties in the form placement. This weakens snapties and will lead to tie failure.

Also, when securing the snaptie wedges or forming brackets on the snaptie it is *NOT NECESSARY* to drive more than 1/2 to 3/4 of the wedge or bracket down onto the tie end. By forcing wedges or brackets farther causes tie distress and fracture, leading to snaptie failure.

If there are any other questions concerning form ties and their application please contact your Rap-I-Form distributor.

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