

Wood at its best



GERMANY



EN

# SWISS KRONO

MAGNUMBOARD® OSB and LONGBOARD OSB





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### 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.

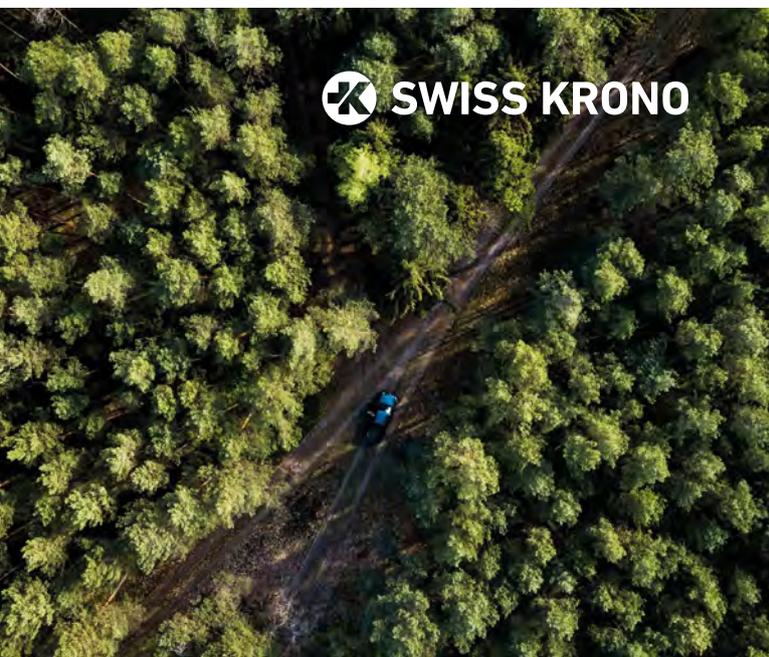
### Conserving Resources

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 which 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 which 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.





MMD, 36163 Poppenhausen

**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

## SWISS KRONO – Wood at its best

Wood is a fascinating material which we use at SWISS KRONO to produce forward-looking engineered wood products. We work hard to enable environmentally friendly construction and healthy living in a feel-good ambience while conserving natural resources.

### SWISS KRONO **LONGBOARD** OSB

“We can make it longer!” 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 longer versions of various other OSB boards of ours: SWISS KRONO OSB/3 EN300 and SWISS KRONO OSB/4 EN300, sanded or with ContiFinish® surfaces, in thicknesses between 15 and 40 millimetres. Every SWISS KRONO OSB board with a length between 6.51 and 18 metres is automatically defined as **LONGBOARD** OSB.

### 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

ERNE AG Holzbau



modules with single boards running their entire length. When SWISS KRONO **LONGBOARD** OSB is installed on the inside, it also serves as a windtight layer and vapour barrier. This simplifies work and enables faster progress. Despite 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 overwhelming 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. Their dimensions 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 with less noise and other annoyances for 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.



### 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



## 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 provisional facilities which can be used for months or even years. When the times comes, modules can be easily removed and transported elsewhere for reuse. They feature much better thermal and acoustic insulation than conventional metal or plastic container-based solutions. Prefabricated timber modules are increasingly being used to accommodate students or refugees or erect school buildings, day-care centres, office complexes or hospitals, to cite just a few examples.

### New Residential Buildings

New buildings are very quick to put up using timber modules, thanks to extensive prefabrication. There's no need to 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 which distribute loads over a large area, making prefabricated timber construction ideal for adding storeys and renovating existing buildings to improve energy efficiency. Being a dry construction technique, this approach also avoids damaging standing structures.

### Industrial and Commercial Buildings

From nurseries across office buildings to factory halls, modular sections made with SWISS KRONO OSB products

[swisskrono.com/de/Prefabricated-construction](http://swisskrono.com/de/Prefabricated-construction)

have proved their worth in countless projects. Clients value the fast assembly and on-time completion they enable. Those who then use the finished facilities also benefit from a very pleasant indoor climate year round.

### Urban 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 of work also means that neighbours don't have to endure noise, road blockages and other annoyances for neighbours for as long.

ERNE AG Holzbau | Photograph: [www.rosengruen.de](http://www.rosengruen.de)



[swisskrono.com/de/Prefabricated-construction](http://swisskrono.com/de/Prefabricated-construction)



## The SWISS KRONO Show Module

### The Idea: A solid timber module on wheels.

What's the best way to show prospects a solid timber construction system which is ideal for making modules? Exactly: by letting them directly feel its characteristics and benefits by touching it.

Our inspiration was to create a life-sized module for letting people directly experience the system's possibilities. All that then needed to be done was attach wheels underneath and hook it up to a tractor – and the SWISS KRONO Show Module was ready to go: a mobile showroom for a vast range of uses.

### Production: Large format and custom design.

Six 10cm-thick panels up to 9.98m long were prefabricated by one of our licensees and assembled to create a three-dimensional module.

Various insulation versions and a variety of exterior designs demonstrate the system's versatility. Large windows provide a view into its interior, and an attachable stairway lets visitors enter it.

