



AKARA

Akara Industries este importator direct de materiale pentru mobilier, placari interioare, PAL si MDF ignifugat cat si OSB de mari dimensiuni.

Pentru detalii nu ezitati sa ne contactati la 0720 530 44 66.

In continuare va invitam sa consultati brosură PDF in paginile de mai jos.

Wood at its best



GERMANY



EN

SWISS KRONO

LONGBOARD OSB and MAGNUMBOARD® OSB





CONTENTS

Page

03		Building with Wood
04		SWISS KRONO – Wood at its best
05		Uses for SWISS KRONO MAGNUMBOARD® OSB and LONGBOARD OSB
06		MAGNUMBOARD® OSB: the Solid Timber Construction System
07		MAGNUMBOARD® OSB Finishing – Without Plasterboard
12		Tested Constructions
14		Construction Details
17		Acoustic Insulation Matrix
18		Dimensional Tables for Wall Elements
19		for Ceiling Elements
21		for Roof Elements
22		Modern Timber Construction: Precise and Solid Administrative Building and Rehab Clinic for DRV
23		Office Building in Fulda
24		Summer Toboggan Run in Pottenstein
25		Holiday Residence on Sylt
26		SWISS KRONO LONGBOARD OSB Structural Stay-in-Place Formwork for Timber-Concrete Composite Ceilings
27		Contact SWISS KRONO MAGNUMBOARD® OSB Specialists



Benefits at a Glance

- Wood is the only renewable building material
- Excellent carbon footprint
- Everything can be made with it, from supporting structures to exteriors
- Excellent physical characteristics: stable, compression-proof, lightweight, durable, elastic, airtight
- Moisture-regulating properties for an agreeable indoor climate



Building with Wood

Wood is truly amazing – and not only because it's the only renewable building material available on our planet. Also because both natural wood and engineered wood products possess many advantageous physical properties. In fact, wood is on a par or even superior to many high-tech materials. Which is why it's now being used to build a growing share of new homes in Germany and many other countries. More and more often, planners, architects, tradespeople and self-builders are turning to wood and materials derived from it.

Conserving Resources

In Germany alone, every five seconds enough new wood grows to build an entire single-family detached home. And as long as steps are taken to prevent more wood from being used than can grow back, a natural equilibrium between harvesting of trees and regrowth can be maintained. To support this, SWISS KRONO advocates sequential reuse of wood throughout its lifetime.

Far less fossil fuel is consumed to produce engineered wood than is needed to make steel, concrete or plastics. SWISS KRONO in Germany has implemented an EN ISO 50001-compliant energy management system that saves energy in multiple ways. This has enabled the firm to significantly reduce its consumption of natural gas as well as the associated carbon dioxide emissions.

Healthy Living

Within minutes of entering a house made of wood, most people experience a pleasant, comfortable feeling. Wood is sensual to the touch, has a calming effect and is free of noxious chemical emissions. More than virtually any other material, wood and engineered wood products induce an agreeable sensation, above all because they stabilise the indoor climate. Wood naturally regulates humidity by absorbing excess moisture air and releasing it again when the ambient air is drier. SWISS KRONO OSB products are produced using only formaldehyde-free binders, and as a result the boards are characterised by ultra-low emissions. Their formaldehyde levels are comparable with those of natural wood, thus putting them far below the even stricter ceilings that various associations are calling for. People who live surrounded by wood also develop a slower heartbeat. Over the long term, this alleviates stress, increases their life expectancy and improves their ability to concentrate.





The Benefits at a Glance:

- Jointless elements
- Simplified production and prefabrication
- Faster completion of construction projects using large-format elements
- Cost savings due to fast assembly
- Flexibly designed, long-lived buildings
- Leaner walls

Photograph: www.rosengruen.de

MMD, D-36163 Poppenhausen

SWISS KRONO – Wood at its best

Wood is a fascinating material! We use it at SWISS KRONO to produce forward-looking engineered wood products. Our hard work is devoted to enabling eco-friendly construction of feel-good dwellings in which people can lead healthier lives while conserving natural resources.

SWISS KRONO **LONGBOARD** OSB

“Longer is better!” is the motto of our up to 18-metre-long SWISS KRONO **LONGBOARD** OSB. This isn't actually a product in its own right, but merely longer versions of the various other kinds of OSB boards available, from SWISS KRONO OSB/3 across SWISS KRONO OSB/4 to SWISS KRONO OSB/F****, with sanded or Contifinish® surfaces and a thickness between 15 and 40mm. Every SWISS KRONO OSB board between 6.51 and 18 metres long is automatically defined as **LONGBOARD** OSB.

ERNE AG Holzbau



Timber Frame Construction with SWISS KRONO **LONGBOARD** OSB

SWISS KRONO **LONGBOARD** OSB additionally speeds timber frame construction, which is already quite fast in any case. These large formats make it possible to create large modules with a single board running their entire length. When SWISS KRONO **LONGBOARD** OSB is installed on the inside of building envelopes, it also serves as a windtight layer and vapour barrier. This simplifies work and makes for faster progress. Even with relatively thin walls, timber frame construction ensures quite effective insulation – good enough, in fact, to comply with passive house and even energy-plus house standards. Owners, architects and planners have virtually unlimited latitude for designing building layouts to meet individual wishes and expectations in the vast majority of cases.

Modular Timber Frame Construction

Besides panelised walls and ceilings, even modules for entire rooms can be prefabricated. SWISS KRONO **LONGBOARD** OSB lends itself for making large modules with a length of 6.51 metres or more with a single board. The dimensions of the prefabricated modules can be easily adjusted to meet the wishes and needs of the owner or user and create bespoke buildings. The modules can then be easily assembled on site to complete the project faster while inflicting less noise and other annoyances on neighbours.

Timber-Concrete Composite (TCC) Ceilings

SWISS KRONO **LONGBOARD** OSB is integrated into timber-concrete composite decks as jointless structural stay-in-place formwork. The large formats accelerate and simplify the work

www.swisskrono.de/Prefabricated-construction



Photograph: www.rosengruen.de

Uses & Applications

- Single-family and multi-dwelling housing
- Special-purpose facilities
- Industrial and commercial construction
- Vertical extension
- Urban infill
- Renovation for greater energy efficiency
- Modularised construction



Photograph: www.rosengruen.de

Uses of SWISS KRONO **MAGNUMBOARD®** OSB and **LONGBOARD** OSB

MAGNUMBOARD® OSB elements and SWISS KRONO **LONGBOARD** OSB elements can be used for fast, dry construction in a virtually unlimited range of applications.

Temporary Accommodation

Modular construction is a fast, eco-friendly and cost-efficient way to build temporary accommodations, whether they will be used for months or years. The sections are easy to disassemble, remove from the site and use elsewhere. They feature much better thermal and acoustic insulation than conventional metal or plastic container-based solutions. Prefabricated timber modules are increasingly being used to build student halls of residence, refugee shelters, school buildings, day-care centres, office complexes and hospitals, to cite just a few examples.

