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LISTING INFORMATION OF

Weyerhaeuser - TJI Joists

SPEC ID: 26948

Weyerhaeuser NR Company
32901 Weyerhaeuser Way South
PO Box 6049 Federal Way, WA 98063-6049
Federal Way, WA 98001
United States

LISTING INFORMATION

TJI® Joists are engineered wood products, which have been designed to replace conventional wood joist members. The flanges of TJI Joists are formed from solid sawn lumber, laminated veneer lumber, or laminated strand lumber; and the webs are formed from oriented strand board (OSB).
***NOTE:** TJI is a registered trademark of Weyerhaeuser

FIRE RATINGS

Test Standard	Rating	Design Number
ASTM E119, CAN/ULC S101	45 Minutes	WNR/FCA 45-01, WNR/RCA 45-01 WNR/FCA 45-06
ASTM E119, CAN/ULC S101	1 Hour	WNR/FCA 60-01, WNR/FCA 60-03, WNR/FCA 60-05, WNR/FCA 60-08, WNR/FCA 60-11, WNR/RCA 60-01, WNR/RCA 60-03, WNR/WI 60-07, WNR/WI 60-12
ASTM E119, CAN/ULC S101	90 Minutes	WNR/FCA 90-01
ASTM E119, CAN/ULC S101	2 Hours	WNR/FCA 120-01, WNR/WI 120-03

GENERAL INFORMATION APPLICABLE TO ALL TJI JOIST DESIGNS

1. MINIMUM TOPPING THICKNESS: Unless otherwise specified as follows:

	Joist Spacing	
Topping	**20" or Less**	**Greater than 20" Up to 24"**
Concrete *	1-1/2"	1-1/2"
Proprietary **	3/4"	1"

*Concrete maximum density 110 lbs./cu.ft., minimum strength 3000 psi. Normal weight concrete topping may also be used. Structural capacity of joist shall be verified if normal weight concrete topping is used.
**Gypsum/Cement/Sand, maximum density 100 lbs./cu.ft., minimum strength 1000 psi.

2. SUBFLOORING: Sub-Floor panels conform to DOC Voluntary Product Standards PS1 for Plywood and PS2 for OSB Sheathing, or to one of the following:

- CAN/CSA-0121 - Douglas Fir Plywood
- CAN/CSA-0151 - Canadian Softwood Plywood
- CAN/CSA-0325 - Construction Sheathing
- CAN/CSA-0437.0 - Waferboard & Strandboard

Unless otherwise noted, panels are T & G, maximum width 48", with long dimensions installed perpendicular to supports. Square edge plywood sub-flooring may be used with concrete topping. End joints are staggered minimum 24" and butted over supports. Unless otherwise noted, minimum nominal thickness of sub-flooring is:

Minimum Joist Spacing	OSB or Plywood without Topping	OSB or Plywood with Topping
16"	19/32"	19/32"
20"	5/8"	5/8"
24"	3/4"	5/8"

Where flooring/underlayment is not specified in these fire designs as a component, it is not required for minimum fire design requirements. There may be other code design requirements.

3. SUB-FLOORING FASTENING & ROOF SHEATHING FASTENING: Fastening for plywood or waferboard, roof sheathing, or sub-flooring, 1/2" to 3/4" thick is:

a. Common or Spiral Nails - 2"

b. Ring Thread Nails - 1-3/4". Nails spaced minimum 6" oc at ends, 12" oc along intermediate supports, and 3/8" from panel edge.

4. STRUCTURAL MEMBERS: Listed fire designs are based on systems designed for structural and functional performance in accordance with Trus Joist procedures.
TJI®/Joist Series: Unless otherwise specified, this includes all TJI® Joist Series products listed below, having a minimum depth of 9-1/2" and spaced a maximum of 24" oc for floor/ceiling systems and 48" oc for roof/ceiling systems. Minimum 1-1/2-in. thick, code-compliant structural composite lumber may be substituted for TJI Joist Series of the same overall depth.

TJI Joists Product Fire Class	TJI Joist Series
A	None
B	TJI 110, TJI 210, TJI/Pro 250, TJI/L45
C	None
D	TJI 230, TJI 360, TJI/Pro 130TS
E	TJI/L65, TJI 100C, TJI 300C
F	TJI 560
G	TJI 560D, TJI/L90
H	TJI/H90, TJI/HD90, TJI/HS90

5. RESILIENT CHANNEL: Can be used in all cases, directly applied to joists. Minimum requirement is 24 gauge galvanized steel. Unless otherwise noted, maximum spacing is 24" oc, perpendicular to joists and fastened to each joist with one 1-1/4" Type W screw Minimum dimensions for channel design are shown on Figure A. For attachment of gypsum board end joints, additional channels are placed as shown on Figure B.

6. GYPSUM BOARD: All Gypsum Board is listed Type X, unless otherwise noted. In certain cases, as noted, it may be a specific proprietary type with other designations identified in conjunction with the manufacturer's name. Maximum board width is 48 in. All exposed joints to be taped and filled. Screw heads to be filled unless otherwise noted in the design. Unless noted in the specific assembly, the following application instructions apply.

A. When applied directly to joists or wood furring

1. One Layer: Installed with long dimensions perpendicular to supports, with end joints butted over supports and staggered 24" minimum. Type W screws are spaced 12" oc on intermediate supports and 6" oc on supports at butt joints.
2. Two Layer: Base layer installed similar to one layer installation (above). Face layer installed with long dimensions perpendicular to supports and edges staggered 24" from base layer edges. End joints are located over and attached to supports, and staggered 24" from base layer end joints. Type W screws are placed minimum 12" oc on intermediate supports and 8" oc on end supports at butt joints. To fasten face layer to base layer, a row of Type G screws are located 6" away from end joints, spaced 8" oc.

B. When applied using resilient channel

1. Single layer applied to resilient channel: Long edges of gypsum boards perpendicular to channels and

located midway between joists. Butted end joints of gypsum board staggered and fastened using additional channels as shown on Figure B. Additional channel extends past the gypsum board and end joint and is fastened to the next support member at each side.
Two rows Type S screws are located 3/4" and 6" away from board long edge joints. Reminder 12" oc along furring channel.
2. Two layers: Install the base layer with the long edges of the gypsum board perpendicular to the channels and stagger the butt joints with those of adjacent sheets a minimum of two channel spacings. Attach using Type S screws at 12" oc in the field and on the edge. Install face layer with long edges perpendicular to the channels; stagger long edges 24" minimum from base layer and butt joints a minimum of one channel spacing from the base layer end joints. Attach using Type "S" screws at 12" oc and 8" oc on the intermediate and end supports, respectively. In addition, fasten the face layer to base layer using a row of Type G screws located 6" away from each side of the end joint, spaced at 8" oc.

