

TECHNICAL BULLETIN

OSB And The Humid Environment

PRODUCT OVERVIEW

Oriented Strand Board (OSB) is an engineered structural wood panel. OSB is made by processing small diameter, fast growing trees into thin strands which are bonded together under heat and pressure with an exterior resin binder. OSB is manufactured to a performance standard which identifies the structural and physical performance, fastener holding and adhesive bond durability requirements needed for a particular end-use, or alternatively but less frequently to a product standard which specifies the minimum mechanical and physical properties for the grade.

WOOD & MOISTURE

All wood products naturally contain water. In fact, the natural moisture content in solid wood can vary from 25 percent to more than 200 percent. In the manufacturing process, most of that natural moisture content is removed. With OSB, wood strands cut from green wood are typically dried to between three to eight percent moisture content. The wood strands are then coated with powdered or liquid resins and a small amount of wax. These resin binders together with the wax will contribute to OSB's moisture resistant qualities. However, like all wood products, OSB will react to change in moisture and humidity in service.

EXTERIOR-TYPE RESIN BINDERS

resin binders used for construction products are generally of two types, **Exterior** for use under conditions exposed to humid weather or high humidity and **Interior** for use under dry humidity levels. Exterior type resin binders are

cured during the high temperature pressing process which brings the binder components together to form a very stable, insoluble, waterproof and boilproof connection between the OSB strands making up the panel. Interior type resin binders are slowly soluble in water and are primarily for interior use such as wall paneling, cabinets and furniture.

BOND CLASSIFICATION

All trademark stamps must state the panel's Bond Classification. This classification is a designation of the moisture resistance of the glue bond and is related to the intended end use. It is a function of the structural panel's raw material composition and its adhesive bond durability. OSB panels intended for construction are marked **Exposure 1**, in accordance with the US-DOC Voluntary Product Standard PS2, or **Exterior Type Bond** in accordance with Canadian Building Codes.

EXPOSURE 1

the Exposure 1 Bond Classification indicates continued performance where delays in construction may cause the panels to be exposed to the weather before being protected. Like CDX plywood, OSB panels with this designation are intended for protected construction uses not permanently exposed to the weather, intended to resist moisture exposure due to construction delays, or other conditions of similar severity. OSB panels marked Exposure 1 must meet specific (i.e. moisture cycling) bond requirements.



PANEL CERTIFICATION

OSB panels intended for construction will bear the stamp of an accredited third party testing and inspection agency. Principle agencies include APA – The Engineered Wood Association, TECO Corp. and PSI/PTL Inc. The trade mark includes nominal thickness, span rating, bond classification, the symbol PS2, the name or logo of the testing agency and the manufacturer's name.

MOISTURE PROTECTION

OSB panels are edge-coated with a proprietary water resistant sealer to reduce edge swelling. If needed, panels should be cut to preserve as much of the edge coating as possible. Remaining panel edges that may be exposed to moisture should either be protected or coated with an exterior latex paint. When panels are to be exposed to the weather such as the exterior walls of carports, garden sheds, or fascia boards, they should be painted or stained. Panels intended for painting should be primed with a good quality primer; panels that will be stained, should be treated with a water-repellent primer compatible with the stain finish.

VAPOR BARRIERS FOR FLOORING

Although OSB floor sheathing panels have low moisture permeability, local building codes may require the use of a vapor barrier on the underside of the panel. If so, consult with the local building inspector or hardwood flooring manufacturer as to the type and method of installation.

SHIPPING, HANDLING & STORING

Reasonable care is required in warehousing and storage of OSB, especially on the job site, to protect panels from mechanical damage and lengthy exposure to adverse moisture conditions. For best results, handle panels as little as possible. Ship and store in the original units, if possible. Use care in handling the panels to avoid damaging corners and edges. Store OSB panels produced by SBA mills indoors or under cover with enough support so that panels remain flat. Provide air circulation around panels by keeping covers open and away from sides and bottoms of units. Make sure to elevate panels above ground and standing water.

JOBSITE CARE OF OSB

With all wood products, care should be taken to avoid contact with free moisture. Because this is not always possible, especially in the early stages of construction, the Structural Board Association recommends the following precautions to minimize the effects of moisture on OSB:

- If heavy rainfall or melting snow comes in contact with OSB floors, it is recommended that all moisture be removed by shoveling, sweeping, etc.
- If ponding occurs, holes should be drilled in the affected areas to drain the water.
- If OSB floors are exposed to prolonged moisture during construction, it may be necessary to sand the edges and surface slightly to remove any high spots.
- Prior to installation of the floor covering the OSB subfloor should be dry and thoroughly swept or vacuumed to remove any dirt or debris remaining from the construction.

When using OSB as roof sheathing, it is recommended that the roofing materials – felt, shingles, shakes, etc. – be installed as soon as possible after completing the sheathing installation. For larger flat roofs, built-up a roofing materials should be placed in sequence as the sheathing installation progresses.

When using OSB as wall sheathing, under siding or stucco, protect the panels by installing good quality sheathing paper or sheathing membrane over the panels prior to placing the siding or stucco. Pay particular attention to wrapping the sheathing membrane around the edges of all openings.

REMINDER

Please remember to gap OSB panels when used as roof, wall and floor sheathing. These recommended gaps of 1/8" must also be left around all openings. Also keep OSB panels a minimum of eight inches above grade when installed as wall sheathing.



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