The ABC of OSB

Oriented Strand Board

The ABC of OSB

Oriented Strand Board

What is OSB?

Oriented strand board (OSB), is an engineered wood particle board formed by adding adhesives and then compressing layers of wood strands (flakes) in specific orientations. These boards can have a rough or smooth surface as the pressed individual flakes, lying unevenly across each other comes in a variety of types and thicknesses.

Oriented strand board is manufactured in wide mats from cross-oriented layers of thin, rectangular wooden strips compressed and bonded together with Synthetic Resin adhesives, with a very small amount of wax, and sometimes, paraffin for smoothing the flakes together into position, while these two additives have to be compatible to the resin used (94 % wood & 6% resin), depending on the type or grade of OSB.

OSB has high mechanical strength properties that make it particularly suitable for load-bearing applications in construction. The most common uses are sheathing in walls, flooring, and roof decking. For exterior wall applications, panels are available with a radiant-barrier layer pre-laminated to one side; this eases installation and increases energy performance of the building envelope. OSB also sees some use in furniture production.

Adjustments to the manufacturing process can impart differences in thickness, panel size, strength, and rigidity. OSB panels have no internal gaps or voids, and are water-resistant, although they do require additional membranes to achieve impermeability to. The finished product has properties similar to plywood, but is uniform and cheaper. When tested to failure, OSB has a greater load-bearing capacity than milled wood panels. It has replaced plywood in many environments, especially the North American structural panel market.

OSB is different from Plywood in its strength and cost. It is made of thin wood veneers and not strands like OSB. Plywood is generally more expensive than OSB and great care should be taken in grades for structural use.

GREENPEACE

FSC ©

OSB is recommended by Greenpeace as no illegal and unsustainable wood from threatened rainforests or tropical hardwood are used.

All the timber for our OSB comes from FSC certified plantations.

NEWSAW

The ABC of OSB

Oriented Strand Board

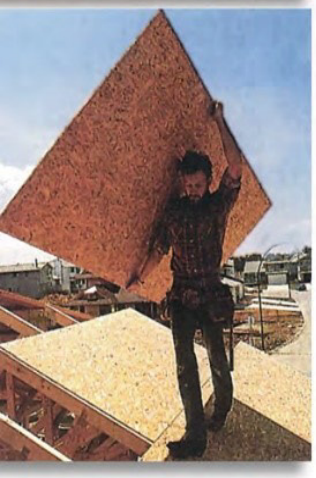
NEWSAW

The benefits of OSB:

- Outstanding strength properties – comparable to plywood
- Conditioned OSB has excellent dimensional stability
- High rigidity – resists deflection and bending
- High water resistance/water tolerance – exhibits none of the stresses characteristic of veneer - based boards which can lead to distortion, splitting and delamination. We will be using PMDI glue. (Pure Methylene Diphenyl Diiocyanate) – "greenglue". Gives a very smooth finish.
- Fire retardant
- Predictable working characteristics – saws readily with consistent results
- Excellent screw holding capacity even close to the edge

Applications:

- Wall sheathing
- Flooring
- Roofing
- Buildings, Homes, Offices even multi-storey
- SIPS Homes, Schools, Classrooms
- Caravans
- DIY applications
- Temporary concrete formworks (Can be used as is or can have a film face fitted.) Please define which of the two are required, could be both!
- Furniture construction
- Crating/packaging and pallets
- Shuttering and shuttering support beams
- Structural Beams
- Chassis and Truck Bodies



The ABC of OSB

Oriented Strand Board

NEWSAW

Classification of panels:

Four types of panel are classified and are distinguished as follows:

OSB 1 for general purpose panels, and boards for interior fitments (incl. Furniture) for use in dry conditions

OSB 2 for load-bearing panels for use in dry conditions

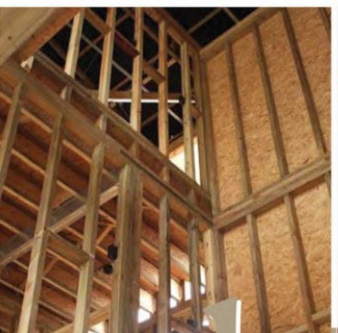
OSB 3 for load-bearing panels for use in humid conditions

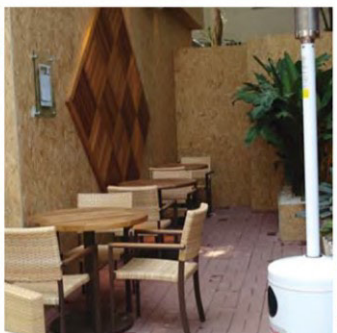
OSB for heavy duty load-bearing panels for use in humid conditions

Note: Load-bearing panels are intended for use in the design and construction of load-bearing or stiffening building elements, e.g. walls, flooring, roofing and I-beams (see ENV 1995-1-1 and /or Performance Standards) for use in dry or humid conditions.

Dry conditions: Conditions (defined in terms of service class 1 of ENV 1995-1- for load bearing panels), characterized by moisture content in the material, corresponding to a temperature of 20°C and a relative humidity of the surrounding air exceeding 65% only for a few weeks per year.

Humid conditions: Conditions (defined in terms of service class 2 of ENV 1995-1-1), characterized by a moisture content in the material, corresponding to a temperature of 20°C and a relative humidity of the surrounding air exceeding 85% only for a few weeks per year.