7. GYPSUM BOARD FASTENING: Screws comply with Type S for fastening to steel furring members, Type W for fastening to wood members, or Type G for fastening to gypsum board, as described in ASTM-C1002, 'Standard Specification for Steel Drill Screws for the Application of Gypsum Board'. Minimum screw penetration (see Figures B, C, D):
A. Into steel furring - 1/2" of screw length must fully penetrate through face of furring to achieve maximum holding strength.
B. Into wood joists - 1".
C. Into gypsum board - When a face layer of gypsum board is attached to a base layer, the screw must fully penetrate 1" through surface of base layer to achieve maximum holding strength.
D. Gypsum board - Applied as a face layer through a base layer, penetration into wood joists: 1".

8. WOOD FURRING: Wood furring is nominal 2 x 4 lumber Standard & Better grade, spaced maximum 24" oc using 3" Type W screws at each joist unless otherwise noted.

9. HOLD DOWN CLIPS: Hold Down Clips are required for acoustical ceiling panels weighting less than 1 lb./sq.ft. The weight of insulation bearing directly upon the panel may be included in the panel weight.

10. INSULATION: All insulation shall be fiber glass batt of the type specified in the listing, except where mineral wool is specified in the listings the insulation shall be as stated below. Fiber glass insulation that is optional in the designs shall be supported above the joist flanges on nominal 1" x 3" boards, 16" oc, or alternately steel wires crisscross at 12" oc and stapled to joist webs.

WNR/FCA 60-11

Minimum 1" thick, minimum 4 pcf Thermafiber® Sound Attenuation Fire Blankets or Fibrex®-FBX 1240 Industrial Board or Fibrex®-IF 1240 Flex Batts.

WNR/FCA 60-05 and WNR/FCA 60-06

Minimum 1" thick, minimum 6 pcf Thermafiber® mineral wool fire proofing or Fibrex®-FBX 1280 industrial board or Fibrex®-IF 1280 Flex Batt.

WNR/WI 60-07

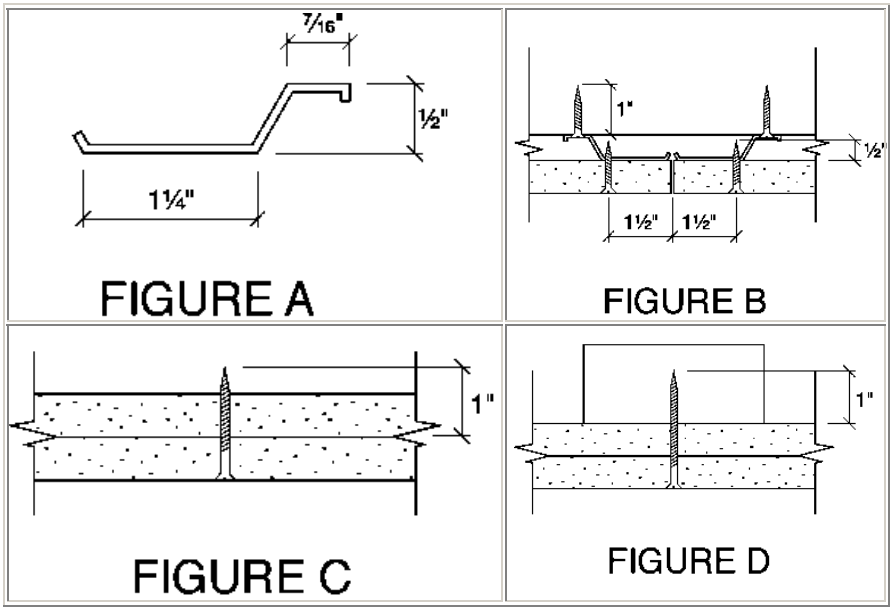
Minimum 1-1/2" thick, minimum 2.5 pcf Thermafiber® Sound Attenuation Fire Blankets or Fibrex® Sound Attenuation Fire Batts.

Attribute	Value
Criteria	CAN / ULC S101 (2007)
Criteria	ASTM E119 (2008a)

Criteria	ASTM E119 (2010)
Criteria	ASTM E119 (2012a)
CSI Code	06 17 33 Wood I-Joists
Fire Resistance	2 Hour
Fire Resistance	1 Hour Fire Rating
Fire Resistance	90 Minute Fire Rated
Fire Resistance	45 Minute Fire Rated
Intertek Services	Certification
Listed or Inspected	LISTED
Listing Section	PREFABRICATED JOISTS
Listing Section	ROOF/CEILING, FLOOR/CEILING, BEAM & COLUMN ASSEMBLIES
Spec ID	26948

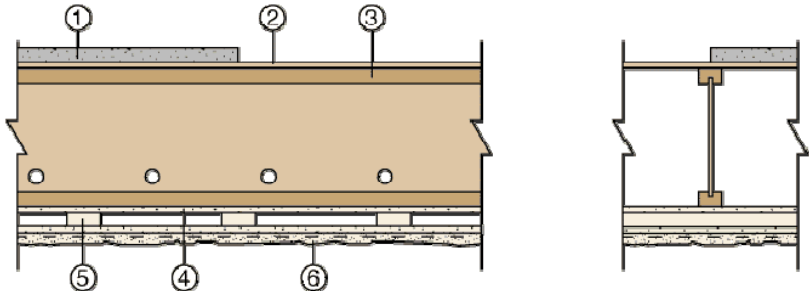
DRAWING INDEX

FIGURES A-D



WNR/FCA 120-01

DESIGN NO. WNR/FCA 120-01
ASSEMBLY RATING - 120 MINUTE, FLOOR/CEILING ASSEMBLY
STC 54 with Minimum 1-1/2" Topping



1.	**Topping (Optional):** Lightweight concrete or proprietary topping.
2.	**SubFlooring:** 5/8" plywood or oriented strandboard (OSB).
3.	**Structural Members:** TJI® Series Joists, Product Fire Classes B-H, maximum spacing is 19.2" oc, may be spaced at 24" oc if 3/4" plywood sub-flooring is used. See Section 4 of General Information.
4.	**Gypsum Board:** Two layers, 5/8" Type X. Base layer installed with long dimension perpendicular to joists, end joints centered on joists. Second layer installed with long dimension perpendicular to furring, end joints centered on furring. All base and second layer joints to be staggered. All gypsum board screws spaced 8" oc, located 1-1/2" from side joints and 3/4" from end joints. All middle and face layer joints to be staggered.
5.	**Wood Furring:** 2 x 4 lumber, placed perpendicular to joist span and spaced 24" maximum.
6.	**Ceiling Finish:** Gypsum sand plaster, 1.0" thick on 3/8" thick self-furring Riblath or equal, attached to 2 x 4 wood furring with 11 gauge barbed roofing nails engaging 2 strands or a rib at 6" oc along support. Nails to penetrate 3/4" minimum into wood. Minimum 1/2" side lap and 1.0" end lap.
7.	**Insulation (Optional)**: Max. 6 in. fiberglass or rockwool batt insulation, friction fit between webs, and supported using wires every 16 in.

