

Wood at its best



GERMANY

EN

OSB INSTALLATION MANUAL

Natural Stability





Did You Know?

At our production facility in Heiligengrabe, Germany, all production waste – such as sanding dust and leftover wood chips – is used to fuel a special power on-site power plant. The generated electricity is used on the premises or sold to the grid as “eco-power”.



SWISS KRONO OSB – High Tech Made from Natural Wood

Eco-friendly – Innovative – Conducive to Healthy Living

The SWISS KRONO GROUP is one of the world’s leading makers of wood-based materials. We produce environmentally friendly, innovative, healthy engineered wood products using mainly thinnings from sustainably managed forests. Our products are therefore certified under the Pan European Forest Certification (PEFC) scheme or by the Forest Stewardship Council (FSC®).

To advance environmentally friendly building with SWISS KRONO OSB, the team of SWISS KRONO GmbH based in Heiligengrabe has done pioneering work: SWISS KRONO OSB/F**** boards are even certified for packaging food.

Our latest innovations:

- Flame-resistant SWISS KRONO OSB flameproof Stop Fire
- SWISS KRONO anti-termite, which is completely impregnated with a long-acting insecticide to provide optimal protection against termite damage.

SWISS KRONO OSB – a Team Player with Multiple Functions

Protection from heat – Combining SWISS KRONO insulation with SWISS KRONO OSB is an optimal solution for roofs and walls.

Thermal insulation – During the winter months, roof and wall constructions made with SWISS KRONO insulation and SWISS KRONO OSB save precious heating energy. Airtight, water-vapour-impermeable SWISS KRONO OSB supplements the high insulating effect of SWISS KRONO wood-fibre insulation.

Fire protection – The flame-resistant SWISS KRONO OSB flameproof Stop Fire meets the new, stricter fire protection requirements.

Made in Germany



SWISS KRONO OSB – innovative wood-based materials

No Chemicals – Fast to Install

Stiffens and Strengthens

SWISS KRONO OSB/3, T + G excels in a vast range of applications with its stiffening properties and very high flexural strength. Despite its relatively low weight, it achieves bend strengths similar to those of plywood.

For Renovation, Refurbishment and New Eco-Friendly Houses

Thanks to its good technical properties and closed surface, SWISS KRONO OSB/3, T + G is excellently suited for renovating and refurbishing existing buildings and for constructing new, eco-friendly houses. The precisely fitting tongue-and-groove system permits fast, easy installation directly on binders and joists or on top of insulation for reducing footfall sound.

Sanded on Both Sides or Water-Repellent

SWISS KRONO OSB/3 T + G is also available sanded on both sides. It is CE-certified and produced in compliance with EN 300. The tongue-and-groove system on all four edges makes it optimally suited for seamless laying.

The unsanded version, SWISS KRONO OSB/3 T + G has a water- and moisture-repellent ContiFinish® surface for use in kitchens, bathrooms and laundry rooms.

Environmentally Friendly

SWISS KRONO OSB/3 and SWISS KRONO OSB/F**** have been used with outstanding results in countless flat roof constructions. In contrast to other wood-based materials used in flat roofs, no chemical treatments are required with SWISS KRONO OSB/3 or SWISS KRONO OSB/F****.

Fast Installation

Another advantage is how much faster SWISS KRONO OSB is to lay than solid-wood boarding.

Delivery Programme and Product Overview

	Format [mm]	Thickness [mm]						
		8	9	12	15	18	22	25
		Units/pallet						
SWISS KRONO OSB/3 EN300, square-edge	2500 x 1250	104	96	72	56	48	40	38
ContiFinish®	2440 x 1220	104	96	72	56	48		



Practical Tip

The suitability of the binders used to make SWISS KRONO OSB has been certified. From test report no. U 2435/2006 [Kr] of the Fraunhofer Institute for Wood Research (WKI) in Braunschweig, Germany: "In respect of the holding strength of the usual fasteners for metal roofing, slate etc., the tested OSB may therefore be regarded as equivalent to solid wood."

Bema, 69483 Wald-Michelbach, Germany

Applications

SWISS KRONO OSB is an engineered wood material that lends itself for a vast range of applications. It is most often used in timber construction and for interior finishing.

Used in combination with SWISS KRONO wood-fibre insulation, SWISS KRONO OSB is a very good and cost-effective solution for construction projects.



Roofs

SWISS KRONO OSB is ideal for load-bearing boarding in roofs. By acting as a vapour barrier, it enhances the energy-saving potential of SWISS KRONO wood-fibre insulation. When using water-vapour-permeable MDF SWISS KRONO DP50 boards for the under-roof, there is no need to additionally apply a permeable membrane or sealing layer to the substructure. Representing the state of the art in technology and complying with current standards, SWISS KRONO OSB may also be used in flat roof constructions. This lets you build large-area roofs much faster and more simply than with ordinary boarding.



