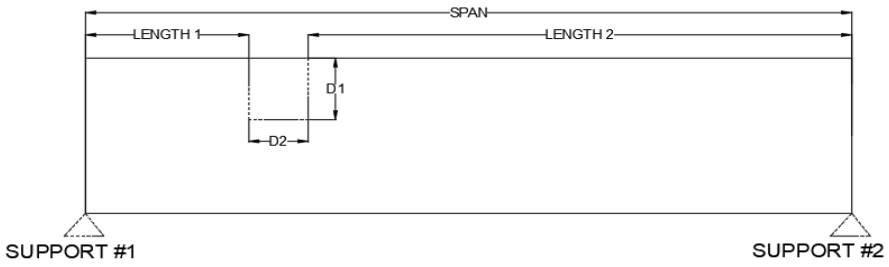
EVERSTEAD
ENGINEERING & DESIGN

May 10, 2022

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

RE: Field Issue of notched floor joist for Lot #19 Osage – 2011 & 2009 SW Osage Dr. Lee's Summit, MO 64082 – Permit # PRRES20214081



SIMPLE SPAN

Unit A – over notched floor joist in unfinished mech:

- D1 – 7"
- D2 – 5"
- Span – 15' 1-3/4"'
- Support #1 – W8x13 steel beam continuous
- Support #2 – W8x10 Steel beam continuous
- Location – unfinished mechanical
- Loading -
    - Dead = 15 psf @ 16" oc
    - Live = 40 psf @ 16" oc

Unit B – over notched floor joist in unfinished mech:

- D1 – 6.5"
- D2 – 5"
- Span – 15' 1-3/4"'
- Support #1 – W8x13 steel beam continuous
- Support #2 – W8x10 Steel beam continuous
- Location – unfinished mechanical
- Loading -
    - Dead = 15 psf @ 16" oc
    - Live = 40 psf @ 16" oc

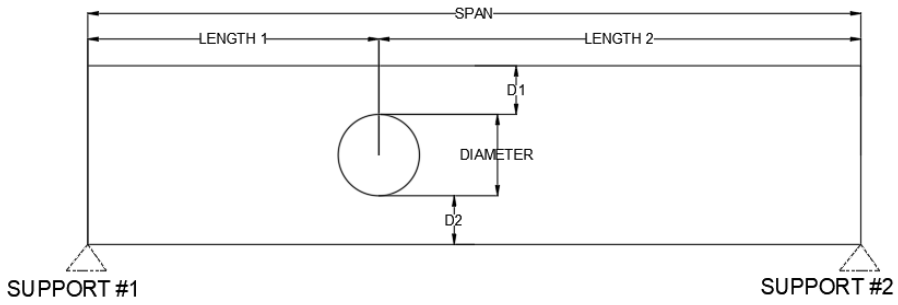
Unit B – over notched floor joist in unfinished mech:

- D1 – 6"
- D2 – 5"
- Span – 15' 1-3/4"'
- Support #1 – W8x13 steel beam continuous
- Support #2 – W8x10 Steel beam continuous
- Location – unfinished mechanical
- Loading -
    - Dead = 15 psf @ 16" oc
    - Live = 40 psf @ 16" oc

Recommendations:

- **Install Douglas Fir Larch #2 2x10 floor joist as close as possible to notched floor joist spanning full span of notched floor joist.**
- **Install solid 2x10 blocking in adjacent floor joist bays to notched floor joist.**

Unit A: Holes for electrical bored within 2" of each other:



- D1 – over 2"
- D2 – over 2"
- Diameter of hole – 1" – 2"
- Location – Floor joists near breaker box
- Loading -
  - Dead = 10 psf @ 16" oc
  - Live = 40 psf @ 16" oc

Recommendations:

Install a 24" - CS16 strap centered over the hole along the bottom of the floor joist. Install CS16 strap per manufacturer's recommendations shown below.

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	
			(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:

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.

Sincerely,

Bradley Huxol, PE