ERNE AG Holzbau | Photograph: www.rosengruen.de



New Residential Buildings

New buildings are very quick to erect with timber modules, due to the high level of prefabrication. What's more, there is no wait for mortar etc. to dry and follow-on trades can get to work straight away. Even quite complex layouts, dormers and bay windows can be implemented with relatively little effort.

Vertical Extension and Refurbishment

The large size of wall and ceiling sections permits constructions that transfer loads over a large area, making prefabricated timber construction ideal for adding storeys and renovating existing buildings to improve their energy efficiency. This approach also avoids damaging the standing structure, being a dry construction technique.

Industrial and Commercial Buildings

From nurseries across office buildings to factory halls, modular sections made with SWISS KRONO OSB products have proved their worth in countless projects. Clients value the fast assembly and on-time completion that are typical of this approach. Those who then use the structures also benefit from a very pleasant indoor climate year round.

Urbanes Construction

A growing scarcity of living space and crowded conditions in cities and metropolitan areas: both of these challenges can be readily met by using modular timber construction techniques for urban infill projects. They minimise the need for large construction sites with room to store materials, as the sections are prefabricated off-site and delivered ready-to-assemble. The rapid pace also reduces noise, road blockages and other annoyances for neighbours.

www.swisskrono.de/Prefabricated-construction

**Left:**

Example of prefabricated electrical conduits

Right:

Finished installations in a **MAGNUMBOARD® OSB** wall

Opposite page:

A plastered-over **MAGNUMBOARD® OSB** surface



Photograph: www.rosengruen.de

Henri VERMOT et Fils Sàrl

MAGNUMBOARD® OSB: the Massive Timber Construction System

Eco-friendly massive timber construction for healthy building and living: that sums up the **MAGNUMBOARD® OSB** system. Wood, a natural raw material, meets innovative technology to merge the advantages of single-skin massive construction with those of conventional building methods while avoiding weaknesses such as joints, transitions between disparate materials, entrapped moisture and long construction times.

It's easy to flexibly prefabricate large-format, highly dimensionally stable walls, ceilings and roof sections measuring up to 18 by 2.8 metres. The end result is reliably windtight building constructions with a minimum of joints. Thanks to extensive prefabrication, the **MAGNUMBOARD® OSB** system even makes it a simple matter to implement sophisticated modern architectures in a jiffy. It excels both as a complete construction solution and in combination with other approaches.

Storey-high formats allow buildings to be erected with a single **MAGNUMBOARD® OSB** section extending across their entire length.

Photograph: www.rosengruen.de

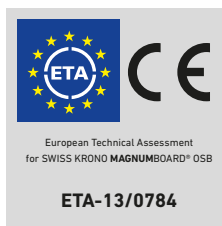


The system delivers all of the benefits of massive wall, ceiling and roofs with enormous potential for streamlining construction and optimising costs. It can even be used for taller and subterranean buildings with larger units (building classes 4 and 5 in Germany).

A further advantage is that SWISS KRONO **MAGNUMBOARD® OSB** elements can be directly finished, for example with any of various types of plaster (e.g. from Sto) or paint (e.g. from Caparol).

A Sturdy Basis: SWISS KRONO OSB/4

MAGNUMBOARD® OSB elements are fashioned from SWISS KRONO OSB/4 boards measuring up to 18 by 2.8 metres with a thickness of 25mm. Approved by the building authorities, these boast considerably better technical properties than ordinary EN 300-compliant OSB/4 boards. This makes SWISS KRONO OSB/4 ideal for the **MAGNUMBOARD® OSB** construction system. Licensees glue together between three and ten plies of OSB/4 boards and then shape them into bespoke wall, ceiling or roof sections. **MAGNUMBOARD® OSB** elements excel with jointless sanded OSB surfaces, high density, fast and easy assembly, and a minimal tendency to shrink or swell.



materialPREIS 2018
Die Auszeichnung für besondere Materialien

SWISS KRONO **MAGNUMBOARD® OSB** received an acknowledgment in the "Ecology" category at the 2018 German materialPREIS awards. This predicate is handed out to noteworthy new materials and development projects of manufacturers, architects and planners.



Henri VERMOT et Fils Sàrl

MAGNUMBOARD® OSB Finishing – Without Plasterboard

Plastering, papering, tiling or painting: with SWISS KRONO **MAGNUMBOARD® OSB** there's no need to apply additional boards before finishing the surfaces inside buildings. This saves not only work, but also time and money. And you can give free rein to your creativity in respect of colours and surfaces.

Direct Interior Finishing of SWISS KRONO **MAGNUMBOARD® OSB**

Whereas in other solid timber systems and conventional timber frame construction it's necessary to cover with plasterboard or the like and then also skim it with filler or jointing compound before painting, tiling, papering or plastering, SWISS KRONO **MAGNUMBOARD® OSB** lets you eliminate this extra step. The reason is the sanded surface of the OSB board, which can be directly finished (while following the instructions of the product's manufacturer).

The use of storey-high formats also avoids joints within walls. Joints are inevitable when installing smaller engineered wood panels or glulam, and cracking can occur at them unless they are first covered by plasterboard. The use of SWISS KRONO **MAGNUMBOARD® OSB** speeds work and slashes costs, because the intermediate step of attaching plasterboard can be dispensed with.

Benefits at a Glance:

- No need to cover with plasterboard beforehand
- Saves money, work and time
- Flexible use of decorative plaster, paint, wallpaper and tile

BALAZS Komforthaus GmbH



**Left:**

Directly finished **MAGNUMBOARD® OSB** walls and ceilings

Right:

Applying the KNAUF Rotkalk plaster system to **MAGNUMBOARD® OSB**

BALAZS Komforthaus GmbH

MAGNUMBOARD® OSB Finishing – Without Plasterboard

Here's a comparison of the work required to plaster an interior and an exterior wall:

SWISS KRONO

MAGNUMBOARD® OSB

Glulam

Work for an Interior Wall (finished on both sides)

- | | |
|--|--|
| ▪ 2x apply pretreatment and insulating primer | ▪ 2x cut to size and attach plasterboard |
| ▪ 2x apply plaster | ▪ 2x skim with filler and sand the joints and plasterboard fasteners |
| ▪ 2x apply paint (if required, tinted plaster may be used instead) | ▪ 2x apply primer |
| | ▪ 2x apply plaster |
| | ▪ 2x apply paint (if required, tinted plaster may be used instead) |

Work for an Exterior Wall (finished on the inside only)

- | | |
|--|--|
| ▪ 1x apply pre-treatment and insulating primer | ▪ 1x cut to size and attach plasterboard |
| ▪ Extra work for window jambs | ▪ 1x skim with filler and sand the joints and plasterboard fasteners |
| | ▪ Extra work for corner rails and window jambs |
| | ▪ 1x apply pre-treatment and insulating primer |

The step-by-step list of required work makes it clear that using SWISS KRONO **MAGNUMBOARD® OSB** saves a lot of time and work compared to glulam. Adding in the required materials, the bottom line for plastered glulam is much worse than for plastered SWISS KRONO **MAGNUMBOARD® OSB**.