Walls

In wall constructions in timber-frame and timber-panel buildings, SWISS KRONO OSB is excellent as a stiffening, water-vapour-imper-meable, airtight layer. Storey-high formats allow efficient use with a minimum of cutting and trimming. SWISS KRONO WP50, which is also available in a storey-high format, is ideal for use as water-vapour-permeable, stiffening external boarding.



Ceilings

Also for ceiling constructions, combinations of SWISS KRONO OSB and SWISS KRONO wood-fibre insulation optimally attenuate footfall sound and prevent heat loss.



MAX-HAUS, 16348 Marienwerder, Germany



Attachment

Which Attachment Types for Which Materials?

The kind of nail or screw that should be used to attach SWISS KRONO OSB boards depends on several factors. The most important ones are the material of the rafters and the thickness of the OSB boards.

The following table provides information on different beam/joist materials (hardwood, softwood, steel), the corresponding attachment methods (manual or powered) and types, OSB board thicknesses and minimum fastener dimensions.

Attachment Guide for Different Materials and Thicknesses:

Method	Beam/joist material	Fasteners	Thicknesses OSB/3, T + G	Minimum fastener size
Manual nails	Hardwood, coniferous wood	Ball or flat head nails	18 mm, 22 mm	50 mm x 2.8 mm
Manual nails	Hardwood, coniferous wood	Ball or flat head nails	25 mm	65 mm x 3.75 mm
Manual nails	Softwood	Ball or flat head nails	18 mm, 22 mm	65 mm x 2.8 mm
Manual nails	Softwood	Ball or flat head nails	25 mm	75 mm x 3.75 mm
Powered	Hardwood, coniferous wood	D-head, round head or finish nails	18 mm, 22 mm	50 mm x 2.5 mm
Powered	Hardwood, coniferous wood	D-head, round head or finish nails	25 mm	65 mm x 2.5 mm
Powered	Softwood	D-head, round head or finish nails	18 mm, 22 mm	65 mm x 2.5 mm
Powered	Softwood	D-head, round head or finish nails	25 mm	75 mm x 2.5 mm
Powered	Steel	Hardened twisted steel nails, conical point nails	18 mm, 22 mm	32 mm x 2.5 mm
Powered	Steel	Hardened twisted steel nails, conical point nails	25 mm	40 mm x 2.6 mm
Pneumatic nails	All wood types	T-head or finish nails	18 mm, 22 mm	50 mm x 2.5 mm
Pneumatic nails	All wood types	T-head or finish nails	25 mm	75 mm x 3.15 mm
Screws	All wood types	Type 17 countersunk, self-drilling wood screws	18 mm, 22 mm	10 g x 50 mm
Screws	All wood types	Type 17 countersunk, self-drilling wood screws	25 mm	14 g x 65 mm
Screws	Steel	Countersunk self-embedding head or self-drilling head screws, preferably with self-breaking cutter nibs	18 mm, 22 mm	9 g x 45 mm or 10 g x 45 mm





Counter Entropy House, RWTH Aachen, Germany
(Solar Decathlon 2012)



Holzbau Kühlborn GmbH, 34286 Spangenberg, Germany



Counter Entropy House, RWTH Aachen, Germany
(Solar Decathlon 2012)

Information on Use



Transport and Handling

- Take steps to prevent the boards, and especially the unprotected edges, from absorbing large amounts of moisture during transport and installation. Be careful not to damage the edges when lifting, moving and stacking boards (this applies especially to tongue-and-groove boards).
- Protect the corners and edges before lifting, moving or stacking (especially with T + G boards).
- Check against the labels or producer's documentation on-site to make sure that the following are correct: thickness, approved utilisation class, surface (sanded or unsanded) and edge type (square-edge or tongue-and-groove).
- During installation, boards may be briefly leaned against a solid structure at a 70° angle.
- Always carry individual boards in an upright (vertical) position.



Acclimatisation

- Precondition boards prior to installation.
- Store boards for about three days under the same climatic conditions as at the installation site.
- This adjustment to the ambient moisture at the installation site will prevent excessive shrinkage or swelling.



Storage

- Protect boards from exposure to significant moisture or very high relative humidity.
- Prevent direct contact of the boards with the floor.
- Only store outdoors temporarily, and if unavoidable cover stacks with watertight but water vapour-permeable tarpaulins.
- Always stack boards horizontally on pallets and wooden supports (spaced no more than 600 mm apart).
- Align wooden supports precisely with one another and parallel to the shorter side of the boards.
- Lay the boards so their edges line up (with a maximum overhang of 15 mm).



