



TOPIC: Type III Construction - OSSC/6/#4

CODE: Oregon Structural Specialty Code: 2014 Edition

REVISED: May 15, 2017 [Rebecca Esau], Interim Director

REFERENCE: Chapters 6 and 7 – Structural Specialty Code

**SUBJECT: Non-Fire-Retardant-Treated Wood Framing Within
Exterior Walls of R-2 Occupancy Buildings of Type III
Construction**

QUESTION: In buildings of either Type III-A or III-B construction, the Oregon Structural Specialty Code (OSSC) permits fire-retardant-treated wood framing within exterior walls where the wall is 2-hour fire-resistance rated or less.

May non-fire-retardant-treated wood be used as an alternative to fire-retardant-treated wood in these assemblies?

This question includes the condition in which the Special Provisions of OSSC Chapter 5 are utilized for a four or five-story, Type III building above a Type I-A podium building.

RESPONSE: Yes, in lieu of using fire-retardant-treated wood framing, the Bureau of Development Services (BDS) will allow non-fire-retardant-treated wood framing within exterior walls of R-2 occupancy buildings of Type III construction without a building code appeal provided all of the conditions listed below are met.

DEFINITIONS AND TERMINOLOGY:

Approved wall assembly: Wall assemblies designated “approved wall assembly” in the graphic details of this Guide must be constructed as described in the Conditions (below), unless it is a *tested assembly*.

Continuous and solid: The terms “continuous” and “solid” used in the details of this Guide means without air breaks or interruptions by a material of lesser fire rating for the full length and depth of the condition. A “continuous” or “solid” member may be built up of multiple wood members provided it complies with all structural requirements.

Sacrificial stud: The term “sacrificial stud” used in the graphic details of this Guide means an extra stud, 2-inch minimum nominal thickness and the same depth as the adjacent framing member, installed against a structural framing member to provide additional fire resistance at an opening in an exterior wall.

Tested assembly: A fire-resistant rated assembly that has been tested in accordance with the OSSC.

CONDITIONS:

1. Exterior bearing walls shall be protected based on their fire separation distance as defined in the OSSC as follows:
 - a. Less than 10 feet: Protected on the inside with at least two layers of 5/8” minimum fire-rated gypsum board. Protected on the outside with at least two layers of fire-rated gypsum sheathing or one layer of fire-rated gypsum sheathing and one layer of 5/8” minimum fire-retardant-treated plywood. Alternatively, exterior bearing walls may be protected for fire exposure from both sides with a two-hour fire resistance *tested assembly*.
 - b. Equal to or greater than 10 feet: Protected on the inside with at least two layers of 5/8” minimum fire-rated gypsum board. Protected on the outside with at least one layer of 5/8” minimum fire-rated gypsum sheathing.
2. Exterior non-bearing walls shall be protected on the inside and outside with at least one layer of 5/8” minimum fire-rated gypsum board or gypsum sheathing.
3. Non-fire-retardant-treated wood framing within exterior walls must be enclosed by gypsum board or gypsum sheathing, except where specifically noted in this Guide.
4. All openings in exterior walls for doors, windows or wall-mounted HVAC units and louvers must be protected with a *sacrificial stud* at the sides and top of the opening. The *sacrificial stud* may not be used to support a structural vertical load.
5. All exterior wall coverings shall be of non-combustible material.
6. Combustible roof sheathing and framing shall be protected from exposure to fire from above with gypsum-based products, fire-retardant-treated wood sheathing or similar UL tested products installed above or below the roofing membrane and/or rigid insulation.

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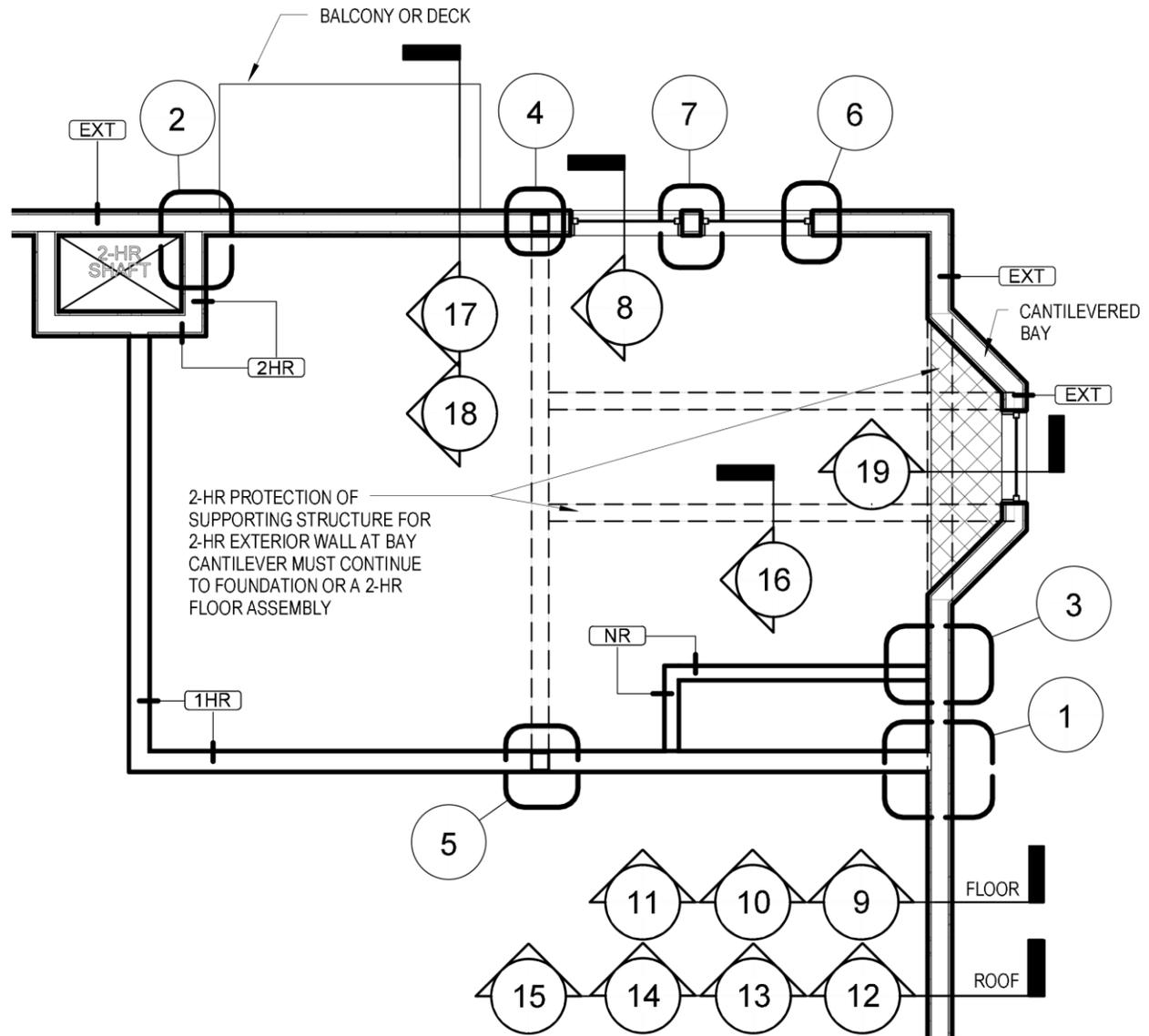
7. Selective smoke detection coverage shall be installed in the Type III portion of the building per NFPA 72, National Fire Alarm Code, beginning at the access point to the path of egress and continuing until reaching all exits. If the exit passes through a lobby or other intervening space, selective smoke detection coverage requirements shall be extended to such spaces until reaching the exit discharge.
8. At least one operable exterior window shall be provided in each dwelling unit with a minimum opening width of 3-1/2 inches.
9. Walls and floor assemblies separating dwelling units shall have *tested* fire-resistance ratings of not less than 1-hour.
10. The base allowable building area specified in the OSSC for R occupancies in Types III-A and III-B construction shall not exceed 12,000 square feet. Area increases in accordance with the OSSC are allowed.
11. The distance from the top of the roof parapet to the lowest required fire apparatus setup point, as determined by the Fire Marshal's Office, shall not exceed 75 feet. A minimum of one dominant street-facing building façade shall meet Fire Code requirements for fire apparatus aerial access.
12. All required egress stairs shall include access to the roof. Such access may be via any method listed in OSSC Chapter 10 for roof access.
13. All penetrations through the exterior wall covering shall be fire-stopped at the exterior sheathing. "Penetrations" for purposes of this Guide includes elements such as conduits and piping and does not include "openings" such as doors, windows or wall-mounted HVAC units and louvers.
14. Ducts and vents penetrating exterior walls shall be 26 gage minimum.
15. No unprotected penetrations are permitted through the underside of fire-rated exterior wall projections that are required to be rated, including cornices, eaves, bays, exterior balconies, and similar projections extending beyond the exterior wall.
16. Elevator hoistways opening directly into corridors shall be pressurized or have smoke-tight protection as required for doors opening into fire-resistive corridors.
17. Framing at walls, floors, ceilings and roofs must be constructed as specified in the graphic detail drawings numbered 0 - 19 contained in this Guide, unless greater fire resistance is provided. Conditions not covered in this Guide must be constructed in accordance with the OSSC.

