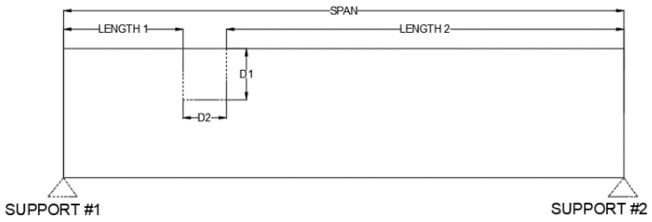
EVERSTEAD
ENGINEERING & DESIGN

August 30, 2022

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

RE: Field Issues of over notched and over bored hole for Lot #1 Osage – 2108 SW Holdbrooks Dr. Lee's Summit, MO 64082 – Permit # PRRES20215066

Unit 2106 - Over notch in floor joist:



SIMPLE SPAN

- D1 – 5"
- D2 – 4"
- Length 1 – 4'
- Length 2 – 7'
- Span – 11'
- Support #1 – Rear garage load bearing wall
- Support #2 – garage steel beam
- Location – above garage

Recommended modifications:

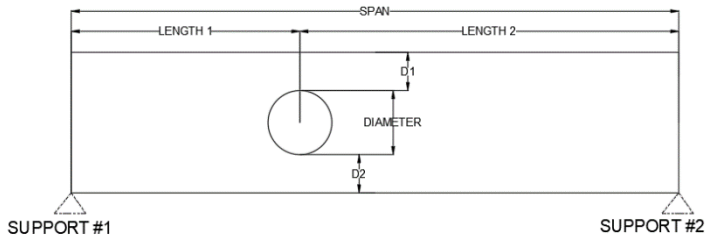
- **Install (2) DFL#2 2x10 as close as possible to over notched floor joist spanning approximately 11'.**

- D1 – 5"
- D2 – 4"
- Length 1 – 1'
- Length 2 – 10'
- Span – 11'
- Support #1 – Rear garage load bearing wall
- Support #2 – garage steel beam
- Location – above garage

Recommended modifications:

- **Sister a 6' length DFL #2 2x10 to over notched floor joist with 4 fasteners per linear ft in a "w" pattern and glued.**

Unit 2106 – Hole within bottom 2" floor joist:



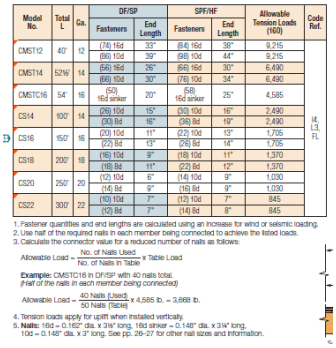
- D1 – at least 2"
- D2 – .5"
- Diameter of hole – 3.5"
- Length 1 – 5.5'
- Length 2 – 5.5'
- Span – 11'
- Support #1 – foundation wall
- Support #2 – Double joist
- Location – above crawl space
- Loading -
  - Dead = 10 psf @ 16" oc
  - Live = 40 psf @ 16" oc

Recommended modifications:

- **Install a 24" length CS-16 strap centered under hole along bottom of floor joist per manufacturer's specs.**
-

Unit 2108 – Hole within bottom 2" of floor joist:

- D1 – at least 2"
- D2 – at or less than 2"
- Diameter of hole – .5"
- Length 1 – 5.5'
- Length 2 – 5.5'
- Span – 11'
- Support #1 – Load bearing wall, rear of garage
- Support #2 – Steel W10 x 22 garage beam
- Location – Garage
- Loading -
  - Dead = 10 psf @ 16" oc
  - Live = 40 psf @ 16" oc



Model No.	Total L	Ga.	DF/SP Fasteners	DF/SP End Length	SPF/HF Fasteners	SPF/HF End Length	Allowable Tension Loads (160)	Code Ref.
CMST12	40'	12	(74) 16d	33"	(84) 16d	38"	9,215	
			(86) 10d	39"	(98) 10d	44"	9,215	
CMST14	52'6"	14	(56) 16d	26"	(64) 16d	30"	6,490	
			(66) 10d	30"	(76) 10d	34"	6,490	
CMSTC16	54'	16	(52) 16d sinker	20"	(58) 16d sinker	25"	4,585	
CS14	100'	14	(28) 16d	15"	(32) 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"	(23) 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:

Allowable Load = (No. of Nails Used / No. of Nails in Table) x Table Load

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

Allowable Load = (40 Nails (Used) / 50 Nails (Table)) x 4,585 lb. = 3,668 lb.

4. Tension loads apply for uplift when installed vertically.
5. **Nails:** 16d – 0.162" dia. x 3½" long, 16d sinker – 0.148" dia. x 3¼" long, 10d – 0.148" dia. x 3" long. See pp. 26–27 for other nail sizes and information.

Recommended modifications:

- **Install a 24" length CS-16 strap centered under hole along bottom of floor joist per manufacturer's specs.**

Sincerely,

Bradley Huxol, PE