Sawing, Milling, Sanding and Drilling

- SWISS KRONO OSB can be sanded, sawn, milled and drilled just like solid wood and using all of the same tools.



Laying and Boarding

- For interior or exterior boarding applications, leave expansion gap at least 3 mm wide between boards.
- When laid closely with butt joints in interior walls, leave room for expansion where the boards adjoin other structures.



Nailing, Stapling, Screwing and Gluing

- SWISS KRONO OSB can be attached to wooden studs, I-Beams and rafters using screws, nails or staples.
- Use in accordance with the official approvals and standards
- Additionally bond or glue tongue-and-groove joints.



Coating and Painting

- SWISS KRONO OSB with a ContiFinish® surface may be coated with a solvent-containing PU (DD) or synthetic-resin varnish.
- Sanded surfaces may be coated like normal wood (e.g. with varnishes, paints, oils, waxes and glazes).
- It is advisable to apply at least three coats, sanding after the first one.
- Application of at least three coats is recommended.
- The only way to achieve an absolutely smooth surface is to apply filler.

Important Note on Coating and Painting!

When coating SWISS KRONO OSB with oil or hard wax oil, under some circumstances ingredients in the oil may interact with the natural wood resin in the SWISS KRONO OSB. This can result in an intense, persistent odour in the room. We therefore recommend that you contact the manufacturer of the oil or hard wax oil before using it.

Holzhäuser & Zimmerei Richardsen GmbH, 25842 Langenhorn, Germany





Counter Entropy House, RWTH Aachen, Germany (Solar Decathlon 2012)

Applications

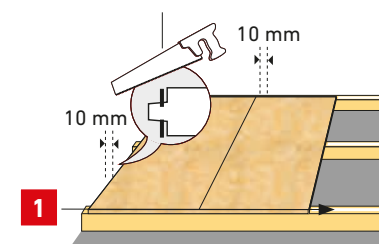
- Timber frame construction
- Industrial and commercial construction
- Shops and exhibit stands (decorative uses)
- Trade fair stands, formwork, prefabricated housing
- Loadbearing ceiling boards
- Floor structures
- Stiffening wall boards
- Roof decking (instead of raw timber)
- Stiffening roof surfaces
- Packaging



Laying Instructions for Floors and Ceilings

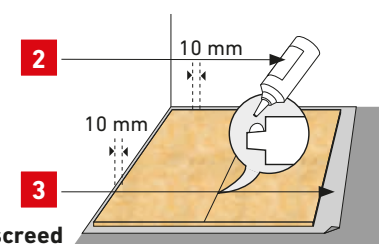
- When using boards outdoors, cover them immediately after installation to protect them from the weather.
- Leave expansion gaps where boards adjoin other structures.
- Surfaces longer or wider than 10 metres should have at least one expansion joint in the middle.
- When installing on beams or rafters, place the boards with their short sides down.
- Boards with straight edges should be laid on joists with a surrounding expansion gap of at least 3 mm.
- When installing boards with tongue-and-groove joints, leave an expansion gap at walls. With floating floors, the expansion gap should be 12 mm wide.
- Place boards with their long sides perpendicular to the joists. Joints must always be on joists.
- Long board edges that don't rest on a joist must be connected by tongue-and-groove joints or provided with an appropriate support or connecting element.
- For ground-floor hardwood flooring that rests directly on the ground or foundation, seal the underside of the floor construction against wind and moisture.
- Use wood screws, staples or nails to attach OSB/3 boards to the floor.
- Observe the applicable standards and regulations.
- Before laying the board on the joists take 5 mm adhesive bed on the joist. Use wood or PU glue.