MMD, D-36163 Poppenhausen



BEMA, D-69483 Wald-Michelbach

MAGNUMBOARD® OSB Finishing – Without Plastering

The following interior finishing products harmonise excellently with SWISS KRONO **MAGNUMBOARD® OSB**, in the sense that they are also very eco-friendly and enhance its contribution to creating a healthy indoor climate.

KNAUF **ROTKALK**

Healthy Living with Rotkalk

Rotkalk is an all-natural lime-based plaster system whose harmonised components allow walls to breathe. It is suitable for both interior and exterior use.

What is this system good for?

Lime-based Rotkalk plasters

- regulate humidity for an optimal indoor climate,
- absorb considerable amounts of moisture and release them again when needed,
- have a high pH value (>12, which naturally prevents mould and mildew and colonisation by microorganism),
- actively reduce harmful contaminants such as formaldehyde, hydrocarbons, nitrogen and volatile organic compounds (VOCs) in indoor air and
- have been shown to absorb unpleasant odours like those from cooking.

Scan the QR code below to see the standard-compliant test certificate for the air inside the Überwald Pavillon in Wald-Michelbach, Germany, which was built with SWISS KRONO **MAGNUMBOARD® OSB** and the KNAUF Rotkalk plaster system.



www.swisskrono.de/Prefabricated-construction/finishing

Rotkalk Filz 1

Finishing plaster with fine marble grains for interior use

Properties

- Improves the indoor climate
- Suitable for interior use
- Can be applied by hand or using a machine
- Available in white (approx. RAL 9016) and the hues of the KNAUF ColorConcept colour chart

Knauf ColorConcept

- Finishing plaster CR / strength class CS I acc. to DIN 998-1
- Mortar group PII acc. to DIN V 18550



Henri VERMOT et Fils Sàrl



Henri VERMOT et Fils Sàrl

Left (1):

Wall elements directly finished with Sto

Left (2):

SWISS KRONO **MAGNUMBOARD®** OSB directly finished with Sto and visible roof truss

Right:

SWISS KRONO **MAGNUMBOARD®** OSB directly finished with exposed concrete look

MAGNUMBOARD® OSB Finishing – Without Plasterboard



Sto interior finishes open up an enormous range of possibilities for finishing virtually any room.

They are also characterised by outstanding technical properties. The resulting elegant surfaces excel with first-class water vapour permeability, are visually aesthetic and resist mechanical stresses.

Everything for Creatively Decorating Rooms

Structured finishes play with light and shadow to aesthetic effect. Their appearance constantly shifts and changes depending on the viewing angle and the direction and intensity of lighting. There are virtually no limits to the range of effects that be achieved by scratching, grooving or shaping finishes and by using different grain sizes. And the possibilities rise exponentially in combination with Sto interior paints and Sto specialty coatings.

StoDecolit K/R/MP
Silicate-Bound Finishing Plaster

Uses

- Suitable for interiors
- For creating surfaces with a mineral look
- On walls and ceilings
- Well-suited for public buildings and escape routes

Properties

- Can be subjected to mechanical loads
- Nonflammable (with K or R structure)
- Contains no solvents or plasticisers and gives off only minimal emissions
- TUV-certified; monitored by an independent institute
- Free of substances that cause discoloration (deposition of "black magic dust")



BEMA, D-69483 Wald-Michelbach



CAPAROL Rustikputz K 15

Uses

For trowelling or spraying to achieve durable interior coatings with a rustic look. Especially suitable for efficient spray application on large surfaces.

Properties

- Free of solvents and plasticisers
- Water-dilutable, eco-friendly, virtually odourless
- Washable
- Diffusible
- Robust, insensitive to shock and impact
- Reaction to fire class acc. to DIN EN 13501-1: A2-s1,d0
- Free of preservatives
- Compliant with DIN 18558 - POrg.2
- Free of substances that cause discoloration (deposition of "black magic dust")

Vehicle

Synthetic resin dispersion/emulsion compliant with German standard DIN 55945.

CAPAROL Reibeputz R 15

Uses

Decorative, expressively corrugated texture finishes/plaster coatings for interior surfaces. Easy to apply and texture.

Properties

- Free of solvents and plasticisers
- Water-dilutable, eco-friendly, virtually odourless
- Washable
- Diffusible
- Robust and insensitive to shock and impact
- Reaction to fire class acc. to DIN EN 13501-1: A2-s1,d0
- Free of preservatives
- Compliant with DIN 18558 – POrg.2
- Free of substances that cause discoloration (deposition of "black magic dust")

Vehicle

Synthetic resin dispersion/emulsion as per German standard DIN 55945

**Left:**

Example of wind- and airtight joints between elements

Tested, proven constructions are available for downloading from www.swisskrono.de.

BALAZS Komforthaus GmbH

Tested Constructions

SWISS KRONO MAGNUMBOARD® OSB External Wall with F30/F90 Fire Resistance

- Directly finishable on the inside while following the applicable instructions
- 100mm of **MAGNUMBOARD® OSB**
- Choice of thermal insulation and exterior or ETICS (external thermal insulation composite system)
- F-30 AbP P-3151/4564-MPA BS
- $R_w = 36$ dB according to expertise no. 17537203 by ift in Rosenheim
- Plus 2 x 12.5mm GKF F90 on one side as per P-3108/4134-MPA-BS
- $R_w = 40$ dB according to expertise no. 17537203 by ift in Rosenheim

The suitability of other fire protection constructions can be calculated based on the burn rate acc. to DIN EN 1995-1-2. Sizing tables for walls are available for downloading at www.swisskrono.de.



SWISS KRONO MAGNUMBOARD® OSB Soundproofing Construction with Additional Boarding on One Side

From back to front

- 100mm of **MAGNUMBOARD® OSB**
- 27mm of KNAUF spring rails, 27mm of insulation or KNAUF acoustic isolation clips with CW profile, 30mm of insulation
- 2 x 12.5mm of plasterboard or gypsum fireboard
- $R_w = 49$ dB according to expertise no. 17537203 by ift in Rosenheim

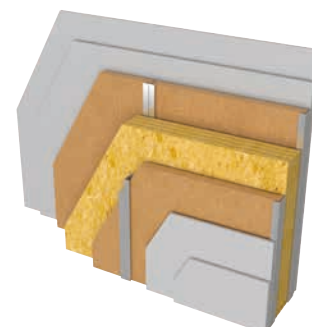
Additional soundproofing constructions for 34 to 72dB are also available.



