EVERSTEAD
ENGINEERING & DESIGN

January 13, 2022

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

RE: Field Issue of over-bored joists, top plate connections, and missing top plates for Lot # 68 Woodside Ridge –131 NW Joshua Drive Lee's Summit, MO 64082 – Permit # PRRES20211575

Over-bored floor joists (2) in great room:

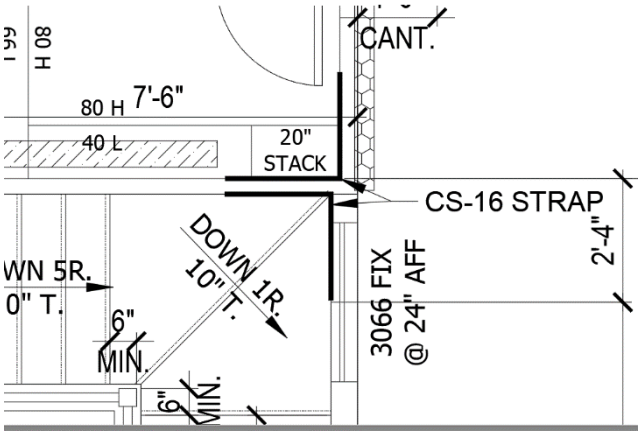
- Hole is approximately 4" diameter and at least 2" from bottom of floor joist.
- Floor joists are Douglas Fir Larch #2 2x10 @ 16" oc and span approximately 15'-7" and have standard dead=10 psf and live = 40 psf
- Install 32" length of CS-14 centered under hole along bottom of floor joist per manufacturer's spec's.
- Install with 8d common nails or #10 x 1-1/2" Strong-Drive SD screws.
- Minimum of 26 nails required.

Over-bored double Joist for DWV in Garage:

- Hole is approximately 4" diameter and at least 2" from bottom of double floor joist.
- Floor joists are Douglas Fir Larch #2 2x10 @ 16" oc doubled and span approximately 15'-6" and have standard dead=10 psf and live = 40 psf in addition to a point load of approximately 400# due to load bearing wall above.
- Install 18" CS-16 strap centered under hole.
- Install with 8d common nails or #10 x 1-1/2" Strong-Drive SD screws.
- Minimum of 8 nails required.

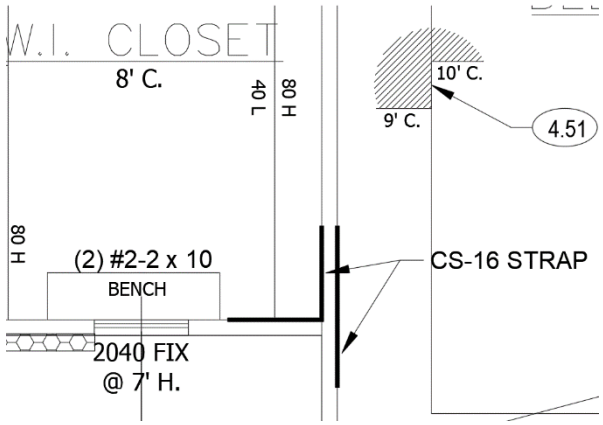
Top plate connection at 2x6 wall with 2x4 wall:

- Install (4) 24" length of Simpson CS-16 with (20) .0131" x 2-1/2" nails per manufacturer's specs and at corner of 2x6 wall with 2x4 wall at stair corner and Bed 4 closet as shown in image below.
- Install strap on upper and lower top plate.



Top plate connection at 2x4 wall at W.I. Closet/ Bedroom #1:

- Install (4) 24" length of Simpson CS-16 with (20) .0131" x 2-1/2" nails per manufacturer's specs at corner of 2x4 wall at the at the W.I. Closet and Bedroom #1 as shown in image below.
- Install strap on upper and lower top plate.



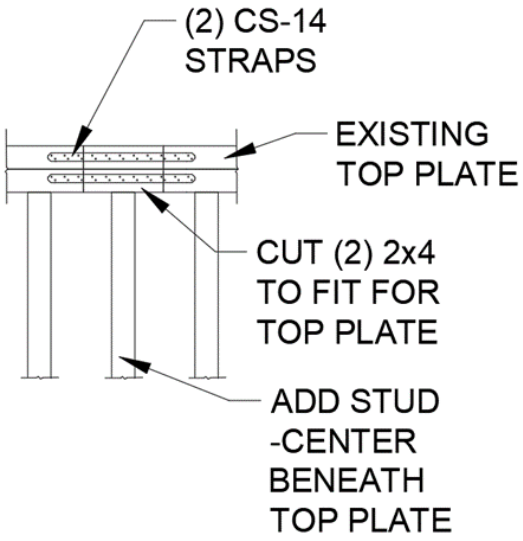
Triple Joist bored less than 2" from the bottom at front-entry closet:

- Install 12" length of CS-16 under hole along bottom of each floor joist per manufacturer's spec's.
- Install with 8d common nails or #10 x 1-1/2" Strong-Drive SD screws.
- Minimum of 10 nails required.
- Straps shall be installed so that it is flush against top plate.
- Triple joists spans approximately 9' with a 3' cantiliever.

- Triple joist has standard dead=10 psf and live = 40 psf in addition to a point load of approximately 1560# due to load bearing wall above.

Top plates not connected at 1st floor stair wall:

- Install (2) top plates to replace area of removed top plates (as shown in image below).
- Install (4) CS-14 straps per manufacturers specs on top and bottom plate on both sides. Strap shall extend out to existing top plates at a minimum of 6" on either sides.
- Install a full height stud and center beneath added top plates. Stud shall be toe-nailed into both top and bottom plate.



Model No.	Total L	Ga.	DF/SP Fasteners	DF/SP End Length	SPF/HF Fasteners	SPF/HF End Length	Allo Tensi (1
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"	1,090
			(14) 8d	9"	(16) 8d	9"	1,090
CS22	300'	22	(10) 10d	7"	(12) 10d	7"	845
			(12) 8d	7"	(14) 8d	8"	845

14, L3, FL

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