



TRIFORCE[®]

OPEN JOIST



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The **TRIFORCE**® open joist is a prefabricated parallel chord joist (minimum depth: 9 ½ in.) with a structural-quality OSB panel at one end that can easily be trimmed up to 24 in. onsite. It is fabricated from selected wood and assembled using finger-jointed technology.

Ratings

Standard	Rating	Design Number
ASTM E 119 / CAN/ULC S 101	45-Minute	BS/SFWT 45-01
	60-Minute	BS/SFWT 60-01
	60-Minute	BS/SFWT 60-02
	60-Minute	BS/SFWT 60-03
	60-Minute	BS/SFWT 60-04
	60-Minute	BS/SFWT 60-05
	90-Minute	BS/SFWT 90-01
	120-Minute	BS/SFWT 120-01

Attribute	Value
Criteria	CAN / ULC S101 (2007)
Criteria	ASTM E119 (2012a)
CSI Code	06 17 53 Shop-Fabricated Wood Trusses
Intertek Services	Certification
Listed or Inspected	LISTED
Listing Section	Prefabricated Joists
Spec ID	35685



Fire-rated assemblies can be found in the Intertek Directory of Building Products.

Please go to <https://whdirectory.intertek.com> and search for "Barrette Structural Inc." using the Company field or Spec ID 35686.

Fire Performance Ratings for Multifamily Buildings

Summary Table

Intertek Design Number	BS/SFWT 45-01	BS/SFWT 60-01	BS/SFWT 60-02	BS/SFWT 60-03	BS/SFWT 60-04	BS/SFWT 60-05A	BS/SFWT 60-05B	BS/SFWT 90-01	BS/SFWT 120-01
Fire Rating Time	45 minutes	60 minutes	60 minutes	60 minutes	60 minutes	60 minutes	60 minutes	90 minutes	120 minutes
Floor Topping	Optional ⁽¹⁾	Optional ⁽¹⁾	Optional ⁽¹⁾	Optional ⁽¹⁾	Optional ⁽¹⁾	No	Yes ⁽²⁾	Optional ⁽¹⁾	Optional ⁽¹⁾
Floor Sheathing	19/32" (5/8)	19/32" (5/8)	19/32" (5/8)	19/32" (5/8)	23/32" (3/4)	2 x 23/32" (3/4)	23/32" (3/4)	19/32" (5/8)	19/32" (5/8)
Roof Sheathing	15/32" (1/2)	15/32" (1/2)	15/32" (1/2)	15/32" (1/2)	15/32" (1/2)	NA	NA	15/32" (1/2)	15/32" (1/2)
TRIFORCE® open joist	Top and bottom chord made of 2x3 or 2x4	Top and bottom chord made of 2x3 or 2x4	Top and bottom chord made of 2x4	Top and bottom chord made of 2x3 or 2x4	Top and bottom chord made of 2x3 or 2x4	Top and bottom chord made of 2x3 or 2x4	Top and bottom chord made of 2x3 or 2x4	Top and bottom chord made of 2x3 or 2x4	Top and bottom chord made of 2x3 or 2x4
Min Depth	9.5"	9.5"	9.5"	9.5"	9.5"	9.5"	9.5"	9.5"	9.5"
Max Spacing	24" o.c.	24" o.c.	24" o.c.	24" o.c.	24" o.c.	24" o.c.	24" o.c.	24" o.c.	24" o.c.
Strongback Bridging	Optional ⁽¹⁾	Optional ⁽¹⁾	Optional ⁽¹⁾	Optional ⁽¹⁾	Optional ⁽¹⁾	Installed as per Detail 5 and Strongback Bridging Table	Installed as per Detail 5 and Strongback Bridging Table	Optional ⁽¹⁾	Optional ⁽¹⁾
Insulation	Optional ⁽¹⁾	Optional ⁽¹⁾	1-1/2" - 2.5 pcf of mineral wool	2" - 3.5 pcf of mineral wool	1" - 6 pcf of mineral wool	3" - 2.5 pcf of mineral wool	3" - 2.5 pcf of mineral wool	1-1/2" - 2.5 pcf of mineral wool	Optional ⁽¹⁾
Setting Strip	No	Optional ⁽¹⁾	Optional ⁽¹⁾	Min 1x4	No	No	No	No	No
Resilient Channels	Spaced at 16 in o.c.	Optional ⁽¹⁾	Spaced at 16 in o.c.	Spaced at 16 in o.c.	Spaced at 24 in o.c.	Spaced at 16 in o.c.	Spaced at 16 in o.c.	Spaced at 12 in o.c.	Spaced at 16 in o.c.
Gypsum Board	1 x 5/8" Type X	2 x 1/2" Type X	1 x 5/8" Type C	1 x 5/8" Type C	1 x 1/2" Type C	1 x 5/8" Type C	1 x 5/8" Type C	2 x 5/8" Type C	3 x 5/8" Type C

Optional⁽¹⁾ : either with any type or nothing

Yes⁽²⁾ : with an authorized material per Intertek fire resistant listing for Barrette Structural Inc.

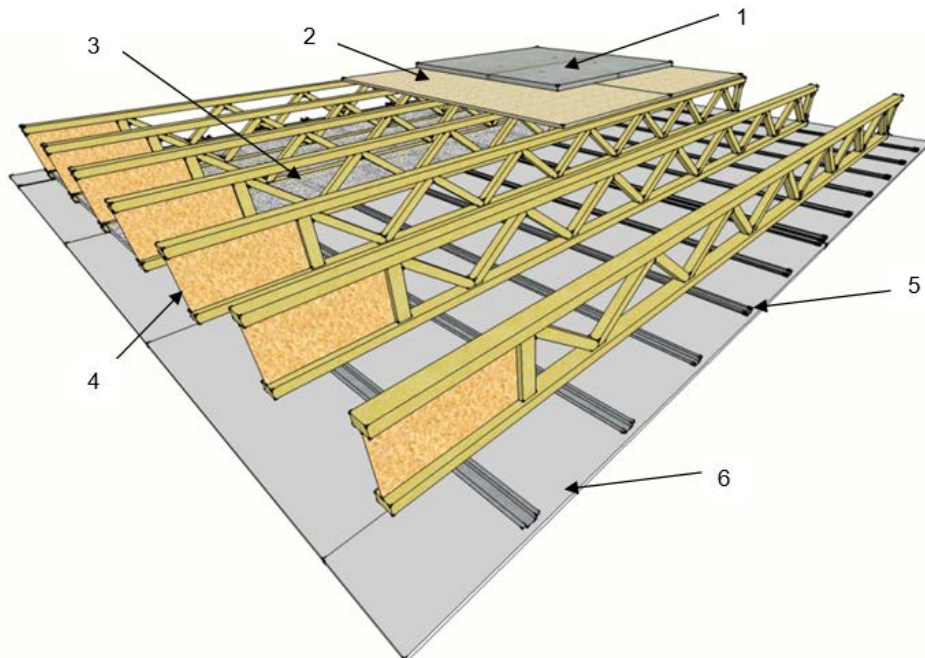
intertek Intertek-approved fire-resistant assemblies ID 35685 Standard
<https://whdirectory.intertek.com>
 Total Quality. Assured. Look up "Barrette Structural Inc." in the Company field.