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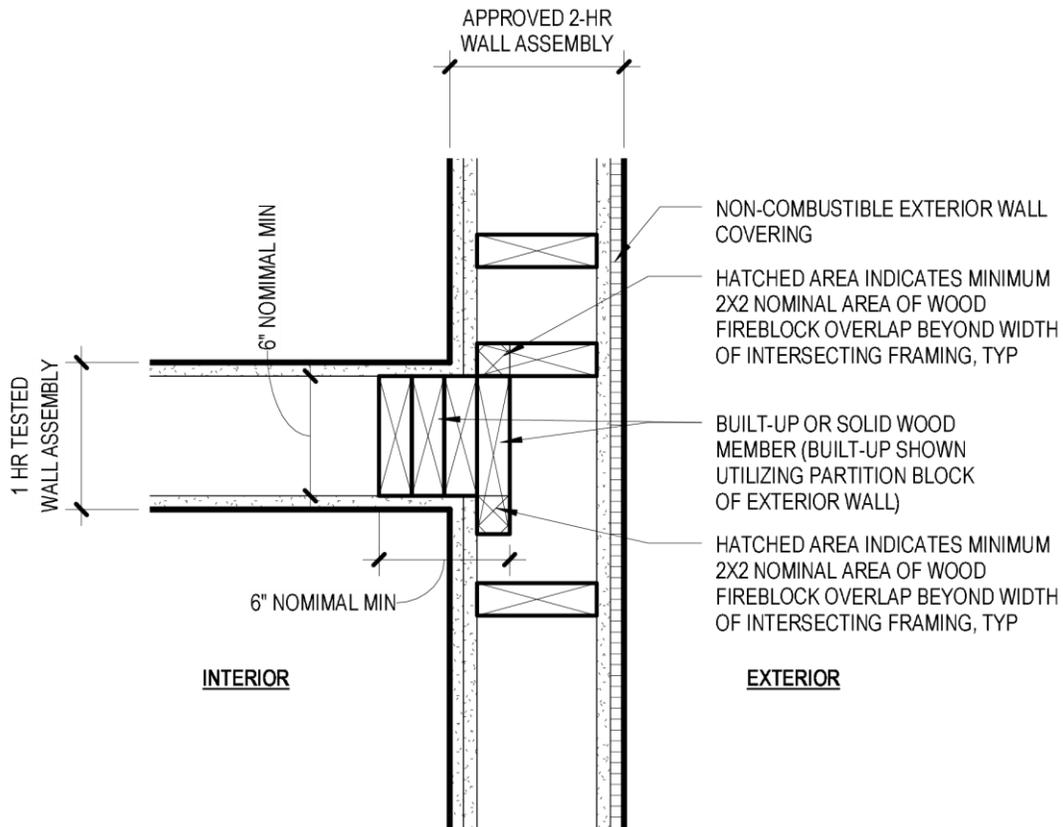


FLOOR PLAN

0

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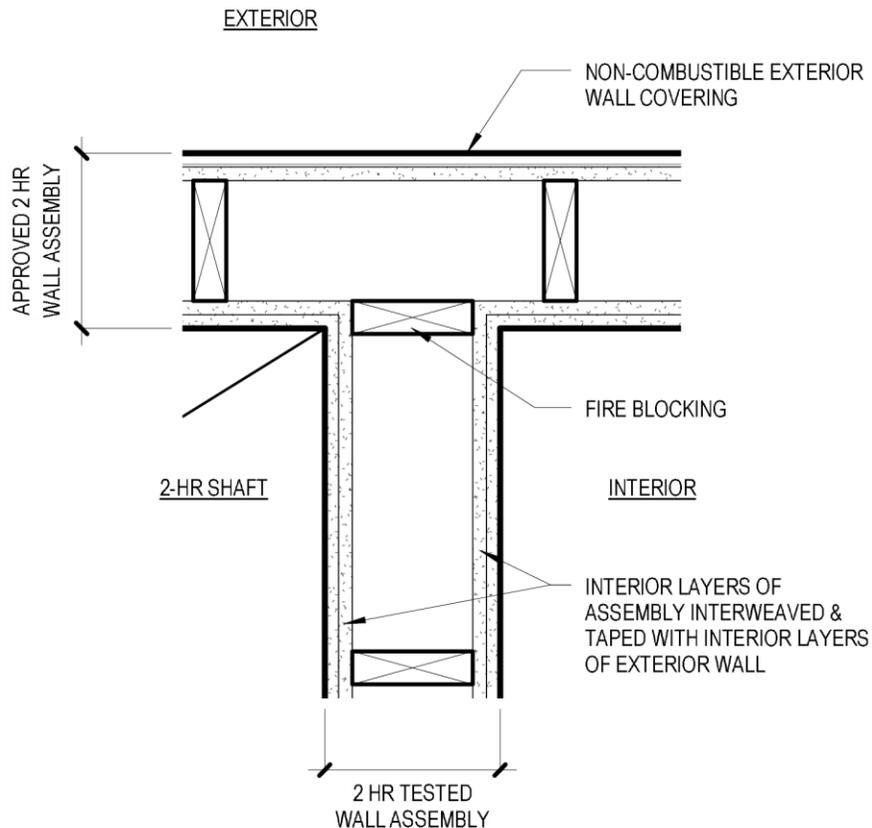


1-HR INTERIOR WALL AT 2-HR EXTERIOR WALL

1

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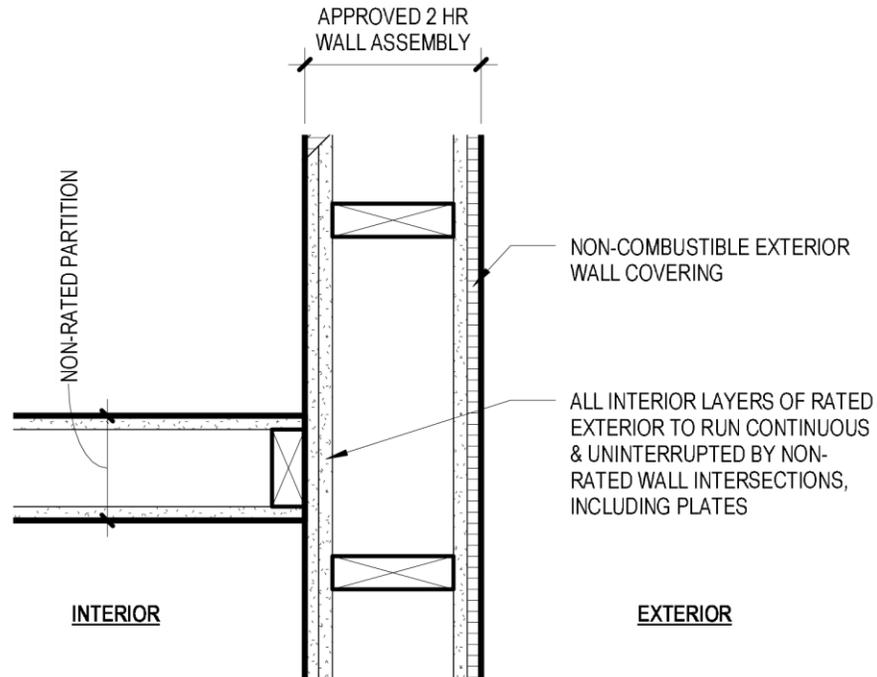