SWISS KRONO MAGNUMBOARD® OSB Soundproofing Construction for Meeting Greater Requirements

- 2 x 12.5mm of plasterboard or gypsum fireboard
- 50mm of KNAUF CW rails, in between 40mm of insulation and a 10mm air gap
- 100mm of **MAGNUMBOARD® OSB**
- 50mm of KNAUF CW rails, in between a 10mm air gap and 40mm of insulation
- 2 x 12.5mm of plasterboard or gypsum fireboard
- $R_w = 68$ dB according to expertise no. 17537203 by ift in Rosenheim

Additional soundproofing constructions for 34 to 72dB are also available.





Benefits at a Glance:

- Acoustically insulating constructions available for all requirements
- 90-minute fire resistance rating
- Combinable with other building systems
- Simple, economic details



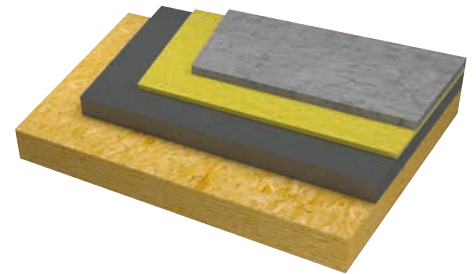
BALAZS Komforthaus GmbH

Tested Constructions

SWISS KRONO MAGNUMBOARD® OSB Ceiling with Screed and Ballast

From the top down:

- 55mm of floating anhydrite screed, 110kg/m²
- 30mm of glass wool, min. dynamic stiffness s' of 6 MN/m³ (fermacell or ZiSOLA)
- 120mm of gravel ballast, min. of 1500 kg/m³
- 200mm of **MAGNUMBOARD® OSB**
- Interior finishing as recommended



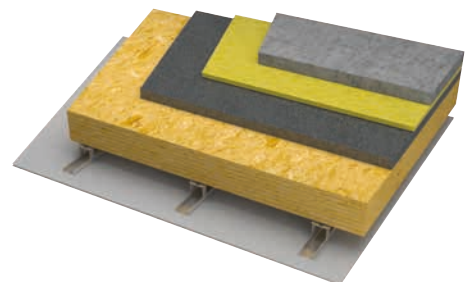
Airborne sound attenuation		Impact sound attenuation	
R_w	71 dB	L_{nW}	44 dB
C	-2 dB	C_I	0 dB
$C_{50-3150}$	-7 dB	$C_{I50-2500}$	5 dB

Source: www.lignumdata.ch, construction assembly A1100

SWISS KRONO MAGNUMBOARD® OSB Ceiling with Screed and Rubber-Mounted Hangers

From the top down:

- 80mm cement screed, 176kg/m²
- 30mm of glass wool, min. dynamic stiffness s' of 6 MN/m³ (fermacell or ZiSOLA)
- 60mm of gravel ballast, min. of 1500kg/m³
- 200mm of SWISS KRONO **MAGNUMBOARD® OSB**
- 93mm of rubber-mounted direct hangers, $b = 60\text{mm}$, $e = 1000\text{mm}$ (Ampack, fermacell, KNAUF, Rigips, Protektor)
- 27mm of CD ceiling profile, $b = 60\text{mm}$, $e = 500\text{mm}$ (fermacell, KNAUF, Rigips, Protektor)
- 15mm of gypsum fireboard or hard gypsum board, joints glued and smoothed (min. of 1000kg/m³ (fermacell, KNAUF, Rigips))



Airborne sound attenuation		Impact sound attenuation	
R_w	80 dB	L_{nW}	34 dB
C	-5 dB	C_I	3 dB
$C_{50-3150}$	-20 dB	$C_{I50-2500}$	20 dB

Source: www.lignumdata.ch, construction assembly A1153

**Left:**

Installation on or in walls:
everything is flexibly plannable with
MAGNUMBOARD® OSB.

Right:

Perfect fits for fast, easy assembly:
here, the connection between a knee wall
and a gable wall.



Henri VERMOT et Fils Sàrl

Photograph: www.rosengruen.de

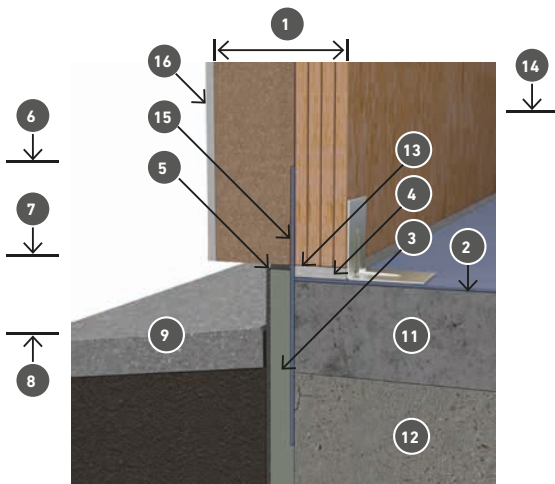
Construction Details

Examples of SWISS KRONO **MAGNUMBOARD® OSB** used in walls, ceilings and roofs illustrate the ease of assembly and the accurate fits between elements. Precisely fitting, prefabricated SWISS KRONO **MAGNUMBOARD® OSB** modules enable a potentially limitless range of architectures while eliminating the need to follow a prescribed grid or layout.

This timber construction system permits rapid assembly of entire buildings from individual wall, roof and ceiling modules. Its many advantages include the fact that screws can be used in the ends of boards (unlike end-grain wood, in which this isn't advisable).

MAGNUMBOARD® OSB Base Details with Sealing

Based on DIN 68800-2:2012-02

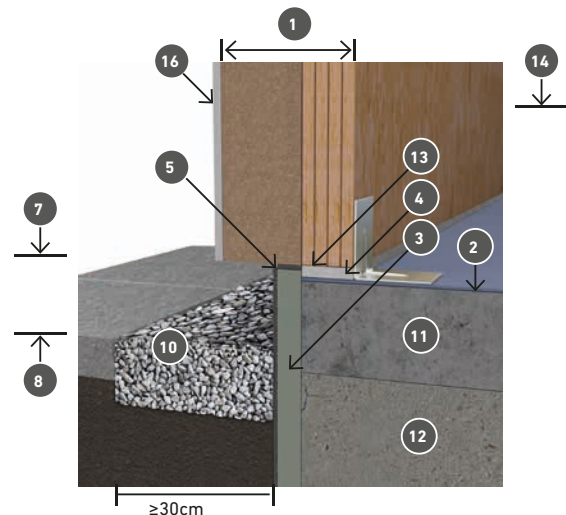


The work closely resembles timber-frame construction,
so no additional skills or knowledge are required.