BS/SFWT 45-01: 45-Minute Fire Rating



Division 06 – Wood, Plastics, and Composites
06 17 00 Shop Fabricated Structural Wood
06 17 53 Shop Fabricated Wood Trusses

Barrette Structural Inc.
Design No. BS/SFWT 45-01
Load Bearing Fire Resistance Rated Roof/Ceiling, Floor/Ceiling Assembly
Open Joist TRIFORCE™ Joist Series
ASTM E119 and CAN/ULC S101
Rating: 3/4 Hour



- 1. FLOOR TOPPING (Optional):** Gypsum concrete, lightweight or normal concrete topping. When used as a roof assembly, materials for a built-up roof covering that are described in an assembly that provides a Class A, B, or C rating on combustible wood decks may be used.
 - 2. FLOOR SHEATHING:** Min. 5/8 in. thick wood sheathing, designed and installed per Code requirements. When used as a roof assembly, min. 1/2 in. thick wood sheathing may be used, when designed and installed per Code requirements.
 - 3. INSULATION (Optional):** When installed, insulation shall be installed above the joist flanges and supported by stay wires spaced 12 in. on center (oc).
 - 4. CERTIFIED MANUFACTURER:** Barrette Structural Inc.
- CERTIFIED MODEL:** Open Joist TRIFORCE™ Joist Series
- Min. 9-1/2 in. deep Triforce™ Joist Series spaced a max. 24 in. oc, installed in accordance with the Code.

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Project No. G103685267

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SFT-BC-OP-19I

BS/SFWT 45-01: 45-Minute Fire Rating



Division 06 – Wood, Plastics, and Composites
 06 17 00 Shop Fabricated Structural Wood
 06 17 53 Shop Fabricated Wood Trusses

5. **RESILIENT CHANNELS:** Min. 0.019 in. thick galvanized steel resilient channels attached perpendicular to the bottom flange of the joists with one 1-5/8 in. drywall screw. Channels spaced 16 in. oc. MaxAdditional channels are required at gypsum board end joints so that each board is attached to a separate channel. These additional channels shall extend to the next joist on each side of the board end joint.
6. **GYPSUM WALLBOARD:** Min. 5/8 in. thick Type X gypsum wallboard installed with long dimension perpendicular to resilient channels and fastened to each channel with min. 1-1/8 in. long Type S drywall screws. Fasteners spaced 12 in. oc in the field of the wallboard, 8 in. oc at wallboard end joints, and 1-1/2 in. from panel edges and ends. Edge joints shall be centered on joists. End joints of wallboard staggered a min. of one channel spacing.
7. **FINISH SYSTEM (Not Shown):** Face layer joints covered with tape and coated with joint compound. Screw heads covered with joint compound.

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
11-7/8 in.	No	Yes	Yes	No	44	60
	No	Yes	No	Yes	44	38
	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
13 in.	No	No	No	Yes	46	43
	No	Yes	No	No	52	37
	No	Yes	Yes	No	52	67
	No	Yes	No	Yes	52	43
	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
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	

BS/SFWT 45-01: 45-Minute Fire Rating



Division 06 – Wood, Plastics, and Composites
 06 17 00 Shop Fabricated Structural Wood
 06 17 53 Shop Fabricated Wood Trusses

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:

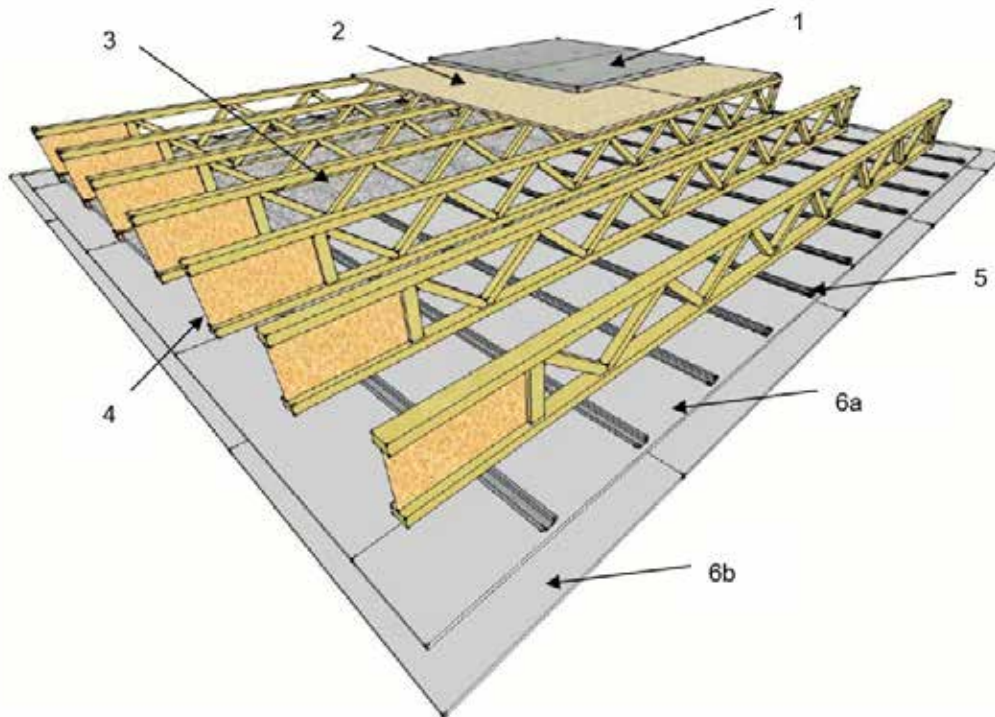
- Carpet and pad are 37 oz., 7/8 in. carpet with woven polypropylene backing and 40 oz. felt pad
- Vinyl flooring: Armstrong Starstep
- 3/4 in. Gypcrete 2000
- Insulation: 5-1/2 in. thick cellulose material (1.6 pcf density)

