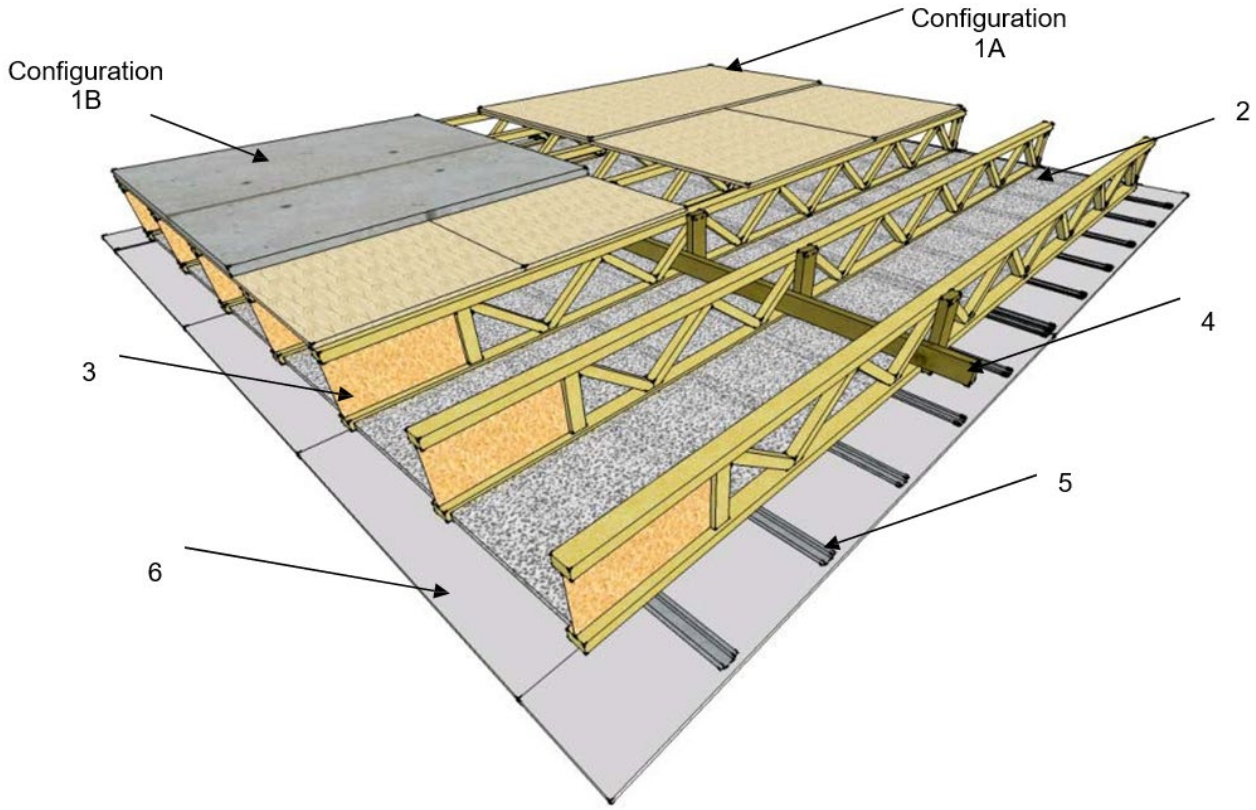
Barrette Structural Inc.
Design No. BS/SFWT 60-05
Load Bearing Fire Resistance Rated Roof/Ceiling, Floor/Ceiling Assembly
Open Joist TRIFORCE® Joist Series
ASTM E119 and CAN/ULC S101
Rating: 1 Hour



1. **FLOOR TOPPING:** Install one of the following sub-floor configurations:

   A. Install two layers of nominal 23/32 in. thick tongue-and-groove wood sheathing. Apply a nominal 1/8 in. bead of adhesive meeting the following requirements: ASTM D 3498 Standard Specification for Adhesives for Field-Gluing Plywood to Lumber Framing for Floor Systems, meets American Plywood Association specifications AFG-01 and tested and approved for HUD-FHA application per specification UMB No. 60. along the top side of all wood trusses (Item 3) and in the flooring grooves. Apply the base layer of sheathing to the top side of the wood truss (Item 3) and secure using 2 in. long X 0.113 in. diameter smooth shank nails spaced 6 in. on center (oc) around the perimeter and 12 in. oc in the field. Install the face layer of sheathing over the base layer with a 24 in. overlap of the joints. Secure face layer using 3 in. long, 0.12 in. diameter smooth shank nails spaced 6 in. oc around the perimeter and 12 in. oc in the field.

B. Install one layer of nominal 23/32 in. thick tongue-and-groove wood sub-floor sheathing. Apply a nominal 1/8 in. bead of adhesive meeting the following requirements: ASTM D 3498 Standard Specification for Adhesives for Field- Gluing Plywood to Lumber Framing for Floor Systems, meets American Plywood Association specifications AFG-01 and tested and approved for HUD-FHA application per specification UMB No. 60. along the top side of all wood trusses (Item 3) and in the flooring grooves. Apply the sheathing to the top side of the wood truss (Item 3) and secure using 2 in. long, 0.113 in. diameter smooth shank nails spaced 6 in. oc around the perimeter and 12 in. oc in the field. Install a lightweight concrete (nominal 110 pcf density, 3000 psi compressive strength), normal weight concrete (nominal 150 pcf density, 3000 psi compressive strength), or proprietary gypsum/cement/sand topping (min. 100 pcf density, 1000 psi compressive strength). Min. topping thickness for lightweight concrete or normal weight concrete is 1-1/2 in. Min. topping thickness for proprietary gypsum/cement/sand topping is 3/4 in.

2. **INSULATION:** Install min. 3 in. thick mineral wool insulation (min. 2.5 pcf) press fit between the bottom flanges of the wood truss (Item 3).

