

Technical Leaflet

EGGER OSB tongue and groove Installation Guideline



Typical applications for EGGER OSB tongue and groove boards

Main application areas	Typical applications
New timber-frame constructions	Structural floors on joists, floating dry-screeds, roof decking
Refurbishment of old houses	Floating dry-screeds, roof decking
Loft conversions	Structural floors on joists, floating dry-screeds
Lightweight storey additions	Structural floors on joists, floating dry-screeds, roof decking

Product features

Description

EGGER OSB tongue and groove are structural panels, for use in dry (service class 1) and humid (service class 2) conditions, according to EN 300 – OSB:2006. They are designed to provide load-bearing, enhanced stiffness and perfect flatness in flooring and roof decking.

Design values are provided in the Declaration of performance on the EGGER websites - see www.egger.com

OSB tongue and groove panels are available in the technical classes OSB/3 with the brand EGGER OSB 3 E0, EGGER OSB 3 E1 and OSB/4 with the brand EGGER OSB 4 TOP.

EGGER OSB tongue and groove are available from warehouse programme milled on all 4 panel edges (T&G 4-sides) in 12, 15, 18, 22, 25, 30 mm thickness – 30 mm from plant Radauti on request.

Installation recommendation

Additionally to the following recommendations general rules for the installation of wood-based panels in floor and roof constructions are given CEN/TS 12872. Static design is regulated in accordance with EN 1995-1-1 (Eurocode 5)
 When laying wood-based panels in floor and roof constructions, a distinction must be made between floating installation and installation on wooden beams / joists.

Main benefits

EGGER OSB tongue and groove panels provide reliable load-bearing, excellent flatness, impressive accuracy and high speed on installation. Depending on the intended application, some product benefits appear more evident than others, but none is less valuable.

- **Dry and fast installation**
Wood-based panels enable fast installation without necessity of drying/curing times. Thanks to the edge profile integrated expansion gaps the installation is much faster OSB straight-edge, as the very time consuming manual panel spacing is eliminated .
- **Incorporated expansion gaps**
facilitate the free expansion of the panels with the ambient air moisture increase, preventing undesired bowing and allowing the panelled surface to stay flat.
- **Easy installation in difficult spots**
is guaranteed thanks to the unique shape of the tongue and groove profiles. (figure 2)
- **Reliable high density**
greater 600 kg/m³ and the precise edge milling of EGGER OSB tongue and groove boards guarantee a strong panel interlocking and an increased edge-breaking resistance during transport, handling and installation
- **Material and labour cost savings**
once connected, the long panel edges of EGGER OSB boards with tongue and groove get safely self-supported. As a result, the need of supporting these joints with extra noggins or H-clips as requested for OSB straight edges is eliminated.
- **Extra stiffness**
the strong interlocking, around all the four sides, of each individual OSB tongue and groove panel contribute to the increase of overall stiffness of the floor / roof element (the “rigid plate” effect).
- **Perfect flatness**
as direct consequence of the accurate jointing the tongue and groove it provides the prerequisite condition for a trouble free installation of any floor finish or roof cladding.
- **“This side down” stamp**
printed on the backside of each panel helps to avoid any mistakes during installation.

Edge design

The shape of tongue and groove profile of EGGER OSB boards is conical and asymmetrical, to facilitate installation in difficult spots (eg: floor-to-wall connection). The design of the profiles allows an expansion gap of 1 mm to be generated automatically inside the groove and another one on the rear side of panels jointing, when connecting the boards (figure 1). The panels jointing on the top side is smooth and barely visible.

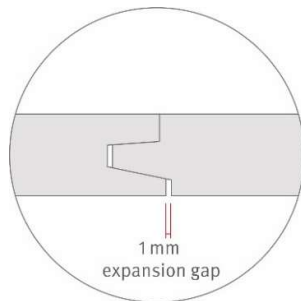


Figure 1: EGGER designed OSB tongue & groove

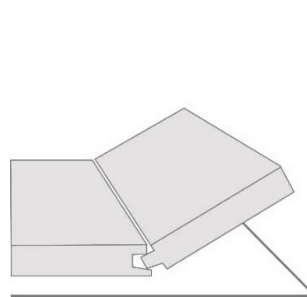


Figure 2: Easy laying

General recommendations

Edge distances and expansion joints

The installed wood-based panels must have a minimum distance of > 15 mm to the adjacent walls or other components. This distance allows the boards to work without tension and the floor construction to be ventilated.