BS/SFWT 60-01: 60-Minute Fire Rating



Division 06 – Wood, Plastics, and Composites
06 17 00 Shop Fabricated Structural Wood
06 17 53 Shop Fabricated Wood Trusses

Barrette Structural Inc.
Design No. BS/SFWT 60-01
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 (Optional):** Gypsum concrete, lightweight or normal concrete topping. When used as a roof assembly, materials for a built-up roof covering that are described in an assembly that provides a Class A, B, or C rating on combustible wood decks may be used.
- 2. FLOOR SHEATHING:** Min. 5/8 in. thick wood sheathing, designed and installed per Code requirements. When used as a roof assembly, min. 1/2 in. thick wood sheathing may be used, when designed and installed per Code requirements.
- 3. INSULATION (Optional):** When installed, insulation shall be installed above the joist flanges and supported by stay wires spaced 12 in. on center (oc).
- 4. CERTIFIED MANUFACTURER:** Barrette Structural Inc.
CERTIFIED MODEL: Open Joist TRIFORCE™ Joist Series

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Project No. G103685267

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SFT-BC-OP-19i

BS/SFWT 60-01: 60-Minute Fire Rating



Division 06 – Wood, Plastics, and Composites
 06 17 00 Shop Fabricated Structural Wood
 06 17 53 Shop Fabricated Wood Trusses

Min. 9-1/2 in. deep Triforce™ Joist Series spaced a max. 24 in. oc, installed in accordance with the Code. The max. spacing may be increased to 48 in. oc when the ceiling is applied to stripping spaced a max. of 24 in. oc. The stripping must be a nominal 2x4 construction-grade lumber attached to the joists bottom flange using two 10d nails.

5. RESILIENT CHANNELS (Optional): Min. 0.019 in. thick galvanized steel resilient channels attached perpendicular to the bottom flange of the joists with one 1-1/4 in. drywall screw. Channels spaced a max. of 16 in. oc. The max. channel spacing may be increased to 24 in. oc when joists are spaced a max. of 16 in. oc.

6. GYPSUM WALLBOARD: Two layers of min. 1/2 in. Type X gypsum wallboard attached with the long dimension perpendicular to the resilient channels (or joists) as follows:

6a WALLBOARD BASE LAYER – Base layer of wallboard attached to resilient channels (or joists) using 1-1/4 in. Type S drywall screws

at 12 in. oc. When resilient channels are installed, edge joints shall be centered on joists. End joints of wallboard staggered a min. of one channel (or joist) spacing.

6b WALLBOARD FACE LAYER – Face layer of wallboard attached to resilient channels (or joists) through base layer using 1-5/8 in. Type S drywall screws spaced 12 in. oc. Edge joints of wallboard face layer offset a distance equal to the joist spacing from those of base layer. End joints shall be offset from base layer joints by a min. of one channel (or joist) spacing and shall be centered in-between channel (or joist) spacings. Additionally, wallboard face layer attached to base layer with 1-1/2 in. Type G drywall screws spaced 8 in. oc, placed 1-1/2 in. from face layer end joints.

7. FINISH SYSTEM (Not Shown): Face layer joints covered with tape and coated with joint compound. Screw heads covered with joint compound.

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

BS/SFWT 60-01: 60-Minute Fire Rating



Division 06 – Wood, Plastics, and Composites
 06 17 00 Shop Fabricated Structural Wood
 06 17 53 Shop Fabricated Wood Trusses

I-Joist Height	Insulation	Gypcrete	Carpet	Vinyl	STC	IIC
11-7/8 in.	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
	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
	16 in.	Yes	No	No	No	48
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	

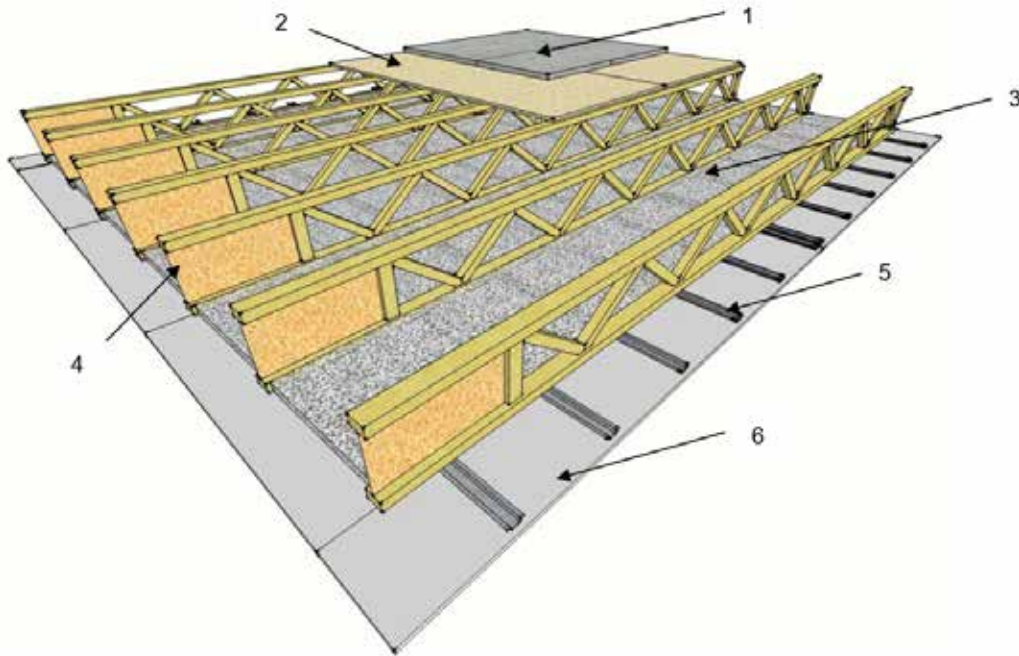
- Note:**
- Carpet and pad are 37 oz., 7/8 in. carpet with woven polypropylene backing and 40 oz. felt pad
 - Vinyl flooring: Armstrong Starstep
 - 3/4 in. Gypcrete 2000
 - Insulation: 5-1/2 in. thick cellulose material (1.6 pcf density)