WNR/FCA 45-01

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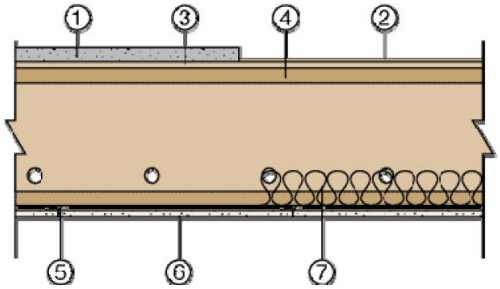
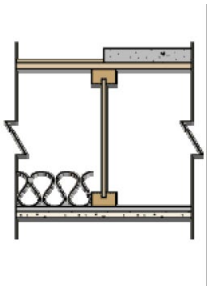
Division 06 – Wood, Plastics and Composites
06 17 00 Shop-Fabricated Structural Wood
06 17 33 Wood I-Joists

Weyerhaeuser NR Company
Design No. WNR/FCA 45-01
Wood I-Joists
TJI® Joists
ASTM E119, CAN/ULC S101
Rating: 3/4 Hour





1. **TOPPING (Optional):** Lightweight concrete or proprietary topping.

2. **FLOORING (Optional):** 3/8 in. wood panel sheathing.

3. **SUB-FLOORING:** 3/4 in. thick plywood or OSB. Alternate 5/8 in. thick plywood or OSB when Topping or Flooring is used.

4. **CERTIFIED MANUFACTURER:** Weyerhaeuser NR Company

   CERTIFIED PRODUCT: TJI® Joists

   CERTIFIED MODEL: TJI® Series Joists

   Product Fire Classes B-H. Refer to Section 4 of General Information in the Listing Report on https://bpdirectory.intertek.com.

5. **FURRING CHANNEL:** Optional

6. **GYPSUM:** 5/8 in. Type X

7. **FIBERGLASS BATT INSULATION (Optional when resilient channel is used):** 3-1/2 in. thickness, friction fit between flanges.

- STC 50 with Insulation and Resilient Channels
- STC 57 with Min. 1-1/2 in. of Topping & Resilient Channels

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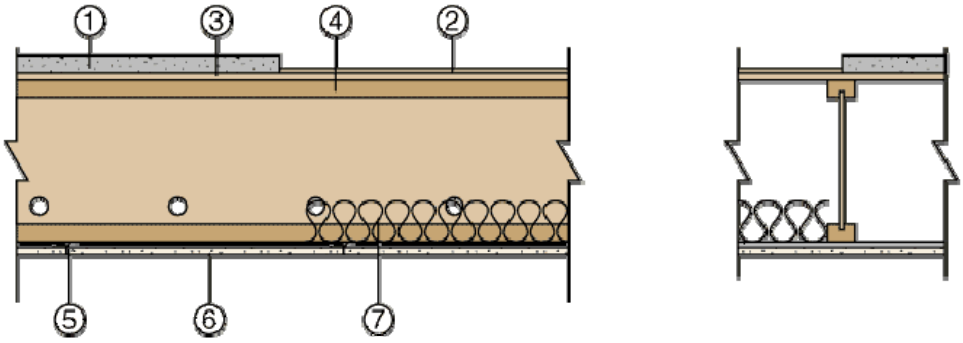
Version: 02 August 2017 SFT-BC-OP-19i

WNR/FCA 45-06

DESIGN NO. WNR/FCA 45-06
ASSEMBLY RATING - 45 MINUTE, FLOOR/CEILING ASSEMBLY; STC 50 with Resilient Channels

STC 57 with Minimum 1-1/2" of Topping & Resilient Channels



1.	**Topping (Optional):** Lightweight concrete or proprietary topping.
2.	**Flooring (Optional):** 3/8" wood panel sheathing.
3.	**SubFlooring:** Wood panel sheathing, minimum thickness as per table in Section 2 of General Information.
4.	**Structural Members:** TJI® Series Joists, Product Fire Classes A-H, see Section 4 of General Information.
5.	**Furring Channel:** Resilient channels, maximum spacing 16" oc.
6.	**Gypsum Board:** 5/8" Georgia Pacific "Fire-Shield G, Type X", Westroc "Fireboard C" or USG/CGC "Sheetrock, Fire Code C" gypsum board.
7.	**Fiberglass Batt Insulation (Optional):** 3-1/2" in thickness, friction fit between bottom flanges.

WNR/FCA 60-01

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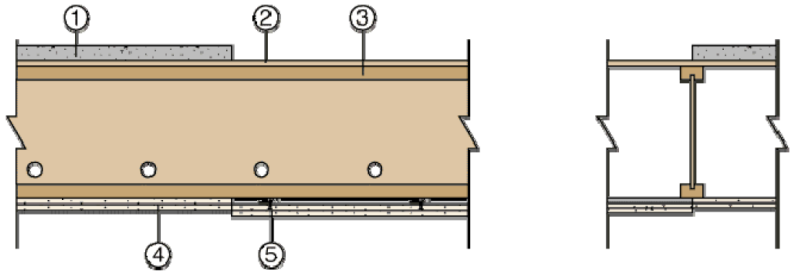
Division 06 – Wood, Plastics and Composites
06 17 33 – Wood I-Joists

Weyerhaeuser NR
WNR/FCA 60-01
TJI Joists
STC 50 with Resilient Channels Only
STC 58 with min 1-1/2 in. Topping & Resilient Channels
ASTM E119-12a and CAN/ULC S101-07
ASSEMBLY RATING – 1 Hour, Floor/Ceiling Assembly



1. **CERTIFIED MANUFACTURER:** Weyerhaeuser NR

   CERTIFIED PRODUCT: TJI® Series Joists

   TJI® Series Joists, Product Fire classes A-H. Refer to Section 4 of General Information in the Listing Report on https://bpdirectory.intertek.com.

2. **TOPPING (Optional):** Lightweight concrete or proprietary topping.

3. **SUB-FLOORING:** 5/8 in. thick plywood or oriented strand board (OSB).

4. **GYPSUM:** Two layers of min. 1/2 in. thick Type X or Type C gypsum board. Refer to Section 6 of General Information in the Listing Report on https://bpdirectory.intertek.com.

5. **FURRING CHANNEL:** Optional when 5/8 in. thick Type X gypsum board is used. Resilient or hat channels are fastened to the joist. Refer to Section 5 of General Information in the Listing Report on https://bpdirectory.intertek.com

6. **INSULATION (Optional, not shown):** Max. 3-1/2 in. thick fiberglass batt insulation friction fit between flanges or the webs of the joists.

Consult the listing report on the Directory of Building Products (https://bpdirectory.intertek.com) for the edition of the standard(s) evaluated.