- 1 **MAGNUMBOARD® OSB** with complete thermal insulation
- 2 Sealing acc. to DIN 18195-4
- 3 Perimeter insulation with base plastering
- 4 Mortar underneath / compensation
- 5 Joint seal, e.g. tape
- 6 Top of seal in finished state, at least 15cm above ground surface
- 7 Bottom of sleeper in finished state at least 5cm above ground surface
- 8 Ground surface

MAGNUMBOARD® OSB Base Details with Gravel Bed

Based on DIN 68800-2:2012-02



- 9 Walkable covering (for terrace or balcony) (= water-conducting layer) with a pitch of at least 2%
- 10 Gravel bed
- 11 Floor slab
- 12 Foundation
- 13 Airtight connection between wall and floor element (floor slab/cellar)
- 14 Top of finished floor
- 15 Seal acc. to DIN 18195-4
- 16 Exterior plaster rendering

Benefits at a Glance

- Precise timber and modular construction
- Perfectly fitting, windtight and airtight
- Easy to use and work
- All fastening approaches can be used without the need for special wall plugs etc.
- Easy integration of pipes, conduits, cables etc.



Construction Details

For everything from corners in exterior walls to connecting interior walls, all details are intelligently designed and optimally harmonise. Holes can be predrilled to define the number of required screws and their locations. Angled joints are possible, also in roof modules.

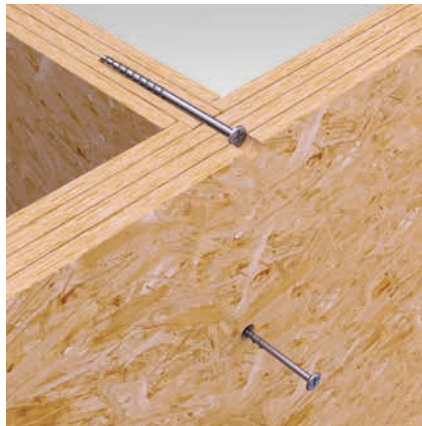
Complex layouts with inclined walls, polygonal bay windows and much more can be implemented with minimal extra assembly work.

Example construction details of walls and ceilings

Wall-ceiling connection



T-joint



90° inside wall corner





Applications

A large part of assembly involves the approved use of screws in board joints analogously to board ends, which is not permitted with solid wood.

Applications

Preparation and fastening of boarding and cladding must be done in compliance with the applicable technical construction regulations (e.g. standards, general test certificates, permits and approvals) using the proper fasteners.

Photograph: www.rosengruen.de

Construction Details

A feature that deserves special mention is the ability to insert screws into the joints between boards, which greatly facilitates assembly. The outer layers of the wall elements can also overlap so the ceiling can simply be inserted into them. Plus, to ensure airtightness it's only necessary to tape over a single joint.

SWISS KRONO **MAGNUMBOARD®** OSB can be cut at oblique angles to create roofs of virtually any size and shape. Ridge, knee wall and valley connections are easy to screw together, and dormers are simple to mount. The insulation is laid externally over the entire area of the roof, so there is no need to laboriously place or blow it between the rafters. This has the added advantage of completely eliminating thermal bridges.

Ceiling construction details

Knee wall



Roof construction details

Ridge apex



Did You Know?

Numerous acoustically insulating constructions involving SWISS KRONO OSB and **MAGNUMBOARD® OSB** are available at www.lignumdata.ch. Choose SWISS KRONO as the manufacturer and then select additional parameters.






Acoustic Insulation Matrix

Measurement values 172 37203 / 040204.V

Additional work (internal covering)

$R_w (C_{50-5000}, C_{tr, 50-5000})$	1	2	3	4	5
Assessed values $R_w \pm 3$ dB	without	12.5 gypsum	2 x 12.5 gypsum	2 x 12.5 GFB* ≥ 27 spring rail or acoustic insulation clip	2 x 12.5 GFB* ≥ 50 CW stud 10 air gap

Structure of basic wall

1	 75 MAGNUMBOARD® OSB	On one side: $R_w = 35$ dB	On one side: $R_w = 37$ dB	On one side: 17237203/V05: $R_w (C_{50-5000}, C_{tr, 50-5000}) = 49 (-4;-13)$ dB	On one side: 17237203/V02: $R_w (C_{50-5000}, C_{tr, 50-5000}) = 61 (-5;-18)$ dB
		17237203/V03: $R_w (C_{50-5000}, C_{tr, 50-5000}) = 34 (0;-3)$ dB	On both sides: $R_w = 37$ dB	On both sides: $R_w = 41$ dB	On both sides: 17237203/V04: $R_w (C_{50-5000}, C_{tr, 50-5000}) = 53 (-7;-17)$ dB
2	 100 MAGNUMBOARD® OSB	On one side: $R_w = 39$ dB	On one side: $R_w = 40$ dB	On one side: $R_w = 49$ dB	On one side: $R_w = 61$ dB
		040204.V03: $R_w (C_{50-5000}, C_{tr, 50-5000}) = 36 (0;-4)$ dB	On both sides: $R_w = 40$ dB	On both sides: $R_w = 43$ dB	On both sides: $R_w = 53$ dB
3		-	-	On one side: $R_w = 70$ dB	On one side: $R_w = 72$ dB
		100 MAGNUMBOARD® OSB			
		12.5 12.5 GFB*			
		12.5 12.5 GFB*			
	120 insulation	040204.V02: $R_w (C_{50-5000}, C_{tr, 50-5000}) = 66 (-1;-7)$ dB	On both sides: $R_w = 69$ dB	On both sides: $R_w = 70$ dB	-
	20 air gap				
	12.5 12.5 gypsum fireboard or fibreboard				
	12.5 12.5 gypsum fireboard or fibreboard				
	100 MAGNUMBOARD® OSB				

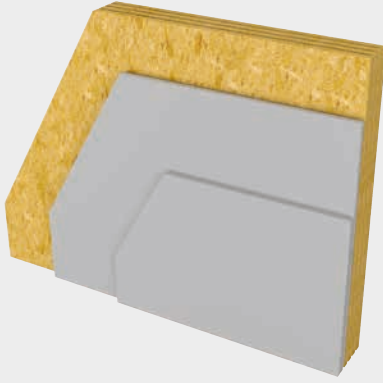
*GFB = gypsum fireboard or fibreboard

Legend:

- MAGNUMBOARD® OSB** SWISS KRONO **MAGNUMBOARD® OSB** consisting of 3 or 4 plies of SWISS KRONO OSB glued and stapled together acc. to Table 1
- Spring rails Rigips top hat spring rails or Rigips acoustic isolation clips with CW profile acc. to Table 1, in between 30mm of cavity insulation acc. to Table 1
- Gypsum Rigips Blue acoustic or Rigidur H gypsum fibreboard acc. to Table 1
- fibreboard/fibreboard
- Insulation Cavity insulation acc. to Table 1
- CW studs Rigips CW studs acc. to Table 1, in between 40mm of cavity insulation acc. to Table 1

All thicknesses in mm

Source: ift Rosenheim | Complete Acoustic Insulation Matrix with Various Wall Constructions



Applications

MAGNUMBOARD® OSB is a solid, homogeneous material. Its high density of approx. 640kg/m^3 results in a burn rate of 0.75mm per minute. The fire resistance of wall, ceiling and roof sections can be calculated as described in EN 1995-1-2 (General – Structural Fire Design).