BS/SFWT 60-02: 60-Minute Fire Rating



Division 06 – Wood, Plastics, and Composites
06 17 00 Shop Fabricated Structural Wood
06 17 53 Shop Fabricated Wood Trusses

Barrette Structural Inc.
Design No. BS/SFWT 60-02
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 (Optional):** Gypsum concrete, lightweight or normal concrete topping. When used as a roof assembly, materials for a built-up roof covering that are described in an assembly that provides a Class A, B, or C rating on combustible wood decks may be used.
- 2. FLOOR SHEATHING:** Min. 5/8 in. thick wood sheathing, designed and installed per Code requirements. When used as a roof assembly, min. 1/2 in. thick wood sheathing may be used, when designed and installed per Code requirements.
- 3. INSULATION:** Min. 1-1/2 in. thick mineral wool insulation batts – 2.5 pcf (min.), friction fitted between the bottom flanges of the joists and supported by resilient channels. Ends of batts shall be centered over resilient channels and tightly butted.
- 4. CERTIFIED MANUFACTURER:** Barrette Structural Inc.
CERTIFIED MODEL: Open Joist TRIFORCE™ Joist Series

Date Revised: October 23, 2018

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Project No.G103685267

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SFT-BC-OP-19I

BS/SFWT 60-02: 60-Minute Fire Rating



Division 06 – Wood, Plastics, and Composites
 06 17 00 Shop Fabricated Structural Wood
 06 17 53 Shop Fabricated Wood Trusses

Min. 9-1/2 in. deep Triforce™ joists spaced a max. of 24 in. on center (oc), (min. 1-1/2 in. × 3-1/2 in. bottom flange dimensions). Installed in accordance with the Code. The max. spacing may be increased to 48 in. oc when the ceiling is applied to stripping spaced a max. of 24 in. oc. The stripping must be a nominal 2×4 construction-grade lumber attached to the joists bottom flange using two 10d nails.

5. **RESILIENT CHANNELS (Optional):** Min. 0.019 in. thick galvanized steel resilient channels attached perpendicular to joists using 1-5/8 in. long drywall screws. Resilient channels spaced a max. of 16 in. oc. Additional channels are required at gypsum board end joints so that each board is attached to a separate channel. These additional channels shall extend to the next joist on each side of the board end joint.
6. **GYPSUM WALLBOARD:** Min. 5/8 in. thick Type C gypsum wallboard installed with long dimension perpendicular to resilient channels and fastened to each channel with min. 1 in. long Type S drywall screws. Fasteners spaced 12 in. oc in the field of the wallboard, 8 in. oc at wallboard end joints, and 1-1/2 in. from panel edges and ends. Edge joints shall be centered between joists. End joints shall be staggered one channel spacing.
7. **FINISH SYSTEM (Not Shown):** Face layer joints covered with tape and coated with joint compound. Screw heads covered with joint compound.

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

BS/SFWT 60-02: 60-Minute Fire Rating



Division 06 – Wood, Plastics, and Composites
 06 17 00 Shop Fabricated Structural Wood
 06 17 53 Shop Fabricated Wood Trusses

I-Joist Height	Insulation	Gypcrete	Carpet	Vinyl	STC	IIC
13 in.	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
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:

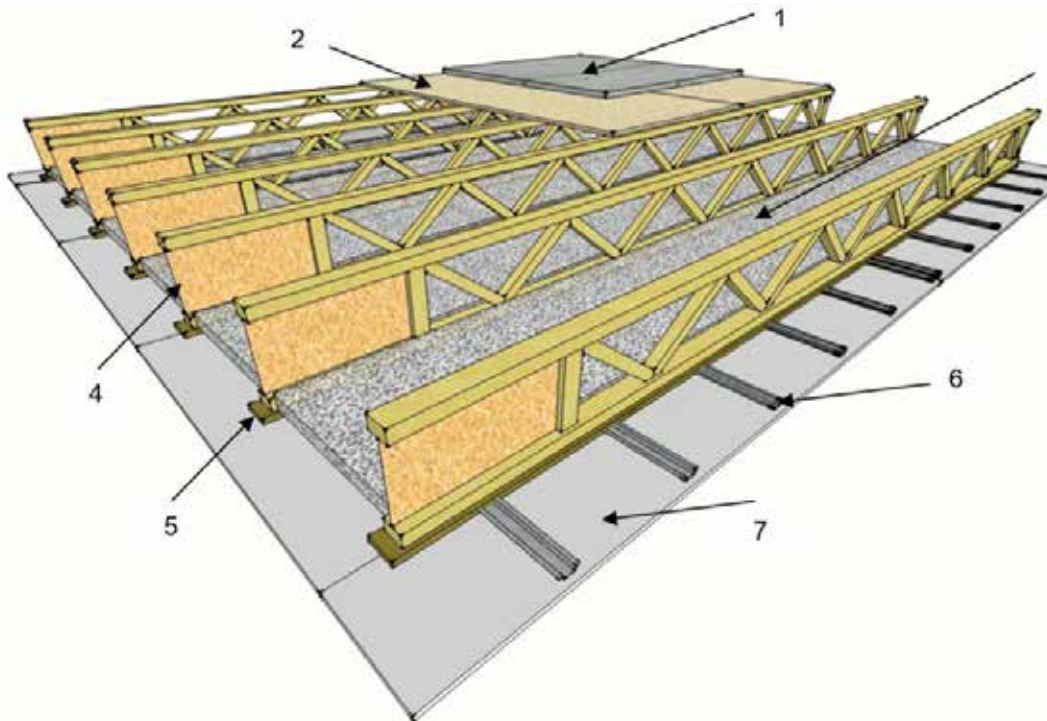
- Carpet and pad are 37 oz., 7/8 in. carpet with woven polypropylene backing and 40 oz. felt pad
- Vinyl flooring: Armstrong Starstep
- 3/4 in. Gypcrete 2000