2-HR INTERIOR WALL AT 2-HR EXTERIOR WALL

2

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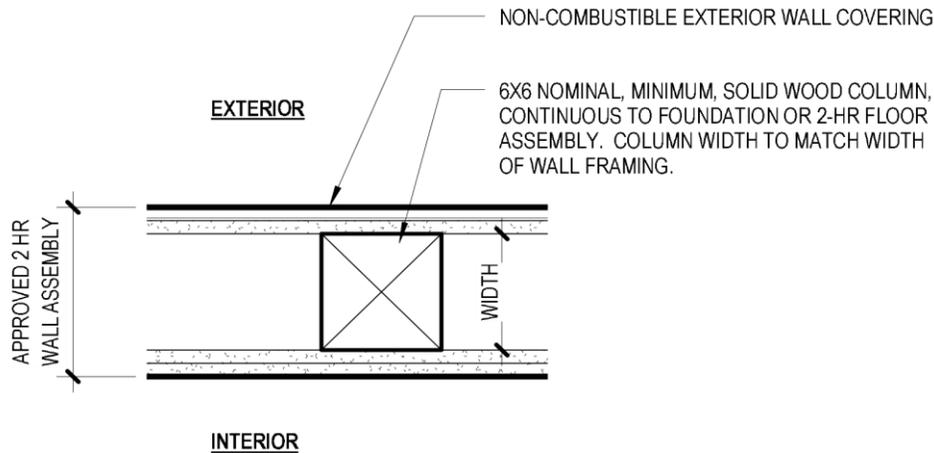


NON-RATED INTERIOR WALL AT EXTERIOR WALL

3

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2-HR COLUMN WITHIN 2-HR EXTERIOR WALL

4

Notes:

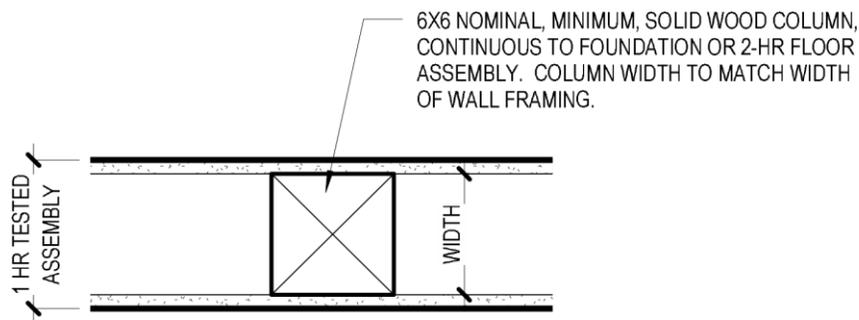
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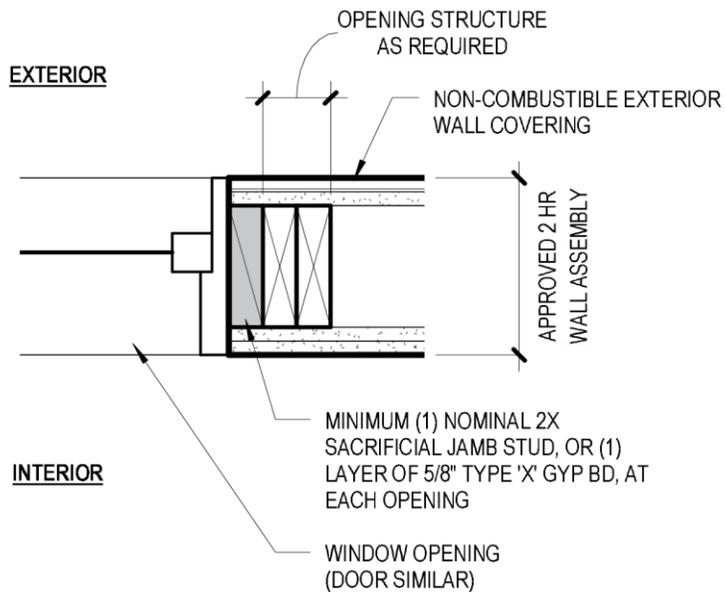


2-HR COLUMN WITHIN 1-HR INTERIOR WALL

5

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WINDOW JAMB

6

Notes:

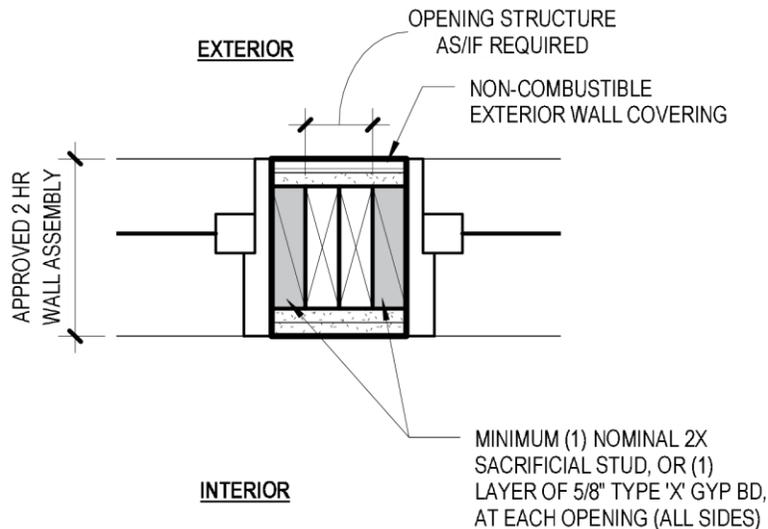
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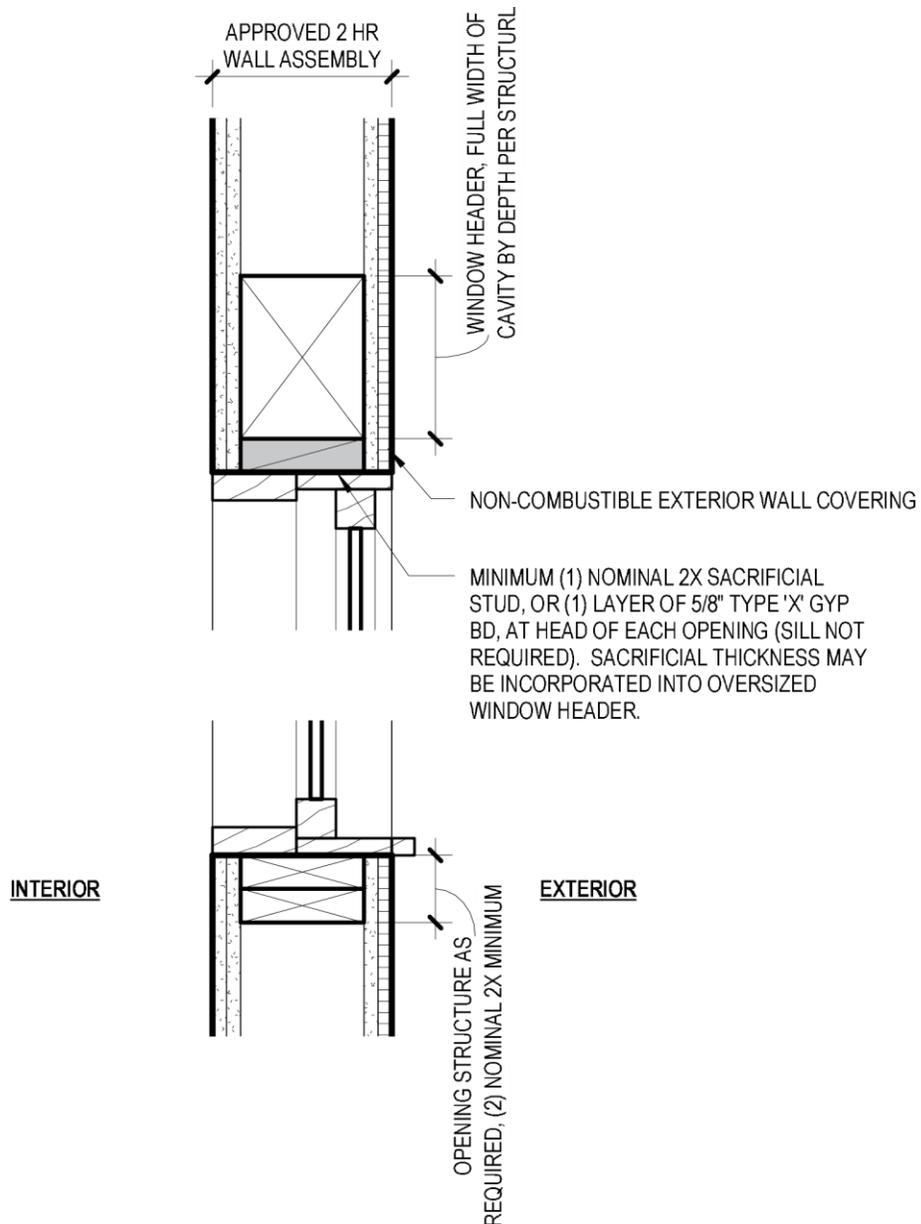
WINDOW MID JAMB (LOAD BEARING)