Compliance of the assembly described in this Design Listing with the referenced standard relies on verification that the assembly constructed in the field is consistent with that described herein. Intertek certified products may be verified by the approved Intertek label; other products must be verified by the Authority Having Jurisdiction as meeting the specifications stated herein.

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Version: 09 June 2021 SFT-BC-OP-19i

WNR/FCA 60-03

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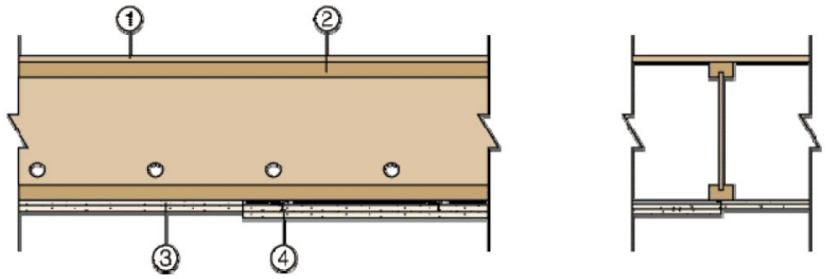
Division 06 – Wood, Plastics and Composites
06 17 00 Shop-Fabricated Structural Wood
06 17 33 Wood I-Joists

Weyerhaeuser NR Company
Design No. WNR/FCA 60-03
Wood I-Joists
TJI® Joists
ASTM E119, CAN/ULC S101
Rating: 1 Hour



1. **SUB-FLOORING:** Min. 3/4 in. thick plywood or OSB when TJI Joist spacing is max. 24 in. on center (oc) and min. 5/8 in. thick when TJI Joist spacing is a max. of 20 in. oc.

2. **CERTIFIED MANUFACTURER:** Weyerhaeuser NR Company

   CERTIFIED PRODUCT: TJI® Joists

   CERTIFIED MODEL: TJI® Series Joists

   Product Fire Classes B-H. Refer to Section 4 of General Information in the Listing Report on https://bpdirectory.intertek.com.

3. **GYPSUM:** Two layers of 1/2 in. thick USG/CGC "Sheetrock Fire Code C" or Westroc "Fireboard C" gypsum board.

4. **FURRING CHANNEL, RESILIENT CHANNEL, OR HAT CHANNEL (Optional):** Joist spacing may be increased to 32 in. oc max. if furring channels are used and spaced 16 in. oc.

   Refer to Section 5 of General Information in the Listing Report on https://bpdirectory.intertek.com.

5. **INSULATION (Optional when resilient channel is used):** Max. 3-1/2 in. thick fiberglass batt insulation friction fit between flanges or the webs of the joists.

- STC 50 with Insulation and Resilient Channels

Date Revised: September 30, 2019 Page 1 of 1

Version: 02 August 2017 SFT-BC-OP-19i

WNR/FCA 60-05

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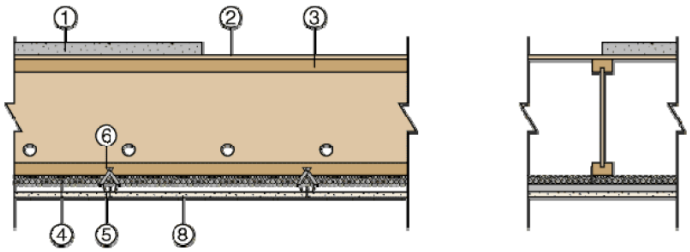
Division 06 – Wood, Plastics and Composites
06 17 00 Shop-Fabricated Structural Wood
06 17 33 Wood I-Joists

Weyerhaeuser NR Company
Design No. WNR/FCA 60-05
Wood I-Joists
TJI® Joists
ASTM E119, CAN/ULC S101
Rating: 1 Hour



1. **TOPPING (Optional):** Lightweight concrete or proprietary topping.

2. **SUB-FLOORING:** 3/4 in. plywood or oriented strandboard (OSB) installed with nails and construction adhesive onto joist and also into grooved edge of panels. End joints staggered 24 in. Alternate 5/8 in. thick plywood or OSB when Topping or Flooring is used.

3. **CERTIFIED MANUFACTURER:** Weyerhaeuser NR Company

   CERTIFIED PRODUCT: TJI® Joists

   CERTIFIED MODEL: TJI® Series Joists

   Product Fire Classes B-H. Refer to Section 4 of General Information in the Listing Report on https://bpdirectory.intertek.com

4. **MINERAL WOOL:** Installed with width of batt equal to on center spacing of joists. Batts inserted between furring channels and bottom flanges of joists with long dimension perpendicular to furring channels and with butted ends centered over furring channels. See General Information Section 10 (Insulation) for suitable insulation.

5. **STEEL FURRING CHANNEL:** Formed of min. 26 GA galvanized steel installed perpendicular to joist. Additional furring channels spaced 1-1/2 in. from and on each side of gypsum board end joints, and extending 24 in. either side past end joint. Channels secured to joists with support clips at each joist location. At channel splices, adjacent pieces overlapped 6 in. and tied with double strand of No. 18 SWG galvanized steel wire at each end of overlaps.

6. **SUPPORT CLIPS:** One Simpson Company Type CSC support clip to be used to support furring channels at each joist intersection. Support clips nailed to one side of joist bottom flange with one 1-1/2 in. long, 0.125 in. diameter nail.

WNR/FCA 60-05 (2 OF 2)

Division 06 – Wood, Plastics and Composites
06 17 00 Shop-Fabricated Structural Wood
06 17 33 Wood I-Joists

7. **STABILIZER STRAP (Not Shown):** 3/4 in. x 6 in., 24 GA galvanized steel strap used to prevent rotation of the support clips (Item 6) at wallboard end joints and along walls. At wallboard end joints (3 in. oc spacing of furring channels), stabilizer straps span between the channels and are screw-attached to the furring channels adjacent to each support clip location using No. 8 self-tapping steel screws. On furring channels nearest to and parallel with walls, one end of the stabilizer strap is screw-attached to the furring channel, adjacent to each support clip location, using No. 8 self-tapping steel screws. The free end of the stabilizer strap is twisted 90 degrees bent upward and screw or nail attached to the side of the joist bottom flange on the side of the support clip nearest the wall.

