

SINTEF confirms that

OSB 3 unsanded

has been found to be fit for use in Norway and to meet the provisions regarding product documentation given in the regulation relating to the marketing of products for construction works (DOK) and regulations on technical requirements for building works (TEK), with the properties, fields of application and conditions for use as stated in this document

1. Holder of the approval

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2. Product description

OSB 3 unsanded are oriented strand board panels made of wood strands from pine and spruce, bonded together under high temperature and pressure with moisture resistant resin adhesive.

The strands are cross oriented in three layers. The face layer strands are mainly oriented with the wood fibres parallel to the length of the panels. The core layer strands are mainly parallel to the width of the panel. The glue is PMDI (polymeric methylene diphenyl diisocyanate).

The panels are produced and CE-marked in accordance with class OSB/3 as specified in EN 13986:2004+A1:2015 and EN 300.

Standard panel thicknesses are nominal 12 mm, 15 mm, 18 mm and 22 mm. The surfaces are unsanded. Standard sizes on the Norwegian market are 2440 mm x 1220 mm with tongue and groove edges at the long sides (fig. 1), and 2440 mm x 620 mm with tongue and groove at all four sides.

Declared tolerances on dimension are as follows, measured according to EN 324-1 and EN 324-2:

Tolerance on thickness: ± 0.8 mm
 Tolerance on length and width: ± 3.0 mm
 Edge straightness tolerance: 1.5 mm/m
 Squareness tolerance: 2.0 mm/m

Mean panel density is approx. 650 kg/m³ measured according to EN 323. The density may vary from 570 to 690 kg/m³ depending on panel thickness.

The panels are delivered from the factory with a declared moisture content of 5 to 12 % weight, measured according to EN 322.

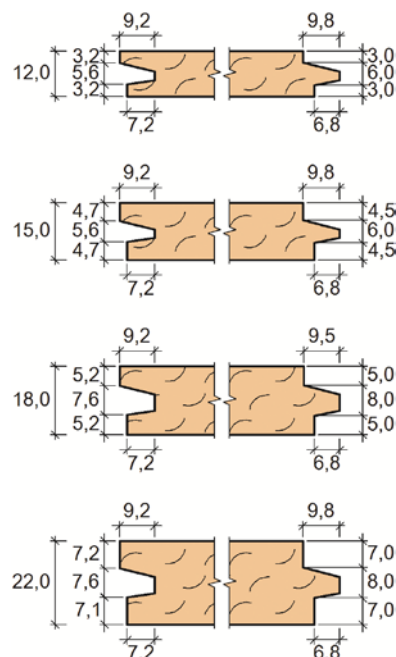


Fig. 1
 OSB 3 unsanded. Tongue and groove profiles

3. Fields of application

OSB 3 unsanded may be used as sheathing panels in service class 1 and 2 according to NS-EN 1995-1-1.

Panels with a thickness of 15 mm or more may be used as loadbearing roof sheathing in roof structures. Panels with a thickness of 18 mm or more may be used as subfloor on floor joists spaced c/c 600 mm in residential and other buildings with similar floor loads. See special conditions for application in section 6.

4. Properties

Strength and stiffness

Table 1 shows the characteristic strength and stiffness required for OSB 3 unsanded panels manufactured according to EN 300. Structural design properties for calculating main load-bearing structures are given in EN 12369-1.

Table 1
Minimum characteristic strength and stiffness for OSB 3
unsanded *

Property	Value in N/mm ²		Test method
	Nom. board thickness, mm		
	12 and 15	18 and 22	
Bending strength			EN 310
- Parallel to board length	20	18	
- Parallel to board width	10	9	
E-modulus in bending			EN 310
- Parallel to board length	3500	3500	
- Parallel to board width	1400	1400	
Internal bond	0,32	0,30	EN 319

* The values represent the 5 % fractile as specified in EN 300

Reaction to fire

Panels with minimum thickness 12 mm are classified according to EN 13501-1 as D-s2,d0 in walls and ceilings, and D_{FL}-s1 as flooring, without an airgap behind. With a closed airgap behind the panel thickness must be at least 15 mm in order to obtain the same classification.

Properties related to moisture

- Moisture movement in the plane of the panels when the moisture content change from equilibrium at 35 % RH to equilibrium at 85 % RH is considered to be 3 mm/m determined according to EN 318
- The water vapour resistance coefficient is $\mu = 50$ for dry conditions and $\mu = 30$ for wet conditions according to EN 13986:2004+A1:2015. This is equivalent to $s_d = 0,60$ m and $s_d = 0,36$ m for 12 mm thick panels (equivalent air thickness value)
- Thickness swelling after 24 hours water immersion is ≤ 15 % measured in accordance with EN 317
- The resin used in the panels is moisture resistant, which allows the panels to be exposed to water for a limited time during the construction period. In permanent conditions the panels must not be exposed to a climate with more than 85 % RH except for a few weeks per year
- The panels are not specially treated against growth of mould or fungi

Thermal insulation

Design thermal conductivity is $\lambda_d = 0,13$ W/(mK) according to EN 13986:2004+A1:2015.

5. Environmental aspects

Substances hazardous to health and environment

The panels contain no hazardous substances with priority in quantities that pose any increased risk for human health and environment. Chemicals with priority include CMR, PBT or vPvB substances.