The baseboards must be designed in such a way that ventilation of the floor is ensured.

Glued plastic baseboards are not suitable.

Supports in the room and the like shall be cut sufficiently free - recommended joint width 10 mm.

The expansion joints shall be filled by adjusted mineral wool strips or inserted compressing tapes.

For floor and roof dimensions greater 10 m, additional expansion joints of 10 - 15 mm must be provided at least every 10 meters.

The cc-spacing of the timber structure should be matched to the available panel formats in order to minimize cutting waste.

Table 2: recommended cc-span related to length of Tongue and Groove panel

Length of tongue and groove panel [mm]	Recommended cc-span [mm]
5000	1000 / 833 / 625
2800	933 / 700 / 466
2500	833 / 625 / 500
2440	815 / 610
2400	800 / 600

Fastening

For load-bearing panels and diaphragms the specifications of the structural design must be followed.

Straight wood screws (pre-drilled if necessary), drywall and chipboard screws, each with a full thread, are suitable.

When screwing without predrilling, the screwing should be done between the installer's feet in order to press the board against the substructure via the man load to avoid burr formation on the underside of the board, which later leads to creaking noises.

The screw heads are to be countersunk. If thin floor coverings (i.e. PVC, carpet, ...) are to be laid, they must be filled.

Caution. Grooved nails, nails and staples should not be used in floor structures as they do not have sufficient pull-out strength. Creaking noises may be the result.

As a general rule, the length of the fastener should be at least 2,5 times the board thickness, but no less than 50 mm.

Following fastener spacing is recommended where no further information is available.

	Maximum fastener spacing		Minimum fastener perimeter spacing	
	Centres at edges (on board's perimeter)	Centres at the intermediate supports	Distance from the edge of the board	Distance from the corner of the board
Staples	75 mm	150 mm	20 mm	25 mm
Nails and wood screws	150 mm	300 mm	9 mm	25 mm

Floors

Straight wood screws (pre-drilled if necessary), drywall screws and chipboard screws, each with a full thread, are suitable. When screwing without predrilling, the screwing should be done between the installer's feet in order to press the board against the substructure via the man load to avoid burr formation on the underside of the board, which later leads to creaking noises.

The screw heads are to be countersunk. If thin floor coverings are to be laid, they must be filled.

Caution. Grooved nails, nails and staples do not have sufficient pull-out strength. Creaking noises may be the result.

Roof

Best is to fasten EGGER OSB tongue and groove to rafters with pneumatically gun-shot nails or staples. However, if this tool is not available on the site, then wood screws or ring nails alternatively can be used.

General recommendations on timber quality

In order to achieve the perfect flatness and serviceability and to avoid troubles on installation of EGGER OSB tongue and groove panels it is recommended to use timber frame work (floor joists and roof rafters) of high quality.

The following recommendations apply:

- Use only stress-graded (minimum C24) and kiln-dried timber quality for beams and rafters. Moisture content $u \leq 20$ percent.
- All timber supports should be planned to enable an easy fitting of tongue and groove and to avoid movement in the floor decking causing so-called squeaking floors.



Figure 3: kiln-dry planned timber

Floor Installation

Structural floor decking on joists

EGGER OSB tongue and groove boards are commonly used to build the load-bearing layer in structural floor systems on joists.

The right panel thickness depends on maximum live load and joist spacing combination, and it results from static calculation.

For technical support, please consult Technical leaflet "Static Design Guideline for EGGER OSB and EGGER DHF", table 3A and 3B.