Installation on beams

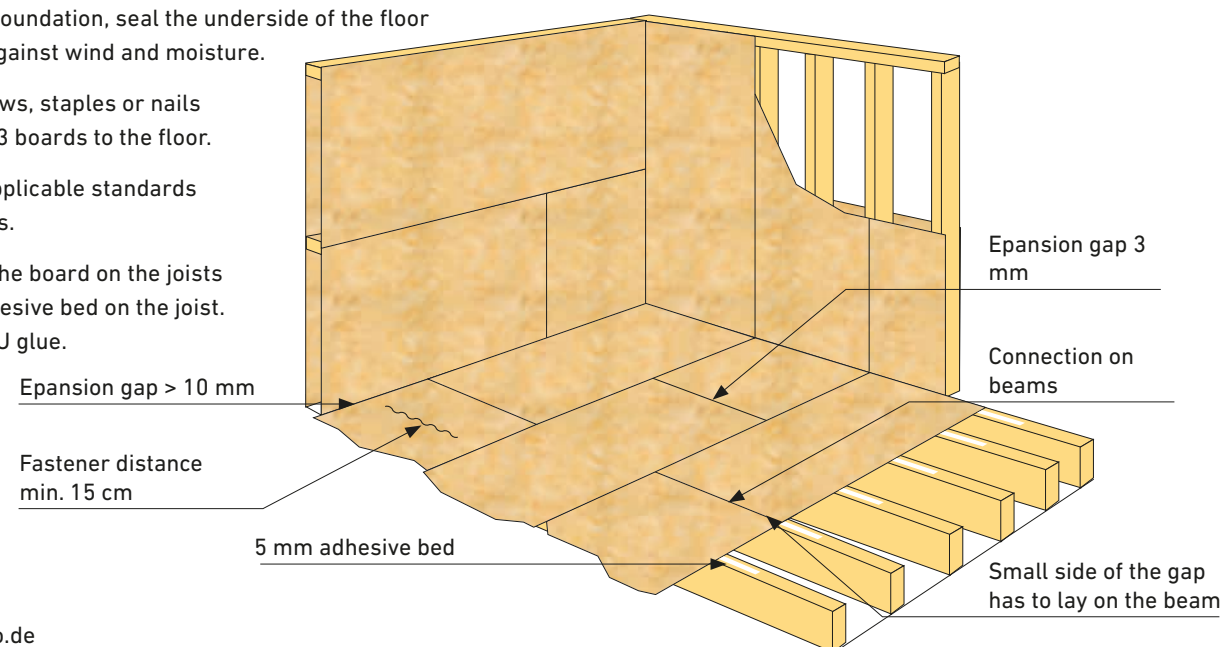
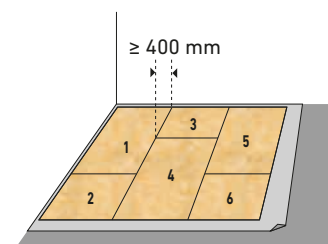


- 1 5 mm adhesive bed
- 2 wood or PU glue
- 3 vapour barrier

Installation on floor or screed



Installation scheme



Detailed Information on Floors and Ceilings

Laying Floor Coverings on SWISS KRONO OSB

For floating floors, eg with KRONOTEX laminate flooring, the surface of the OSB boards doesn't have to meet any special requirements, as there is no connection between the two.

When gluing the flooring to SWISS KRONO OSB, follow these instructions:

- We recommend using a permanently elastic adhesive that lets the substrate and flooring shift slightly relative to one another.
- Whenever possible, get a professional to glue hardwood flooring to SWISS KRONO OSB.
- Other floor coverings, such as linoleum, vinyl, PVC, carpet and cork flooring, are also suitable for gluing to SWISS KRONO OSB. The use of sanded SWISS KRONO OSB boards is recommended. Sanded boards have a smoother surface, which improves adhesion.
- Apply PUR adhesive or wood glue to tongue-and-groove joints in the SWISS KRONO OSB. This will prevent cracking around the joints.
- Leave a gap of about 10 mm between the boards and all walls.
- Wait at least three days after laying the SWISS KRONO OSB boards before applying the floor covering, so that the boards can acclimatise to conditions in the room.
- In large rooms, make sure to include expansion joints and gaps (see page 10).
- You can then glue the flooring in place.
- SWISS KRONO OSB is excellently suited for use as a substrate for hardwood flooring. Requirement: the surface must be sanded. Even better: use the SWISS KRONO OSB version that comes with a presanded surface.
- Especially for hardwood floors, the SWISS KRONO OSB should be thicker than the flooring in order to provide a stable base and prevent deformation. Hardwood swells and shrinks more than SWISS KRONO OSB. Also make sure to following the instructions of the hardwood floor supplier.





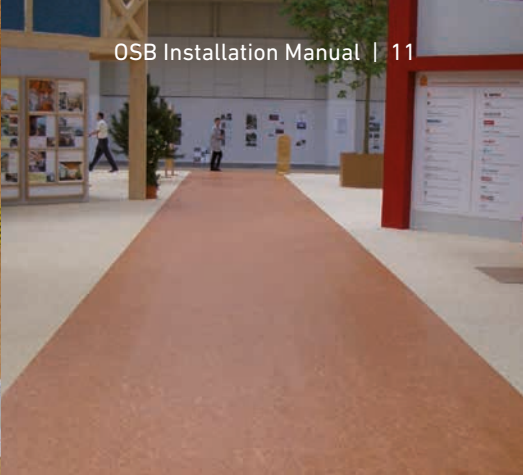
Noah Haus, Germany

Did You Know?

