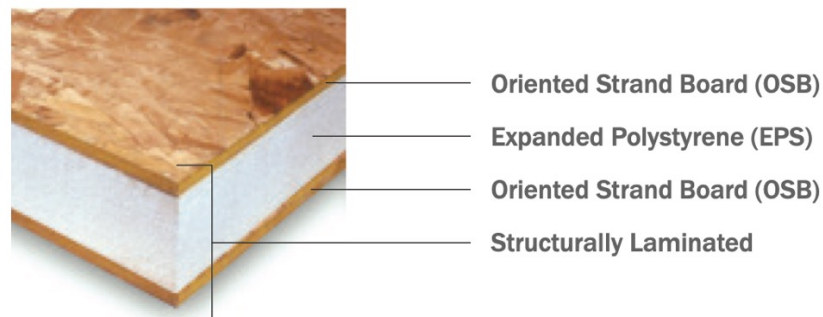


SUBJECT: RECOMMENDED EXPOSURE TO SIPS OSB FACERS

The Structural Grade Performance Rated OSB material used in the manufacturing of Premier SIPS is recognized as a qualified Structural Insulated Panel facing material according to criteria outlined in the following:

- IRC Section R610 (2015-2021) [Section R613 (2012)]
- ANSI/APA PRS 610, Standard for Performance-Rated Structural Insulated Panels (APA 2-18)

The OSB used as the facing component in Premier SIPS is also approved by the ICC in Premier's Code Report #ESR-4524.



The APA (Engineered Wood Association) has also tested and made recommendations for appropriate weather exposure during construction (Doc X501). **Review these recommendations on the following pages.**

You can also find all current APA testing, recommendations and additional related documents at: www.apawood.org.



FAQs

Questions About Wood Structural Panel Exposure to Excessive Moisture

This document provides guidance about the serviceability of wood structural panels (plywood and oriented strand board [OSB]) after exposure to high levels of moisture, such as significant weather events during the construction process or when construction sites are delayed but moisture management steps aren't taken. Wood structural panels can also be exposed to high levels of moisture after the construction process is complete due to flooding. *Note: This document is not intended to address potential health and indoor air quality concerns that may arise from flooding.*

APA Trademark Identification and Water-Resistant Adhesives

The APA panel trademark will typically be in black ink, printed in one or more places on one side of the panel. Since 1972, all APA-trademarked plywood and OSB has been manufactured using water-resistant adhesives. The presence of the words "Exposure 1" or "Exterior" in the APA trademark assures that panels are manufactured with water-resistant adhesive.

Some plywood panels that were manufactured prior to 1972 may contain adhesives which are not fully water-resistant. These panels can be identified by the term "Interior" in the trademark. Older panels may have APA trademarks or trademarks that include "DFPA," which corresponds to APA's original name, the Douglas Fir Plywood Association.

Wood Construction and Water

Wood construction is durable and will normally be structurally sound after severe exposure to moisture. Structural plywood and OSB used in floors, walls and roofs are made with water-resistant adhesives and retain their strength following wetting events. Although the surface of the panels may be rougher from water exposure, they generally remain structurally sound. However, panels saturated with water will feel less stiff than those in a dry condition. Once the panels re-dry, strength typically returns, and only minor repairs may be necessary. Until the panels are dry, they should not be subjected to heavy loading, such as repeated heavy foot traffic or loaded drywall carts.

FAQs: Questions About Wood Structural Panel Exposure to Excessive Moisture

What Will Plywood or OSB Panels Look Like After A Re-Dry?

They will not look as good as when they were new, but they should be serviceable. Because they are a wood (hygroscopic) product, both plywood and OSB can be expected to expand after wetting. This is commonly observed as swelling at panel edges and increased surface unevenness. Localized swelling or blistering over knotholes and core gaps may be evident, but this condition does not compromise the structural integrity of the panel. Some lifting or flaking of surface strands on OSB panels may also occur. Structural tests show that such surface degradation does not result in a loss of panel structural capacity after the panel dries to in-service moisture conditions.

What About Buckling?

Buckling of wood structural panel sheathing occasionally results when increased moisture conditions cause the wood sheathing to expand. Such buckling may occur between supports or between nails along supports. Although structural properties are unaffected, the resulting waviness may affect the building's appearance and lead to complaints. Builders can significantly reduce the potential for buckling by ensuring a minimal increase in moisture content of the wood panels during construction and providing for its natural expansion by properly spacing and fastening the panels.

Once buckling has occurred, there are two primary remedies that can help minimize buckled panel areas:

1. First, run a circular saw (set to the panel thickness, and no deeper) along the panel joints. This is called "kerfing," and will help relieve the internal panel stresses that cause buckling. If the tongue-and-groove edges of floor panels are cut, they must be blocked from underneath, or a layer of APA plywood underlayment must be installed over the subfloor, with the underlayment joints offset from the subfloor joints. Keep in mind that kerfing and drying may not completely remedy buckling. See *APA Data File: Selection, Installation and Preparation of Plywood Underlayment*, Form L335.
2. The second step involves installing blocking under the buckled portions to flatten the panels.
 - a. Identify the buckled area and measure the distance between the structural members supporting the buckled panel area.
 - b. Cut a piece of lumber that is the same dimension as the supporting framing (e.g., for a 2x10 joist, cut the support blocking from another 2x10).
 - c. Depending on the direction of the buckling, the buckled panel will either need to be pushed up by the support block (which would then be nailed into the adjacent framing) or be pressed down tight to the previously installed blocking. In both cases, additional fasteners are used to connect the panel and the blocking.

FAQs: Questions About Wood Structural Panel Exposure to Excessive Moisture

What About a Rough Floor Surface?