Left:

SWISS KRONO MAGNUMBOARD® OSB interior wall with F90 fire rating

Right:

Acoustically insulating assembly A1100 from the www.lignumdata.ch component catalogue

Sizing Tables for Wall Elements

For use in dry environments (utilisation class 1)

The tables are for preliminary sizing only and cannot replace a structural analysis. The maximum load has been calculated acc. to DIN EN 1991-1-1 and DIN EN 1995-1-2.

Based on a burn rate of 0.75mm/min . acc. to DIN EN 1995-1-2

> 280 to 38cm with a horizontal joint

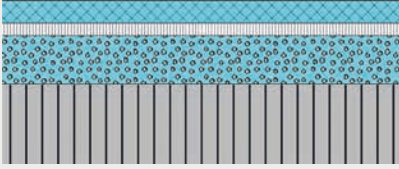
> 380cm element upright with a max. width of 280mm

Assumed load breakdown: 80% own weight (g), 20% live load (q)

Wall height [cm]	Fire resistance [min.]			
	0	30	60	90
Thickness of 75mm		Max. load [kN/m]		
280	38	27	16	-
330	28	20	12	-
380	21	15	9	-
500	17	12	0	-
600	12	9	-	-
Thickness of 100mm		Max. load [kN/m]		
280	89	70	50	0
330	65	50	36	0
380	49	38	28	-
500	41	32	23	-
600	29	22	16	-
Thickness of 125mm		Max. load [kN/m]		
280	171	141	109	78
330	125	103	80	57
380	95	78	60	43
500	79	65	50	36
600	56	45	35	25
Thickness of 150mm		Max. load [kN/m]		
280	288	245	201	158
330	213	181	149	116
380	163	138	114	89
500	136	115	95	74
600	95	81	66	52

Applications

Due to its high density, **MAGNUMBOARD® OSB** has excellent soundproofing properties, especially for low frequencies. Numerous ceiling constructions incorporating it can be viewed at www.lignumdata.ch.



Sizing Tables for Ceiling Elements

Width 1.00m, use in dry environments (utilisation class 1)

The tables are for preliminary sizing only and cannot replace a structural analysis. Calculated on the basis of the surface load only.

For ceiling thicknesses of 175 and 225mm we recommend interpolating the values.

Single-span system

(each element resting on two supports)

Max. distance between supports of the substructure [m] **with** checking of vibration behaviour

Own weight Element	Constant load/ ceiling structure	Live load [kN/m ²]					
		1.0	1.5	2.0	3.0	3.5	5.0
Thickness of 125mm							
0.79	0.00	4.27	4.14	4.02	3.82	3.74	3.42
0.79	0.50	3.88	3.80	3.72	3.58	3.52	3.36
0.79	1.50	3.43	3.43	3.33	3.25	3.21	3.23
0.79	2.00	3.28	3.24	3.20	3.13	3.10	3.01
0.79	3.00	3.05	3.02	3.00	2.95	2.92	2.86
Thickness of 150mm							
0.95	0.00	4.73	4.60	4.48	4.28	4.20	3.99
0.95	0.50	4.34	4.25	4.17	4.03	3.96	3.80
0.95	1.50	3.87	3.82	3.77	3.68	3.64	3.53
0.95	2.00	3.71	3.66	3.62	3.55	3.51	3.42
0.95	3.00	3.46	3.43	3.40	3.34	3.32	3.25
Thickness of 200mm							
1.27	0.00	5.53	5.41	5.29	5.09	5.01	4.78
1.27	0.50	5.16	5.06	4.98	4.83	4.76	4.58
1.27	1.50	4.65	4.60	4.55	4.45	4.40	4.28
1.27	2.00	4.48	4.44	4.39	4.31	4.27	4.16
1.27	3.00	4.21	4.17	4.14	4.07	4.04	4.96
Thickness of 250mm							
1.59	0.00	6.23	6.12	6.01	5.81	5.72	5.50
1.59	0.50	5.87	5.78	5.69	5.54	5.47	5.28
1.59	1.50	5.36	5.30	5.25	5.14	5.09	4.96
1.59	2.00	5.17	5.12	5.08	4.99	4.94	4.83
1.59	3.00	4.88	4.84	4.80	4.73	4.70	4.61

Single-span system

(each element resting on two supports)

Max. distance between supports of the substructure [m] **without** checking of vibration behaviour / max. sag of 1/300 or 1/200 with long-term loading

Own weight Element	Constant load/ ceiling structure	Live load [kN/m ²]					
		1.0	1.5	2.0	3.0	3.5	5.0
Thickness of 125mm							
0.79	0.00	5.60	5.14	4.67	4.07	3.86	3.42
0.79	0.50	4.93	4.79	4.60	4.33	3.86	3.42
0.79	1.50	4.50	4.39	4.30	4.21	3.86	3.42
0.79	2.00	4.18	4.10	4.03	3.96	3.66	3.40
0.79	3.00	3.58	3.54	3.49	3.41	3.38	3.28
Thickness of 150mm							
0.95	0.00	6.42	6.09	5.60	4.88	4.63	4.10
0.95	0.50	5.73	5.58	5.43	4.88	4.63	4.10
0.95	1.50	4.92	4.83	4.75	4.60	4.53	4.10
0.95	2.00	4.65	4.58	4.51	4.39	4.33	4.07
0.95	3.00	4.24	4.19	4.14	4.05	4.01	3.89
Thickness of 200mm							
1.27	0.00	7.93	7.69	7.47	6.51	6.18	5.47
1.27	0.50	7.22	7.05	6.90	6.46	6.18	5.47
1.27	1.50	6.32	6.22	6.12	5.95	5.86	5.45
1.27	2.00	6.00	5.92	5.84	5.69	5.62	5.38
1.27	3.00	5.52	5.45	5.40	5.29	5.24	5.09
Thickness of 250mm							
1.59	0.00	9.31	9.07	8.86	8.14	7.72	6.84
1.59	0.50	8.60	8.42	8.26	7.96	7.65	6.84
1.59	1.50	7.64	7.52	7.42	7.22	7.13	6.76
1.59	2.00	7.29	7.19	7.10	6.94	6.86	6.64
1.59	3.00	6.74	6.67	6.60	6.48	6.42	6.25

Max. bending stress reached

**Left and right:**

Fast, perfectly fitting ceiling elements
with lap joints

Page 21:

Finishing the ridge
MAGNUMBOARD® OSB roof module



Photograph: www.rosengruen.de

BALAZS Komforthaus GmbH

Sizing Tables for Ceiling Elements

Width 1.00m, use in dry environments (utilisation class 1)

The tables are for preliminary sizing only and cannot replace a structural analysis. Calculated on the basis of the surface load only.