### The ingeniously equipped interior:

Step into the world of interior finishing with SWISS KRONO! Inspired by 'tiny houses', the module's flexibly adaptable interior enables a wide range of possibilities within a small space. From waterproof flooring across intelligently designed wall systems and directly covered or coated interior walls all the way to an acoustic ceiling, the potential of modern engineered wood materials is strikingly demonstrated. Visitors can use monitors, tablet computers and interactive features to learn more about the benefits of SWISS KRONO's solutions for structural timber construction and healthy, personalised interiors. Whether it's used for product presentations, company events, meetings with customers and more, the SWISS KRONO Show Module attracts visitors like a magnet and leaves a lasting impression on everyone.





You'll find the SWISS KRONO Show Module here:

## On Tour: Jack it up and off we go!

Mobility is enabled by a steel-frame substructure including safety features which comply with road traffic regulations. Towed by a lorry, the module is transformed into a roadworthy 40-tonne show module with a special permit for oversize transports up to three metres wide.

The exteriors are protected by silver-coloured tarpaulins with eyelets for easy attachment and removal.

Dimensions:

L 9.98m x W 2.98m x H 3.05m  
(incl. removable frame)

L 9.98m x W 2.98m x H 2.89m  
(from bottom to top, w/o removable frame)

The supports and stairs can also be removed to directly place the SWISS KRONO Show Module on a level surface.

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## Possibilities for Use: At your events.

At trade fairs or company events, the SWISS KRONO Show Module is an outstanding way to vividly present product benefits. We'll be happy to put it at your disposal for your own event and additionally support you with sound arguments for convincing your customers and business partners. Informational materials and appropriate decorations are included.

Talk to us if you'd like to take advantage of the SWISS KRONO Show Module for your event!

We can then discuss all of the details of transport and the requirements for use.



**Left:**

Example of prefabricated electrical conduits

**Right:**

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

**Opposite page:**

Completely plastered **MAGNUMBOARD® OSB surface**



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 benefits of solid single-skin construction with those of conventional timber construction, thus avoiding weaknesses such as joints, transitions between different kinds of 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.

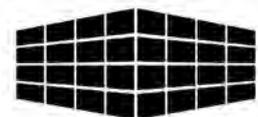
Storey-high formats allow buildings to be erected with a single **MAGNUMBOARD® OSB** section extending across their entire length.

The system delivers all of the benefits of solid 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 EN300

**MAGNUMBOARD® OSB** elements are fashioned from SWISS KRONO OSB/4 boards measuring up to 18 by 2.8 metres with a thickness of 25mm. These boast considerably better technical properties than ordinary EN 300-compliant OSB/4 boards, which has been confirmed by independent experts. This makes SWISS KRONO OSB/4 ideal for the **MAGNUMBOARD® OSB** construction system. Our 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, quick and easy assembly, and minimum shrinkage and swelling.



**materialPREIS 2018**  
Die Auszeichnung für besondere Materialien

SWISS KRONO **MAGNUMBOARD® OSB** received an honorable mention 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.

[swisskrono.com/de/Prefabricated-construction](http://swisskrono.com/de/Prefabricated-construction)





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 along them unless they are covered with plasterboard first. The use of SWISS KRONO **MAGNUMBOARD® OSB** speeds work and slashes costs, because this intermediate step 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 tiles

By way of comparison, we present the effort required to plaster an interior or exterior wall – the list of required work steps alone makes it abundantly clear that it's much more work-intensive, time-consuming and costly to use plywood than SWISS KRONO **MAGNUMBOARD® OSB**. With all the required materials, the total expenditure for plastered glulam is greater than in the case with SWISS KRONO **MAGNUMBOARD® OSB**:

#### SWISS KRONO **MAGNUMBOARD® OSB**

#### Glulam

##### Work for an Interior Wall (finished on both sides)

- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li>▪ 2x apply pretreatment and insulating primer</li> <li>▪ 2x apply plaster</li> <li>▪ 2x apply paint (if required, tinted plaster may be used instead)</li> </ul> | <ul style="list-style-type: none"> <li>▪ 2x cut to size and attach plasterboard</li> <li>▪ 2x skim with filler and sand the joints and plasterboard fasteners</li> <li>▪ 2x apply primer</li> <li>▪ 2x apply plaster</li> <li>▪ 2x apply paint (if required, tinted plaster may be used instead)</li> </ul> |
|---|---|

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

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>▪ 1x apply pre-treatment and insulating primer</li> <li>▪ Extra work for window jambs</li> </ul> | <ul style="list-style-type: none"> <li>▪ 1x cut to size and attach plasterboard</li> <li>▪ 1x skim with filler and sand the joints and plasterboard fasteners</li> <li>▪ Extra work for corner rails and window jambs</li> <li>▪ 1x apply pre-treatment and insulating primer</li> </ul> |
|---|--|

**Left:**

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

**Right:**

K18 block of flats built using clay-based materials from **CLAYTEC**.

Surfaced coated with **CLAYFIX** clay paint.



BALAZS Komforthaus GmbH

Architectural office: Till Robin Kurz, Robinson Tilly®

## MAGNUMBOARD® OSB Finishing – Without Plastering

On the following pages you'll find a variety of products that harmonise with **MAGNUMBOARD® OSB** and are fantastically easy to use. They also meet ecological criteria and above all enhance and support the positive attributes of **MAGNUMBOARD® OSB** for creating a healthy indoor climate.

A private residential building made with **CLAYTEC** clay-based materials. Surface with **YOSIMA** clay designer plaster.