SWISS KRONO OSB/3, SWISS KRONO OSB/F**** and SWISS KRONO flameproof Stop Fire have been issued environmental product declarations (EPDs) under DIN EN ISO 14025 and EN 15084 by Germany’s Institute for Construction and Environment (IBU). An EPD evaluates a product’s entire lifecycle according to international standards to establish its suitability for sustainable construction.



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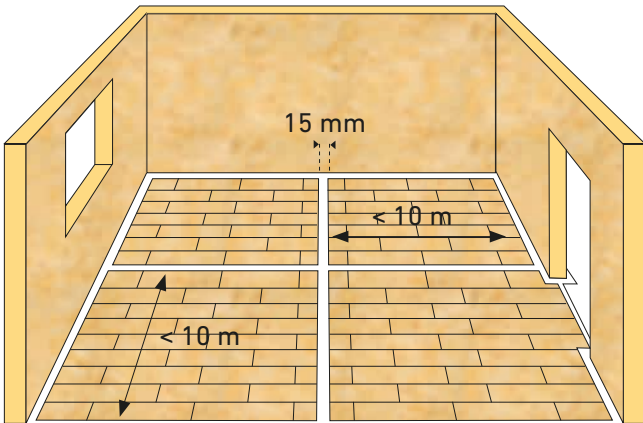


Detailed Information on Floors and Ceilings

Expansion Gaps and Joints for SWISS KRONO OSB

SWISS KRONO OSB is often used to make large floors. The product can remain visible or be covered by another material. But regardless of which part of the floor the boards are used for, it is essential to leave expansion gaps and joints. Otherwise moisture-induced deformation can cause buckling.

- Therefore always leave an expansion gap of at least 10 mm at all walls, projecting elements and those that rise out of the floor (pipes, conduits, thresholds, columns, room dividers etc.).
- In rooms more than 10 metres wide or long, provide an additional 15-mm-wide expansion joint in the middle.
- In rooms more than 20 metres long, provide two expansion joints.
- Cover expansion gaps at walls with base moulding.
- Cover joints in the middle with special expansion units.
- When attaching strips or covers, do not screw them to the SWISS KRONO OSB boards, as this would defeat the purpose of a floating floor.



Minimum Thickness of SWISS KRONO OSB/3

	attic floor 100 kg/m ²	residential used floor + flooring 220 kg/m ²	residential used floor + dry screed 335 kg/m ²	residential used floor + screed 415 kg/m ²
Single span distance [mm]				
450	15 mm	18 mm	18 mm	22 mm
600	18 mm	22 mm	22 mm	25 mm
750	22 mm	25 mm	25 mm	30 mm
Multiple span distance [mm]				
450	15 mm	15 mm	15 mm	18 mm
600	15 mm	18 mm	22 mm	22 mm
750	18 mm	22 mm	25 mm	25 mm

18 mm and 22 mm SWISS KRONO OSB/3 may be used as subfloor on floor joists spaced maximum c/c 600 mm, provided that the imposed load is 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. SWISS KRONO 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 SWISS KRONO OSB/3, including fastening by nails or screws.

Decorative use

Coating of SWISS KRONO OSB – Floors etc

Because of their decorative surfaces, SWISS KRONO OSB boards are often used exposed, for example as ready-made flooring, for furniture or shelves, or as ceiling or wall panelling.

In these cases, it is a good idea to protect the boards against soiling and wearing and/or to stain or paint them as appropriate.

The approach taken differs depending on whether sanded SWISS KRONO OSB or unsanded SWISS KRONO OSB with ContiFinish® surface is used. For directly coating unsanded boards, only solvent-containing PU (DD) or synthetic resin paints should be used. For other coating systems, it is advisable to use sanded boards instead.

Any type of coating suitable for solid wood can be applied to sanded surfaces. This includes paints, varnishes, oils, waxes and glazes. Like with solid wood, the wood fibres stand up after applying the first coat, which initially causes the surface to become rough.

When using a water-based coating system, the strands on the surface can swell slightly. It can therefore be necessary to sand it and then apply another coat.

Dealing with “Nests” and Blue Stain

OSB boards are characterised by so-called “nests”. These are small flaws caused by overlapping strands that cannot be removed by sanding. The only way to obtain an absolutely smooth surface is by applying and trowelling a filler, which can be a mixture of clay and sanding dust from the board or a special product for this purpose.

SWISS KRONO OSB is a natural product. The colour of the boards can therefore vary depending on the time of year and the source of the wood.

As a result of bad weather or inappropriate storage, pine wood can very quickly become discoloured by blue stain. However, this does not affect its technical properties. For large surfaces, it is advisable to mix up the boards to create an irregular pattern.