For ceiling thicknesses of 175 and 225mm we recommend interpolating the values.

Two- or more span system (each element resting on three or more supports)

Max. distance between supports of the substructure [m] **with** checking of vibration behaviour

Own weight Element	Constant load/ ceiling structure	Live load [kN/m ²]					
		1.0	1.5	2.0	3.0	3.5	5.0
Thickness of 125mm							
0.79	0.00	4.66	4.51	4.38	4.17	4.08	3.84
0.79	0.50	4.24	4.14	4.05	3.90	3.84	3.67
0.79	1.50	3.74	3.68	3.63	3.54	3.50	3.39
0.79	2.00	3.57	3.53	3.49	3.41	3.38	3.28
0.79	3.00	3.32	3.29	3.26	3.21	3.18	3.11
Thickness of 150mm							
0.95	0.00	5.16	5.01	4.88	4.67	4.58	4.34
0.95	0.50	4.73	4.64	4.55	4.39	4.32	4.14
0.95	1.50	4.22	4.16	4.10	4.01	3.96	3.84
0.95	2.00	4.04	3.99	3.95	3.86	3.83	3.72
0.95	3.00	3.77	3.73	3.70	3.64	3.61	3.53
Thickness of 200mm							
1.27	0.00	6.03	5.89	5.77	5.55	5.45	5.21
1.27	0.50	5.62	5.52	5.42	5.26	5.19	4.99
1.27	1.50	5.07	5.01	4.95	4.84	4.79	4.66
1.27	2.00	4.88	4.83	4.78	4.69	4.64	4.52
1.27	3.00	4.57	4.54	4.50	4.43	4.40	4.30
Thickness of 250mm							
1.59	0.00	6.79	6.66	6.53	6.32	6.23	5.98
1.59	0.50	6.39	6.29	6.20	6.03	5.95	5.75
1.59	1.50	5.83	5.77	5.71	5.59	5.54	5.39
1.59	2.00	5.63	5.57	5.52	5.42	5.37	5.24
1.59	3.00	5.30	5.26	5.22	5.14	5.10	5.00

Max. bending stress reached

Two- or more span system (each element resting on three or more supports)

Max. distance between supports of the substructure [m] **without** checking of vibration behaviour / max. sag of 1/300 or 1/200 with long-term loading

Own weight Element	Constant load/ ceiling structure	Live load [kN/m ²]					
		1.0	1.5	2.0	3.0	3.5	5.0
Thickness of 125mm							
0.79	0.00	6.63	5.78	5.25	4.57	4.34	3.84
0.79	0.50	6.35	5.78	5.25	4.57	4.34	3.84
0.79	1.50	5.45	5.30	5.15	4.57	4.34	3.84
0.79	2.00	5.15	5.03	4.91	4.56	4.34	3.84
0.79	3.00	4.70	4.61	4.53	4.38	4.27	3.84
Thickness of 150mm							
0.95	0.00	7.94	6.94	6.30	5.49	5.20	4.60
0.95	0.50	7.40	6.91	6.30	5.49	5.20	4.60
0.95	1.50	6.42	6.25	6.09	5.49	5.20	4.60
0.95	2.00	6.08	5.94	5.81	5.45	5.20	4.60
0.95	3.00	5.57	5.47	5.37	5.20	5.11	4.60
Thickness of 200mm							
1.27	0.00	9.00	9.00	8.40	7.32	6.94	6.14
1.27	0.50	9.00	9.00	8.40	7.32	6.94	6.14
1.27	1.50	8.26	8.06	7.87	7.29	6.94	6.14
1.27	2.00	7.86	7.70	7.54	7.21	6.92	6.14
1.27	3.00	7.25	7.12	7.01	6.80	6.70	6.14
Thickness of 250mm							
1.59	0.00	9.00	9.00	9.00	9.00	8.68	7.68
1.59	0.50	9.00	9.00	9.00	9.00	8.68	7.68
1.59	1.50	9.00	9.00	9.00	9.00	8.68	7.68
1.59	2.00	9.00	9.00	9.00	8.88	8.59	7.68
1.59	3.00	8.86	8.72	8.59	8.34	8.23	7.68

Due to maximum possible element length of 18.00m

Max. bending stress reached



Sizing for Fire Resistance

Ceiling and roof modules can also be used for fire protection constructions. These can be dimensioned based on EN 19595-1-2 while taking the burn rate into account.



Photograph: www.rosengruen.de

Sizing Tables for Roof Elements

Width 1.00m, use in dry environments (utilisation class 1)

The tables are for preliminary sizing only and cannot replace a structural analysis. Calculated on the basis of the surface load only without taking the roof pitch into account.

Single-span system (each element resting on two supports)

Max. distance between supports of the substructure [m], max. sag of 1/300 or 1/200 with long-term loading

Own weight Element	Constant load/ roof structure	Live load [kN/m ²]				
		1.0	1.5	2.0	2.5	3.0
Thickness of 75mm						
0.48	0.50	3.18	3.04	2.80	2.59	2.44
0.48	1.00	2.85	2.77	2.70	2.57	2.44
0.48	1.50	2.62	2.56	2.51	2.46	2.40
Thickness of 100mm						
0.64	0.50	4.08	3.95	3.71	3.46	3.25
0.64	1.00	3.69	3.60	3.51	3.40	3.25
0.64	1.50	3.41	3.34	3.28	3.22	3.17
Thickness of 125mm						
0.79	0.50	4.93	4.79	4.60	4.33	4.07
0.79	1.00	4.50	4.39	4.30	4.21	4.03
0.79	1.50	4.18	4.10	4.03	3.96	3.90

Max. bending stress reached

Two- or more span system (each element resting on three or more supports)

Max. distance between supports of the substructure [m], max. sag of 1/300 or 1/200 with long-term loading

Own weight Element	Constant load/ roof structure	Live load [kN/m ²]				
		1.0	1.5	2.0	2.5	3.0
Thickness of 75mm						
0.48	0.50	3.96	3.47	3.15	2.92	2.74
0.48	1.00	3.68	3.45	3.15	2.92	2.74
0.48	1.50	3.40	3.30	3.13	2.92	2.74
Thickness of 100mm						
0.64	0.50	5.22	4.63	4.20	3.89	3.66
0.64	1.00	4.78	4.56	4.20	3.89	3.66
0.64	1.50	4.44	4.31	4.14	3.89	3.66
Thickness of 125mm						
0.79	0.50	6.35	5.78	5.25	4.86	4.57
0.79	1.00	5.84	5.64	5.25	4.86	4.57
0.64	1.50	5.45	5.30	5.15	4.86	4.57

Max. bending stress reached



ERNE AG Holzbau | Photograph: Jan Meier

Modern Timber Construction: Precise and Massive Administration Building and Rehab Clinic for DRV

Nearly 9,000m² of SWISS KRONO OSB were used to build a new administration building for Deutsche Rentenversicherung (DRV), Germany's largest state pension insurer, with total floor space of 2,400m². The breakdown was 4,200m² of SWISS KRONO OSB/4 and 4,500m² of SWISS KRONO OSB/3 EN 300 square-edge, which prevented 173 tonnes of CO₂ emissions.

