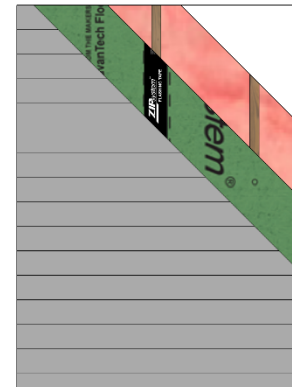


ZIP System® Sheathing in Fire Rated Assemblies

Approved and published fire rated assemblies are tested assemblies containing various building elements constructed in a manner to not allow fire to burn through for a specified amount of time. They are designed to ensure occupants have the time required to evacuate a structure during a fire event. The performance requirements and location of a fire rated assembly within a structure are governed by the most stringent applicable building codes which are dependent on the occupancy use, proximity to other structures/lot lines, or if the structure is part of fire prone region. Fire rated assemblies are qualified by third-party testing agencies under the guidelines of ASTM E119 or UL 263. Components within an assembly cannot be substituted unless stated within the fire rated assembly listing or as stated within the guidelines of the third-party testing agency. The intent of this technical tip is to state how ZIP System sheathing can be used in a fire rated assembly using the substitution method and the addition method.

Option 1: Substitution

ZIP System sheathing is a PS2 compliant OSB wood structural panel. Because it is a wood structural panel, it can be used in any fire-rated assembly that specifies OSB, plywood or wood structural panels. In addition to the WSP and OSB requirement, all other component specifications such as minimum thickness, exposure classification, and panel dimensions must be satisfied before substituting. For example, in UL fire rated assembly U356 the ZIP System sheathing can be substituted for component 5 because component 5 is listed as a wood structural panel with thickness and the physical property requirements satisfied by ZIP System sheathing.



Option 2: Addition

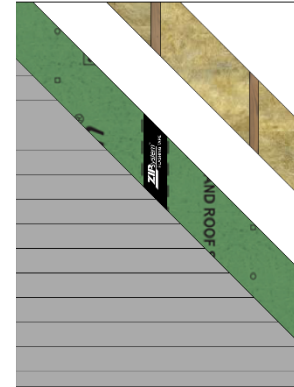
Third-party agencies, such as the Gypsum Association (GA) and Underwriters Laboratory (UL), allow a WSP to be added to a fire rated assembly without changing the fire resistance of the assembly. For example, UL states in *BXUV.Guideinfo – Fire Resistance Ratings – ANSI/UL263, Section 6: Walls and Partitions subsection 6 – Wood structural Panels*^a,

*“The addition of wood structural panels in fire-rated gypsum board wall assemblies is permitted as described in this section. Wood structural panels that are 4 ft wide, minimum 7/16 in. thick oriented strand board (OSB) or 15/32 in. thick structural sheathing (plywood) complying with DOC PS1 or PS2, or APA Standard PRP-108, manufactured with exterior glue, may be applied horizontally or vertically to the framing members. Vertical joints should be centered on studs, and staggered one stud space from the gypsum board joints. The wood structural panels are permitted to be applied either as (1) a base layer (directly to the wall framing and under the gypsum board), (2) in between gypsum board layers, or (3) over the top of the completed gypsum board layers. When wood structural panels are used on top of the gypsum board layers of exterior wall assemblies, the wood structural panel should be protected from the exterior environment either as specified in the design or as specified under item 10, **Exterior Walls**, below. When wood structural panels are added to wall assemblies that include furring channels, there should be no more than two layers (either gypsum board or wood structural*

panel or combination thereof) attached to the furring channel. When wood structural panels are added to the wall assembly, the length of the fastener used for the outermost layer (either gypsum board or wood structural panel) should be sized appropriately to accommodate the additional thickness of the wall panel.”

Similar language can be found in the *GA Fire Resistance and Sound Control Design Manual*^b item 25 in Section 1 of the General Explanatory Notes – Fire Performance of Systems. This language is important because it allows the designer of record to add a layer of ZIP System sheathing to a fire rated assembly without compromising the fire rated assembly.

The “addition” method can be explained using [ULU309](#) as an example, the ZIP System sheathing can be added to the assembly either in front or behind the gypsum sheathing. It is recommended to install ZIP System sheathing on the outboard surface of the gypsum sheathing to allow the ZIP System sheathing to perform as the water resistive barrier and air barrier for the wall assembly. When installing a WSP over gypsum-based sheathing, it is important to refer to the Special Design Provision for Wind and Seismic Table 4.3B for any applicable shear adjustment factors that may be required. When installing gypsum sheathing over ZIP System sheathing, a code recognized water resistive barrier must be installed over the gypsum sheathing.



Definition(s):

Fire resistance rating: The period of time (1-hour, 2-hour ect) a building element, component or assembly maintains the ability to confine a fire, continues to perform a given structural function, or both, as determined by the test, or the test methods based on test, prescribed in Section 703 of the 2021 IBC.

Notes and Limitations:

- This technical tip does not apply to ZIP System R-sheathing, EXACOR sheathing or EXACOR subflooring.
- HEW is not responsible for sourcing fire rated assemblies or determining the required fire resistance rating of the wall assembly.
- ZIP System sheathing is limited to Type V construction per ESR-1473 and ESR-1474.
- ZIP System sheathing is not equivalent to FRT or non-combustible sheathing.
- ZIP System flashing tape and liquid flash are not equivalent to fire-caulking or sealant.
- Substitutions and additions must be reviewed and approved by the authority having jurisdiction.

a) UL *BXUV.Guideinfo – Fire Resistance Ratings – ANSI/UL263* lasted updated 2021-04-21, b) *GA Fire Resistance and Sound Control Design Manual* 22nd Edition

Please visit huberwood.com or contact our technical services department at 800-933-9220 Ext 2716 or at techquestions@huber.com with any questions or comments.