SINTEF Technical Approval

TG 20826

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Provided listed on
www.sintefcertification.no

SINTEF confirms that

VMG Lignum Board

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

VMG Lignum construction, UAB
Ryto str. 6, Menciai,
LT-85271, Akmene District
Lithuania
www.vmg.eu

2. Product description

VMG Lignum Board are particleboards made of wooden chips from hardwood and softwood, bonded together under high temperature and pressure with MUF synthetic resin (melamine-urea-formaldehyde). The boards are made of three layers, using larger chips in the middle layer and finer material in the surface layers.

VMG Lignum Board are produced as type Regular, T&G2 and T&G4, with technical classes according to EN 13986 as shown in Table 1. Regular type has straight edges, T&G2 has tongue and groove edges on long sides and T&G4 has tongue and groove edges on all four sides, as shown in figure 1.

VMG Lignum Board are delivered in standard nominal thicknesses as shown in Table 1. Standard board dimensions as installed are 300, 600, 900 and 1200 mm x 2400 mm.

Table 1
Standard nominal thicknesses and technical classes in accordance with EN 13986 for VMG Lignum Board

Thickness (mm)	Technical classes in accordance with EN 13986			Type
	P5	P6	P7	
18	x	x		Regular and T&G2
22	x	x		Regular and T&G2
22	x	x	x	T&G4
25		x	x	T&G4
25		x		Regular

Declared dimension tolerances are as follows, measured according to EN 324-1 and EN 324-2:
Thickness: ± 0.3 mm
Length and width: ± 2.0 mm
Edge straightness: 1.5 mm/m
Squareness: 2.0 mm/m

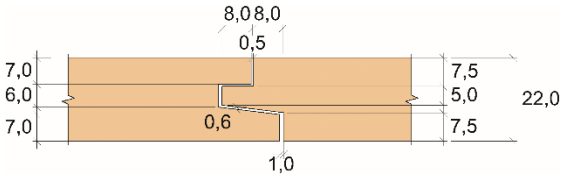

Fig. 1
VMG Lignum Board- T&G4 Board, 22 mm. Tongue and groove profiles.

Mean density is 700 kg/m³ ± 10 % measured according to EN 323.
Formaldehyde emission class according to EN 13986 is E1.

3. Fields of application

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.

The boards with technical class P5 and P7 can be used in service class 1 and 2 according to EN 1995-1-1.
The boards with technical class P6 can only be used in dry conditions, i.e. the relative humidity of the surrounding air shall only exceed 65 % in short periods, and be installed under dry conditions.
The boards with technical class P5 and P7 may be applied in platform construction, i.e. the boards can be exposed to free water for a limited time during the construction period.

VMG Lignum Board can be used in buildings in risk class 1 - 6 in fire class 1, 2 and 3. Use in fire separating constructions in fire class 3 is not covered by the approval, and a complete analytical fire design must be performed by the responsible designer in each individual building project.

Special conditions for application are given in clause 6.

4. Properties

Strength and stiffness
Table 2 shows the characteristic strength and stiffness required to satisfy the minimum requirements specified in EN 13986 for VMG Lignum Board. Structural design properties for calculating load-bearing structures are given in EN 12369-1.

Table 2
Minimum characteristic strength and stiffness for VMG Lignum Board

Property [1]	Technical class according to EN 13986					Unit
	Class P5		Class P6		Class P7	
	Thickness					
	18 mm	22 mm	18 mm	22 mm and 25 mm	22 mm and 25 mm	
Bending strength	≥ 16	≥ 14	≥ 18	≥ 16	≥ 18,5	N/mm²
Modulus of elasticity in bending	≥ 2400	≥ 2150	≥ 3000	≥ 2550	≥ 2900	N/mm²
Internal bond	≥ 0,14	≥0,12	≥0,50	≥0,40	≥0,65	N/mm²

[1] The values represent the 5 % percentile values, determined according to specifications in EN 312

Properties related to fire
VMG Lignum Board with thickness minimum 18 mm are classified according to EN 13501-1 as D-s2,d0. For use as visible flooring the fire classification is D_{FL}-s1. See clause 6 regarding special conditions for application.

Properties related to moisture
- Dimensional changes in the plane of the boards when the moisture content, determined according to EN 318, changes from equilibrium at 35 % RH to equilibrium at 85 % RH may be taken as approx. 2,5 mm/m.
- Thickness swelling after 24 hours water immersion is ≤ 10°% measured in accordance with EN 317.
- The water vapour resistance according to EN 13986 is μ = 50 in dry conditions. This corresponds to s_d = 0,90 m (equivalent air layer thickness) for 18 mm thick boards, s_d= 1,10 m for 22 mm thick boards, and s_d= 1,25 m for 25 mm thick boards.
- 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 - 8 % weight, measured according to EN 322.
- The boards are not treated against growth of mould or fungi.

Thermal insulation
Design thermal conductivity is λ = 0,13 W/mK according to EN 13986.

5. Environmental aspects

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.

Effect on indoor environment
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.

Waste treatment/recycling
The boards shall be sorted as residual waste and delivered to an authorized waste treatment plant for material or heat recovery.

Environmental declaration
An environmental declaration (EPD) has been worked out according to EN 15804 for VMG LIGNUM board. For complete documentation see EPD no. S-P-08896 www.environdec.com

6. Special conditions for use and installation

Design considerations for floor sheathing
VMG Lignum Board can be used as subfloor on floor joists or sleepers spaced maximum c/c 600 mm, provided that the maximum imposed floor load is 3.0 kN/m² uniformly distributed load and 2.0 kN/m² concentrated load according to EN 1991-1-1.

As underlay for thin flooring materials like vinyl or linoleum 22 mm floorboards must be used to achieve sufficient strength and stiffness. 18 mm boards can be used under stiff flooring materials like parquet, timber flooring or laminates.

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

Installation
VMG Lignum Board shall always be installed with the long side perpendicular to the floor joists. End joints shall be staggered, and always supported by floor joists or sleepers.

Type Regular boards without tongue and groove edges must be supported at all four sides. T&G boards must be glued in all tongue and groove joints with a suitable adhesive, using one string in the groove and one on top of the tongue. Glue shall also be applied between the boards and the floor joists, using two strings of adhesive on each joist.

The boards shall be fixed to the joists with either floor panel screws or nails. The length of screws should be min. 50 mm, and the length of nails approx. 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 VMG Lignum Board shall otherwise be in conformity with the recommendations in SINTEF Building Research Design Guide no. 522.861 *Subfloor on timber joists.*

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 joist 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 boards shall be transported and stored under dry conditions. Boards must never be laid directly on the ground.

7. Factory production control

VMG Lignum Board are produced by VMG Lignum construction, UAB, Ryto street 4, LT-85271 Menciu village, Akmené district, Lithuania.

The holder of the approval is responsible for the factory production control in order to ensure that VMG Lignum Board are produced in accordance with the preconditions applying to this approval.

The production control (FPC) is subject to continuous surveillance in accordance with the contract regarding SINTEF Technical Approval.

8. Basis for the approval

The evaluation of VMG Lignum Board is based on reports owned by the holder of the approval.

9. Marking

VMG Lignum Board 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 20826 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