Effect on indoor environment

OSB 3 unsanded is evaluated according to SINTEF Technical Approval – Health and Environmental Requirements version 09.05.2022. The product is not regarded as emitting any particles, gases or radiation that have a perceptible impact on the indoor climate, or to have any significant impact on health. The product meets the

requirements in BREEAM-NOR v6.0, Emissions from building products according to Hea 02 Indoor air quality.

Waste treatment/recycling

The panels shall be sorted as wood material on the building/demolition site and delivered to an authorized waste treatment plant for energy recovery.

Environmental declaration

No environmental declaration (EPD) according to ISO 21930 has been worked out for OSB 3 unsanded.

6. Special conditions for use and installation

Floor sheathing

18 mm and 22 mm OSB 3 unsanded may be used as subfloor on floor joists spaced maximum c/c 600 mm, provided that the imposed load is maximum category B according to NS-EN 1991-1-1 with national annex NA, i.e. maximum 3,0 kN/m² uniformly distributed load and 2,0 kN concentrated load.

The use of 18 mm panels on c/c 600 mm joist spacing requires a stiff flooring material like parquet, timber flooring or laminates. 22 mm panels must be used under thin flooring materials like vinyl or linoleum.

The panels shall be installed with the long side perpendicular to the floor joists, and the tongue and groove joints glued with an adhesive designed for subfloor installation.

End joints shall be staggered, and always be continuously supported by joists.

OSB 3 unsanded may be applied in platform constructions where the panels are exposed to direct precipitation for a limited period. The use and installation of OSB 3 unsanded, including fastening by nails or screws, shall otherwise be in conformity with the recommendations in SINTEF Building Research Design Guide No. 522.861.

Roof sheathing

OSB 3 unsanded may be used as loadbearing roof sheathing with maximum spans as shown in Table 2. The table is valid for all roof slopes and for roofs with snow stoppers intended to hold any snowfall on the roof in position.

The panels shall be installed with the long sides perpendicular to the rafters, and with staggered and supported end joints.

The panels shall always be covered by a watertight roofing membrane, also when discontinuous roofing is applied, and have a ventilated space underneath the panels.

Table 2

Minimum panel thickness for OSB 3 unsanded loadbearing roof sheathing

Rafter or truss spacing mm	Snow load * kN/m ²	Minimum panel thickness mm
Roof covered with ordinary roofing (membrane shingles etc.)		
c/c 600	$s_k \leq 6.0$	15
	$6.0 < s_k \leq 7.0$	18
	$7.0 < s_k \leq 9.0$	22
c/c 900	$s_k \leq 3.5$	15
	$3.5 < s_k \leq 4.5$	18
	$4.5 < s_k \leq 6.0$	22
c/c 1200	$s_k \leq 2.5$	18
	$2.5 < s_k \leq 3.5$	22
Roof covered with turf roofing		
c/c 600	$s_k \leq 2.5$	15
	$2.0 < s_k \leq 4.5$	18
	$4.5 < s_k \leq 6.0$	22

* Characteristic snow load on ground, s_k , according to NS-EN 1991-1-3 with national annex NA (based upon the fundamental value for the municipality, with possible addition for height above the municipality centre)

OSB 3 unsanded shall otherwise be used and installed in conformity with the recommendations in SINTEF Building Research Design Guide No. 525.861.

7. Factory production control

The panels are manufactured by SIA Kronospan Riga in Riga, Latvia.

The holder of the approval is responsible for the factory production control in order to ensure that the panels are manufactured in accordance with the preconditions applying to this approval.

The manufacturing of the product is subject to continuous surveillance of the factory production control in accordance with the certification of factory production control by Fraunhofer-Institute for Wood Research, certificate no. 0765-CPR-0778, and the contract regarding SINTEF Technical Approval.

8. Basis for the approval

The approval is based on the material properties verified according the requirements for OSB panels type OSB/3 in EN 300 and EN 13986:2004+A1:2015, plus type testing as floor and roof sheathing according to EN 12871 as verified in the following reports:

- Danish Technology Institute. Report no. 312210 dated May 2009 (EN 12871 and EN 13986)
- Fraunhofer-Institut für Holzforschung WKI Test Report No. QA-2012-0567 dated 2012-03-14
- Fraunhofer-Institut für Holzforschung WKI Test Report No. QA-2010-0770 dated 2010-03-17
- Fraunhofer-Institut für Holzforschung WKI Test Report No. QA-2010-0769 dated 2010-03-17
- Fraunhofer-Institut für Holzforschung WKI Test Report No. QA-2010-1353 dated 2010-05-18

Table 2 has been calculated by SINTEF Building and Infrastructure.

9. Marking

OSB 3 unsanded shall be CE-marked according to the provisions of EN 300 and EN 13986:2004+A1:2015, incl. name of product and manufacturer, technical class, reaction to fire class, formaldehyde class and a production number or date of production. SINTEF Technical Approval mark no. 20155 may also be used.



Approval mark

10. Liability

The holder/manufacturer has sole product responsibility according to existing law. Claims cannot be brought against SINTEF beyond the provisions of Norwegian Standard NS 8402

for SINTEF

Marius Kvalvik
Approval Manager