Installation rules for structural floor decking with EGGER OSB tongue and groove:

1. Make sure that the joist spacing fits exactly with the length of the board, so that both short sides of every panel will lay on a corresponding joist. For structural reasons, unsupported panel jointing on short sides (connection “in between” joists) is not permitted.
2. Most effective joist spacing is 625 and 833 mm related to panel size. cc-span must be validated by a static calculation.
3. Choose one room corner and create a 15 mm wide-gap from each side of the panel to the wall, by inserting 10-15 mm thick spacers approx. every 60 cm along the walls, at walls-to-floor level.
4. Bring the first EGGER OSB tongue and groove panel and lay it down with its length across the joists. Make sure that it is pointing on the walls with the tongue sides.
5. Push the board against the walls until it touches the spacers. Fasten the short panel edge from wall side into the floor joist, using wood screws or ring nails (see fastener recommendations)
6. Fill the groove short side of the first panel with a permanent elastic PU or PVAC glue, from strength grade D3 (strong) or D4 (very strong), to prevent unpleasant floor squeaking in service and to increase the overall floor stiffness (figure .
7. Lay the second panel and connect it with the previous board along the short edge. Make sure that the tongue is squeezed tightly into the groove of the first panel.
8. Continue same way until the final panel, at the opposite room side. Measure carefully the width of the missing last panel, and do not forget to include the open 15 mm expansion gap, before cut to size.
9. Fit the last cut-off panel in place and press it into the groove side of the last-but-one panel, by filling the adjacent wall gap with 15 mm thick spacers, approx. every 40 cm.
10. It is mandatory that adjacent rows of panels be staggered with minimum one joist clear span - “brickwork pattern”, see figure 5.
Caution! Cross-joints are not permitted.
11. If the length of the remaining cut-to-size panel covers at least two spans, then it can be used as first panel for the second row. If not, then cut a piece with equivalent length of two joist spacings(incl. the tongue side) from a new OSB board.
12. Before proceeding, fill the tongues and grooves to be jointed with the permanent elastic glue, and then press firmly the new panel against the other panel and against adjacent wall spacers, respectively.
13. Continue the installation until the room floor area is complete.
14. Keep the 15 mm thick wall spacers in place along the room perimeter for at least 24 hours, to allow the glue to cure completely.
Caution! Do not forget to remove the spacers as they provide sound bridges into the adjacent walls.
15. Complete installation by fastening all panels to the joists. For fastening pattern see “General recommendations”

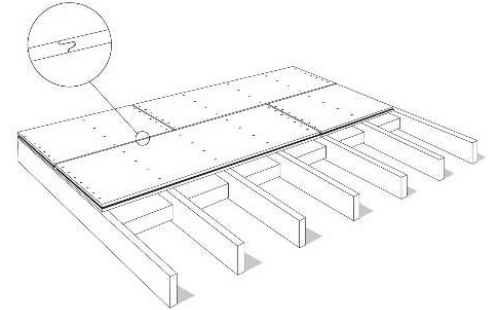


Figure 4

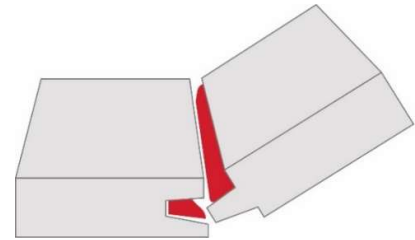


Figure 5

Floating Floor - dry screed with EGGER OSB tongue and groove

EGGER OSB tongue and groove is the best choice for refurbishment of obsolete wooden floors in old buildings, because the installation is fast and the achieved subfloor is strong, dry and truly flat. Floating floor systems with integrated sound insulation layer contribute to the improvement of the sound insulation.

Table 3: Recommended EGGER OSB tongue and groove panel thickness are as follows:

Type of floating dry screed	Board thickness (mm)	Application area
Single layer	1 x 15	Storage areas in attic spaces, without people traffic
	1 x 18	Living areas in residential and office buildings, with normal people traffic
	1 x 22 (25)	Public buildings (schools, kindergartens), shops, libraries, playgrounds
Double layer	2 x 12	Living areas in residential buildings, with low people traffic
	2 x 15	Living areas in residential and office buildings, with normal people traffic

Installation rules for Floating floor:

1. Always check the flatness condition of the subfloor before starting the installation of the floating dry screed. In case the subfloor is uneven, it requires prior (i.e. levelling with loose fill material perlite, bonded gravel, etc.).

