



April 22, 2022

Clover & Hive
120 SE 30th St.
Lee's Summit, MO 64082

RE: Field Issue of over bored floor joist, holes bored within bottom 2" of floor joist, and steel beam bearing for Lot # – 34 Osage - 2109 SW Rutherford Dr. Lee's Summit, MO 64081 Permit # PRRES20213401

Over bored hole:

- Floor joist spans approx. 15'-5"
- Floor joist is Douglas Fir Larch #2 2x10 has standard dead=10 psf and live = 40 psf loads at 16" oc.
- Hole is approx. 5" wide and 3" deep.
- Hole is located 2" from bottom of floor joist and within middle third of span length.

Recommended modifications:

- **Install 3' length of CS-16 strap centered underneath hole along bottom of floor joist per manufacturer's specs.**

Hole for PEX line within bottom 2" of floor joist:

- Floor joist spans approx. 6'-8".
- Floor joist is Douglas Fir Larch #2 2x10 has standard dead=10 psf and live = 40 psf loads at 16" oc.
- Hole is approx. 1" diameter.
- Hole is located 1.75" from bottom of floor joist.

Recommended modifications:

- **Install a minimum 3' length of CS-16 strap centered underneath hole per manufacturer's specs.**

W8x10 steel beam bearing:

- Three span W8x10 continuous steel beam bears on foundation wall beam pocket for 2.5" at west wall of basement.
- Single span W8x10 steel beam bears on foundation wall beam pocket for 3.25" at corner under front porch.

Recommended modifications:

- Install Douglas Fir Larch #2 2x6 treated full height from basement slab to steel beam. Ensure a tight fit with full contact with beam and slab.
- Attach Douglas Fir Larch #2 2x6 treated to foundation wall with 1/4" x 4" tapcon concrete anchors at 18" oc staggered.

Model No.	Total L	Ga.	DF/SP		SPF/HF		Allowable Tension Loads (160)	Code Ref.
			Fasteners	End Length	Fasteners	End Length		
CMST12	40'	12	(74) 16d	33"	(84) 16d	38"	9,215	I4, L3, FL
			(86) 10d	39"	(98) 10d	44"	9,215	
CMST14	52 1/2'	14	(56) 16d	26"	(66) 16d	30"	6,490	
			(66) 10d	30"	(76) 10d	34"	6,490	
CMSTC16	54'	16	(50) 16d sinker	20"	(58) 16d sinker	25"	4,585	
CS14	100'	14	(26) 10d	15"	(30) 10d	16"	2,490	
			(30) 8d	16"	(36) 8d	19"	2,490	
CS16	150'	16	(20) 10d	11"	(22) 10d	13"	1,705	
			(22) 8d	13"	(26) 8d	14"	1,705	
CS18	200'	18	(16) 10d	9"	(18) 10d	11"	1,370	
			(18) 8d	11"	(22) 8d	12"	1,370	
CS20	250'	20	(12) 10d	6"	(14) 10d	9"	1,030	
			(14) 8d	9"	(16) 8d	9"	1,030	
CS22	300'	22	(10) 10d	7"	(12) 10d	7"	845	
			(12) 8d	7"	(14) 8d	8"	845	

1. Fastener quantities and end lengths are calculated using an increase for wind or seismic loading.
2. Use half of the required nails in each member being connected to achieve the listed loads.
3. Calculate the connector value for a reduced number of nails as follows:

$$\text{Allowable Load} = \frac{\text{No. of Nails Used}}{\text{No. of Nails in Table}} \times \text{Table Load}$$

Example: CMSTC16 in DF/SP with 40 nails total.
(Half of the nails in each member being connected)

$$\text{Allowable Load} = \frac{40 \text{ Nails (Used)}}{50 \text{ Nails (Table)}} \times 4,585 \text{ lb.} = 3,668 \text{ lb.}$$

4. Tension loads apply for uplift when installed vertically.
5. **Nails:** 16d = 0.162" dia. x 3 1/4" long. 16d sinker = 0.148" dia. x 3 1/4" long. 10d = 0.148" dia. x 3" long. See pp. 26-27 for other nail sizes and information.



Sincerely,

Bradley Huxol, PE

