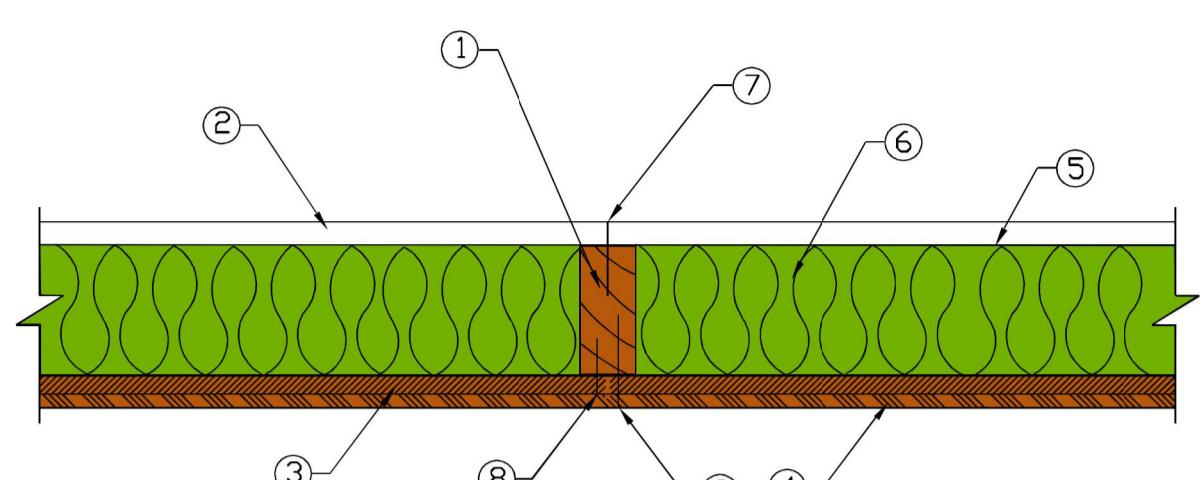
Gonzalez Building
DesignsHouston, TX.
(832) 618-4465

gonzalezbuildingdesigns@gmail.com

FIRE-RESISTANCE-RATED WOOD-FRAME WALL AND FLOOR/CEILING ASSEMBLIES 13

WS4-1.3 One-Hour Fire-Resistance-Rated Wood-Frame Wall Assembly
(Rated from gypsum wallboard side)

2x4 Wood Stud Wall - 78% Design Load - ASTM E 119/NFPA 251



1. Framing - Nominal 2x4 wood studs, spaced 16 in. o.c., double top plates, single bottom plate
2. Interior Sheathing - 5/8 in. Type X gypsum wallboard, 4 ft. wide, applied vertically, unblocked
3. Exterior Sheathing - Minimum 1/2 in. fiberboard sheathing. *Alternate construction - minimum 1/2 in. lumber siding or 1/2 in. wood-based sheathing.*
4. Exterior Siding - 3/8 in. hardboard shiplap edge panel siding. *Alternate construction - lumber, wood based, vinyl, or aluminum siding.*
5. Vapor Barrier - 4-mil polyethylene sheeting
6. Insulation - 3-1/2-inch-thick mineral wool insulation (2.5 pcf, nominal)
7. Gypsum Fasteners - 6d cement coated box nails spaced 7 in. o.c.
8. Fiberboard Fasteners - 1-1/2 in. galvanized roofing nails - 6 in. o.c. in the field, 3 in. o.c. panel edges
9. Hardboard Fasteners - 8d galvanized nails - 8 in. o.c. in the field, 4 in. o.c. panel edges
10. Joint and Fastener Heads - Wallboard joints covered with paper tape and joint compound; fastener heads covered with joint compound

Tests conducted at the Gold Bond Building Products Fire Testing Laboratory
Test No: WP-584 (Fire Endurance & Hose Stream) March 19, 1981