## CLAYTEC®

Baustoffe aus Lehm

### Use of **CLAYTEC** Clay Plasters

Clay, an environmentally friendly building material, is modern and healthy. Its use is sustainable and environmentally responsible. Clay plasters are highly climate-friendly, pollutant-free, and conducive to circular construction. No other building material is as natural while being this adaptable and durable.

**MAGNUMBOARD® OSB** coating – preparatory treatment with StoPrep Isol Q to make the OSB boards resist moisture penetration.

#### 1. Thick Coating with **CLAYTEC** clay plasters

Primer RED

**CLAYTEC** clay plaster SanReMo (either one eight-millimetre layer or two layers 5-6 mm thick)

#### Various finishes possible:

Recommended finish: **YOSIMA** clay designer plaster in a two-mm-thick layer (available in 146 different hues, free of colourants and pigments)

**Alternatively** with Primer WHITE and **CLAYFIX** clay paint (available in 146 different hues, free of colourants and pigments)

**Alternatively** clay paint "ready to use"

#### 2. Thin Coating with **CLAYTEC** clay plasters

#### Various finishes possible:

Recommended finish: **YOSIMA** clay designer plaster in a 2-mm-thick layer (available in 146 different hues, free of colourants and pigments)  
(available in 146 different hues, free of colourants and pigments)

**Alternatively** with Primer YELLOW

Clay topcoat fine 06

Priming with Primer WHITE and **CLAYFIX** clay paint (available in 146 different hues, free of colourants and pigments)

**Alternatively** with Primer YELLOW

Clay topcoat fine 06

Clay paint "ready to use" (hue: pure white )



MMD, Poppenhausen



BEMA, Wald-Michelbach

## MAGNUMBOARD® OSB Finishing – Without Plastering

# 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 are this system's benefits?

#### 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.

Certificate of a standard-compliant indoor air test  
SWISS KRONO **MAGNUMBOARD® OSB** and **KNAUF ROTKALK**.

### Rotkalk Filz 1

Finishing plaster with fine marble grain 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

Messparameter	Reduzierungsmaß
TVOC USA	36 %
CECEI Aldehydsenke	22 %
Eiser	48 %
Bicyclische Terpene	50 %
Aldehyde C6-C11	39 %
Isopren-Carbonsäuren	75 %
SVOC	100 %

**Normgerechtes Prüfverfahren gemäß:**

- DIN EN ISO 16000 1-6 / VDI 4308ff
- Die Messwertergebnisse gelten nur für o.g. Projekt unter dem zum Messzeitpunkt angetroffenen normgerechten Prüfbedingungen.

**Ergebnis:** Die Beschichtung der SWISS KRONO MAGNUMBOARD OSB mit dem Kalkputzsystem der Fa. Knauf führte zu einer signifikanten Reduzierung der VOC Verbindungen und zu einer Verbesserung der Raumluftqualität.

IQUH GmbH – Welkersheim, den 15. Mai 2018

*Karl Heinz Weirich*  
Knauf-Geschäftsführer

*Robert Simon*  
Projektleitung Messtechnik

**INDOOR AIR QUALITY CERTIFIED**

Normgerechte Raumluftmessung gemäß DIN EN ISO 16000ff  
TSNAK  
IQAH



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.

Direct covering with SWISS KRONO **LONGBOARD** Ground OSB can also be used in timber frame construction with a grid spacing of 62.5 cm with 18-mm-thick board or a grid spacing of 83.3 cm with 25-mm-thick board.

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 plaster finishes play with light and shadow to create aesthetic effects. 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 which 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")

[swisskrono.com/de/Prefabricated-construction](http://swisskrono.com/de/Prefabricated-construction)



### 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 and diffusible
- Robust and insensitive to shocks and impacts
- 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 which cause discoloration (deposition of "black magic dust")
- Vehicle: synthetic resin dispersion/emulsion compliant with German standard DIN 55945

### CAPAROL Structuring Plaster R 15

**Uses**

Decorative and 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 and 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 which cause discoloration (deposition of "black magic dust")
- Vehicle: Kunststoffdispersion nach DIN 55945



BEMA, Wald-Michelbach



### Volvox Espresso Clay Paint

Regulates humidity, allows walls to breathe and binds pollutants: the exclusive Volvox Espresso clay paint combines all of these attributes. Coloured with natural loam pigments, it is easy to apply to walls and ceilings and improves indoor climates thanks to its moisture-regulating and odour-absorbing properties. This solvent-free paint also contains a large number of negative ions and therefore contributes to a pleasant, ideal indoor atmosphere for people with asthma or skin problems. Due to its high solids content, a single coat of this permanently elastic paint is usually enough to completely cover walls.

#### Properties

- Breathable
- Moisture-regulating
- Antistatic
- "Dry hiding"
- Virtually drip- and splash-free

#### Uses

Volvox Espresso clay paint can be applied to dry, non-greasy and absorbent surfaces (e.g. plaster and wallpaper) and for use on non-flaking old coatings and wood. Excellent as an opaque covering paint.

More than 150 different hues are available.



### KEIM LIGNOSIL®-INCO

For indoor use on wood surfaces

KEIM Lignosil®-Inco is an innovative silicate paint for semi-transparent to translucent (glazing) coating of wood and wood-based materials in interior spaces. It is architecturally enhancing, sustainable and conducive to healthy living.

KEIM Lignosil®-Inco conserves the natural hygroscopic properties of wood, thus ensuring a pleasant, natural indoor climate.