3. **CERTIFIED MANUFACTURER:** Barrette Structural Inc.

   CERTIFIED MODEL: Open Joist TRIFORCE® Joist Series

   Min. 9-1/2 in. Open Joist TRIFORCE® Joists (with a min. end-web thickness of 3/8 in.) spaced a max. of 24 in. oc. Fasten wood truss to rim board with 2-3/8 in. long, 8d common nails. Fasten 1 nail through the rim board into the end of each flange, and one on each side of the truss bottom flange into the bearing plate (not shown).

4. **SUPPORT:** Install strongback consisting of 2×6 and 2×4 lumber. Install strongback through the closest bottom open truss to the center on the wood truss (Item 3). Secure 2×4 lumber to the wood truss (Item 3) using 3-1/4 in. long, 12d common nails and adhesive meeting the following requirements: ASTM D 3498 Standard Specification for Adhesives for Field- Gluing Plywood to Lumber Framing for Floor Systems, meets American Plywood Association specifications AFG-01 and tested and approved for HUD-FHA application per specification UMB No. 60. Secure 2×6 lumber (oriented vertically) to 2×4 lumber using 3-1/4 in. long, 12d common nails and adhesive meeting the specifications above. Secure the strongback to each wood truss (Item 3) using 3-1/4 in. long, 12d common nails and adhesive meeting the specifications above.

5. **RESILIENT CHANNELS:** Install 1/2 in. deep, 2-1/8 in. wide nominal 25 GA galvanized steel "hat-shaped" (RC-2) channels spaced 16 in. oc and applied perpendicular to the wood truss (Item 3), ensuring channels are installed back-to-back at butt joints of the gypsum board (Item 6). Secure resilient channels to the bottom flange of each of the wood trusses (Item 3) using No. 6, 1-5/8 in. long Type W coarse thread drywall screws. When required for length, overlap the channel a min. 6 in. at a wood truss (Item 3) and secure both resilient channels to the wood truss (item 3) using a 1-5/8 in. Type W screw.

6. **GYPSUM WALLBOARD:** One layer of min. 5/8 in. thick Type C gypsum board of the following brands:
   - National Gypsum Company Gold Bond® BRAND Fire-Shield® C
   - American Gypsum FIREBLOC® Type C
   - American Gypsum M-BLOC® Type C
   - CertainTeed St-Gobain ProFoc® Type C
   - Georgia-Pacific ToughRock® Fireguard C
   - Lafarge Firecheck® Type C
   - CGC/USG Sheetrock® Firecode® C

   Gypsum board installed with the long edge perpendicular to the resilient channel (Item 5). Attach gypsum board to resilient channels (Item 5) using No. 6, 1-1/4 in. long Type S screws spaced 6 in. oc with a min. distance of 1-1/2 in. from the panel edges.

7. **JOINT TAPE AND COMPOUND (Not Shown):** After gypsum board is attached, apply vinyl or casein, dry or premixed, joint compound to the exposed face of gypsum board in two coats to all exposed fastener heads and gypsum board joints. Embed a min. 2 in. wide paper, plastic, or fiberglass tape in first layer of compound over joints in gypsum board.

Acoustic Performance

I-Joist Height	Insulation	Gypcrete	Carpet	Vinyl	STC	IIC
9-1/2 in. and 9-3/8 in.	Yes	No	No	No	42	38
	Yes	No	Yes	No	42	66
	Yes	No	No	Yes	42	44
	Yes	Yes	No	No	44	42
	Yes	Yes	Yes	No	44	70
	Yes	Yes	No	Yes	44	50
	No	No	No	No	41	35
	No	No	Yes	No	41	63
	No	No	No	Yes	41	41
	No	Yes	No	No	44	32
	No	Yes	Yes	No	44	60
	No	Yes	No	Yes	44	38
11-7/8 in.	Yes	No	No	No	46	39
	Yes	No	Yes	No	46	67
	Yes	No	No	Yes	46	45
	Yes	Yes	No	No	53	44
	Yes	Yes	Yes	No	53	72
	Yes	Yes	No	Yes	53	50
	No	No	No	No	46	30
	No	No	Yes	No	46	65
	No	No	No	Yes	46	43
	No	Yes	No	No	52	37
	No	Yes	Yes	No	52	67
	No	Yes	No	Yes	52	43
13 in.	Yes	No	No	No	47	40
	Yes	No	Yes	No	47	68
	Yes	No	No	Yes	47	46
	Yes	Yes	No	No	53	44
	Yes	Yes	Yes	No	53	72
	Yes	Yes	No	Yes	53	50
13 in.	No	No	No	No	46	30
	No	No	Yes	No	46	65
	No	No	No	Yes	46	43
	No	Yes	No	No	52	37
	No	Yes	Yes	No	52	67
	No	Yes	No	Yes	52	43

I-Joist Height	Insulation	Gypcrete	Carpet	Vinyl	STC	IIC
16 in.	Yes	No	No	No	48	41
	Yes	No	Yes	No	48	69
	Yes	No	No	Yes	48	47
	Yes	Yes	No	No	53	45
	Yes	Yes	Yes	No	53	73
	Yes	Yes	No	Yes	53	51
	No	No	No	No	47	31
	No	No	Yes	No	47	65
	No	No	No	Yes	47	43
	No	Yes	No	No	53	38
	No	Yes	Yes	No	53	68
	No	Yes	No	Yes	53	44

Note:
- Carpet and pad are 37 oz., 7/8 in. carpet with woven polypropylene backing and 40 oz. felt pad
- Vinyl flooring: Armstrong Starstep
- 3/4 in. Gypcrete 2000
- Insulation: 5-1/2 in. thick cellulose material (1.6 pcf density)