8. **GYPSUM:** 5/8 in. Type X

- STC 47 with 8 PCF Density Insulation
- STC 58 with Min. 1-1/2 in. Topping and 8 PCF Density Insulation

WNR/FCA 60-08

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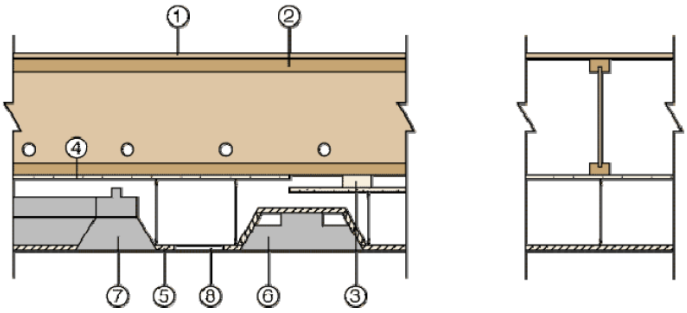
Division 06 – Wood, Plastics and Composites
06 17 00 Shop-Fabricated Structural Wood
06 17 33 Wood I-joists

Weyerhaeuser NR Company
Design No. WNR/FCA 60-08
Wood I-Joists
TJI® Joists
ASTM E119, CAN/ULC S101
Rating: 1 Hour



1. **SUB-FLOORING:** Min. 3/4 in. thick plywood or OSB when TJI Joist spacing is max. 48 in. on center (oc) and min. 5/8 in. thick when TJI Joist spacing is a max. of 20 in. oc.

2. **CERTIFIED MANUFACTURER:** Weyerhaeuser NR Company

   CERTIFIED PRODUCT: TJI® Joists

   CERTIFIED MODEL: TJI® Series Joists

   Product Fire Classes E-H, min. depth is 14 in. and max. spacing is 48 in. Refer to Section 4 of General Information in the Listing Report on https://bpdirectory.intertek.com.

3. **WOOD FURRING:** 2 x 4 lumber required when joist spacing exceeds 24 in. oc.

   RESILIENT CHANNELS (Not Shown): Optional when joist spacing is 24 in. oc or less.

4. **GYPSUM BOARD:** 1/2 in. Type X. Taping only of joints required.

5. **CEILING SYSTEM:** Suitable fire rated suspended ceiling system located a min. distance of 12 in. below the gypsum board. The grid system is suspended with No. 12 SWG galvanized steel wire fastened to the joists or wood furring with 1-1/2 in. long flat-head hanger screws, 1 in. long Type S screws when resilient channels are used. Acoustical ceiling panels are 24 in. x 48 in. x 5/8 in., rated for use as a component in an equivalent fire-resistant assembly, with a min. finish rating of 15 minutes.

6. **FIXTURE PROTECTION**: Suitable flush mounted fire rated fluorescent fixtures up to 24 in. x 48 in. x up to 5 in. deep, protected by a five-sided box with up to 6 in. wide pieces of ceiling panels, 48 in. long for the sides and 24 in. long for the ends, and a full grid panel placed on top. Top Panel spaced to allow min. 1 in. air space from top of fixture. Assemble panels

WNR/FCA 60-08 (2 OF 2)

with 3 in. nails spaced 6 in. oc. strips of panel 6 in. wide over joints of light fixture boxes when two fixtures are butted end to end. Aggregate area of fixture not to exceed 10 sq.ft. per 215 sq.ft. ceiling.

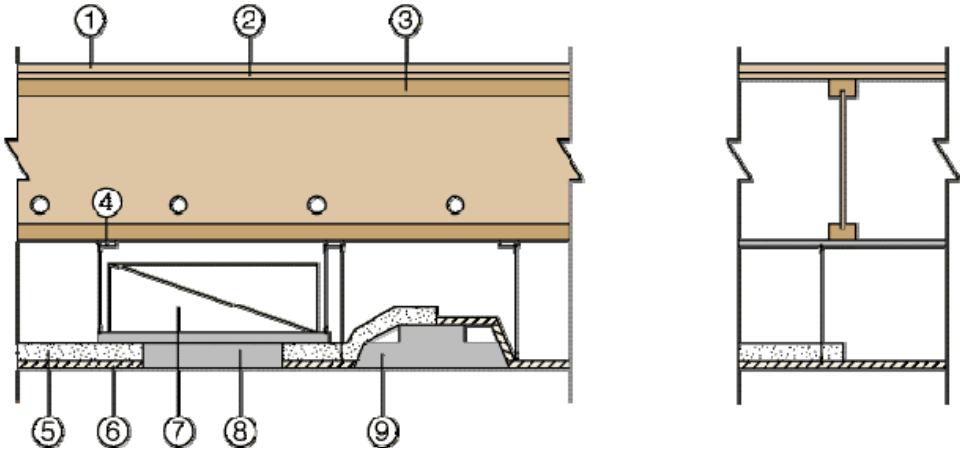
7. **DUCT**: 4 in. x 18 in. galvanized steel duct with a max. 12 in. diameter steel diffusion opening and spaced at least 84 in. apart.

8. **RETURN OPENING**: A max. 6 in. x 12 in. return air opening permitted for each 215 sq.ft. of ceiling and spaced at least 84 in. apart.

- STC 50 with Resilient Channels

WNR/FCA 60-11

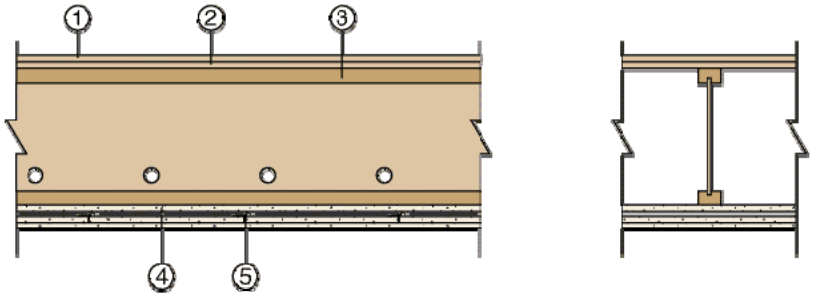
DESIGN NO. WNR/FCA 60-11
ASSEMBLY RATING - 60 MINUTE, FLOOR/CEILING ASSEMBLY



1.	**Topping (Optional):** 1/2" wood panel sheathing.
2.	**SubFlooring:** 5/8" plywood, oriented strandboard (OSB).
3.	**Structural Members:** TJI® Series Joists, Product Fire Classes E-H. Maximum spacing 48" oc, see Section 4 of General Information.
4.	**Furring Channel:** No. 16 gauge cold rolled channels, 1-1/2" wide, 1/2" deep having 1/2" flanges. Spaced at 24", fastened directly to each joist with two 1-1/2" Type W screws. Alternate: Wood Furring - 2 x 4 lumber.
5.	**Mineral Wool:** Installed over the acoustical panels. See General Information, section 10 (Insulation) for suitable insulation.
6.	**Ceiling System:** Suitable fire rated suspended ceiling system located a minimum distance of 10" below the joists. The grid system is suspended from the channels with 12 SWG galvanized steel wire. C.G.C. 3/4" Acoustone Firecode (No. 715) or 5/8" Auratone Firecode (No. 339) Acoustical Ceiling Panels. Alternatively, other components may be used that provide a 28 minute finish rating in an equivalent fire resistant assembly, to substitute for the Acoustical Panels covered by mineral wool.
7.	**Duct:** No. 22 gauge steel, 18" x 6" with 12" diameter diffusers protected by rated fire damper. Duct supported by 24" oc, 16 gauge, 3/4" cold rolled channel suspended from furring channels with No. 16 SWG wire at 40" intervals along the duct. Aggregate ceiling openings for air diffusers not to exceed 113 sq.ft. per 100 sq.ft of ceiling and be spaced at least 6.6' apart.
8.	**Air Diffuser:** See #7 - Duct (above).
9.	**Fixture Protection:** 24" x 48" x up to 5" deep, 26 gauge fixtures protected on all surfaces by a minimum thickness of 1-1/2" mineral wool blanket. Protection is to be securely tied at corners with No. 18 SWG steel wire. Aggregate area of fixtures not to exceed 11 sq.ft. per 215 sq.ft. of ceiling. Equivalent protection may be used.