It has an SD value (diffusion-equivalent air thickness) of < 0.01m. This means that its surface is absolutely permeable to water vapour and does not form a film.

#### Properties

- Colourfast, lightfast, UV-resistant
- Mineral matt, natural surface
- Coating or glazing
- Conserves moisture in wood
- Water-vapour-permeable
- Odourless
- Free of substances which cause discoloration (deposition of "black magic dust")
- No emissions which are harmful to health (TÜV-tested)



**Left:**

Example of wind- and airtight joints between elements

Tested, proven constructions are available for downloading from [www.swisskrono.com](http://www.swisskrono.com).

**Did you know?**

In Germany, general technical approval certificates (AbPs) are granted for unregulated products if standards for assessing them exist and they are not used to meet core requirements for the safety of buildings. They are issued by acknowledged inspection agencies.

BALAZS Komforthaus GmbH

## Tested Constructions

### SWISS KRONO Wall System MAGNUMBOARD® OSB – Solid Timber Wall 100 mm thick

- 100 mm of SWISS KRONO MAGNUMBOARD® OSB

SWISS KRONO Timber Planner module no. C0493, single-leaf party wall

Fire protection: F30 / REI30 acc. to German test certificate for general use in construction no. P-3151/ 4564-MPA BS

Acoustic insulation:  $R_w = 38$  dB acc. to test report no. PB W01-F02-04-de-01, ift Rosenheim

Use as a loadbearing and reinforcing interior or exterior wall

Directly coverable on the inside while following existing instructions

Thermal insulation and exterior wall or freely selectable exterior insulation and finishing system (EIFS)



### SWISS KRONO Wall System MAGNUMBOARD® OSB – Interior Wall 127 mm thick

- 100 mm of SWISS KRONO MAGNUMBOARD® OSB
- 15 mm of PhoneStar TRI
- 12,5 mm of gypsum fireboard

SWISS KRONO Timber Planner module no. C0494, single-leaf party wall

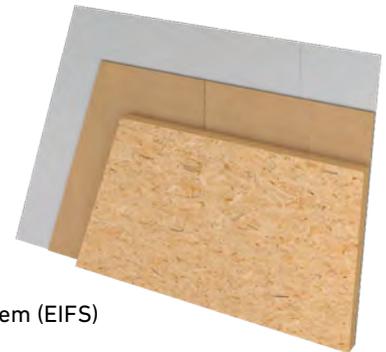
Fire protection: F30 / REI30 acc. to German test certificate for general use in construction no. P-3151/ 4564-MPA BS (w/o boarding)

Acoustic insulation:  $R_w = 44$  dB acc. to test report no. PB W02-F02-04-de-01 by ift Rosenheim

Use as loadbearing and reinforcing interior or exterior wall

Directly coverable on one side while following existing instructions

Thermal insulation and exterior wall or freely selectable exterior insulation and finishing system (EIFS)



### SWISS KRONO Wall System MAGNUMBOARD® OSB – Party Wall 615 mm

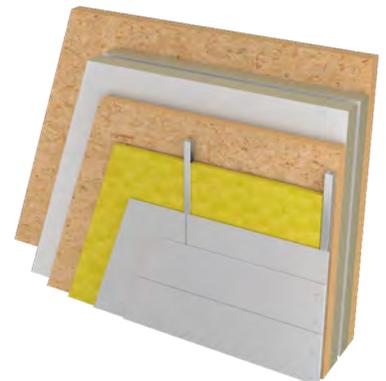
- 25 mm (2 x 12.5 mm) of gypsum fireboard
- 50 mm of CW stud with 40 mm of mineral wool
- 10 mm of air gap
- 100 mm of SWISS KRONO MAGNUMBOARD® OSB
- 140 mm of KNAUF VOLAMIT (glued)
- 50 mm of air gap
- 140 mm of KNAUF VOLAMIT (glued)
- 100 mm of SWISS KRONO MAGNUMBOARD® OSB

To be added soon to the SWISS KRONO Timber Planner: double-leaf party wall

Fire protection: F30 inside + F90 outside acc. to German test certificate for general use in construction no.: P-3108/ 4134-MPA BS (100 mm of MB + 160 mm of KNAUF VOLAMIT)

Acoustic insulation:  $R_w = 83$  dB acc. to test report no. PB W06-F02-04-de-01 by ift Rosenheim

Directly coverable on one side while following existing instructions



For more tested acoustically insulating and fire protection constructions, see the chart on page 22.



#### 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

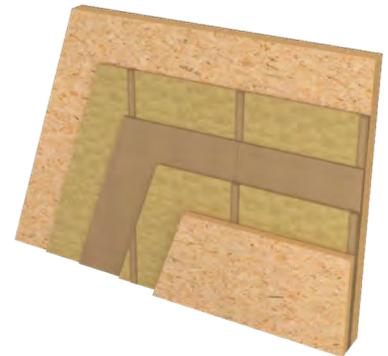
### SWISS KRONO MAGNUMBOARD® OSB ONE BLOCK Wall with Wolf Bavaria

- 75 mm of **MAGNUMBOARD® OSB**
- 25 mm-thick insulation strip with 20 mm of mineral wool insulation
- 15 mm of acoustically insulating board
- 25 mm-thick insulation strip with 20 mm of mineral wool insulation
- 125 mm of **MAGNUMBOARD® OSB**
- Interior coating as recommended