BS/SFWT 60-03: 60-Minute Fire Rating



Division 06 – Wood, Plastics, and Composites
06 17 00 Shop Fabricated Structural Wood
06 17 53 Shop Fabricated Wood Trusses

Barrette Structural Inc.
Design No. BS/SFWT 60-03
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 (Optional):** Gypsum concrete, lightweight or normal concrete topping. When used as a roof assembly, materials for a built-up roof covering that are described in an assembly that provides a Class A, B, or C rating on combustible wood decks may be used.
- 2. FLOOR SHEATHING:** Min. 5/8 in. thick wood sheathing, designed and installed per Code requirements. When used as a roof assembly, min. 1/2 in. thick wood sheathing may be used, when designed and installed per Code requirements.
- 3. INSULATION:** Min. 2 in. thick mineral wool insulation batts – 3.5 pcf (min.), supported by setting strip edges, friction-fitted between the sides of the joist flanges. Ends of batts shall be centered over resilient channels and tightly butted.
- 4. CERTIFIED MANUFACTURER:** Barrette Structural Inc.
CERTIFIED MODEL: Open Joist TRIFORCE™ Joist Series

Date Revised: October 23, 2018

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Project No. G103685267

Version: 02 August 2017

SFT-BC-OP-19i

BS/SFWT 60-03: 60-Minute Fire Rating



Division 06 – Wood, Plastics, and Composites
 06 17 00 Shop Fabricated Structural Wood
 06 17 53 Shop Fabricated Wood Trusses

Min. 9-1/2 in. deep Triforce™ joists spaced a max. of 24 in. on center (oc). Installed in accordance with the Code.

These additional channels shall extend to the next joist on each side of the board end joint.

- 5. **SETTING STRIPS:** Min. 1x4 (nominal) wood setting strips attached with 1-1/2 in. long drywall screws at 24 in. oc along the bottom flange of joist creating a ledge to support insulation.
- 6. **RESILIENT CHANNELS:** Min. 0.019 in. thick galvanized steel resilient channels, attached perpendicular to joists using 1-5/8 in. long drywall screws. Resilient channels spaced a max. of 16 in. oc. Additional channels are required at gypsum board end joints so that each board is attached to a separate channel.

- 7. **GYPSUM WALLBOARD:** Min. 5/8 in. thick Type C gypsum wallboard installed with long dimension perpendicular to resilient channels and fastened to each channel with min. 1-1/8 in. long Type S drywall screws. Fasteners spaced 6 in. oc and 1-1/2 in. in from panel edges and ends. Edge joints shall be centered between joists. End joints shall be staggered one channel spacing.
- 8. **FINISH SYSTEM (Not Shown):** Face layer joints covered with tape and coated with joint compound. Screw heads covered with joint compound.

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

BS/SFWT 60-03: 60-Minute Fire Rating



Division 06 – Wood, Plastics, and Composites
 06 17 00 Shop Fabricated Structural Wood
 06 17 53 Shop Fabricated Wood Trusses

I-Joist Height	Insulation	Gypcrete	Carpet	Vinyl	STC	IIC
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
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:

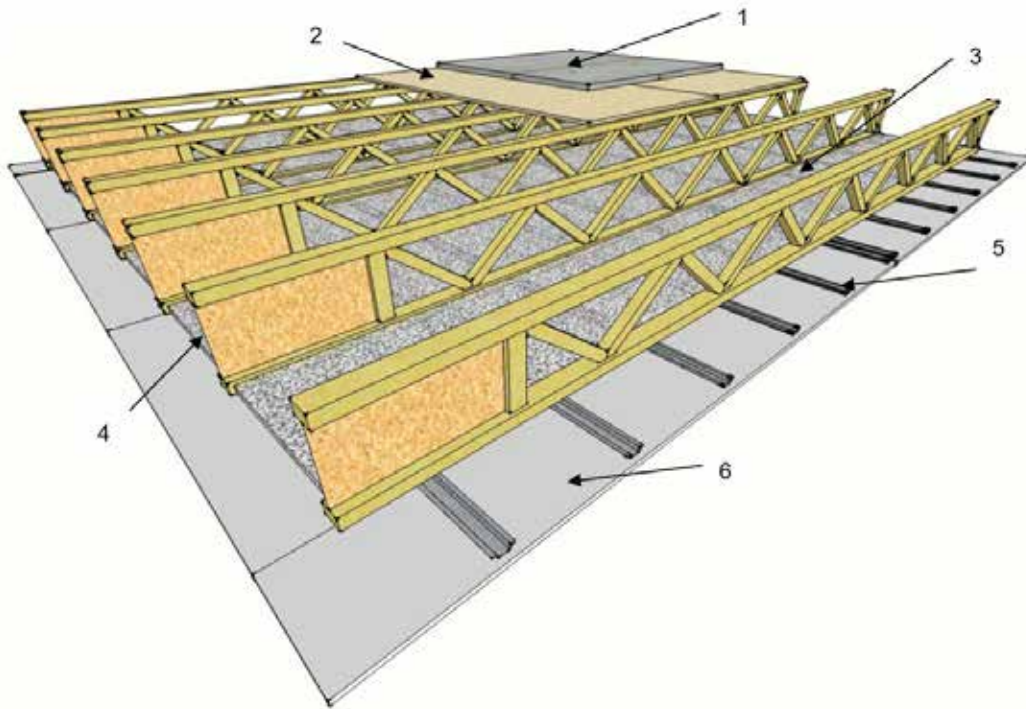
- Carpet and pad are 37 oz., 7/8 in. carpet with woven polypropylene backing and 40 oz. felt pad
- Vinyl flooring: Armstrong Starstep
- 3/4 in. Gypcrete 2000
- Insulation: 5-1/2 in. thick cellulose material (1.6 pcf density)

BS/SFWT 60-04: 60-Minute Fire Rating



Division 06 – Wood, Plastics, and Composites
06 17 00 Shop Fabricated Structural Wood
06 17 53 Shop Fabricated Wood Trusses