WNR/FCA 90-01

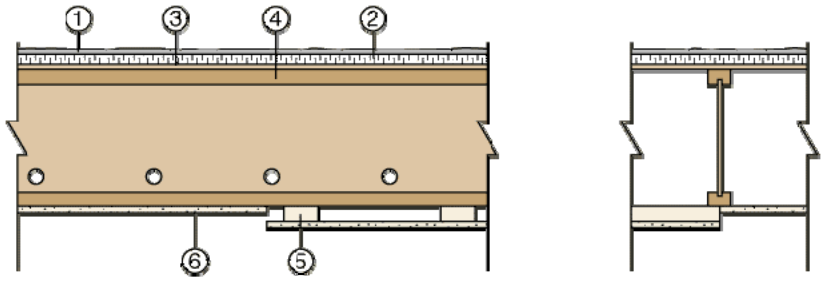
DESIGN NO. WNR/FCA 90-01
ASSEMBLY RATING - 90 MINUTE, FLOOR/CEILING ASSEMBLY
STC 54 with Minimum 1-1/2" Topping



1.	**Topping (Optional):** Lightweight concrete or proprietary topping.
2.	**SubFlooring:** 5/8" plywood or oriented strandboard (OSB).
3.	**Structural Members:** TJI® Series Joists, Product Fire Classes B-H, see Section 4 of General Information.
4.	**Gypsum Board:** One base layer, 1/2" Type X, installed with long dimension perpendicular to joists, end centered on joists. Face and middle layers, both 5/8" Type X, installed perpendicular to furring channel, end joints centered on channel. All gypsum board screws 8" oc, located 1-1/2" from side joints and 3/4" from end joints. All middle and face layer joints to be staggered.
5.	**Furring Channel:** Resilient or hat channel installed at 16" oc and attached to each joist with 1-7/8" Type W screws.

WNR/RCA 45-01

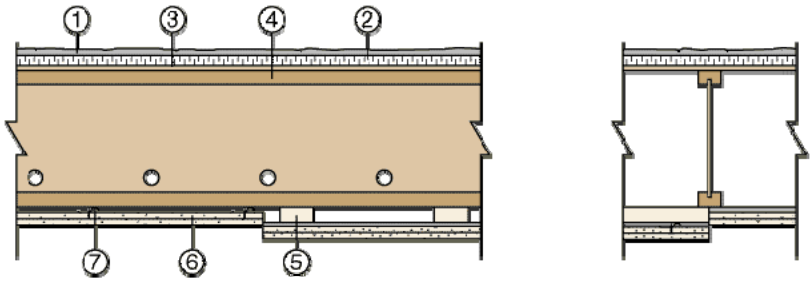
DESIGN NO. WNR/RCA 45-01
ASSEMBLY RATING - 45 MINUTE, ROOF/CEILING ASSEMBLY



1.	**Roof Covering:** Suitable materials intended for built-up roof covering which provides Class A, B, C covering on combustible wood decks for fire resistant assemblies equivalent to this roof/ceiling assembly.
2.	**Roof Insulation:** Sheathing material and adhesive products found suitable for use in 3/4 hour rated fire resistant assemblies equivalent to this roof/ceiling assembly.
3.	**Sheathing:** 1/2" square edge wood panel sheathing, H clips midway between joists or as per code requirements.
4.	**Structural Members:** TJI® Series Joists, Product Fire Classes B-H, see Section 4 of General Information.
5.	**Wood Furring:** 2 x 4 lumber required when joist spacing exceeds 24" oc.
6.	**Gypsum Board:** 5/8" Type X.

WNR/RCA 60-01

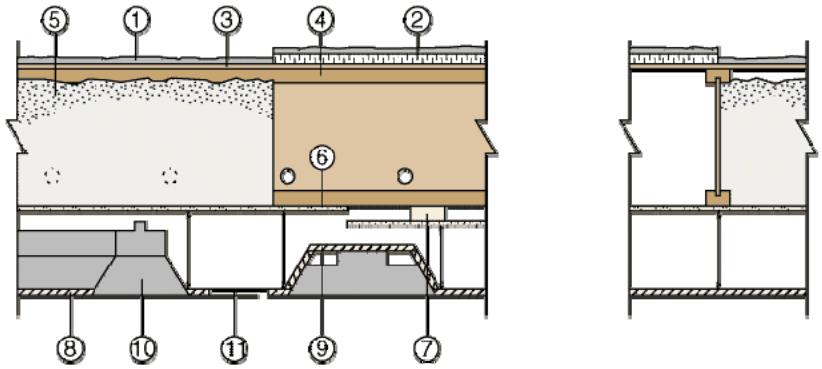
DESIGN NO. WNR/RCA 60-01
ASSEMBLY RATING - 60 MINUTE, ROOF/CEILING ASSEMBLY



1.	**Roof Covering:** Suitable materials intended for built-up roof covering which provides Class A, B, C covering on combustible wood decks for fire resistant assemblies equivalent to this roof/ceiling assembly.
2.	**Roof Insulation:** Sheathing material and adhesive products found suitable for use in hourly rated fire resistant assemblies equivalent to this roof/ceiling assembly.
3.	**Sheathing:** 1/2" square edge wood panel sheathing, H clips midway between trusses or as per code requirements.
4.	**Structural Members:** TJI® Series Joists, Product Fire Classes A-H, see Section 4 of General Information.
5.	**Wood Furring:** 2 x 4 lumber required when joist spacing exceeds 24" oc.
6.	**Gypsum Board:** Two layers, 1/2" Type X gypsum wallboard.
7.	**Furring Channels:** Resilient channel. **Alternate:** Trusses may be spaced at 32" oc without wood furring if resilient channels are spaced 16" oc maximum.