Panels exposed to extended moisture may exhibit a rough surface. Some finish floor coverings, such as carpet and pad, may mask any unevenness and not require remediation. If the finish is sensitive to the smoothness of the panel, it may be possible to professionally sand the panel face and edges with a commercial sander. Installing a layer of APA plywood underlayment over the subfloor usually will correct the problem. Offset all panel edges and nail to the existing subfloor with ring-shank nails that pass through the subfloor by about 1/4 inch. See *APA Data File: Selection, Installation and Preparation of Plywood Underlayment*, Form L335.

How to Prevent Floor Squeaks?

Floor squeaks result when components within a floor system move as stepped on. Floor noise most commonly involves a subfloor that is not held tight to floor supports and is able to move against something metal, like a nail. In addition to misinstalled panels, subfloor movement can also result when panels are fastened into higher moisture content lumber framing, which will eventually dry to a lower moisture content and shrink, leaving a space between the joists and the floor panels. To combat floor squeaks, re-nail with ring-shank nails after the panels and floor framing are dry. Squeaks may also happen where cross-blocking or bridging occurs between floor joists and between walls and floors. Precautionary re-nailing at those points may be advisable if they will be inaccessible after the remediation. See *APA Technical Note: Floor Squeaks—Causes, Solutions and Prevention*, Form C468.

How to Tell if Plywood is Delaminated?

Delamination is a separation of the individual “plies” or veneers in plywood. This condition is not common. Dry delaminated floor panels may feel soft or spongy when stepped on. The face ply may appear blistered or wrinkled. If you suspect delamination, walk over the areas of concern after the plywood is dry. Panels with extensive soft spots may need replacement. Localized swelling or blistering over knotholes and core gaps is not delamination and does not compromise the structural integrity of the panel. If necessary, blisters over knotholes may be repaired by injecting glue under the affected areas. It may be possible to repair delaminated plywood panels using the instructions in *APA Technical Note: Field Repairs of Plywood*, Form J805.

Will Plywood Delaminate at Some Future Date?

It is not likely. Subsequent soakings seldom cause additional delamination.

Following Flood Events

As noted previously, this publication does not address potential health concerns or indoor air quality after flooding. More information on these topics is available from the Federal Emergency Management Agency (FEMA) and the American Red Cross, such as *Repairing Your Flooded Home*, FEMA P-234. *Note: Extensive flood damage may require professional services to assess and repair wood construction.*

FAQs: Questions About Wood Structural Panel Exposure to Excessive Moisture

The main difference in water events during construction and after a building is finished, when it may be affected by a flood or other major water event such as a broken plumbing line, is the need to remove finish materials and insulation so that wet structural components can be exposed. Unless these finish materials are removed, the underlying structure is not able to properly dry out. If the structure does not dry out, it will not be able to retain structural integrity, and decay can set in.

Fungal Decay Prevention

Once flood water recedes, fungal decay organisms are presented with an ideal moisture condition. Therefore, it is important that wood products dry as soon as possible to ensure that the wood decay does not affect structural capacity. Note that mold and mildew are not decay organisms. These steps help to preserve a sound structure:

1. Clean out all mud and debris in contact with panels, studs, joists and beams. This will allow the wood to dry and permit inspection for structural damage.
2. Remove carpeting, pad and vinyl. This is vital to allow the panels to dry.
3. Remove wet interior finish (such as gypsum wallboard) from walls. Remove wet insulation and clean out any mud and debris. This will encourage free air circulation to speed the drying process.
4. Remove wet insulation from crawl spaces and the attic, if it is wet.
5. Remove standing water from crawl spaces. Standing water will prevent floors from drying.
6. Open up any other wet cavities to allow air to circulate freely.
7. Finally, make every effort possible to speed the drying process. Drying speed is relative to the thickness of the wood being dried, the humidity, the air temperature and the amount of air circulation. Heating the structure, if possible, will greatly speed drying. Do not use portable propane heaters to provide heat, as they add moisture to the air and increase drying time. Use fans and dehumidifiers to help move the air. If heat or dehumidifiers are not available, open doors and windows to encourage air circulation. Depending on conditions, the drying process can take from a week or two to several months.

How to Tell if Panels are Dry?

The use of a calibrated moisture meter is the easiest way to determine moisture content. Panels are dry when the moisture content is 15% or less, and usually safe from the threat of decay when 20% or less. Most general contractors and flooring installers have meters. Moisture meters can also be ordered from a contractor supply or hardware store.

What About Odors?

Mud may contain sewage or microorganisms. To minimize the possibility of odor problems, hose out all wall cavities and connection joints, such as between wall studs and bottom plates. Other common causes of odor are mold and mildew. To minimize this potential, thoroughly dry all concealed spaces and follow FEMA guidelines.

FAQs: Questions About Wood Structural Panel Exposure to Excessive Moisture

Other APA References

1. *Build A Better Home: Controlling Mold and Mildew*, Form A525
2. *Research Report: Plywood in Hostile Environments*, Form Z820
3. *Technical Note: Buckling of Wood-Based Panel Siding*, Form F410
4. *Technical Note: Condensation—Causes and Control*, Form X485
5. *Technical Note: Controlling Decay in Wood Construction*, Form R495
6. *Technical Note: Field Repairs of Plywood*, Form J805
7. *Technical Note: Floor Squeaks—Causes, Solutions and Prevention*, Form C468
8. *Technical Note: Mildew Discoloration of Wood Siding*, Form L805
9. *Technical Note: Minimizing Buckling of Wood Structural Panels*, Form D481

Questions About Wood Structural Panel Exposure to Excessive Moisture

We have field representatives in many major U.S. cities and in Canada who can help answer questions involving APA trademarked products. For additional assistance in specifying engineered wood products, contact us:

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