7

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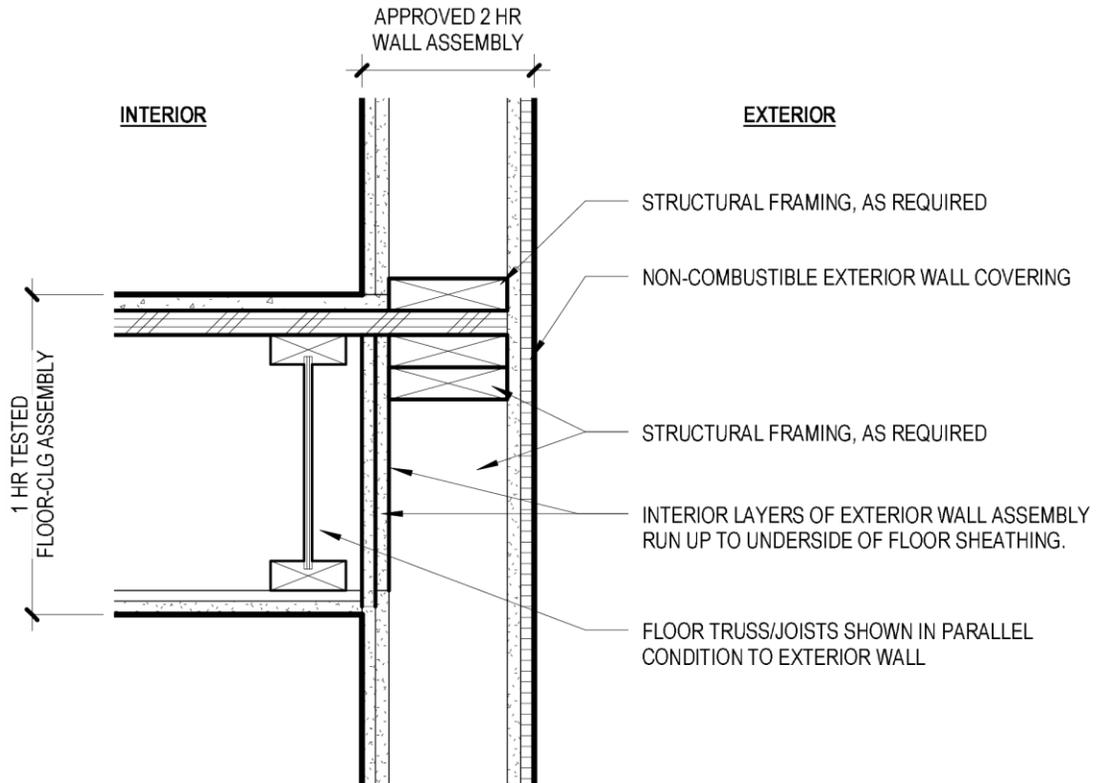
Non-Fire-Retardant-Treated Wood Framing Within Exterior Walls of R-2
Occupancy Buildings of Type III Construction



SECTION AT WINDOW

Notes:

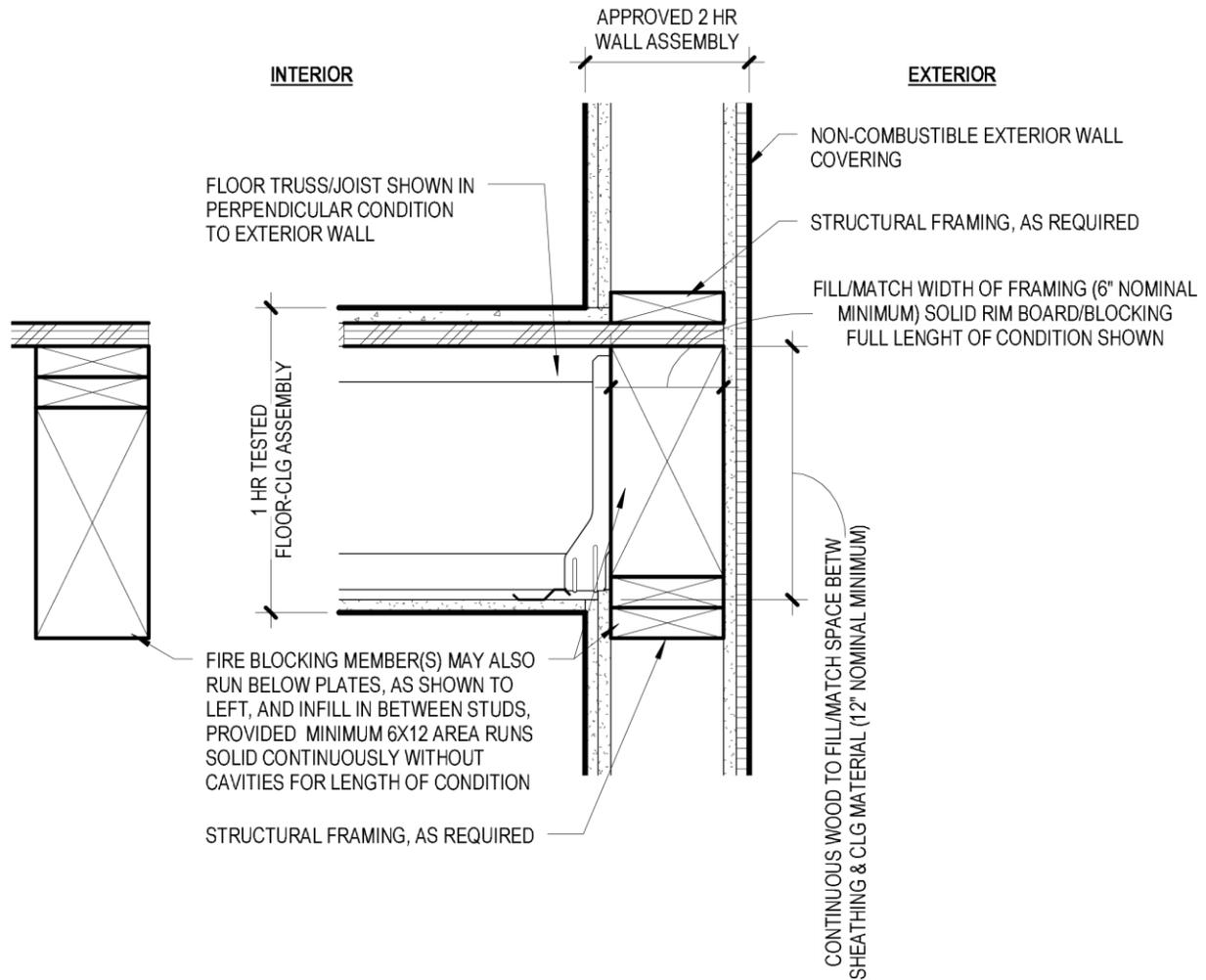
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SECTION AT EXTERIOR WALL AND 1-HR FLOOR (PARALLEL)