Coating of SWISS KRONO OSB – Floor Coverings

Please go to “Laying Floor Coverings on SWISS KRONO OSB” on page 9 of this brochure.





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Did You Know?

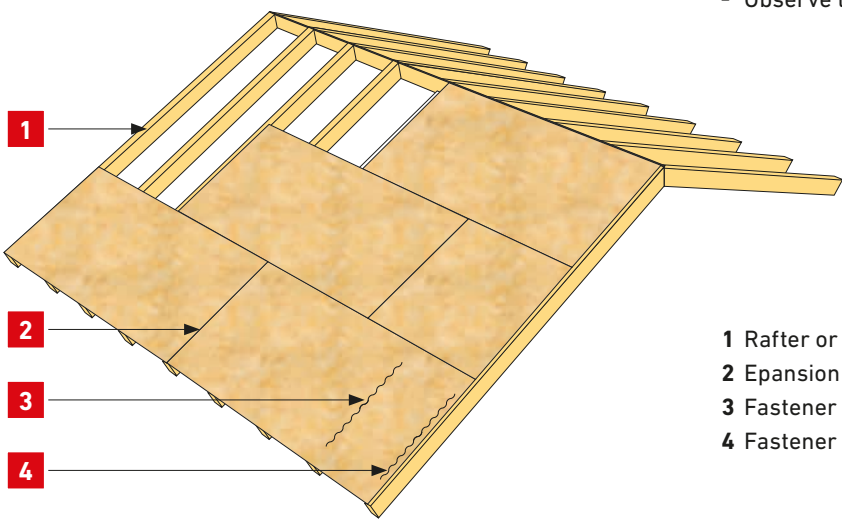
An example calculation illustrates the realistically achievable savings and environmental benefits. Interior roof insulation with SWISS KRONO wood-fibre insulation and SWISS KRONO OSB: the annual saving can easily amount to about 180 kWh per square metre. That is equivalent to 13 litres of heating oil, 18 cu.m of natural gas or 40 kg of wood.



Laying Instructions for Roofs

The same requirements apply as to installing floors and ceilings (see pages 10 and 11). The following should also be observed.

- When using boards outdoors, cover them immediately after installation to protect them from the weather.
- Leave expansion gaps where boards adjoin other structures.
- Surfaces longer or wider than 10 metres should have at least one expansion joint in the middle.
- When installing on beams or rafters, place the boards with their short sides down.
- Before installing the roof covering, check to make sure that the rafters or roof frame elements are straight and parallel.
- Boards that become wet from rain must be immediately dried and protected before installing metal sheeting, roofing felt, tiles or shingles.
- Unheated spaces below the floor and under the roof should be well-ventilated. Ventilation openings should have an area of at least 1/150 of the base area of a ventilated space.
- Lay roof boards with their long sides perpendicular to the rafters or roof frame elements. Short board edges must always rest on roof supports.
- Leave an expansion gap of at least 3 mm between straight-edge boards so they have room to shift.
- Lay each board on at least two supports, with all joints resting on a support.
- While attaching the boards, workers should stand on a rafter or roof frame element and comply with all safety and accident prevention regulations.
- If there are chimney openings in the roof structure, leave the amount of space between them and roof boards that is stipulated by building regulations.
- Attach OSB/3 boards using wood screws or screw- or ring-shank nails with a length equal to or greater than 2.5 times the thickness of the boards.
- Observe the applicable standards and regulations.



- 1 Rafter or I-Beam
- 2 Expansion gap 3 mm
- 3 Fastener distance min. 30 cm
- 4 Fastener distance on the edges min. 10 cm