The ABC of OSB

Oriented Strand Board

NEWSAW

Selecting OSB panels

APPLICATION	CONDITION	OSB TYPE
Pitched roofs Sarking (Sheeting or Decking)		OSB 3
Flat roof decking		
Uninsulated, unheated buildings	Variable humidity	OSB 3
Insulated, heated buildings	Warm deck, low humidity	OSB 3
	Warm deck, high humidity (intermitted)	OSB 3(a)
	Cold deck (ventilated) Low humidity	OSB 3
Cladding		OSB 2(a), OSB 3(a)
Soffits		OSB 3(a)
Sheathing	Dry use	OSB 3
	Risk of wetting	OSB 3(b)
Flooring	Dry use	OSB 2, OSB 3
Domestic flooring	Risk of wetting	OSB 3
Non-domestic flooring		
Floating	Dry use	OSB 2, OSB 3
	Risk of wetting	OSB 3
Raised	Dry use	OSB 3
	Risk of wetting	OSB 3
Light duty suspended	Dry use	OSB 3
	Risk of wetting	OSB 3
Formwork		OSB 3 (sanded panels may be necessary for above ground formwork)

(a) Implies no protection against decay; if such protection is required, preservation may be necessary.
(b) No implication of adequate protection against decay; if specifiers wish to consider such an enhanced level of durability, preservation may be necessary.




The ABC of OSB

Oriented Strand Board

NEWSAW

Performance Parameters Tolerances

Thickness Range		6-10mm	11-17mm	18-25mm
Thickness ± (un-sanded)	EN 324-1	0.8mm	0.8mm	0.8mm
Length ±	EN 324-1	3.0mm	3.0mm	3.0mm
Width ±	EN 324-1	3.0mm	3.0mm	3.0mm
Squareness	EN 324-2	2.0mm / 1000	2.0mm / 1000	2.0mm / 1000
Straightness	EN 324-1	1.5mm / 1000	1.5mm / 1000	1.5mm / 1000
MOR Major N/mm²	EN 310	22	20	18
MOR Minor N/mm²	EN 310	11	10	9
MOE Major N/mm²	EN 310	3500	3500	3500
MOE Minor N/mm²	EN 310	1400	1400	1400
IB N/mm²	EN 319	0.34	0.32	0.30
Thickness Swell %	EN 317	20	20	20
Dimensional stability %	EN 318	.15(L) Et 10(T)	.15 (L) Et 10(T)	.15 (L) Et 10(T)
Average Density kg/m³		650	650	650
Density Variance %	EN 323	± 10	± 10	± 10
Moisture Content %	EN 322	2-12	2-12	2-12
Formaldehyde (Class 1)	EN 120	≤ 8 mg / 100g	≤ 8 mg / 100g	≤ 8 mg / 100g

The ABC of OSB

Oriented Strand Board

NEWSAW

Performance Parameters Tolerances

Thickness Range		6-10mm	11-17mm	18-25mm
Thickness Tolerance				
± Skip sand	EN 324-1	0.8mm	0.8mm	0.8mm
Full sand	EN 324-1	3.0mm	3.0mm	3.0mm
Length ±	EN 324-1	3.0mm	3.0mm	3.0mm
Width ±	EN 324-1	3.0mm	3.0mm	3.0mm
Squareness	EN 324-2	2.0mm / 1000	2.0mm / 1000	2.0mm / 1000
Straightness	EN 324-1	1.5mm / 1000	1.5mm / 1000	1.5mm / 1000
MOR Major N/mm²	EN 310	22	20	18
MOR Minor N/mm²	EN 310	11	10	9
MOE Major N/mm²	EN 310	3500	3500	3500
MOE Minor N/mm²	EN 310	1400	1400	1400
IB N/mm²	EN 319	0.34	0.32	0.30
2HR IB N/mm²	EN 1087 – 1:1995	0.15	0.13	0.12
Thickness Swell %	EN 317	15	15	15
Dimensional stability %	EN 318	.1(L) Et 10(T)	.1 (L) Et 10(T)	.1 (L) Et 10(T)
Average Density kg/m³		650	650	650
Density Variance %	EN 323	± 10	± 10	± 10
Moisture Content %	EN 322	5-12	5-12	5-12
Formaldehyde (Class 1)	EN 120	≤ 8 mg / 100g	≤ 8 mg / 100g	≤ 8 mg / 100g
Impact Test (per mm thk)	EN 128	N/A	N/A	35

Packing Specification							
Panel Thickness (mm)	6	8	9	11	15	18	25
Number of panels per pack	150	112	100	82	60	50	36

Based on an average pack dimension of 2440 x 1220 x 190 mm, average pack weight is 1.7 tonnes and capacity is 2.68 m³.

Spans and Nailing Centres	Flooring		Roofing	
Thickness	15mm	18 mm	11 mm	15 & 18 mm
Max, span (domestic) mm	450	600	400	600
Nail centres (edges) mm	300	300	150	150
Nail centres (intermediate) mm	300	300	300	300

For more information and supply, please contact:

***NEWSAW* (Pty) Ltd**
Reg. No. 2017/188091/07

31 Whittle Crescent
Gordon's Bay
7140
South Africa
www.newsaw.co.za
Director W.F. du Plessis

E-mail: newsaw@newsaw.co.za
Tel: Wynand du Plessis +2772 940 5144
wynand@newsaw.co.za