SINTEF Technical Approval

TG 20859

Issued first time: 05.05.2023
Revised:
Amended:
Valid until 01.06.2028
Provided listed on
www.sintefcertification.no

SINTEF confirms that

EGGER OSB 3 floor, roof and wall sheathing

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

EGGER Holzwerkstoffe Wismar GmbH & Co. KG
Am Haffeld 1
DE-23970 Wismar
Germany
www.egger.com

2. Product description

EGGER OSB 3 are oriented strand board panels made of wood strands from pine and/or spruce, 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 diphenylmethanediiso-cyanate).

EGGER OSB 3 boards covered by the approval are EGGER OSB 3 E0 9 -25 mm, EGGER Structural Flooring 22 mm and EGGER Ergo Boards 12 mm.
All products are variations of EGGER OSB 3 boards, with the distinction being in their thickness, dimensions, and edge design.

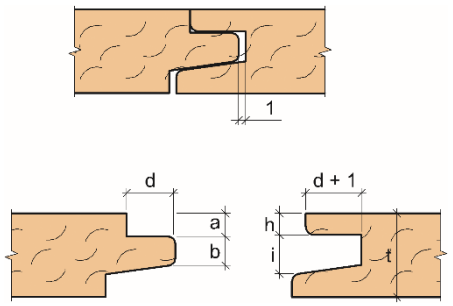
EGGER OSB 3 E0 are delivered in standard thicknesses 9, 12, 15, 18, 22 and 25 mm. Standard sizes are 2500 mm x 1250 mm or 2500 mm x 675 mm with tongue and groove edges at the long side (Figure 1) and tongue and groove edges at all four sides. The boards can be delivered with straight edges in the sizes 2500/2800/3000 x 1250 mm or 2500/2700 x 1197 / 2500 x 897 mm.

EGGER Structural Flooring boards are delivered in standard thickness 22 mm and standard size 2400 mm x 675 mm with tongue and groove edges at all four sides.

EGGER Ergo Boards are delivered in standard thickness 12 mm and standard size 2500 mm x 600 mm with combined ship-lapped edge and tongue and groove edges.

The surfaces are unsanded.

EGGER OSB 3 boards are produced as type OSB/3 boards in accordance with EN 13986 and EN 300.



t	a	b	d	h	i
18	5,8	5,3	7	5,6	6,7
22	7,8	5,3	7	7,6	6,7
25	8,3	7,3	7	8,1	8,7

Fig. 1
EGGER OSB 3. Tongue and groove profiles floor sheathing (mm).

Declared tolerances on dimension are as follows, measured according to EN 324-1 and EN 324-2:
- Tolerance on thickness (unsanded) ± 0.5 mm
- Tolerance on length and width ± 3.0 mm
- Edge straightness tolerance 1.5 mm/m
- Squareness tolerance 2.0 mm/m

Minimum density of boards is approx. 600 kg/m³ measured according to EN 323.
Formaldehyde emission class according to EN 13986 is E1.

3. Fields of application

EGGER OSB 3 boards can be used in buildings in risk class 1-6 in fire class 1, 2 and 3. For use in fire rated constructions in fire class 3, a complete analytical fire design must be performed.

With conditions as specified in clause 6, the boards may be used as subfloor on floor joists in residential buildings and other buildings with imposed floor load category A or B according to EN 1991-1-1., and as loadbearing roof sheathing in roof structures. EGGER OSB 3 boards can also be used as wall sheathing and bracing.

The boards can be used in service class 1 and 2 according to EN 1995-1-1, and as subfloor in platform constructions. In the final construction, the average humidity shall not exceed 85% RH for more than short period.

Special conditions for application are given in clause 6.

4. Properties

Strength and stiffness

Table 1 shows the characteristic strength and stiffness required for boards 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 EGGER OSB 3 [1)]

Property	Test method EN	Value (N/mm²)		
		Nom. board thickness, mm		
		9	11-15	18 - 25
Bending strength - Parallel to board length - Parallel to board width	EN 310	≥ 22 ≥ 11	≥ 20 ≥ 10	≥ 18 ≥ 9
E-modulus in bending - Parallel to board length - Parallel to board width		≥ 3500 ≥ 1400		
Internal bond	EN 319	≥ 0,34	≥ 0,32	≥ 0,30

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

Reaction to fire

EGGER OSB 3 boards have reaction to fire classification D-s2,d0 according to EN 13501-1 for use as ceiling board, wall board and underlaying floor.

EGGER OSB 3 boards have reaction to fire classification D_{fl}-s1 according to EN 13501-1 for use as visible floorboard.