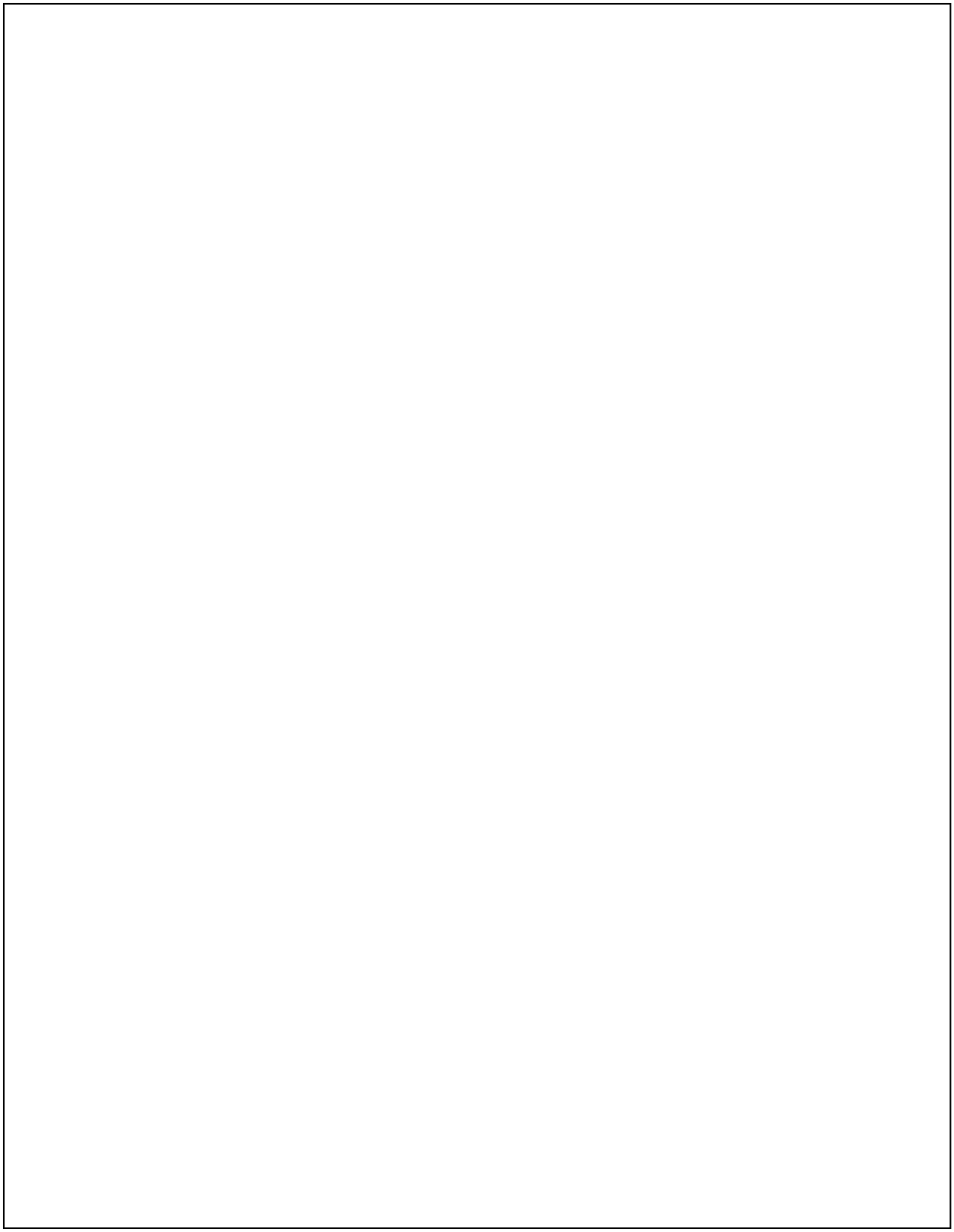
WNR/RCA 60-03

DESIGN NO. WNR/RCA 60-03
ASSEMBLY RATING - 60 MINUTE, ROOF/CEILING ASSEMBLY



1.	**Roof Covering:** Suitable materials intended for built-up roof covering which provides Class A, B, C covering on combustible wood decks for fire resistant assemblies equivalent to this roof/ceiling assembly.
2.	**Roof Insulation:** Sheathing material and adhesive products found suitable for use in hourly rated fire resistant assemblies equivalent to this roof/ceiling assembly. (Not required if blown loose glass fiber insulation used.)
3.	**Sheathing:** 1/2" square edge wood panel sheathing, H clips midway between joists or as per code requirements.
4.	**Structural Members:** TJI® Series Joists, Product Fire Classes E-H, minimum depth is 14", see Section 4 of General Information.
5.	**Insulation (Optional):** Blown loose glass fiber insulation placed at a depth of 14" and at a density of 0.77 pcf to achieve an insulation value of R30.
6.	**Gypsum Board:** 1/2" Type X (Taping and finishing not required if blown insulation is used).
7.	**Furring:** 2 x 4 wood furring at 24" oc required to install gypsum board when joist spacing exceeds 24" oc Fasten furring directly to each joist with one 3" Type W screw or two 3" long common nails.
8.	**Ceiling System:** Suitable fire rated suspended ceiling system located a minimum distance of 12" below the gypsum board. The grid system is suspended with No. 12 SWG galvanized steel wire fastened to the joists with 3" long flat head hanger screws. Acoustical ceiling panels are 24" x 48" x 5/8" rated for use as a component of an equivalent fire resistant assembly with a minimum finish rating of 15 minutes.
9.	**Fixture Protection:** Suitable flush mounted fire rated fluorescent fixtures up to 24" x 48" x up to 5" deep, protected by a five-sided box with up to 6" wide pieces of ceiling panels, 48" long for the sides, and 24" long for the ends, and a full grid panel placed on top. Top panel spaced to allow minimum 1" air space from top of fixture. Assemble panels with 3" nails spaced 6" oc Strips of panel 6" wide over joints of light fixture boxes with two fixtures are butted end to end. Aggregate area of fixture not to exceed 10 sq.ft. per 215 sq.ft. of ceiling.
10.	**Duct:** 4" x 18" galvanized steel duct with a maximum 12" diameter steel diffusion opening and spaced at least 84" apart.
11.	**Return Opening:** A maximum 6" x 12" return air opening permitted for each 215 sq.ft. of ceiling and spaced at least 84" apart.