Barrette Structural Inc.
Design No. BS/SFWT 60-04
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 (Optional):** Gypsum concrete, lightweight or normal concrete topping. When used as a roof assembly, materials for a built-up roof covering that are described in an assembly that provides a Class A, B, or C rating on combustible wood decks may be used.
- 2. FLOOR SHEATHING:** Min. 23/32 in. thick tongue-and-groove wood sheathing, designed and installed per Code requirements. When used as a roof assembly, min. 1/2 in. thick wood sheathing may be used, when designed and installed per Code requirements.
- 3. INSULATION:** Min. 1 in. thick mineral wool insulation batts – 6 pcf (min.). Batt s installed on top of furring channels and under bottom flange of joists with the sides butted against support clips. The ends of the batts shall be centered over furring channels and tightly butted.
- 4. CERTIFIED MANUFACTURER:** Barrette Structural Inc.
CERTIFIED MODEL: Open Joist TRIFORCE™ Joist Series

Date Revised: October 23, 2018

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Project No. G103685267

Version: 02 August 2017

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BS/SFWT 60-04: 60-Minute Fire Rating



Division 06 – Wood, Plastics, and Composites
 06 17 00 Shop Fabricated Structural Wood
 06 17 53 Shop Fabricated Wood Trusses

Min. 9-1/2 in. deep Triforce™ joists spaced a max. of 24 in. on center (oc), (min. 2 x 3 bottom flange dimensions). Installed in accordance with the Code.

- FURRING CHANNELS:** Min. 0.0179 in. thick galvanized steel hat-shaped furring channels attached perpendicular to joists spaced 24 in. oc. Channels secured to joists with Simpson Type CSC support clips at each intersection with the joists. Clips nailed to the side of joist bottom flange with one 1-1/2 in. long No 11 GA nail. Additional channels are required at gypsum board end joints so that each board is attached to a separate channel. These additional channels shall extend to the next joist on each side of the board end joint.

- GYPSUM WALLBOARD:** Min. 1/2 in. thick Type C gypsum wallboard. Wallboard installed with long dimension perpendicular to furring channels and fastened to each channel with min. 1 in. long Type S drywall screws. Fasteners spaced 12 in. oc in the field of the wallboard, 6 in. oc at wallboard end joints, and 1-1/2 in. from panel edges and ends. Edge joints shall be centered between joists. End joints shall be staggered one channel spacing and offset from insulation joints by a min. of one channel spacing.

- FINISH SYSTEM (Not Shown):** Face layer joints covered with tape and coated with joint compound. Screw heads covered with joint compound.

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

BS/SFWT 60-04: 60-Minute Fire Rating



Division 06 – Wood, Plastics, and Composites
 06 17 00 Shop Fabricated Structural Wood
 06 17 53 Shop Fabricated Wood Trusses

I-Joist Height	Insulation	Gypcrete	Carpet	Vinyl	STC	IIC
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
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:

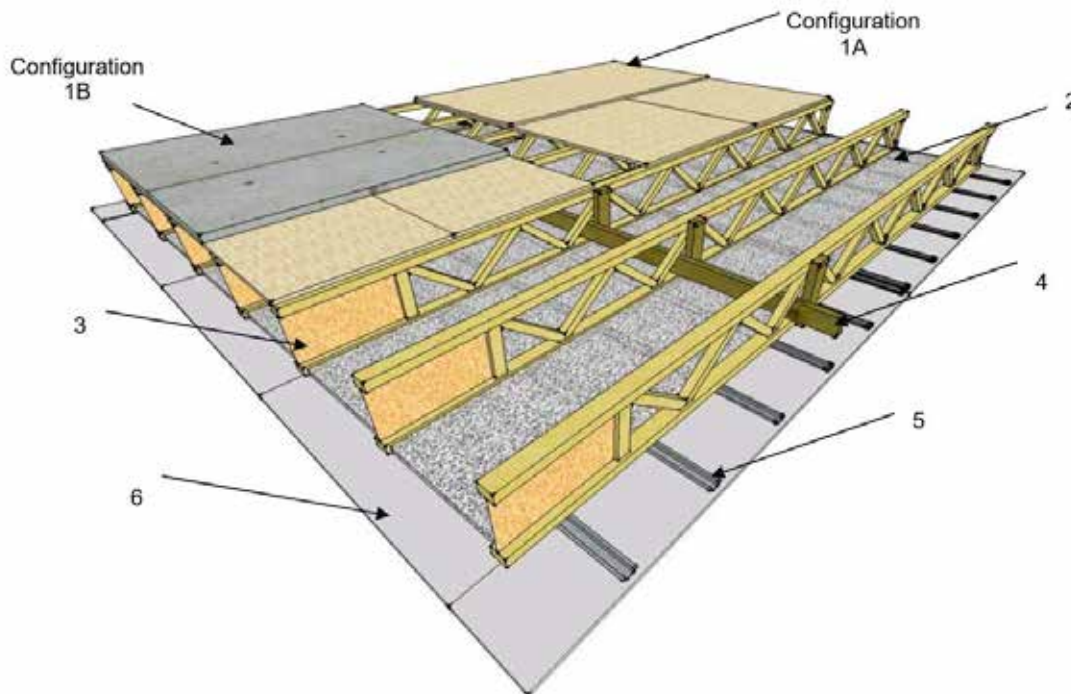
- Carpet and pad are 37 oz., 7/8 in. carpet with woven polypropylene backing and 40 oz. felt pad
- Vinyl flooring: Armstrong Starstep
- 3/4 in. Gypcrete 2000
- Insulation: 5-1/2 in. thick cellulose material (1.6 pcf density)

BS/SFWT 60-05 A and B: 60-Minute Fire Rating



Division 06 – Wood, Plastics, and Composites
06 17 00 Shop Fabricated Structural Wood
06 17 53 Shop Fabricated Wood Trusses

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.