The installation of a floating dry screed on top of an available impact sound insulation layer (i.e wood-fibre boards, mineral wool, XPS, etc.), commonly does not require levelling.

2. For preventing unpleasant floor squeaking noises in service, gluing in tongue and groove with a permanent elastic PU or PVAC glue from strength classes D3 (strong) or D4 (very strong) is recommended (figure 6).
3. In case of a double layer floating dry screed, first check and make sure that the base layer is clean and dry, and free of oil, dust and crumbly particles.
4. After the base layer is installed the top layer of panels must be laid-down cross-wise (figure 7). The two OSB layers must be joined together in a shear-resistant manner by gluing or screwing.
5. The elastic glue applied inside the panel joints must be left to cure for 24 hours, under constant pressure provided by the 15 mm thick wall-to-floor spacers, squeezed along the room perimeter at the end of the floating screed installation.
Caution! Do not forget to remove the spacers

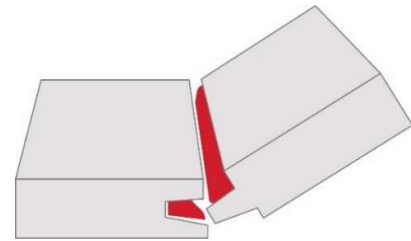


Figure 6

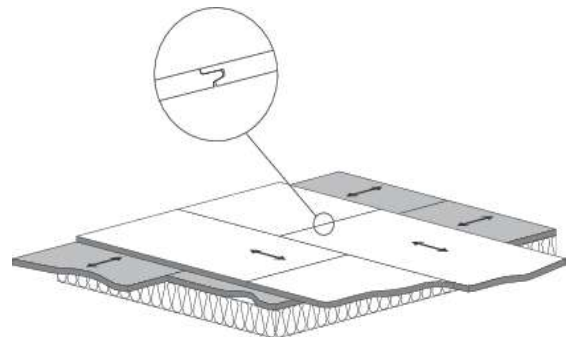


Figure 7

Roof Installation

EGGER OSB tongue and groove as roof decking

EGGER OSB tongue and groove boards can be used as roof decking. The right panel thickness depends on maximum load and rafters spacing combination. A static design calculation is required.

For support, please consult Table 4A and 4B from the “Static Design Guideline for EGGER OSB and EGGER DHF”.

Follow the advice for the correct installation of EGGER OSB tongue and groove:

1. Make sure that the rafters spacing fits exactly with the length of the board, so that both short sides of every panel will lay on a corresponding rafter. For structural reasons, unsupported panel jointing on short sides (connection “in between” rafters) is not permitted. Never install EGGER OSB tongue and groove with the major axis vertically (parallel to rafters).
2. Start with a full size panel A1 from the left or right eave level and fasten the long side perpendicular to rafters. Make sure that the tongue is pointing to the ridge (figure 8) and that the stamp “This side down” is facing the rafter.
3. Lay the next panel A2 and connect it with previously installed panel A1, by firmly plug-in the tongue and groove. Fasten A2 panel on rafters, once connected on the side.
4. Continue with next panels, until first row is complete.
5. Cut-off from last panel the part which is offsetting the roof framing and check its length. If the length is equal to at least two free rafter spans (i.e.: 1250 mm), then the cut-off piece of row A can be used as starting panel on the next row, in the opposite roof corner. If not, than it shall be considered as waste and should no longer be used (figure 9).
6. Start the next row (B) with the cut-off rest piece of row A, with the straight cut side flush with the first rafter and the opposite groove facing in the direction of installation. Fasten the OSB to the rafters (figure 10)
7. Continue installation, following all steps described above, until roof decking is complete.
8. If the rest piece of row A is too short to be used, than choose a full EGGER OSB tongue and groove panel and adjust its length so that tongue-and-groove joints of each newly installed panels are staggered by at least 300 mm from row to row (T-joints), as indicated below (figure11).