SWISS KRONO KRONO Timber Planner modules nos. B9399 and B9402

Fire protection: F60/REI60 (only 125 mm of wall) acc. to German test certificate for general use in construction no. P-20-001648-PR01-ift

Acoustic insulation: airborne sound  $R_w = 66$  dB acc. to test report no. P-20-001648-PR01-ift – DE



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

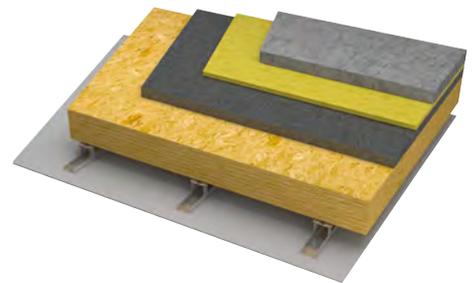
#### From the top down:

- 80 mm cement screed, 176kg/m<sup>2</sup>
- 30 mm of glass wool, min. dynamic stiffness  $s'$  of 6 MN/m<sup>3</sup> (fermacell or ZiSOLA)
- 60 mm of gravel ballast, min. of 1500kg/m<sup>3</sup>
- 200 mm of SWISS KRONO **MAGNUMBOARD® OSB**
- 93 mm of rubber-mounted direct hangers,  $b = 60$ mm,  $e = 1000$ mm (Ampack, fermacell, KNAUF, Rigips, Protektor)
- 27 mm of CD ceiling profile,  $b = 60$ mm,  $e = 500$ mm (fermacell, KNAUF, Rigips, Protektor)
- 15 mm of gypsum fireboard or hard gypsum board, joints glued and smoothed (min. of 1000kg/m<sup>3</sup> (fermacell, KNAUF, Rigips))

SWISS KRONO Timber Planner module no. A1153

Fire protection: F90 / REI90, 175 mm, w/o boarding and ceiling module, test report in preparation

Acoustic insulation: airborne sound  $R_w = 83$  dB, impact sound  $L_{n,w} = 34$  dB, acc. to the Swiss Lignum Project



## Tested Constructions

### SWISS KRONO Ceiling Module of MAGNUMBOARD® OSB

- 175 mm SWISS KRONO MAGNUMBOARD® OSB

Fire protection: F90 / REI90, test report 21-001061 - PR01 by ift Rosenheim

Acoustic insulation: airborne sound  $R_w = 43$  dB,

impact sound  $L_{n,w} = 85$  dB, in acc. with test report no. PB D01-F03-04-de-01

by ift Rosenheim

Underside directly coverable following existing instructions

Floor structure freely selectable



### SWISS KRONO Ceiling Module of MAGNUMBOARD® OSB

#### From the top down

- 50 mm of cement screed
- 35 mm of acoustic insulation
- 90 mm layer of stone chippings, bound
- 175 mm of SWISS KRONO MAGNUMBOARD® OSB
- 30 mm (2 x 15 mm) of gypsum fireboard

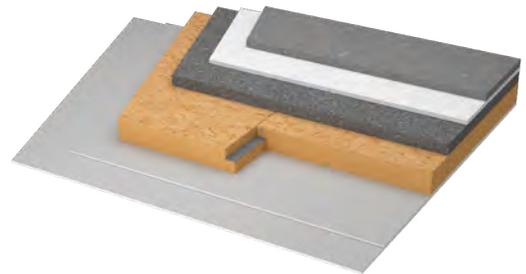
SWISS KRONO KRONO Timber Planner module no. A2711

fire protection: F90 / REI90, without boarding and ceiling module,

test report 21-001061 - PR01 by ift Rosenheim

Acoustic insulation: airborne sound  $R_w = 68$  dB, impact sound  $L_{n,w} = 46$  dB,

acc. to test report no. PB D05-F03-04-de-01 by ift Rosenheim



### SWISS KRONO Ceiling Module of MAGNUMBOARD® OSB

#### From the top down

- 50 mm of cement screed
- 35 mm of acoustic insulation
- 90 mm of Sto crushed stone insulation, bound
- 175 mm of SWISS KRONO MAGNUMBOARD® OSB

SWISS KRONO Timber Planner module no. A2712

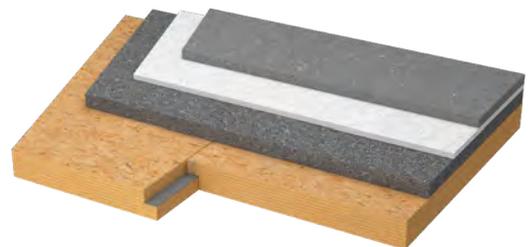
fire protection: F90 / REI90, without boarding and ceiling module,

test report: 21-001061 - PR01 by ift Rosenheim

Acoustic insulation: airborne sound  $R_w = 69$  dB, impact sound  $L_{n,w} = 47$  dB,

acc. to test report no. PB D07-F03-04-de-01 by ift Rosenheim

Directly coverable underneath while following existing instructions



For more tested acoustically insulating and fire protection constructions, see the chart on page 22.