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BS/SFWT 60-05 A and B: 60-Minute Fire Rating



Division 06 – Wood, Plastics, and Composites
06 17 00 Shop Fabricated Structural Wood
06 17 53 Shop Fabricated Wood Trusses

- B. Install one layer of nominal 23/32 in. thick tongue-and-groove wood subfloor 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 web into the bearing plate (not shown).
4. **SUPPORT:** Install strongback consisting of 2x6 and 2x4 lumber. Install strongback through the closest bottom open truss to the center on the wood truss (Item 3). Secure 2x4 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 2x6 lumber (oriented vertically) to 2x4 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 5). Secure resilient channels to the bottom flange of each of the wood truss (Item 4) 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.

BS/SFWT 60-05 A and B: 60-Minute Fire Rating



Division 06 – Wood, Plastics, and Composites
06 17 00 Shop Fabricated Structural Wood
06 17 53 Shop Fabricated Wood Trusses

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 4).

Attach gypsum board to resilient channels (Item 4) 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):

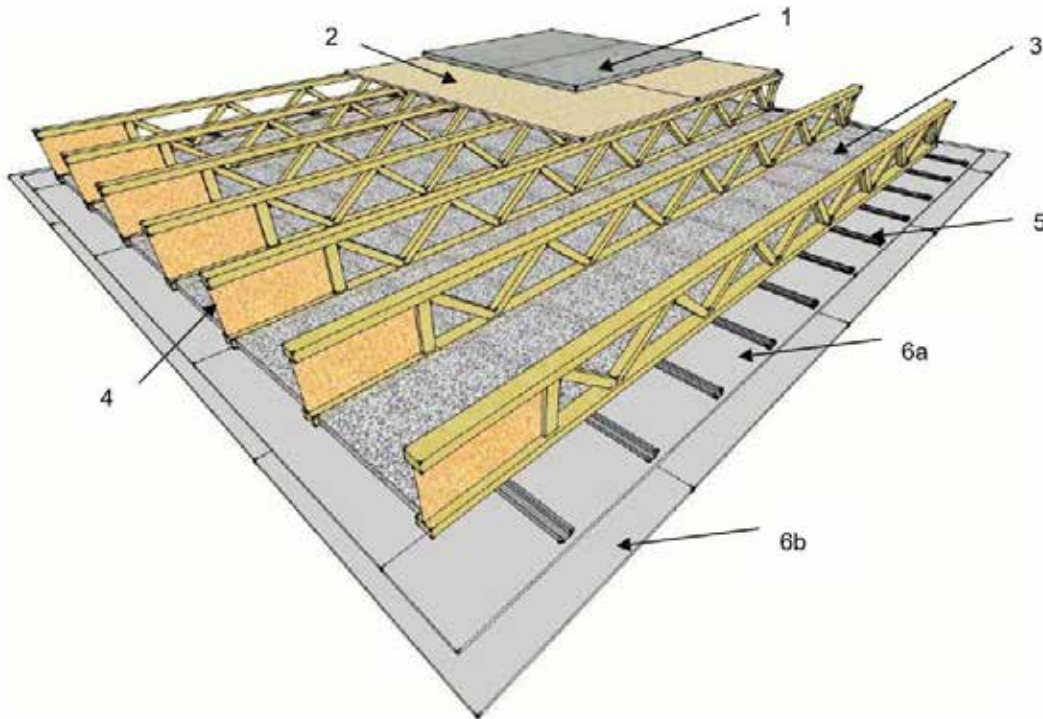
After gypsum board is attached, apply vinyl or casein, dry or premixed, joint compound to the exposed face of gypsum board in two coats to all exposed fastener heads and gypsum board joints. Embed a min. 2 in. wide paper, plastic, or fiberglass tape in first layer of compound over joints in gypsum board.

BS/SFWT 90-01: 90-Minute Fire Rating



Division 06 – Wood, Plastics, and Composites
06 17 00 Shop Fabricated Structural Wood
06 17 53 Shop Fabricated Wood Trusses

Barrette Structural Inc.
Design No. BS/SFWT 90-01
Load Bearing Fire Resistance Rated Roof/Ceiling, Floor/Ceiling Assembly
Open Joist TRIFORCE™ Joist Series
ASTM E119 and CAN/ULC S101
Rating: 1-1/2 Hour



- 1. FLOOR TOPPING (Optional):** Gypsum concrete, lightweight or normal concrete topping. When used as a roof assembly, materials for a built-up roof covering that are described in an assembly that provides a Class A, B, or C rating on combustible wood decks may be used.
- 2. FLOOR SHEATHING:** Min. 5/8 in. thick wood sheathing, installed per Code requirements. When used as a roof assembly, min. 1/2 in. thick wood sheathing may be used, installed per Code requirements.
- 3. INSULATION:** Min. 1-1/2 in. thick mineral wool insulation batts – 2.5 pcf (min.). Batt s installed on top of resilient channels with the sides butted against the sides of the joists. The ends of the batts shall be centered over resilient channels and tightly butted.
- 4. CERTIFIED MANUFACTURER:** Barrette Structural Inc.
CERTIFIED MODEL: Open Joist TRIFORCE™ Joist Series

Date Revised: July 25, 2018

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BS/SFWT 90-01: 90-Minute Fire Rating



Division 06 – Wood, Plastics, and Composites
06 17 00 Shop Fabricated Structural Wood
06 17 53 Shop Fabricated Wood Trusses

Min. 9-1/2 in. deep Triforce™ joists spaced a max. of 24 in. on center (oc), (min. 2 x 3 flange dimensions). Installed in accordance with the Code.

5. **RESILIENT CHANNELS:** Min. 0.019 in. thick galvanized steel resilient channels, attached perpendicular to joists using 1-5/8 in. long drywall screws. Resilient channels spaced 12 in. oc.

6. **GYPSUM WALLBOARD:** Two layers of min. 5/8 in. thick Type C gypsum wallboard as follows:

6a **WALLBOARD BASE LAYER** – Base layer of wallboard attached to resilient channels using 1-1/4 in. Type S drywall screws at 12 in. oc. Edge joints shall be centered between joists. End joints shall be staggered one channel spacing.

6b **WALLBOARD FACE LAYER** – Face layer of wallboard attached to resilient channels through base layer using 1-5/8 in. Type S drywall screws spaced 12 in. oc, 6 in. at wallboard end joints, and 1-1/2 in. from panel edges and ends. Edge joints of wallboard face layer offset a distance equal to one joist spacing from those of base layer. End joints shall be offset from base layer joints by a min. of one channel spacing. Additionally, wallboard face layer attached to base layer with 1-1/2 in. Type G drywall screws spaced 8 in. oc, placed 1-1/2 in. from face layer end joints.