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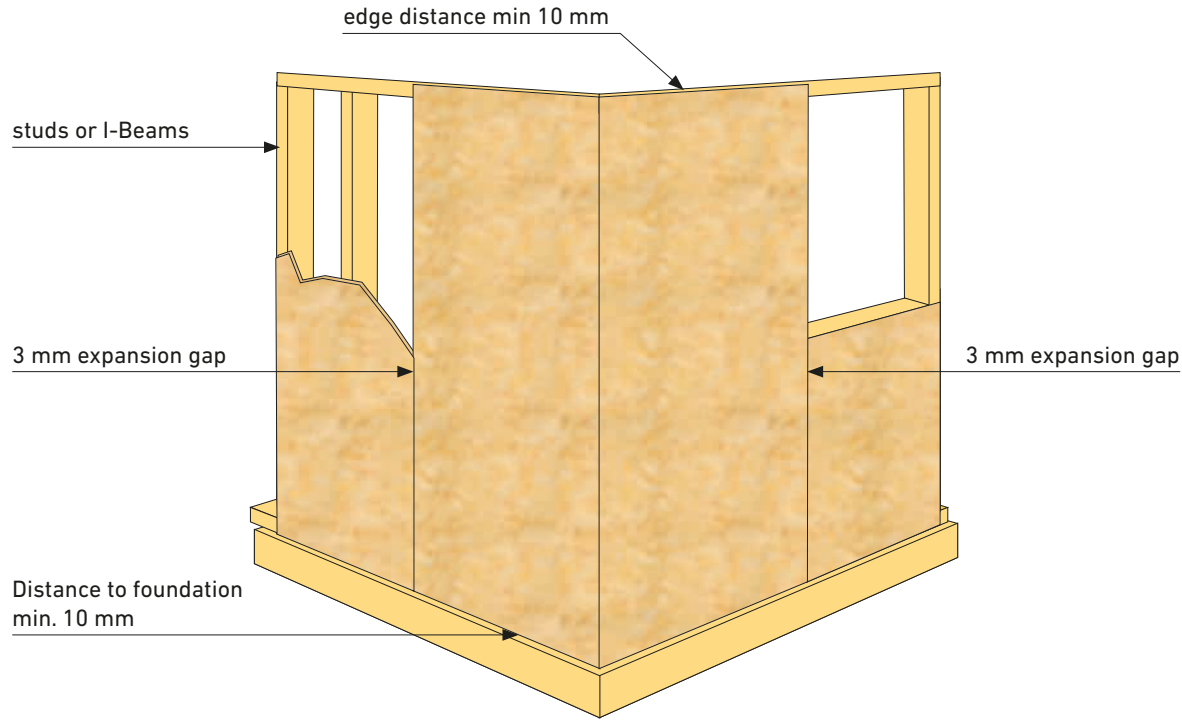
Applications

Multifunctional SWISS KRONO OSB delivers persuasive results when used to make packaging, concrete formwork or construction site fences. Its other major uses include timber construction and interior finishing. Combined with SWISS KRONO wood-fibre insulation, SWISS KRONO OSB is the ideal solution for cost-effective constructions that must comply with energy-efficiency or passive-house standards or regulations.



Laying Instructions for Walls

- When using boards outdoors, cover them immediately after installation to protect them from the weather.
- Leave expansion gaps where boards adjoin other structures.
- Surfaces longer or wider than 10 metres should have at least one expansion joint in the middle.
- When installing on beams or rafters, place the boards with their short sides down.
- OSB/3 boards can be installed with their long sides horizontal or vertical.
- Leave expansion gaps at least 3 mm wide between boards and around door and window openings.
- The recommended board thickness for frame-type house walls is 12 mm for post spacings of 400 and 610 mm.
- Attach OSB/3 boards using wood screws or screw- or ring-shank nails with a length equal to or greater than 2.5 times the thickness of the boards.
- Observe the applicable standards and regulations.





Did you know?

Unlike particleboard, the strands in SWISS KRONO OSB are oriented. The resulting greater stability and reduced density lets thinner SWISS KRONO OSB boards be used for the same purposes. Their lower weight also facilitates use while reducing loads.



Systems

Ceilings: Optimising Energy Efficiency

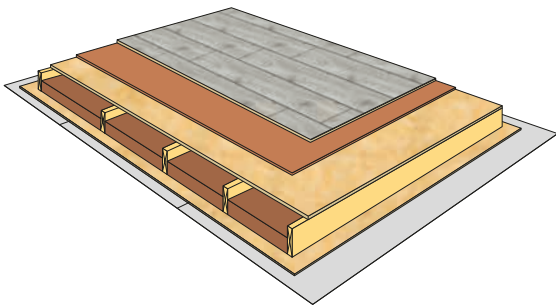
SWISS KRONO's highly specialised insulation systems enable professional solutions for a wide range of ceiling types, constructions and systems.

SWISS KRONO ceiling system

Components from the top down

- KRONOTEX laminate flooring
- 5 mm SWISS KRONO silverline / SWISS KRONO sound or SWISS KRONO sound plus
- 22 mm SWISS KRONO OSB/3 or SWISS KRONO OSB/F****
- 200 mm of rafters
- Between them, 160 mm of SWISS KRONO flex
- 18 mm of SWISS KRONO OSB/3 or SWISS KRONO OSB/F****
- 9.5 mm of plasterboard

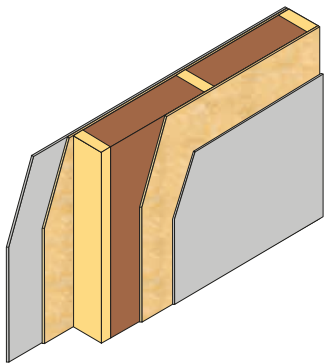
SWISS KRONO ceiling systems are especially suitable for improving the acoustic and thermal insulation of solid ceilings.