## Tested Constructions

### SWISS KRONO Ceiling Module MAGNUMBOARD® OSB

#### From the top down

- 50 mm of cement screed
- 20 mm of impact sound insulation
- 80 mm of loose crushed stone  
(within square timbers 60 x 80 mm, e = 75 cm)
- 175 mm of SWISS KRONO **MAGNUMBOARD® OSB**

SWISS KRONO Timber Planner module no. A2714

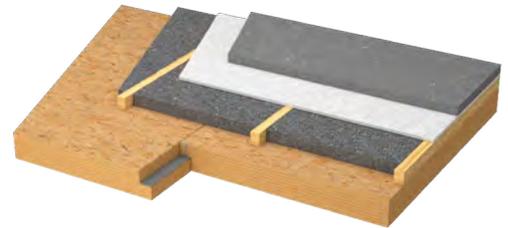
fire protection: F90 / REI90, without boarding and ceiling module,

test report: 21-001061 - PR01 by ift Rosenheim

Acoustic insulation: airborne sound  $R_w = 72$  dB, impact sound  $L_{n,w} = 48$  dB,

acc. to test report no. PB D11-F03-04-de-01, ift Rosenheim

Directly coverable underneath while following existing instructions



### SWISS KRONO Ceiling Module MAGNUMBOARD® OSB

#### From the top down

- 50 mm of cement screed
- 35 mm of impact sound insulation
- 80 mm of loose crushed stone  
(within square timbers 60 x 80 mm, e = 75 cm)
- 175 mm of SWISS KRONO **MAGNUMBOARD® OSB**

SWISS KRONO Timber Planner module no. A2715

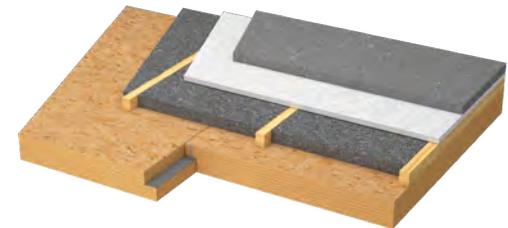
fire protection: F90 / REI90, without boarding and ceiling module,

test report: 21-001061 - PR01 by ift Rosenheim

Acoustic insulation: airborne sound  $R_w = 73$  dB, impact sound  $L_{n,w} = 43$  dB,

acc. to test report no. PB D13-F03-04-de-01, ift Rosenheim

Directly coverable underneath while following existing instructions



### SWISS KRONO Ceiling Module MAGNUMBOARD® OSB

#### From the top down

- 18 mm of cement screed (Wolf Bavaria)
- 30 mm (2 x 15 mm) PhoneStar TRI
- 20 mm of impact sound insulation
- 80 mm of loose crushed stone  
(within square timbers 60 x 80 mm, e = 75 cm)
- 175 mm of SWISS KRONO **MAGNUMBOARD® OSB**

SWISS KRONO Timber Planner module no. A2716

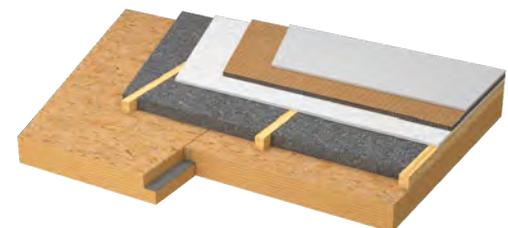
fire protection: F90 / REI90, without boarding and ceiling module,

test report: 21-001061 - PR01 by ift Rosenheim

Acoustic insulation: airborne sound  $R_w = 70$  dB, impact sound  $L_{n,w} = 40$  dB,

acc. to test report no. PB D15-F03-04-de-01, ift Rosenheim

Directly coverable underneath while following existing instructions





**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

RhönKinder House in Poppenhausen, Germany

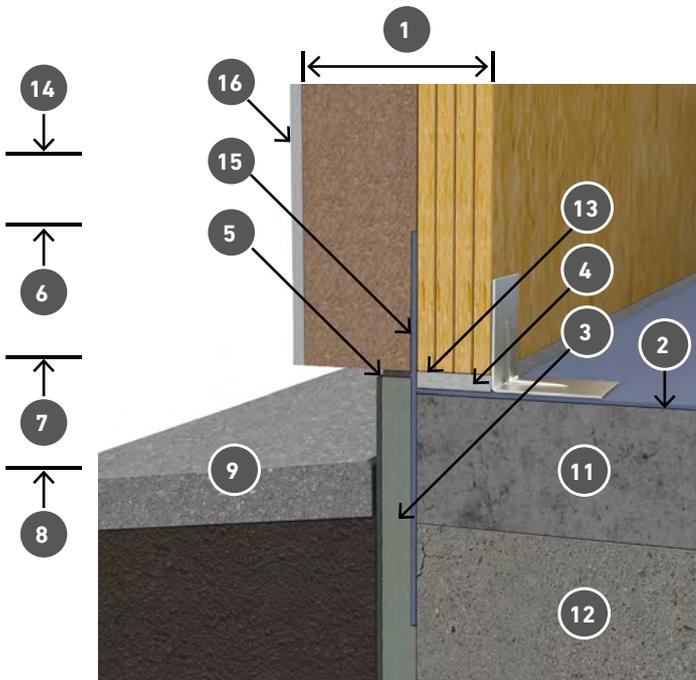
## Construction Details

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.

