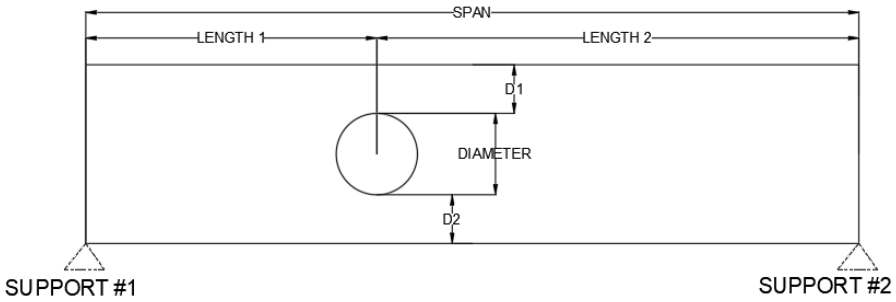
EVERSTEAD
ENGINEERING & DESIGN

June 1, 2022

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

RE: Field Issue of over bored floor joists, holes bored within 2" of end and closer than 2" together and clarification of GT Bearing for Lot #35 Osage - 2113 SW Rutherford Dr. Lee's Summit, MO 64081 Permit # PRRES20213402



(5) floor joists overbored:

- D1 – 4"
- D2 – 1.25" or more
- Diameter of hole – 3.5"
- Length 1 – 1'
- Length 2 – 11'
- Span – 12'
- Support #1 – W8x24 steel beam
- Support #2 – LVL/ load bearing pantry wall
- Location – above dining/kitchen
- Loading -
    - Dead = 10 psf @ 16" oc
    - Live = 40 psf @ 16" oc

floor joists bored within 2" of end:

- D1 – at least 2"
- D2 – at least 2"
- Diameter of hole – 1"
- Length 1 – within 2" of end
- Length 2 – 12'
- Span – 12'
- Support #1 – W8x24 steel beam
- Support #2 – LVL/ load bearing pantry wall
- Location – above dining/kitchen
- Loading -
    - Dead = 10 psf @ 16" oc
    - Live = 40 psf @ 16" oc

(10) floor joists with PEX line bored within 2" of each other:

- D1 – at least 2"
- D2 – at least 2"
- Diameter of hole – 1.5"
- Length 1 – 15'
- Length 2 – .5'
- Span – 15.5'
- Support #1 – exterior load bearing wall
- Support #2 – W8x24 steel beam
- Location – above dining/kitchen
- Loading -
    - Dead = 10 psf @ 16" oc
    - Live = 40 psf @ 16" oc

floor joists with holes over bored and bored within 2" of each other:

- D1 – at least 2"
- D2 – at least 2"
- Diameter of hole – 3.25"
- Length 1 – 3'
- Length 2 – 5'
- Span – 8'
- Support #1 – LVL
- Support #2 – exterior load bearing wall
- Location – above garage entry
- Loading -
    - Dead = 10 psf @ 16" oc
    - Live = 40 psf @ 16" oc

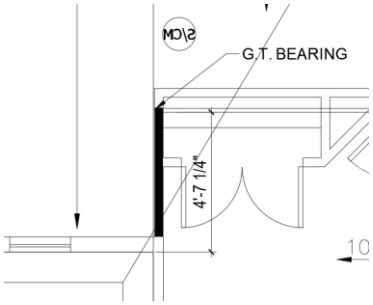
Recommendations:

Install a 24" - CS16 strap centered under the hole (or as close as possible if strucutral members are located within 24" length) along the bottom of the floor joist. Install CS16 strap per manufacturers recommendations shown below.

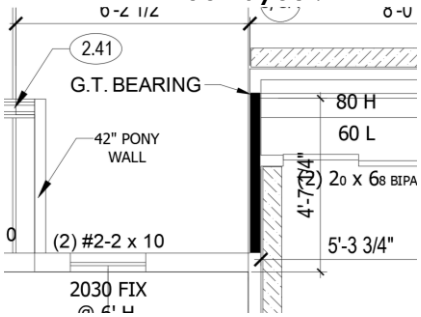
Clarification of GT BRG for truss C5:

- Truss C5 bears at endpoints only spanning approx. 20'7.5".
- Continue stud pack for GT Brg down to foundation wall as shown in images below:

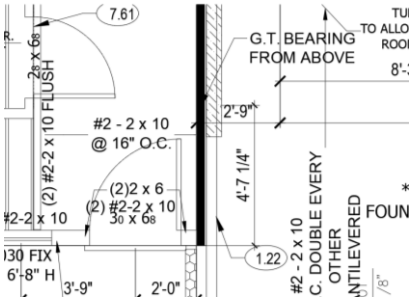
Roof Layout:



2nd floor layout:



Main floor layout:



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	52⅛'	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 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