Notes:

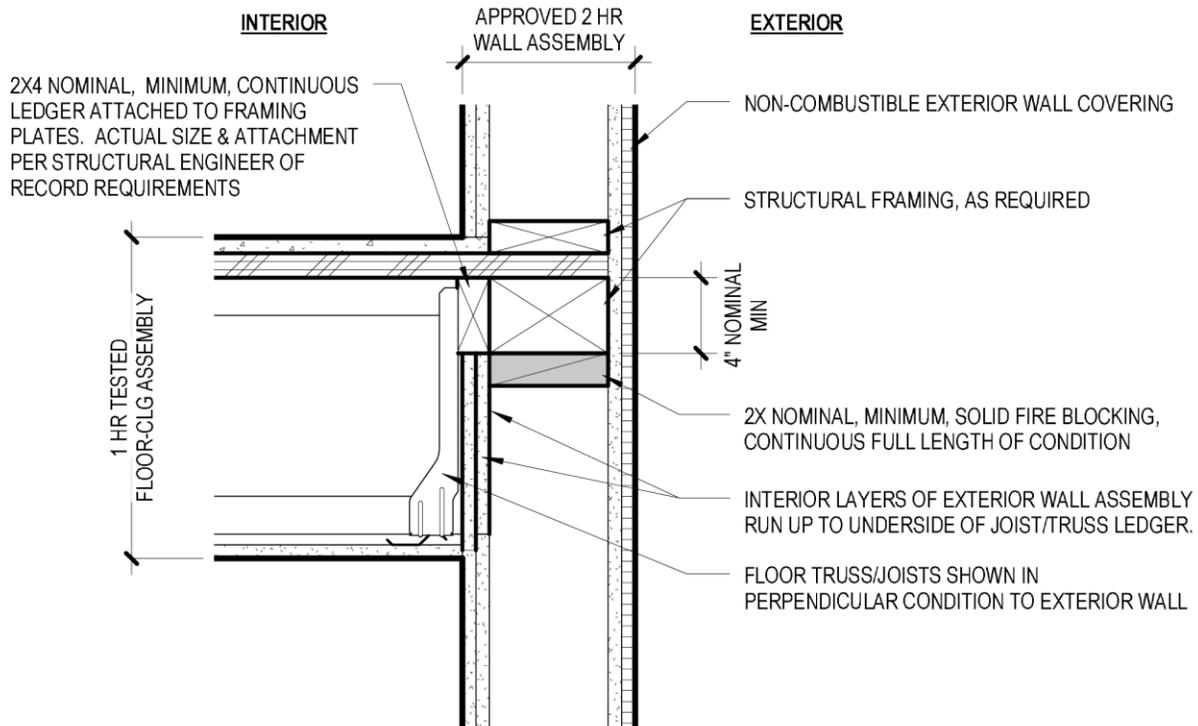
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SECTION AT EXTERIOR WALL AND 1-HR FLOOR
(PERPENDICULAR)

Notes:

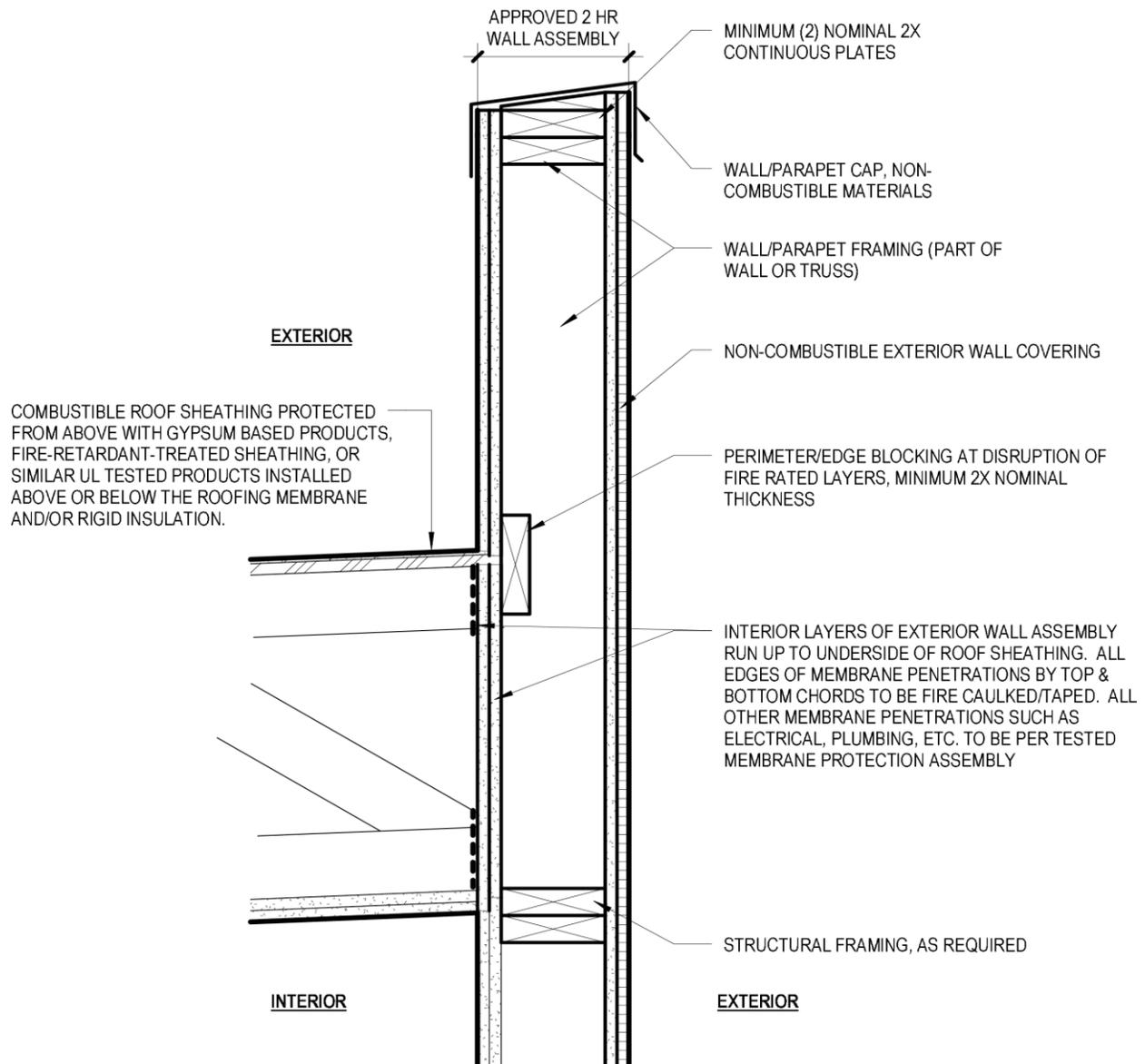
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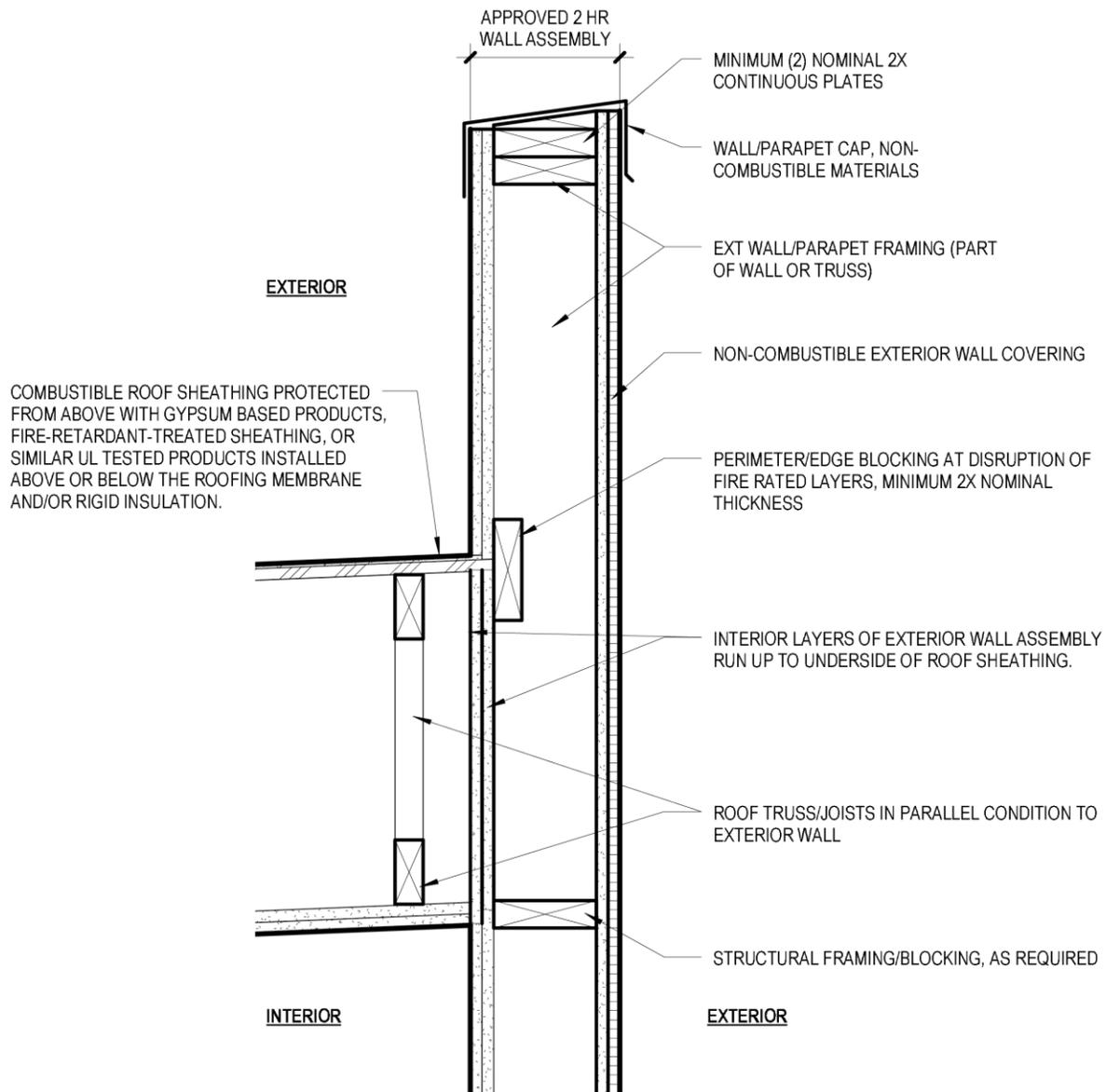
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SECTION AT EXTERIOR WALL AND ROOF (ROOF AND PARAPET WALL FRAMING: SAME TRUSS)