SWISS KRONO interior wall system for F30-compliant fire protection

Components from the inside out

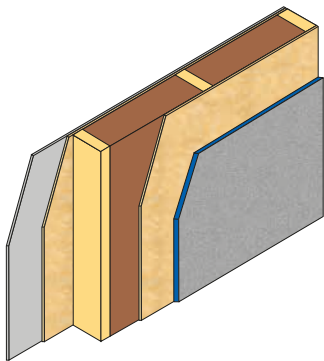
- 12.5 mm of plasterboard
- 15 mm of SWISS KRONO OSB/3 or SWISS KRONO OSB/F****
- 80 mm of studs / SWISS KRONO flex
- 15 mm of SWISS KRONO OSB/3 or SWISS KRONO OSB/F****
- 12.5 mm of plasterboard



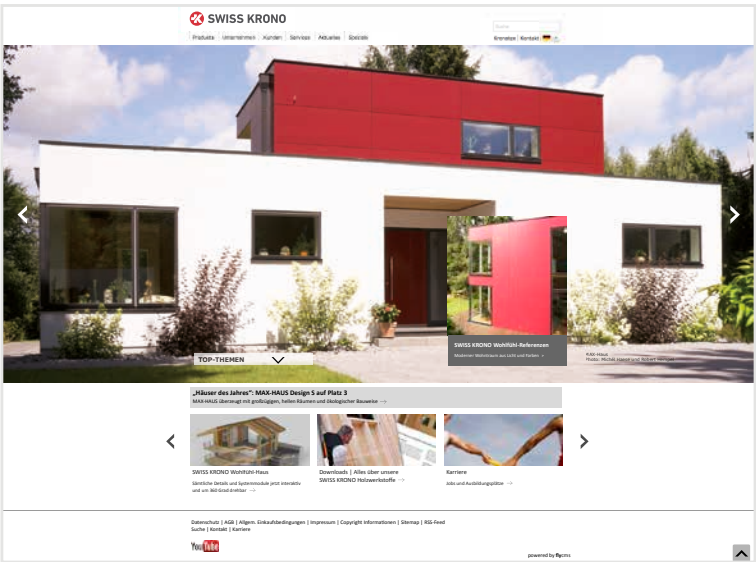
SWISS KRONO exterior wall system with F30 fire protection rating:

Components from the inside out

- Plasterboard
- SWISS KRONO OSB (using studs at least 120 mm long)
- 60 mm of solid construction timber
- 60 mm of flexible insulation, eg SWISS KRONO flex
- SWISS KRONO OSB
- External thermal insulation composite system (ETICS)



More Service from Us, Greater Success for You



SWISS KRONO on the Internet

Our completely redesigned and reorganised SWISS KRONO website now features even more service and a stronger customer orientation.

It's easy, straightforward and quick to access product information, news, services, specials and downloads. You can take advantage of the following content 24/7:

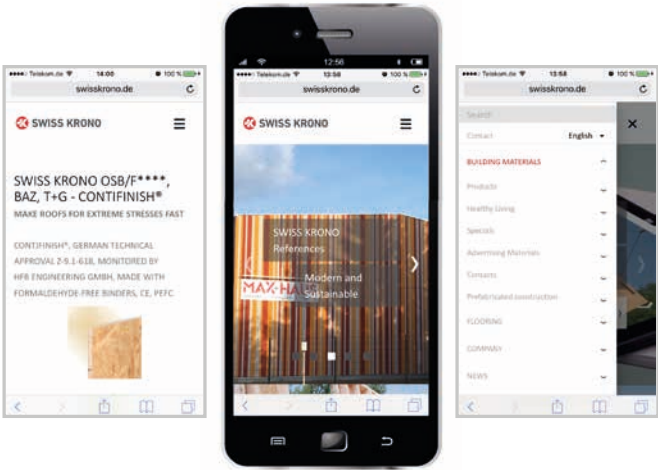
- Information materials
- Data sheets
- Certificates
- Construction details
- Condensation calculator
- Trade fairs and other events
- Environment and sustainability
- Prefabricated Construction
- References
- Delivery programme
- Bidding documents
- Example applications
- Thermal resistance calculator
- Contacts
- And much, much more!

SWISS KRONO Goes Mobile

The new mobile website **m.swisskrono.de** makes it easy for you to access and view all information about SWISS KRONO and its innovative products on your smartphone!

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Kenny the Koala