See chap. 6 regarding special conditions for use and installation.

Properties related to moisture:

- Declared moisture movement in the plane of the boards, measured according to EN 318, is 3 mm/m and thickness swelling 5 % when the moisture content changes from equilibrium at 35 % RH to equilibrium at 85 % RH.
- Thickness swelling after 24 hours water immersion is ≤ 15 % measured in accordance with EN 317.
- The water vapour resistance according to EN 13986 is $\mu = 200$ for dry conditions and $\mu = 150$ for wet conditions. This corresponds to $s_d = 3{,}6$ m and $s_d = 2{,}7$ m (equivalent air layer thickness) for 18 mm thick boards. For other board thicknesses the equivalent air thickness value s_d can be calculated by formula $s_d = \mu \cdot d$, where d is board thickness in meters.
- The resin used in the boards is moisture resistant, which allows the boards to be exposed to free water for a limited time during the construction period. In permanent service the relative humidity shall not be more than 85 % apart for short periods.
- The boards are delivered from the factory with a moisture content of 5 - 6 % weight, measured according to EN 322.
- The boards are not treated against growth of mould or fungi.

Thermal insulation

Design thermal conductivity is $\lambda_d = 0.13$ W/(mK) according to EN 13986

5. Environmental aspects

Substances hazardous to health and environment

The product 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 indoor environment

The boards are evaluated according toSINTEF Technical Approval – Health and Environmental Requirements version 09.05.2023. The boards are 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 boards meet the requirements in BREEAM-NOR v6.0, Emissions from building products according to Hea 02 Indoor air quality.

Waste treatment/recycling

The boards shall be sorted as wood-based product The bords shall be delivered to an authorized waste treatment plant for energy recovery.

Environmental declaration

An environmental declaration (EPD) has been worked out according to EN 15804 for the product.For complete documentation see EPD no. EPD-EGG-20180107-IBD1-EN, www.ibu-epd.com.

6. Special conditions for use and installation

Design considerations for floor sheathing

18, 22 and 25 mm EGGER OSB 3 E0 boards and 22 mm EGGER Structural floor boards 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. EGGER OSB 3 boards with minimum thickness 22 mm may be used under thin flooring materials like vinyl or linoleum.

EGGER OSB 3 boards may be applied in platform constructions where the boards are exposed to direct precipitation for a limited period.

Design considerations for roof sheathing

EGGER OSB 3 E0 12, 15, 18, 22 and 25 mm 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.

In order to prevent permanent deflections of roof sheathing leading to poor drainage of roofs with little slope over time, the thicknesses given in Table 2 should be increased by 3 mm if the slope of the roof surface is less than 1:20 and the design snow load on the ground at the same time is larger than 3.0 kN / m².

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

12 mm EGGER OSB 3 boards have limited capacity for dynamic loading. Roofs with 12 mm boards should not be accessible to persons, except for normal maintenance and repairs.

Table 2
Minimum board thickness for EGGER OSB 3 E0 loadbearing roof sheathing

Span(rafter spacing) mm	Snowload[1] kN/m²	Minimum board thickness mm[2]
Roof covered with ordinary roofing (membrane shingles etc.)[3]		
600	$s_k \leq 2,5$ $sk \leq 5.5$ $5.5 < sk \leq 7.5$ $7.5 < sk \leq 9.0$	12 15 18 22
Roof covered with turf roofing		
600	$sk \leq 2.5$ $2.5 < sk \leq 6$	18 22

[1] Characteristic snowload on ground, sk, according to EN 1991-1-3 (based upon the fundamental value for the municipality, with possible addition for height above the municipality centre)
[2] For roof smaller then 1:20 it is recommended to increase the borads thicknesses by 3 mm
[3] The dead load of roofing and roof underlay is assumed to be 0,25 kN/m²

Design considerations for wall sheathing and bracing
EGGER OSB 3 E0 with thickness ≥ 9 mm with tongue and groove or straight edges, and EGGER Ergo boards 12 mm, can be used for wall sheathing and bracing.
EGGER Ergo boards 12 mm shall only be used for wall sheathing in non-loadbearing walls.

Safety in case of fire
Fire classification D-s2,d0 and D_{fl}-s1 supposes mounting directly on an underlay with class A1 or A2-s1,d0 with density not less than 10 kg/m³ (f.ex. mineral wool or gypsum boards) or minimum class D-s2,d2 with density not less than 400 kg/m³ (f.ex. timber or wood based boards).