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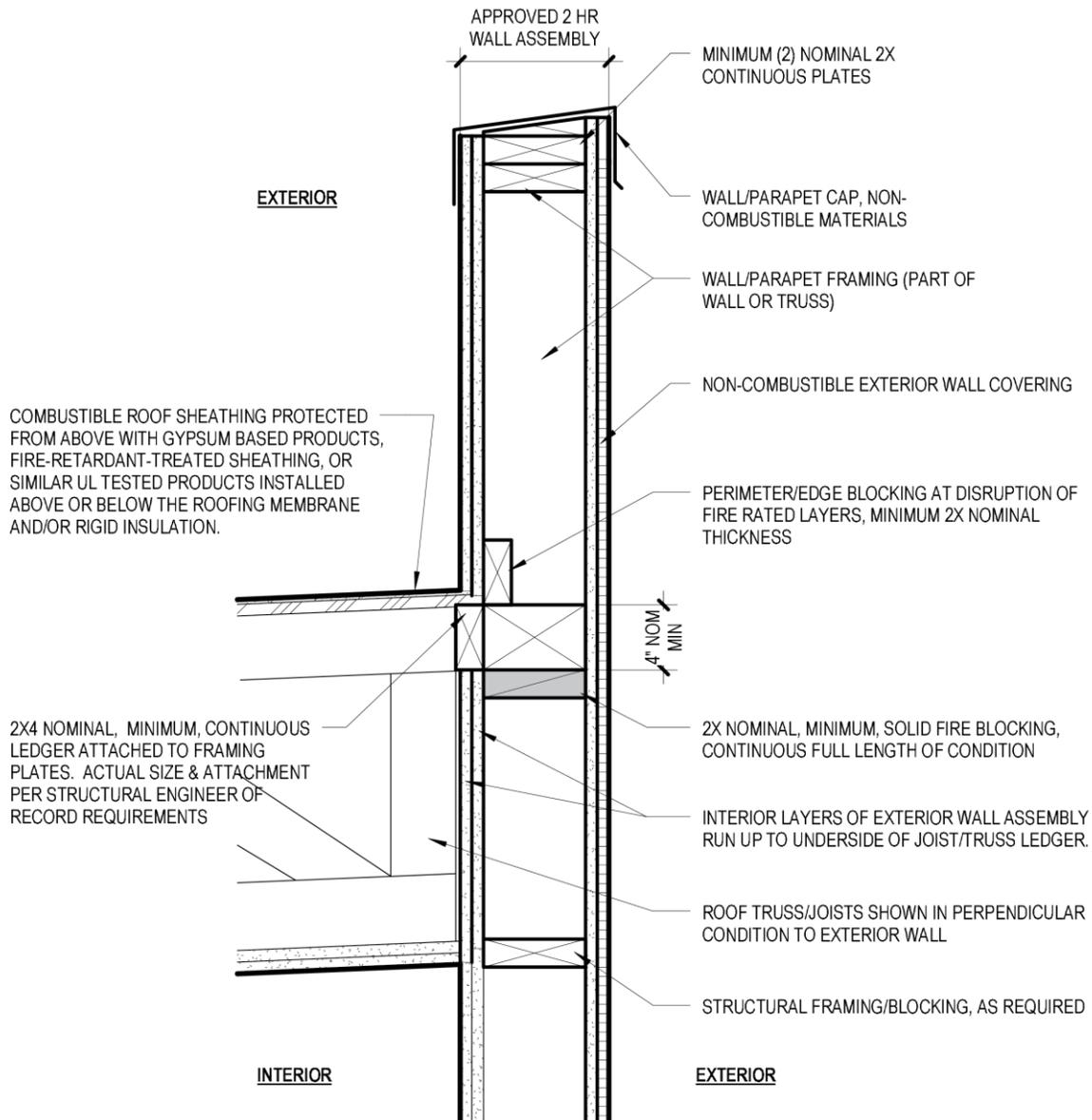


SECTION AT EXTERIOR WALL AND ROOF
(PARALLEL)

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**Non-Fire-Retardant-Treated Wood Framing Within Exterior Walls of R-2
Occupancy Buildings of Type III Construction**