WNR/RCA 60-03 (2 OF 2)



WNR/WI 120-03

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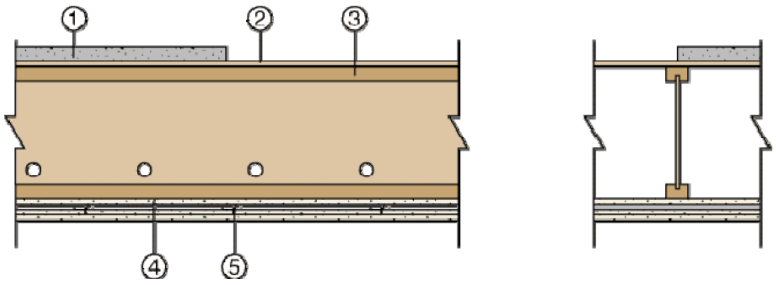
Division 06 – Wood, Plastics and Composites
06 17 00 Shop-Fabricated Structural Wood
07 17 33 Wood I-Joists

Weyerhaeuser NR Company
Design No. WNR/WI 120-03
Wood I-Joists
TJI® Joists
ASTM E119, CAN/ULC S101
Rating: 2 Hour



STC 54 with min. 1-1/2 in. Topping

1. **TOPPING (Optional):** Lightweight concrete or proprietary topping

2. **SUB-FLOORING:** 5/8 in. thick plywood or OSB

3. **CERTIFIED MANUFACTURER:** Weyerhaeuser NR Company

   CERTIFIED PRODUCT: TJI® Joists

   CERTIFIED MODEL: TJI® Series Joists

   Product Fire classes A-H, at a max. spacing of 19.2 in. on center (oc). The joists may be spaced at 24 in. oc if 3/4 in. thick plywood subflooring is used. Refer to Section 4 of General Information in the Listing Report on https://bpdirectory.intertek.com

4. **GYPSUM:** Three layers of 5/8 in. thick USC/CGC "Sheetrock Fire Code C" or Westroc "Fireboard C" gypsum board. The base layer is installed with the long dimensions perpendicular to the joists, end joints centered on the joists. Face and middle layers are installed perpendicular to the furring channel, with end joints centered on the channel. All gypsum board screws are spaced 8 in. oc, located 1-1/2 in. from side joints and 3/4 in. from end joints. All middle and face layer joints are to be staggered.

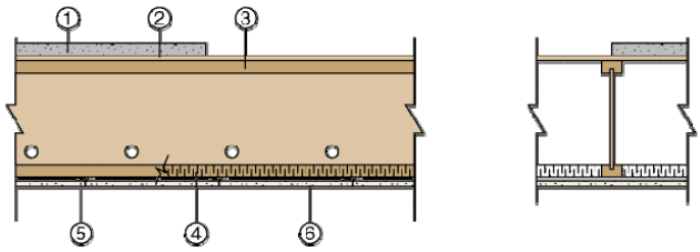
5. **FURRING CHANNEL:** Resilient or hat channel, installed 16 in. oc and attached to each joist with 1-7/8 in. type W screws.

6. **INSULATION (Optional, not shown):** Fiberglass batt insulation, 24 in. wide x 48 in. long x 4.5 in. thick, supported by stay wires at 12 in. oc installed in the joist cavities.

WNR/WI 60-07

Division 06 – Wood, Plastics, and Composites
06 17 00 Shop-Fabricated Structural Wood
06 17 33 Wood I-Joists

Weyerhaeuser NR Company
Design No. WNR/WI 60-07
I-joists
TJI® Joists
ASTM E119, CAN/ULC S101
Rating: 1 Hour



STC 50
STC 58 with Min. 1-1/2 in. of Topping

1. **TOPPING (Optional):** Lightweight concrete or proprietary topping.

2. **SUB-FLOORING:** 3/4 in. plywood or OSB nailed and glued with construction adhesive. **Alternate:** 5/8 in. plywood, OSB or waferboard with topping.

3. **CERTIFIED MANUFACTURER:** Weyerhaeuser NR Company

   CERTIFIED PRODUCT: TJI® Joists

   CERTIFIED MODEL: TJI Series Joists, Product Fire Classes G and H, min. depth 9-1/2 in., max. 24 in. oc; see Listing Section 4 of General Information.

4. **INSULATION:** 1-1/2 in. thick, 2.5 pcf Thermafiber mineral wool, friction fitted between bottom flanges of joists and supported on furring channels. The bottom surface of the Thermafiber flush with the bottom surface of the flanges, all butt joints located over the resilient channels.

5. **RESILIENT CHANNELS:** Max. spacing 16 in. oc, fastened to each joist with 1-5/8 in. Type S screws.

6. **GYPSUM BOARD:** 5/8 in. USG/CSG "Sheetrock, Fire Code C" or Westroc "Fireboard C", fastened with 1 in. Type S screws spaced 12 in. oc in the field and 8 in. oc at ends.

Date Revised: June 27, 2016
Project No. G102626773

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WNR/WI 60-12

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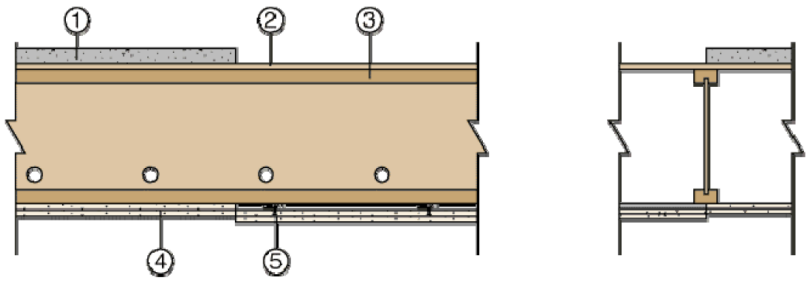
Division 06 – Wood, Plastics and Composites
06 17 00 Shop-Fabricated Structural Wood
06 17 33 Wood I-Joists

Weyerhaeuser NR
WNR/WI 60-12
TJI® Joists
ASTM E119, CAN/ULC S101
Rating – 1 Hour



Floor/Ceiling Assembly

1. **TOPPING (Optional):** Lightweight concrete or proprietary topping. Refer to Section 1 of General Information in the Listing Report on https://bpdirectory.intertek.com.

2. **SUB-FLOORING:** Min. 5/8 in. thick plywood or oriented strand board (OSB) 40/20 or 20oc span rated. When used as a roof/ceiling assembly, Item 2 is permitted to be any Code recognized wood decking. Refer to Section 2 and 3 of General Information in the Listing Report on https://bpdirectory.intertek.com.

3. **CERTIFIED MANUFACTURER: Weyerhaeuser NR**

   CERTIFIED PRODUCT: TJI® Series Joists

   Product Fire classes A-H. Refer to Section 4 of General Information in the Listing Report on https://bpdirectory.intertek.com.

4. **GYPSUM:** Two layers of min. 5/8 in. thick Type X gypsum board. Refer to Sections 6 and 7 of General Information in the Listing Report on https://bpdirectory.intertek.com.

5. **RESILIENT CHANNEL (Optional):** Resilient or hat channels are fastened to the joist. Refer to Section 5 of General Information in the Listing Report on https://bpdirectory.intertek.com.

6. **INSULATION (Optional, not shown):** Fiberglass batt insulation or mineral wool insulation, friction fit between flanges or the webs of the joists. The joist cavity is permitted to be filled with insulation; however, the insulation must be placed above the resilient channels between the joist flanges.

Consult the listing report on the Directory of Building Products (https://bpdirectory.intertek.com) for the edition of the standard(s) evaluated.

Date Issued: June 11, 2021 Page 1 of 1 Spec ID: 26948

Version: 02 August 2017 SFT-BC-OP-19i