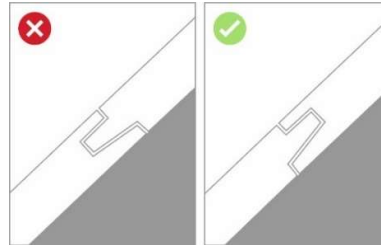


Figure 8

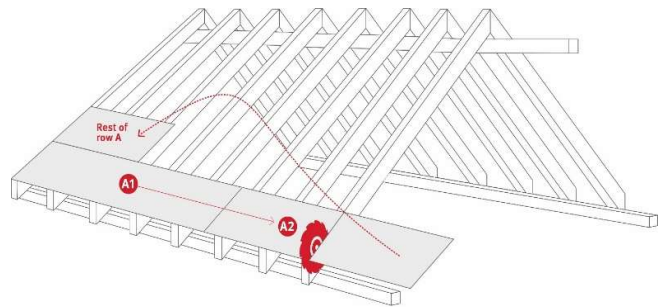


Figure 9

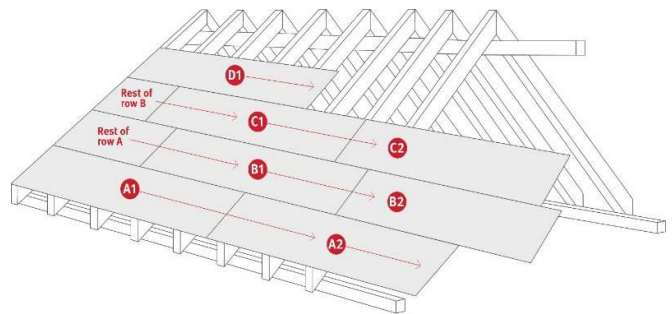


Figure 10

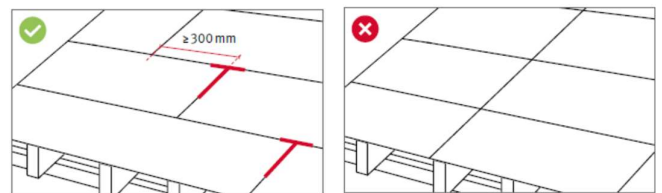


Figure 11

Attention!

When EGGER OSB tongue and groove is used as roof decking under ventilated metal coverage or roofing tiles the installation of a water-draining membrane is required.

Dry wall installation

Drywall installation recommendations can be found in the Technical Leaflet TLBP140 Ergo Board Processing Guideline.

Drywalls with EGGER Ergo Board are the first and comprehensively tested systems in accordance with the relevant standards for metal stud walls with mixed single- or multi-layer cladding made of wood-based panels (EGGER Ergo Board) and gypsum plasterboard. The required tests for fire protection and sound insulation, as well as for stability under mechanical and climatic stresses, were successfully carried out for the drywalls. The system thus offers all the necessary safety features in the familiar, high EGGER quality.

Drywall can also be very easily clad with EGGER OSB tongue and groove panels. However, without the 2 mm expansion joint that forms automatically, their installation requires special care during climate conditioning and installation, especially if high humidity prevails on the building site.

General note

Product misuse and/or failure to comply with any of the recommendations explicitly described in this guideline will exempt EGGER from any liability or claim related to quality of the installed roof system.

Characteristic design values of EGGER OSB tongue and groove are available in the corresponding Declaration of Performance on the EGGER product websites www.egger.com.

Additional documents

Further information is provided in the following Technical Leaflets:

- Declarations of Performance EGGER OSB,
- Storage Instructions for EGGER OSB and EGGER DHF,
- Transport and Handling Instructions for EGGER OSB and EGGER DHF,
- Packaging Guideline for EGGER OSB and EGGER DHF,
- Static Design Guideline for EGGER OSB and EGGER DHF
- Ergo Board Processing Guideline

Provisional note:

These installation instructions have been carefully drawn up to the best of our knowledge. The information provided is based on practical experience, in-house testing and reflects our current level of knowledge. It is intended for information only and does not constitute a guarantee in terms of product properties or its suitability for specific applications. We accept no liability for any mistakes, errors in standards, or printing errors. In addition, technical modifications may result from the continuous further development of EGGER OSB product range, as well as from changes to standards and public law documents. The contents of this guideline should therefore not be considered as instructions for use or as legally binding. Our General Terms and Conditions apply.