The appearance of the three-storey building was designed to match DRV's corporate architecture and colours. The attractive exterior of the modular timber structure blends harmoniously into its surroundings.

In addition, while the main building of a rehab clinic operated by the Westphalia branch of DRV on the North Sea

island of Norderney was being renovated, a solution was needed for temporarily accommodating more than 30 patients. It was important for it to be economic yet fully functional and sustainable. ERNE AG Holzbau of Switzerland provided the answer. Particularly in sensitive environments like those in clinics and hospitals, the choice of materials is crucial. The new modular timber interim clinic has room for 34 patient beds on 923m² of floor space.

In all, about 3,030m² of SWISS KRONO OSB/4 sanded and 1,050m² of SWISS KRONO OSB/3 EN 300 square-edge were used to make 40 modules and assemble them into a building with usable space of roughly 1,000m² on two storeys.





MMD, D-36163 Poppenhausen | Photograph: www.rosengruen.de

Office Building in Fulda

In Fulda, three brothers with their own companies decided to erect and share a multi-storey office building with a total of about 400m² of usable floor space. Moreover, they needed it to be finished and ready to occupy in four months. The siblings attached great importance to a modern architecture and look, and also insisted on eco-friendly timber construction. The SWISS KRONO **MAGNUMBOARD®** OSB massive timber system met all of these conditions perfectly and enabled swift construction in no fewer than four ways:

1. It took only three and a half days to assemble the prefabricated modules. The windows were then immediately installed to prevent moisture from getting inside the building envelope.
2. The heating, sanitary and electrical systems were installed about 30 to 40 percent faster than would have been the case in a masonry building, as there was no need for time-consuming chiselling, hammering and drilling work to remove material.
3. There was a time saving of 10 to 15% for making the building's exterior, as no filling work was required. The large-format modules had a minimum of joints.
4. The greatest time savings were achieved by directly finishing the interior walls without the need to cover them with plasterboard first. The painters finished their jobs some 50 to 60% faster than in conventional masonry buildings.





MMD, D-36163 Poppenhausen | Photograph: www.tmstudios.de

Summer Toboggan Run in Pottenstein

The challenge was to take advantage of the winter months to erect a building for offices and a restaurant using massive timber construction in Pottenstein in Franconian Switzerland (in northern Bavaria) so that a toboggan run could begin operating there the following summer.

Extensive prefabrication of large-format modules using SWISS KRONO **MAGNUMBOARD® OSB** made it possible to shave several weeks off the construction project. Additional time was saved by directly finishing the interior walls with KNAUF Rotkalk.





MMD, D-36163 Poppenhausen | Photograph: www.rosengruen.de

Holiday Residence on the Island of Sylt

This lovely North Sea Island has gained an exquisite residential oasis comprising three holiday flats and a permanently occupied apartment. The wish was for as much living space as possible – and here the eco-friendly SWISS KRONO **MAGNUMBOARD® OSB** timber construction system excels in two ways: with especially slender walls and the possibility of

direct finishing. Where impact and reflected walking sound are concerned, occupants benefit from excellent attenuation. Featuring top-of-the-line furnishings and amenities, a garden and a wellness area, this residence is about as good as it gets for Sylt aficionados.





SWISS KRONO **LONGBOARD** OSB as Stay-in-Place Structural Formwork for Timber-Concrete Composite Ceilings

SWISS KRONO **LONGBOARD** OSB was used in Switzerland's first multi-storey timber building as stay-in-place structural formwork in the timber-concrete composite ceilings.

The ten-storey showpiece office high-rise was assembled from more than 370 modules. It impressively demonstrates the potential of modern timber construction with efficient planning and completion in record time.





Contact

Contact the SWISS KRONO **MAGNUMBOARD®** OSB experts at SWISS KRONO directly:

Stefan Gottfried

Dipl. Ing. (FH) for Timber Construction and Finishing

Tel.: +49 33962 69 - 751

stefan.gottfried@swisskrono.com



Stefan Gottfried: "SWISS KRONO OSB is a versatile product for cost-effective building. SWISS KRONO **MAGNUMBOARD®** OSB is the core of a massive timber construction system with a host of advantages that include the ability to directly finish it with plaster or paint. This saves time and materials!"

Harald Sauter

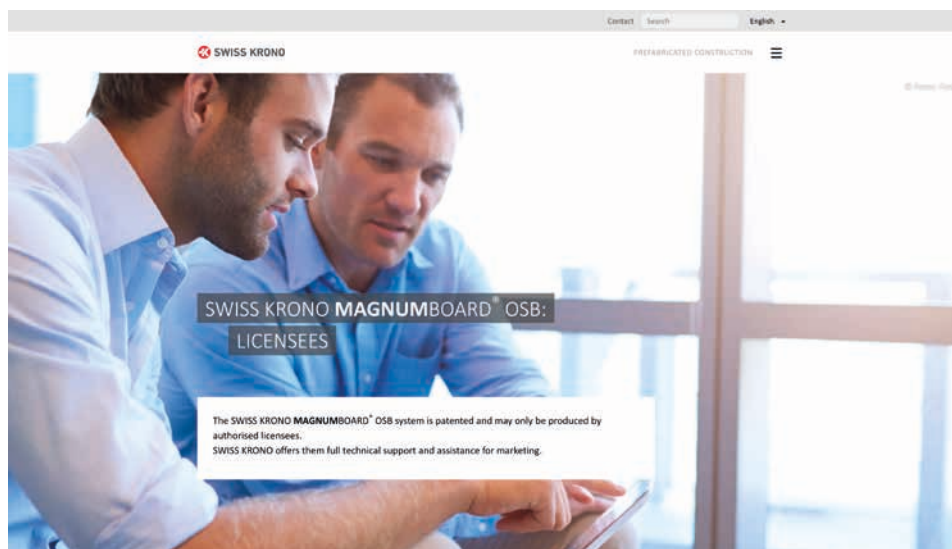
Master Carpenter

Mobile: +49 151 115 47616

harald.sauter@swisskrono.com



Harald Sauter: "Modular construction gives owners and architects enormous latitude for creatively designing buildings and is extremely fast into the bargain. Plus, building with wood is eco-friendly and results in healthy living conditions – what more could you possibly want?"



SWISS KRONO GmbH
Wittstocker Chaussee 1
D-16909 Heiligengrabe
Germany

T +49 33 962 69 - 740
F +49 33 962 69 - 376
sales.osb@swisskrono.com
www.swisskrono.de