



Technical Approval

SINTEF Building and Infrastructure confirms that

Kronoply OSB/3 floor and roof sheathing

meets the provisions regarding product documentation given in Norwegian building regulations, with properties, fields of application and conditions as stated in this document

1. Holder of the approval

Kronoply GmbH
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2. Manufacturer

Kronoply GmbH, Heiligengrabe, Germany

3. Product description

Kronoply OSB/3 are oriented strand board panels made of wood strands from pine, bonded together under high temperature and pressure with synthetic resin.

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 diphenylmethanediiiso-cyanate).

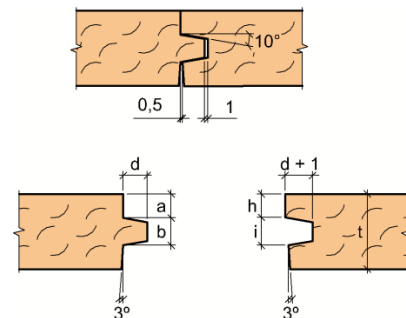
The boards are produced in accordance with class OSB/3 as specified in EN 13986 and EN 300.

Standard panel thicknesses are 15, 18 and 22 mm. The surfaces are unsanded.

Standard sizes on the Norwegian market are 2400 mm x 1220 mm with tongue and groove edges at the long sides (fig. 1), and 2420 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



t	a	b	d	h	i
15	4.5	6	7	4.25	6.5
18	6	6	7	5.75	6.5
22	7	8	7	6.75	8.5

Fig. 1
Kronoply OSB. Tongue and groove profiles

Declared panel densities measured according to EN 323 varies from 580 to 630 kg/m³ depending upon panel thickness.

The boards are delivered from the factory with a declared moisture content of 9 ± 3 % weight, measured according to EN 322.

4. Fields of application

Kronoply OSB/3 may be used as subfloor on floor joists in residential and other buildings with similar floor loads, and as loadbearing roof sheathing in timber roof structures. See special conditions for application in section 7.

5. Properties

Strength and stiffness

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

SINTEF is the Norwegian member of European Organisation for Technical Approvals, EOTA, and European Union of Agrément, UEAtc

Reference: Appr. 102000503-2 Contr. 102000503-1

Subject: Floor and roof sheathing

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Table 1
Minimum characteristic strength and stiffness for Kronoply OSB/3¹⁾

Property	Value in N/mm ²		Test method
	Nom. board thickness, mm		
	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 319
- Parallel to board length	3500	3500	
- Parallel to board width	1400	1400	
Internal bond	0.32	0.30	

¹⁾ The values represent the 5 % fractile as specified in EN 300

Properties related to fire

Reaction to fire classification according to EN 13501-1 is D-s2, d0, and D_{FL}-s1, based on Table 8 in EN 13986:2005.

Design charring rate $\beta_{0,p,t}$ for calculating fire resistance according to EN 1995-1-2 is 0.9 mm/min for 15 mm and 18mm boards and 0.8 mm/min for 22 mm boards.

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 2 mm/m determined according to EN 318.
- Equivalent air thickness value s_d is 1.0 m for 15mm boards, 1.2 m for 18mm boards and 1.5 m for 22mm boards.
- Thickness swelling after 24 hours water immersion is ≤ 15 % measured in accordance with EN 317.
- The resin used in the boards is moisture resistant, which allows the boards to be exposed to water for a limited time during the construction period. In permanent conditions the boards must not be exposed to a climate with more than 85 % RH except for a few weeks per year.
- The boards 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

6. Environmental aspects

Chemicals hazardous to health- and environment

Kronoply OSB/3 contains 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 indoorenvironment

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. Formaldehyde class E1 according to EN 13986.

Waste treatment/recycling

Kronoply OSB/3 shall be sorted as wood-based materials on the building/demolition site. The product shall be delivered to an authorized waste treatment plant for energy recovery.

Environmental declaration

No environmental declaration (EPD) has been worked out for the product.

7. Special conditions for use and installation

Floor sheathing

18 mm and 22 mm Kronoply OSB/3 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 3491-1, i.e. maximum 3,0 kN/m² uniformly distributed load and 2,0 kN concentrated load.

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

The boards 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.

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

Roof sheathing

Kronoply OSB/3 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 slide preventers.

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

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

Kronoply OSB/3 shall otherwise be used and installed in conformity with the recommendations in SINTEF Building Research Design Sheet no. 525.861.

Table 2
Minimum board thickness for Kronoply OSB/3 loadbearing roof sheathing

Span (rafter spacing) mm	Snowload ¹⁾ kN/m ²	Minimum board thickness mm
Roof covered with ordinary roofing (membrane shingles etc.)		
600	$s_k \leq 6.0$	15
	$6.0 < s_k \leq 7.0$	18
	$7.0 < s_k \leq 9.0$	22
900	$s_k \leq 3.5$	15
	$3.5 < s_k \leq 4.5$	18
	$4.5 < s_k \leq 6.0$	22
1200	$s_k \leq 2.5$	18
	$2.5 < s_k \leq 3.5$	22
Roof covered with turf roofing		
600	$s_k \leq 2.5$	15
	$2.5 < s_k \leq 4.5$	18
	$4.5 < s_k \leq 6.0$	22

¹⁾ Characteristic snowload on ground, s_k , according to EN 1991-1-3 (based upon the fundamental value for the municipality, with possible addition for height above the municipality centre)

8. Factory production control

The manufacturer’s factory production control is certified and continuously inspected by the notified body HFB Engineering GmbH as part of the CE-marking of the product according to EN 13986.

9. Basis for the approval

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

- HFB- Leipzig. Prüfberichtnr. 311001443/1/05, Zertifikat CE NR. 1034 – CPD – 1291 gemäß des Anhanges ZA der Normung DIN EN 13986 : 2004
- HFB- Leipzig. Prüfberichtnr. 311001285 / 1/04 Initial Testing Typ
- PCP und Lindan MPA Eberswalde. Prüfbericht nr: 31/06/7610/13

- Danish Technology Institute. Report no. 26864100 dated April 2008 (strength and stiffness)
- Germanisch Loyd Zertifikat Nr: QS-3281 HH - DIN EN ISO 9001
- SINTEF Byggeforsk. Report nr. 3D820605-617 dated december 2012.
- HFB- Leipzig. Raport nr. 311001443/2F/2011 dated December 2011.

Table 2 has been calculated by SINTEF Building and Infrastructure.

10. Marking

Kronoply OSB/3 shall be CE-marked according to the provisions of EN 13986, incl. name of product and manufacturer, formaldehyde class, and a production number or date of production. SINTEF Technical Approval mark no. 2575 may also be used.



Approval mark

11. Liability

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

12. Technical management

Project manager for this approval is Neha Parekh, SINTEF Building and Infrastructure, dep. Building materials and structures, Oslo.

for SINTEF Building and Infrastructure

Hans Boye Skogstad
Approval Manager