### MAGNUMBOARD® OSB Base Details with Sealing

Based on DIN 68800-2:2012-02



- 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
- 9 Walkable covering (for terrace or balcony) (= water-conducting layer) with a pitch of at least 2%
- 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

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

**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.

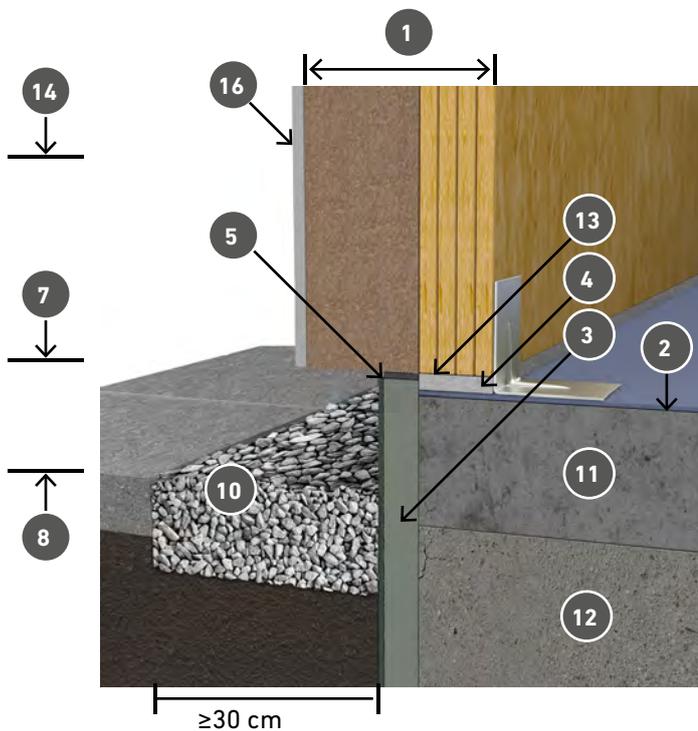


This timber construction system permits rapid assembly of entire buildings from individual wall, roof and ceiling modules.

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 Gravel Bed**

Based on DIN 68800-2:2012-02



- 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
- 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

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



### Applications

Screws can be driven into board joints, similarly to board ends. This is not possible with solid wood.

### Applications

Boarding and cladding must be prepared and attached in compliance with the applicable technical construction regulations (e.g. standards, general test certificates, permits or approvals) using the proper fasteners.

## Construction Details

For everything from corners in exterior walls to interior connecting 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**



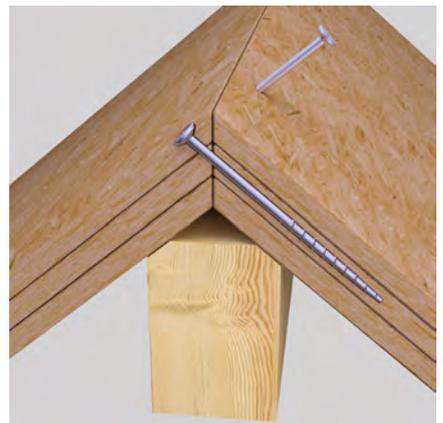
**Ceiling structure**



**Knee wall**



**Ridge apex**



**Did you know?**

Among other things, over 130 different building components made with **MAGNUMBOARD® OSB** are available to choose from at **timberplanner.com**. You can filter to meet the acoustic insulation and fire protection requirements of different German states, plus there are tools for calculating U-values, condensation and structural strength. The components can be downloaded in the form of bids or in IFC4 format.



## Construction Details

A feature which deserves special mention is that screws can be inserted into the joints between boards, which greatly facilitates assembly. Overlapping of the outer layers of the wall panels lets the ceiling simply be inserted into them. Airtightness can be ensured merely by taping 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.

### Knapp connectors



Quick and easy assembly and disassembly with tested WALCO connectors from Knapp

# Soundproofing Matrix and Fire Protection with SWISS KRONO **MAGNUMBOARD®** OSB Walls

In accordance with the indicated test reports or general German technical approval for use in construction

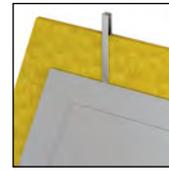
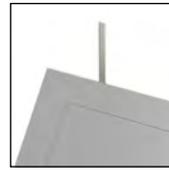
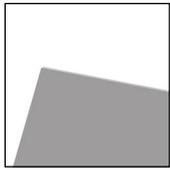
Considered values  $R_w \pm 3$  dB

			Fire protection	Soundproofing	
<b>Additional boarding</b>				None	10 mm of mineral lime plaster
<b>Structure of basic wall</b>					
1	75,0 mm	<b>MAGNUMBOARD®</b> OSB			
				17237203/V03: $R_w (C; C_{tr}) =$ 34 (0; -3) dB	
2	100,0 mm	<b>MAGNUMBOARD®</b> OSB	F30 / REI30 Acc. AbP: P-3151/ 4564-MPA BS		
			F60 / REI60 with 125 mm	PB W01-F02-04-de-01 $R_w (C; C_{tr}) =$ 38 (-1; -3) dB	One side: PB W11-F02-04-de-01 $R_w (C; C_{tr}) =$ 39 (-2; -3) dB
3	100,0 mm 12,5 mm 12,5 mm 120,0 mm 20,0 mm 12,5 mm 12,5 mm 100,0 mm	<b>MAGNUMBOARD®</b> OSB 12,5 gypsum fireboard 12,5 gypsum fireboard F Insulation Air gap 12,5 gypsum fireboard 12,5 gypsum fireboard <b>MAGNUMBOARD®</b> OSB	F90 outside/F30 inside Acc. AbP: P-3108/ 4134-MPA BS	040204.V02: $R_w (C; C_{tr}) =$ 66 (-1; -7) dB	-
					