Fire classification D-s2,d0 and D_{fl}-s1 is also valid for mounting with an open or closed cavity ≤ 22 mm behind the board, where the opposite side of the cavity must consist of a product with minimum class A2-s1,d0 and density not less than 10 kg/m³.

Fire classification D-s2,d0 and D_{fl}-s1 is also valid for mounting with a cavity behind the board, where the opposite side of the cavity must consist of a product with minimum class D-s2,d2 and density not less than 400 kg/m³. If mounted with an open cavity behind, the fibre boards must have a thickness of minimum 18 mm. If mounted with a closed cavity behind, the fibre boards must have a thickness of minimum 15 mm.

Ceiling boards, wall boards and underlaying floor can be mounted on an underlay of cellulose insulation with minimum fire classification E.

A vapour barrier with a thickness of up to 0,4 mm and a mass of up to 200 g/m² may be installed between the fibre board and the underlayment if there is no air gap in between.

Installation of EGGER OSB 3 boards
In floors and roofs, EGGER OSB 3 boards shall be installed staggered, with the long side perpendicular to the floor joists, rafters, or roof trusses. The boards shall normally span continuously over at least two spans. Free edges at walls and openings shall always be continuously supported.

Straight edge boards without tongue and groove edges must be supported at all four sides.
All tongue and groove joints in floors shall be glued with two adhesive strings as shown in figure 2.

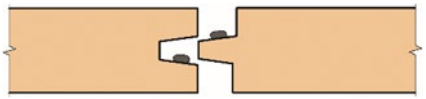


Fig. 2
Tongue and groove joints shall be glued with two adhesive strings. One is applied in the groove and one on the tongue.

Floor sheathing shall also be glued to the floor joists with two continuous adhesives strings on top of the joists. A type of adhesive designed for subfloor installation and suitable for the relevant climate conditions during installation must be applied.

The boards shall be fixed to the joists with either floor panel screws or nails. The length of screws should be 2,5 times the thickness of the board or at least 50 mm with a minimum screwhead diameter of 4 mm, and the length of nails should be 2,5 times the thickness of the board or at least 65 mm. The spacing between fasteners shall be 150 mm at the ends of the boards, and 300 mm at intermediate supports. Screw heads shall be countersunk 2-3 mm.

It must be taken into account that some swelling in the plane of the boards will take place after installation.

The use and installation of EGGER OSB 3 boards shall otherwise be in conformity with the recommendations in SINTEF Building Research Design Guide No. *522.861 Subfloor on timber joists and SINTEF Building Research Design Guide no. 525.861 Roof sheathing made of wood-based panels.*

EGGER OSB 3 used for wall sheathing and bracing, shall be installed with the long sides perpendicular to the studs with maximum c/c 600 mm joist spacing. Joints on boards with straight edges should have continuous support by joists. The installation of EGGER OSB 3 boards for wall sheathing and bracing shall otherwise be in conformity with manufacturer's installation manual.

Surface treatment
The boards shall be cleaned and have a moisture content of maximum 10 % before floor coverings are installed. Surface damages must be repaired with a filler compound before installation of thin floor coverings, and edge toppings must be sanded. Countersunk screw heads shall not be filled with filler compound.

Underlay for ceramic tiles
When used as an underlay for ceramic tiles the boards with minimum thickness 22 mm shall be used and spacing should be maximum c/c 300 mm. Alternatively the boards may be installed on joists spaced c/c 600 mm, provided a double layer of boards is used or by applying of a screed material. See also SINTEF Building Research Design Guide no. 541.411. *Ceramic tiles on indoor floors.*

Transport and storage
The panels are to be transported and stored in dry conditions on a stable and level substrate.

7. Factory production control

EGGER OSB 3 boards are produced by EGGER Holzwerkstoffe Wismar GmbH & Co. KG, Germany.

The holder of the approval is responsible for the factory production control in order to ensure that EGGER OSB 3 boards are produced in accordance with the preconditions applying to this approval.

The manufacturing of the products and the manufacturer's system for factory production control (FPC) is subject to continuous surveillance in accordance with the contract regarding SINTEF Technical Approval.

Manufacturer has a quality system certified in accordance with EN ISO 9001 and environmental management system certified in accordance with EN ISO 14001.

8. Basis for the approval

The evaluation of EGGER OSB 3 boards is based on reports owned by the holder of the approval.

9. Marking

EGGER OSB 3 boards shall be CE-marked according to the provisions of EN 13986, including name of product and manufacturer, technical class, formaldehyde class and a production number or date of production.

The approval mark for SINTEF Technical Approval TG 20859 may also be used.

10. 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,

for SINTEF

Susanne Skjervø
Approval Manager