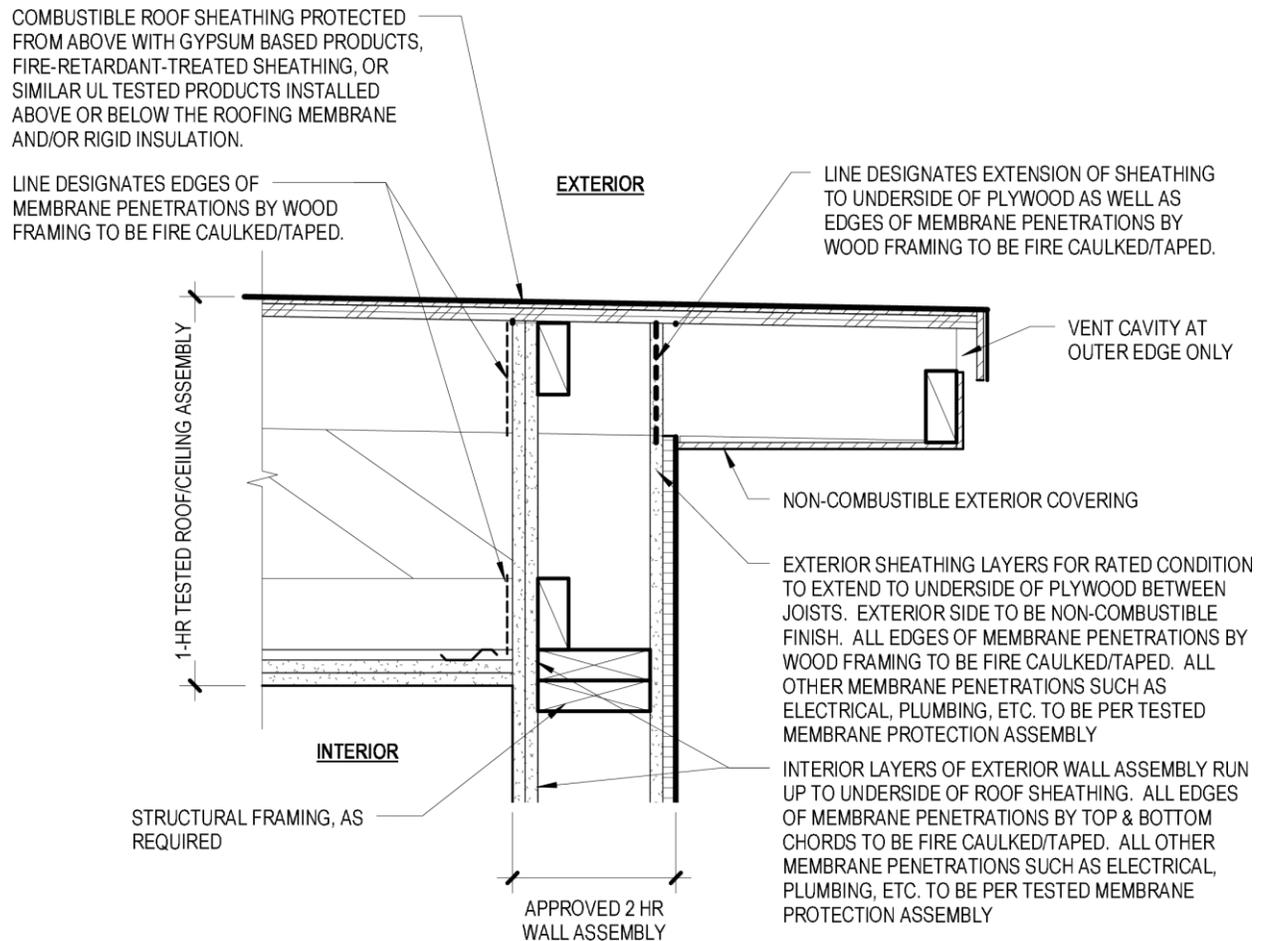


SECTION AT EXTERIOR WALL AND ROOF (LEDGER)

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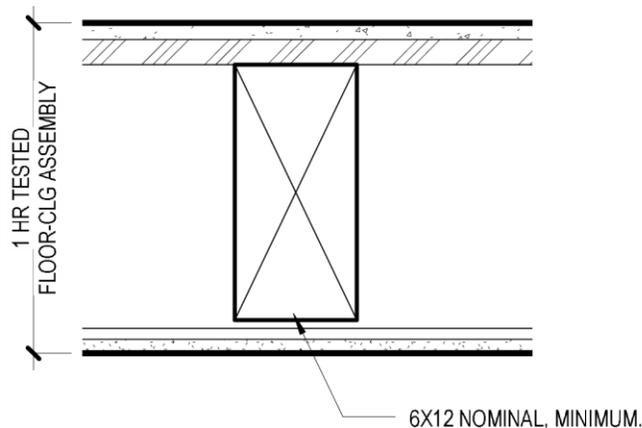
**Non-Fire-Retardant-Treated Wood Framing Within Exterior Walls of R-2
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**SECTION AT EXTERIOR WALL AND 1-HR ROOF
OVERHANG**

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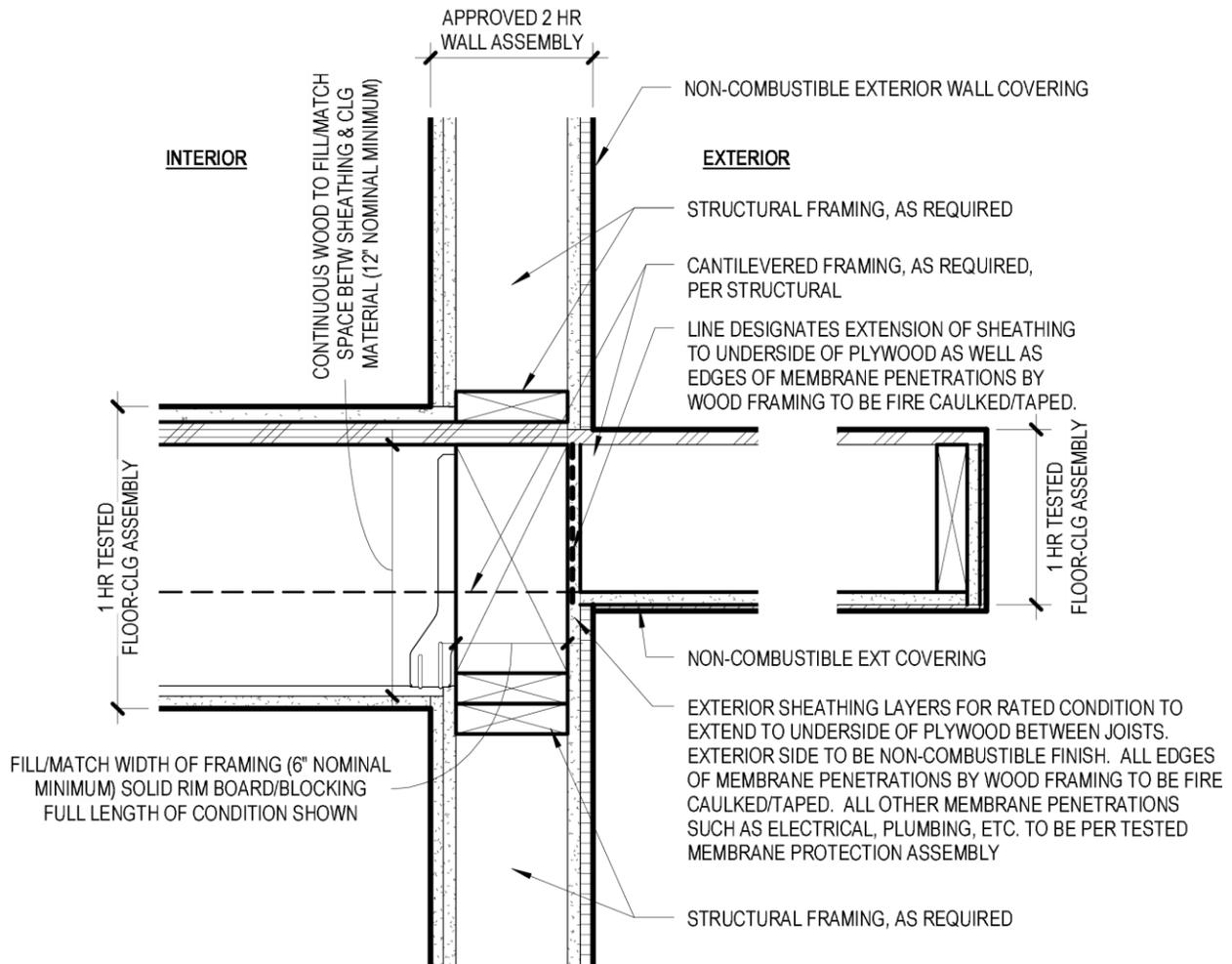


SECTION AT 1-HR BEAM WITHIN 1-HR FLR (FOR 2-HR STRUCTURAL SUPPORT CONDITIONS)

