SINTEF Technical Approval

TG 2030

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Provided listed on
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SINTEF confirms that

Sterling OSB/3 Zero floor and roof 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

West Fraser Europe Limited
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2. Product description

Sterling OSB/3 Zero boards are oriented strand board panels made of wood strands from Scots pine. The strands are cross oriented in three layers and bonded together under high temperature and pressure with PMDI glue. The face layer strands are mainly oriented with the wood fibers parallel to the length of the panels. The core layer strands are mainly parallel to the width of the panel.

Sterling OSB/3 Zero boards have density approximately 600 kg/m3 (±15%).

Standard floor panel thicknesses are 18 mm and 22 mm, and the roof panel thicknesses are 15 mm, 18 mm, and 22 mm. The boards are normally delivered with unsanded surface.

Standard sizes in the Norwegian market are 600 mm x 2 400 mm and 1 200 mm x 2 400 mm, with tongue and groove edges at the long sides (fig. 1). All boards can be delivered with tongue and grooves at all four sides.

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

- Tolerance on thickness (unsanded) ± 0.8 mm
- Length and width tolerance + 0 mm – 2.0 mm
- Edge straightness tolerance 1.0 mm/m
- Squareness tolerance 1.0 mm/m

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

3. Fields of application

Sterling OSB/3 Zero 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.

Sterling OSB/3 Zero 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.

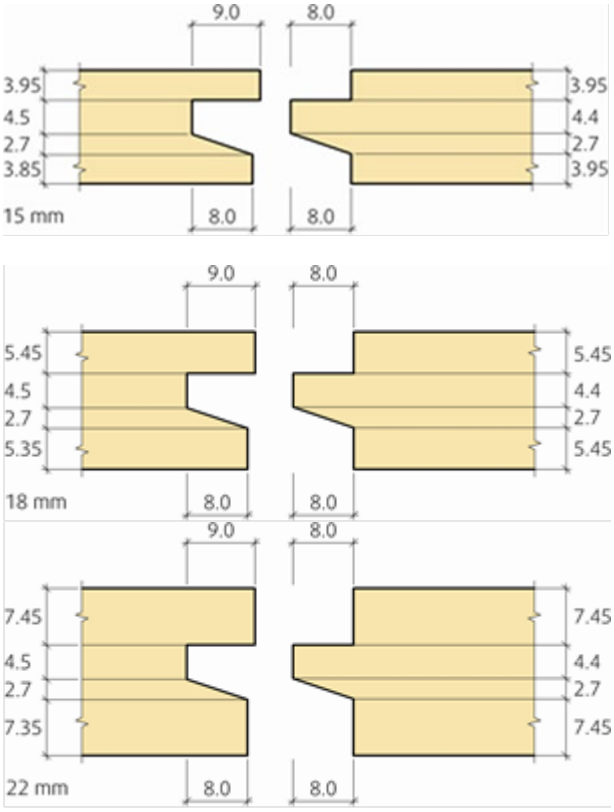

Fig. 1
Sterling Zero OSB. Tongue and groove profiles.

4. Properties

4.1 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.

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4.2 Properties related to fire
Sterling OSB/3 Zero has reaction to fire classification D-s2,d0 according to EN 13501-1 for use as ceiling board and underlaying floor.

Sterling OSB/3 Zero has reaction to fire classification D_{fl}-s1 according to EN 13501-1 for use as visible floorboard. See chap. 6.3 regarding special conditions for use and installation.

4.3 Thermal insulation
Design thermal conductivity is λ_d = 0,13 W/(mK) according to EN 13986.

Table 1
Minimum characteristic strength and stiffness for Sterling OSB/3 Zero floor and roof sheathing*

Property	Test method EN	Value		Unit
		Nom. board thickness, mm		
		15	18 and 22	
Bending strength - Parallel to board length - Parallel to board width	EN 310	 20 10	 18 9	N/mm²
Internal bond	EN 319	0.32	0.30	N/mm²
E-modulus in bending - Parallel to board length - Parallel to board width	EN 310	 3 500 1 400	 3 500 1 400	N/mm²

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

4.4 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, and increase in thickness of approx. 5 %, determined according to EN 318.

Thickness swelling after 24 hours water immersion is $\leq$ 15 % measured in accordance with EN 317.

The water vapour resistance coefficient is μ = 50 for dry conditions and μ = 30 for wet conditions according to EN 13986. This is equivalent to s_d = 0,90 m and 0,54 m for 18 mm thick boards, and s_d = 1,10 m and 0,66 m for 22 mm thick boards (equivalent air thickness value).

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 moisture content of the product shall not exceed 16% for any significant period, nor 20% at any time.

The declared moisture content of the boards is 2 % - 12 % weight after manufacture.

The boards are not specially treated against growth of mold or fungi.

5. Environmental aspects

5.1 Substances hazardous to health and environment
The boards 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.

5.2 Effect on indoor environment
The boards are 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.

5.3 Waste treatment/recycling
The boards shall be sorted as wood on the demolition site. The product shall be delivered to an authorized waste treatment plant for energy recovery.

5.4 Environmental declaration
No environmental declaration (EPD) has been worked out for Sterling OSB/3 Zero boards.

6. Special conditions for use and installation

6.1 Sterling OSB/3 Zero - Floor sheathing
18 mm and 22 mm Sterling OSB/3 Zero 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, 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 are recommended for use under thin flooring materials like vinyl or linoleum.

The boards shall be installed staggered, 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.

Sterling OSB/3 Zero may be applied in platform constructions where the boards are exposed to direct precipitation for a limited period. The boards may also be used as a subfloor in the wet rooms in residential buildings and similar.

The use and installation of Sterling OSB/3 Zero, including fastening by nails or screws, shall otherwise be in conformity with the recommendations in SINTEF Building Research Design Sheet no. 522.861.

6.2. Sterling OSB/3 Zero - Roof sheathing
Sterling OSB/3 Zero 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 guards.

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

Span (rafter spacing) mm	Snowload* kN/m²	Minimum board thickness mm
Roof covered with ordinary roofing (membrane shingles etc.)		
600	$sk \leq 6.0$	15
	$6.0 < sk \leq 7.0$	18
	$7.0 < sk \leq 9.0$	22
900	$sk \leq 3.5$	15
	$3.5 < sk \leq 4.5$	18
	$4.5 < sk \leq 6.0$	22
1 200	$sk \leq 2.5$	18
	$2.5 < sk \leq 3.5$	22
Roof covered with turf roofing		
600	$sk \leq 4.5$	15
	$2.5 < sk \leq 4.5$	18
	$4.5 < sk \leq 6.0$	22

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

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.

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

6.3 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 or class D-s2,d2 with density not less than 400 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 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.

7. Factory production control

Sterling OSB/3 Zero is produced by West Fraser Europe Limited, Inverness, Scotland, UK.

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

The manufacturing of Sterling OSB/3 Zero is subject to continuous surveillance of the factory production control in accordance with the contract regarding SINTEF Technical Approval.

West Fraser Europe Limited has a quality system certified in accordance with EN ISO 9001:2015 by British Standards Institution (BSI), certificate number Q 05688.

8. Basis for the approval

The evaluation of Sterling OSB/3 Zero is based on reports owned by the holder of the approval.

9. Marking

Sterling OSB/3 Zero 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.

The approval mark for SINTEF Technical Approval TG 2030 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

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