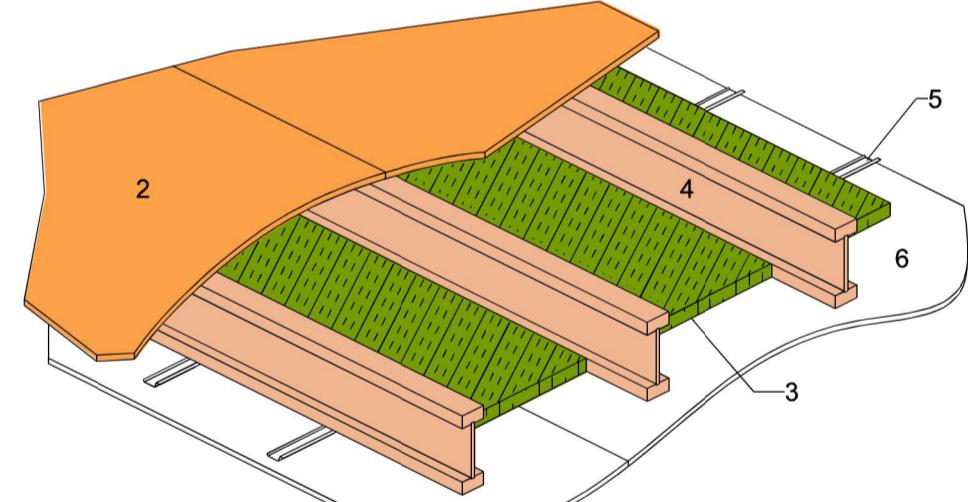
Third Party Witness: Warnock Hersey International, Inc.
Report WHI-690-003

This assembly was tested at 78% design load using an l/d of 33, calculated in accordance with the 2018 National Design Specification® for Wood Construction. The authority having jurisdiction should be consulted to assure acceptance of this report.

Copyright © 2020 American Wood Council

March 2020

22 FIRE-RESISTANCE-RATED WOOD-FRAME WALL AND FLOOR/CEILING ASSEMBLIES

WIJ-1.2 One-Hour Fire-Resistance-Rated Ceiling Assembly
Floor/Ceiling - 100% Design Load - 1 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 with minimum 8d common nails and glued to joist top flanges with AFG-01 construction adhesive.
3. Insulation: Minimum 1-1/2-inch-thick mineral wool batt insulation - 2.5 pcf (nominal), supported by resilient channels.
4. Structural Members: Wood I-joists spaced a maximum of 24 inches on center. See ASTM D 5055 for qualification requirements. Additional requirements are as follows:
 - Minimum I-joist flange depth: 1-1/2 inches Minimum I-joist flange area: 5.25 inches²
 - Minimum I-joist web thickness: 7/16 inch Minimum I-joist depth: 9-1/4 inches
5. Resilient Channels: Minimum 0.019-inch-thick galvanized steel resilient channels, attached perpendicular to I-joists using 1-5/8-inch-long drywall screws. Resilient channels spaced 16 inches on center and doubled at each wallboard end joint extending to the next joist.
6. Gypsum Wallboard: Minimum 5/8-inch-thick Type C gypsum wallboard installed with long dimension perpendicular to resilient channels and fastened to each channel with minimum 1-inch-long Type S drywall screws. Fasteners spaced 12 inches on center in the field of the wallboard, 8 inches on center at wallboard end joints, and 3/4 inches from panel edges and ends. End joints of wallboard staggered.
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 June 19, 1984
Third Party Witness: Warnock Hersey International, Inc.
Report No: WHI-694-0159

Joist/ RC Spacing ^c	STC and IIC Sound Ratings							
	Without Gypsum Concrete		With 1" Gypsum Concrete					
	Cushioned Vinyl	Carpet & Pad	Cushioned Vinyl	Carpet & Pad				
STC	IIC	STC	IIC	STC	IIC	STC	IIC	
24"o.c./16"o.c.	48 (51) ^b	42 (43) ^b	48 (51) ^b	61 (63) ^b	63 (65) ^b	50 (52) ^b	63 (65) ^b	65 (67) ^b
16"o.c./16"o.c.	44 (46) ^b	37 (39) ^b	44 (46) ^b	60 (61) ^b	56 (57) ^b	46 (47) ^b	56 (57) ^b	58 (59) ^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 established by engineering analysis using the AWC Technical Report 15 (TR15) model, based on 1.5"-thick mineral wool batt insulation (values in parentheses are based on 3.5"-thick mineral wool batt).
^c STC and IIC values for assemblies with a joist spacing of 16"o.c. may be used for assemblies with joist spacings between 16"o.c. and 24"o.c.

Copyright © 2020 American Wood Council

March 2020