16

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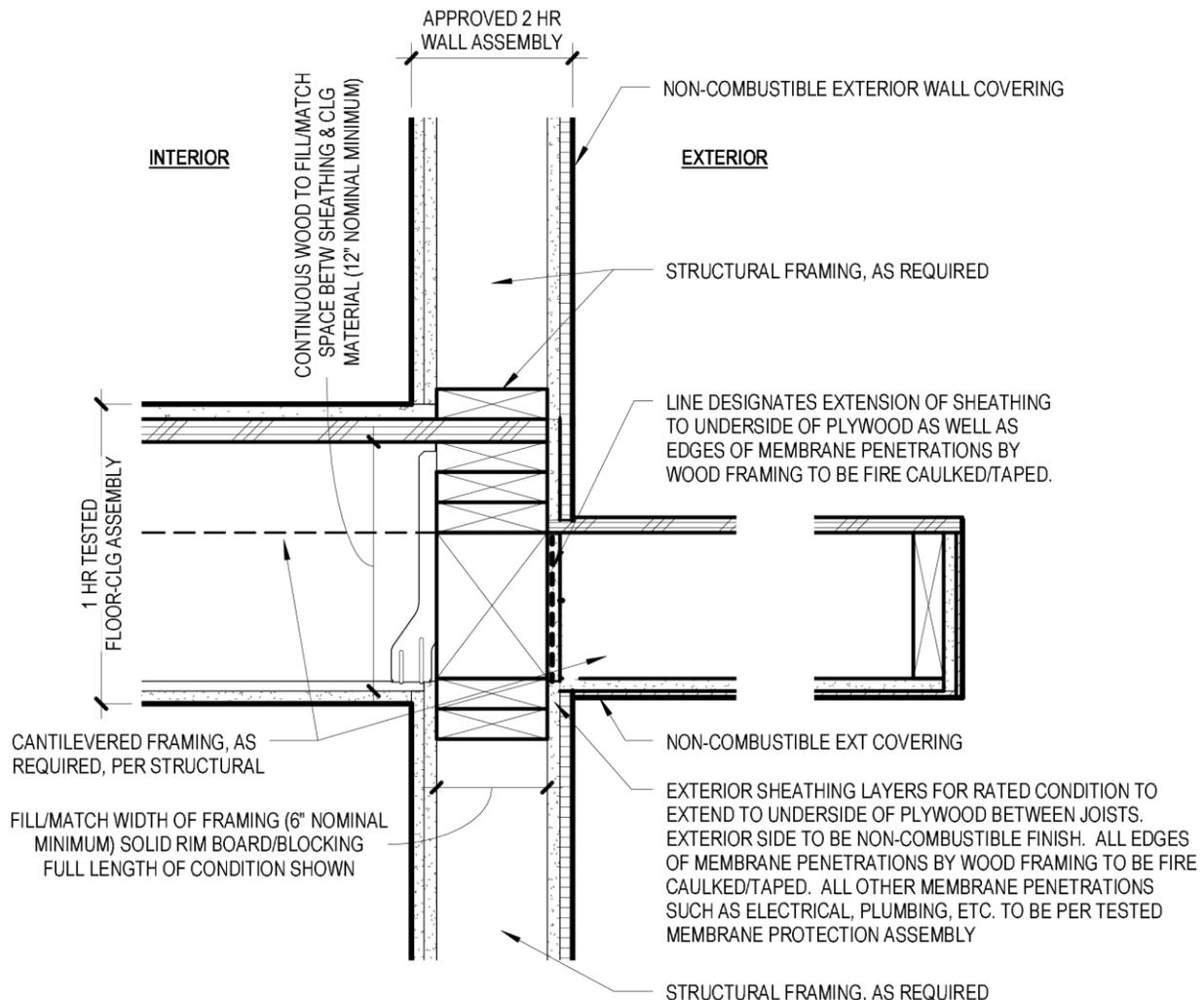


SECTION AT EXTERIOR WALL AND FLOOR/DECK

17

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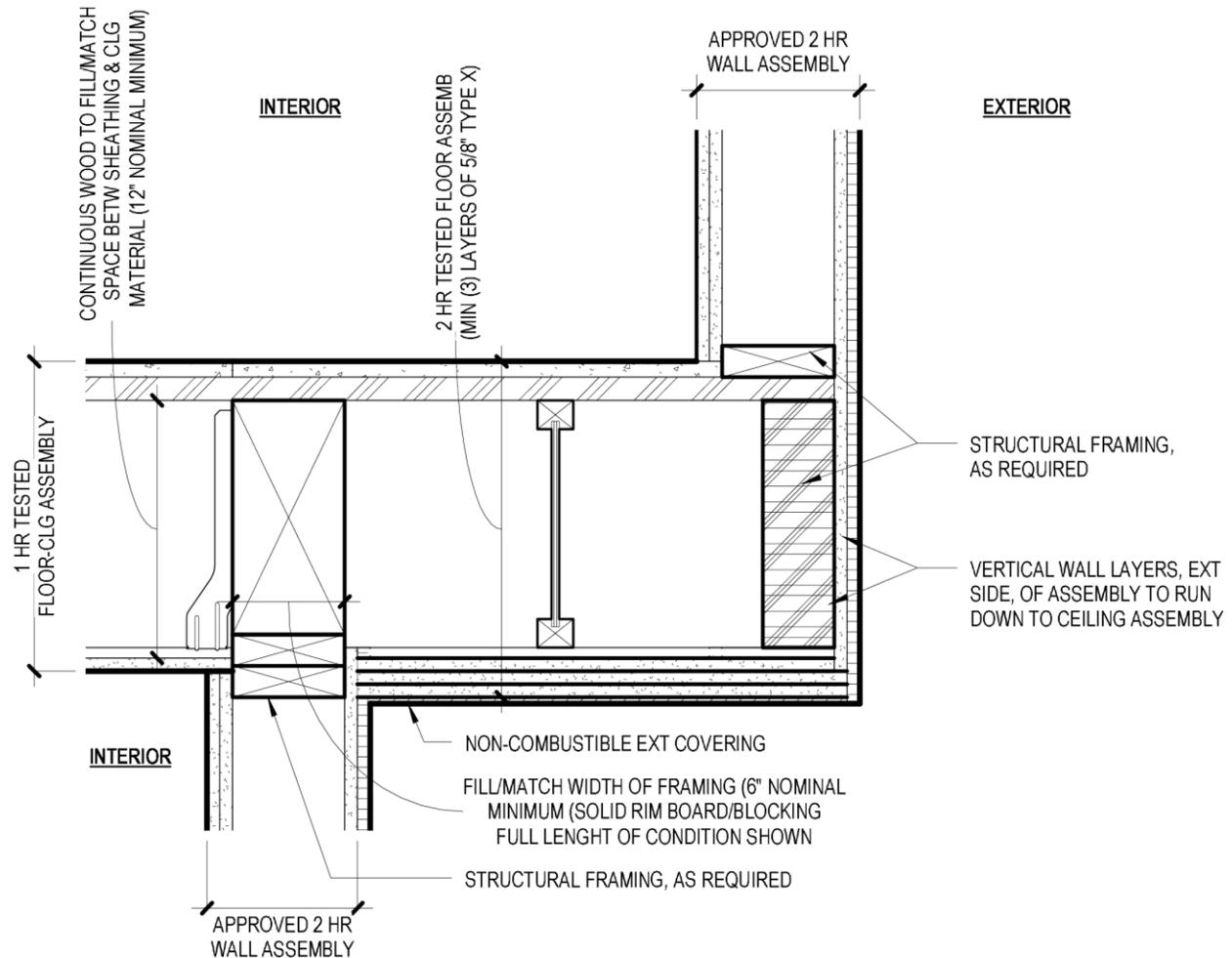


SECTION AT EXTERIOR WALL AND LOWERED FLOOR/DECK

18

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SECTION AT EXTERIOR WALL AND FLOOR AT CANTILEVERED BAY

19

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Updates October 1, 2015 edition

Updates March 23, 2015 edition

Updates May 13, 2013 edition

New May 13, 2013