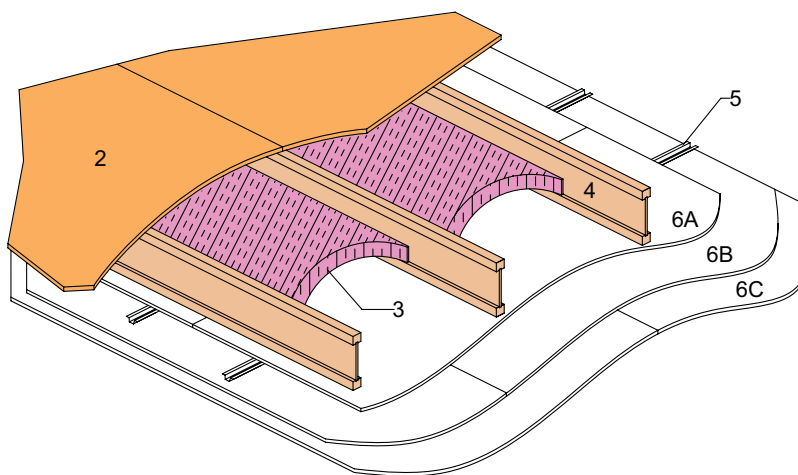


WIJ-2.1 Two-Hour Fire-Resistive Ceiling Assembly**Floor^a/Ceiling - 100% Design Load - 2 Hour Rating - ASTM E 119 / NFPA 251**

1. **Floor Topping (optional, not shown):** Gypsum concrete, lightweight or normal concrete topping.
2. **Floor Sheathing:** Minimum 23/32 inch thick tongue-and-groove wood sheathing (Exposure 1). Installed per code requirements.
3. **Insulation:** Minimum 3-1/2 inch thick unfaced fiberglass insulation fitted between I-joists supported by stay wires spaced 12 inches on center.
4. **Structural Members:** Wood I-joists spaced a maximum of 24 inches on center.
 Minimum I-joist flange depth: 1-1/2 inches Minimum I-joist flange area: 2.25 inches²
 Minimum I-joist web thickness: 3/8 inch Minimum I-joist depth: 9-1/4 inches
 See ASTM D 5055-07 for qualification requirements.
5. **Furring Channels:** Minimum 0.0179 inch thick galvanized steel hat-shaped furring channels, attached perpendicular to I-joists using 1-5/8 inch long drywall screws. Furring channels spaced 16 inches on center (furring channels used to support the second and third layers of gypsum wallboard).
6. **Gypsum Wallboard:** Three layers of minimum 5/8 inch Type C gypsum wallboard as follows:
 - 6a. **Wallboard Base Layer:** Base layer of wallboard attached to bottom flange of I-joists using 1-5/8 inch Type S drywall screws at 12 inches on center with the long dimension of wallboard perpendicular to I-joist. End joints of wallboard centered on bottom flange of the I-joist and staggered from end joints in adjacent sheets.
 - 6b. **Wallboard Middle Layer:** Middle layer of wallboard attached to furring channels using 1 inch Type S drywall screws spaced 12 inches on center with the long dimension of wallboard perpendicular to furring channels. End joints staggered from end joints in adjacent sheets.
 - 6c. **Wallboard Face Layer:** Face layer of wallboard attached to furring channels through middle layer using 1-5/8 inch Type S drywall screws spaced 8 inches on center. Edge joints of face layer of wallboard offset 24 inches from those of middle layer. End joints of face layer of wallboard staggered with respect to the middle layer.
7. **Finish System (not shown):** Face layer joints covered with tape and coated with joint compound. Screw heads covered with joint compound.

Fire Test conducted at Gold Bond Building Products Research Center

December 16, 1992

Third Party Witness: PFS Corporation

Report No: #92-56

STC and IIC Sound Ratings for Listed Assembly

Without Gypsum Concrete				With Gypsum Concrete			
Cushioned Vinyl		Carpet & Pad		Cushioned Vinyl		Carpet & Pad	
STC	IIC	STC	IIC	STC	IIC	STC	IIC
-	-	49 ^b	54 ^b	52 ^b	46 ^b	52 ^b	60 ^b

^a This assembly may also be used in a fire-rated roof/ceiling application, but only when constructed exactly as described.^b STC and IIC values estimated by David L. Adams Associates, Inc