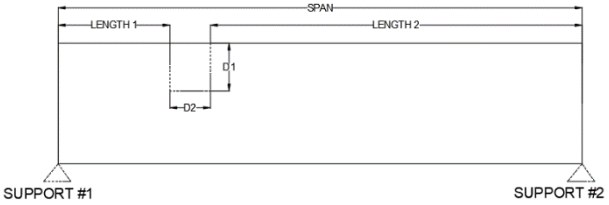
EVERSTEAD
ENGINEERING & DESIGN

July 8, 2022

Summit Homes
120 SE 30th St.
Lee's Summit, MO 64082

RE: Field Issue of over notched floor joists and holes closer than 2" together in floor joist for lot # 131 Hawthorne Ridge – 3120 SW Arbor Tree Dr Lee's Summit, MO 64082 – Permit # PRRES20216307



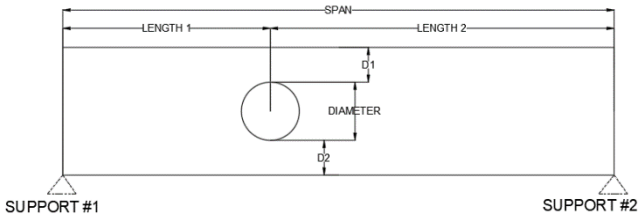
SIMPLE SPAN

- D1 – 6"
- D2 – 5"
- Length 1 – 10'
- Length 2 – 1'
- Span – 11'
- Support #1 – Load bearing wall at stairs
- Support #2 – Foundation wall near front stoop
- Location – Unfinished storage in basement, below office/powder room
- Loading -
    - Dead = 10 psf @ 16" oc
    - Live = 40 psf @ 16" oc

- D1 – 2.5"
- D2 – 3.5"
- Length 1 – 2'
- Length 2 – 13'
- Span – 15'
- Support #1 – (2) #2 2x10 flush
- Support #2 – rear foundation wall
- Location – below great room
- Loading -
    - Dead = 10 psf @ 16" oc
    - Live = 40 psf @ 16" oc

Recommended modifications:

- **Install Douglas Fir Larch #2 2x10 as close as possible to notched floor joist.**



- D1 – at least 2"
- D2 – at least 2"
- Diameter of hole – 1"
- Length 1 – 2'
- Length 2 – 13'
- Span – 15'
- Support #1 – front foundation wall
- Support #2 – W8x18 steel beam
- Location – above Unfinished storage in basement
- Loading -
    - Dead = 10 psf @ 16" oc
    - Live = 40 psf @ 16" oc

- D1 – at least 2"
- D2 – at least 2"
- Diameter of hole – 1"
- Length 1 – 4'
- Length 2 – 7'
- Span – 11'
- Support #1 – front foundation wall
- Support #2 – stair load bearing wall
- Location – above Unfinished storage in basement
- Loading -
    - Dead = 10 psf @ 16" oc
    - Live = 40 psf @ 16" oc

Recommended modifications:

- **Install 24" length of CS-16 centered under the hole per manufacturer's spec's.**

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	52½'	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	I4, L3, FL
			(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)

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

4. Tension loads apply for uplift when installed vertically.
5. **Nails:** 16d = 0.162" dia. x 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.

Sincerely,

Bradley Huxol, PE