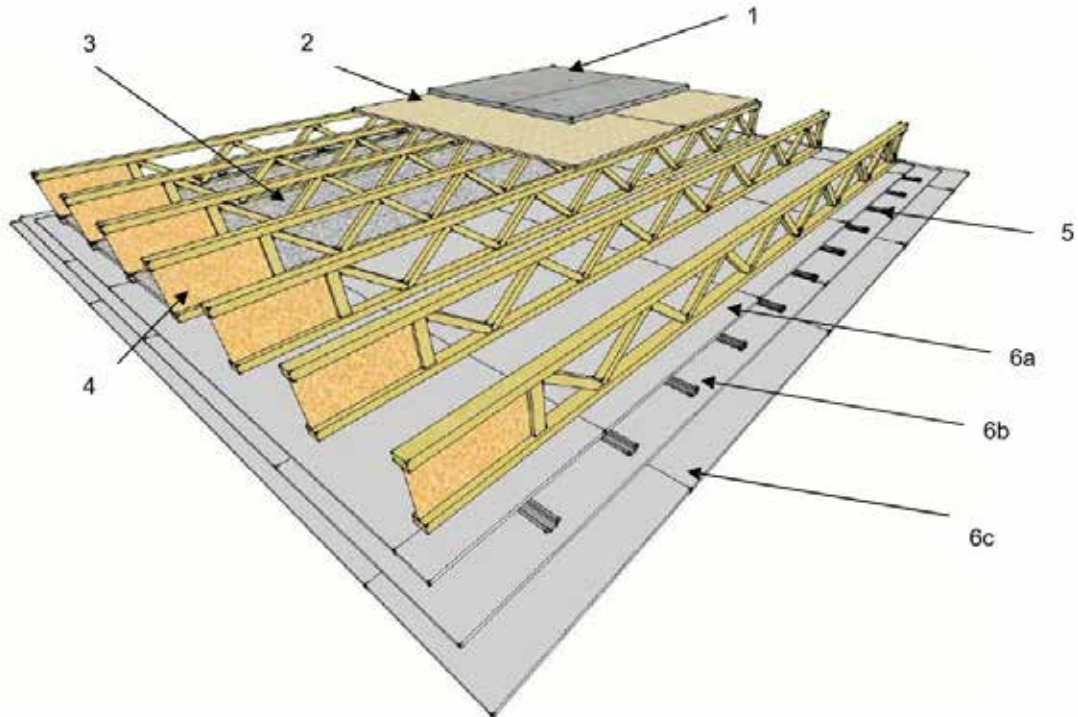
7. **FINISH SYSTEM (Not Shown):** Face layer joints covered with tape and coated with joint compound. Screw heads covered with joint compound.

BS-SFWT 120-01: 120-Minute Fire Rating



Division 06 – Wood, Plastics, and Composites
06 17 00 Shop Fabricated Structural Wood
06 17 53 Shop Fabricated Wood Trusses

Barrette Structural Inc.
Design No. BS/SFWT 120-01
Load Bearing Fire Resistance Rated Roof/Ceiling, Floor/Ceiling Assembly
Open Joist TRIFORCE™ Joist Series
ASTM E119 and CAN/ULC S101
Rating: 2 Hour



- 1. FLOOR TOPPING (Optional):** Gypsum concrete, lightweight or normal concrete topping. When used as a roof assembly, materials for a built-up roof covering that are described in an assembly that provides a Class A, B, or C rating on combustible wood decks may be used.
- 2. FLOOR SHEATHING:** Min. 5/8 in. thick wood sheathing, installed per Code requirements. When used as a roof assembly, min. 1/2 in. thick wood sheathing may be used, installed per Code requirements.
- 3. INSULATION (Optional):** When installed, insulation shall be supported by stay wires spaced 12 in. on center (oc).
- 4. CERTIFIED MANUFACTURER:** Barrette Structural Inc.
CERTIFIED MODEL: Open Joist TRIFORCE™ Joist Series

Date Revised: July 25, 2018

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Project No. G101906129

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BS-SFWT 120-01: 120-Minute Fire Rating



Division 06 – Wood, Plastics, and Composites
06 17 00 Shop Fabricated Structural Wood
06 17 53 Shop Fabricated Wood Trusses

Min. 9-1/2 in. deep Triforce™ joists spaced a max. of 24 in. on center (oc), (min. 2 x 3 flange dimensions). Installed in accordance with the Code.

5. **RESILIENT CHANNELS:** Min. 0.019 in. thick galvanized steel resilient channels, attached perpendicular to joists using 1-5/8 in. long drywall screws. Resilient channels spaced 16 in. oc (channels installed after the first layer and used to support the second and third layers of gypsum wallboard).
6. **GYPSUM WALLBOARD:** Three layers of min. 5/8 in. thick Type C gypsum wallboard as follows:
 - 6a **WALLBOARD BASE LAYER** – Base layer of wallboard installed perpendicular to the joists and directly attached to the bottom flange using 1-5/8 in. Type S drywall screws at 12 in. oc. End joints of wallboard centered on bottom flange and staggered a min. of one joist spacing.
 - 6b **WALLBOARD MIDDLE LAYER** – Middle layer of wallboard attached to furring channels

using 1 in. Type S drywall screws spaced 12 in. oc, with the long dimension of wallboard perpendicular to furring channels. Edge joints shall be centered on the joists and offset a min. of one joist spacing from base layer end joints. End joints staggered a min. of one channel spacing and offset from the edge joints in the base layer a min. of one channel spacing.

- 6c **WALLBOARD FACE LAYER** – Face layer of wallboard attached to channels through middle layer using 1-5/8 in. Type S drywall screws spaced 8 in. oc. Edge joints of face layer of wallboard shall be centered on the joists and offset a min. distance equal to the joist spacing from those of middle layer. End joints of face layer of wallboard staggered a min. of one channel spacing with respect to the middle layer end joint and base layer edge joint.

7. **FINISH SYSTEM (Not Shown):** Face layer joints covered with tape and coated with joint compound. Screw heads covered with joint compound.