4	100,0 mm 140,0 mm 50,0 mm 140,0 mm 100,0 mm	<b>MAGNUMBOARD®</b> OSB Plaster base slat Air gap Plaster base slat <b>MAGNUMBOARD®</b> OSB	F90 outside/F30 inside Acc. AbP: P-2101/ 904/19-MPA BS with 160 mm of mineral wool	PB W05-F02-04-de-01 $R_w (C; C_{tr}) =$ 61 (-2; -4) dB	-
					
5	100,0 mm 140,0 mm	<b>MAGNUMBOARD®</b> OSB Plaster base slat	F90 outside/F30 inside Acc. AbP: P-2101/904/19-MPA BS with 160 mm of mineral wool		
					
6	100,0 mm 140,0 mm 10,0 mm	<b>MAGNUMBOARD®</b> OSB Plaster base slate Mineral render	F90 outside/F30 inside Acc. AbP: P-2101/904/19-MPA BS with 160 mm of mineral wool	PB W09-F02-04-de-01 $R_w (C; C_{tr}) =$ 40 (-2; -4) dB	One side: PB W10-F02-04-de-01 $R_w (C; C_{tr}) =$ 40 (-2; -5) dB
					

For more detailed information, please consult the test reports and certificates on the products used.

They are available for downloading on [www.swisskrono.com/de](http://www.swisskrono.com/de).

Additional wall types are available on [www.timberplanner.com](http://www.timberplanner.com).



12,5 mm of gypsum fireboard

2 x 12,5 mm of gypsum fireboard

15 mm of Wolf Bavaria insulating board

2 x 12,5 mm of gypsum fireboard

2 x 12,5 mm of gypsum fireboard

12,5 mm gypsum fireboard

≥ 27 mm spring rail or acoustic isolation clip

50 mm UW or CW clip with 40 mm insulation and 10 mm air gap

One side:  
 $R_w = 35$  dB

One side:  
 $R_w = 37$  dB

One side:  
17237203/V05:  
 $R_w (C; C_{tr}) = 49 (-4; -13)$  dB

One side:  
17237203/V02:  
 $R_w (C; C_{tr}) = 61 (-5; -18)$  dB

Both sides:  
 $R_w = 37$  dB

Both sides:  
 $R_w = 41$  dB

Both sides:  
17237203/V04:  
 $R_w (C; C_{tr}) = 53 (-7; -17)$  dB

Both sides:  
17237203/V01:  
 $R_w (C; C_{tr}) = 68 (-11; -25)$  dB

One side:  
 $R_w = 39$  dB

One side:  
 $R_w = 40$  dB

One side:  
PB W0 2-F02-04-de-01  
 $R_w (C; C_{tr}) = 44 (-1; -4)$  dB

One side:  
 $R_w = 49$  dB

One side:  
 $R_w = 61$  dB

Both sides:  
 $R_w = 40$  dB

Both sides:  
 $R_w = 43$  dB

Both sides:  
 $R_w = 53$  dB

Both sides:  
 $R_w = 68$  dB

Both sides:  
 $R_w = 69$  dB

Both sides:  
 $R_w = 70$  dB

One side:  
 $R_w = 70$  dB

One side:  
 $R_w = 72$  dB

One side:  
PB W03-F02-04-de-01  
 $R_w (C; C_{tr}) = 70 (-2; -4)$  dB

One side:  
PB W06-F02-04-de-01  
 $R_w (C; C_{tr}) = 83 (-2; -7)$  dB

PB W07-F02-04-de-01

One side:  
 $R_w (C; C_{tr}) = 65 (-2; -9)$  dB

One side:  
PB W08-F02-04-de-01  
 $R_w (C; C_{tr}) = 65 (-1; -7)$  dB



### Applications

MAGNUMBOARD® OSB is a solid, homogeneous material. Its high density of approx.  $640\text{kg/m}^3$  results in a burn rate of  $0.75\text{mm}$  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:

Example from timberplanner.com for ceiling A1108 (MAGNUMBOARD® OSB with cement screed, crushed stone weighting and suspended ceiling).  
Transmitted impact sound  $L_{n,w}$ : 44 dB,  
airborne sound  $R_w$ : 72 dB

## Dimensioning Table for Wall Modules

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  $0.75\text{ mm/min}$ . acc. to DIN EN 1995-1-2

> 280 to 38 cm with a horizontal joint

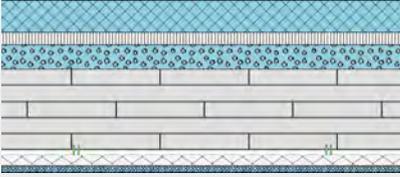
> 380cm element upright with a max. width of 280mm

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

Wall height [cm]	Fire resistance [min.]			
	0	30	60	90
<b>Thickness of 75 mm</b>		<b>Max. load [kN/m]</b>		
280	38	27	16	-
330	28	20	12	-
380	21	15	9	-
500	17	12	0	-
600	12	9	-	-
<b>Thickness of 100 mm</b>		<b>Max. load [kN/m]</b>		
280	89	70	50	0
330	65	50	36	0
380	49	38	28	-
500	41	32	23	-
600	29	22	16	-
<b>Thickness of 125 mm</b>		<b>Max. load [kN/m]</b>		
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
<b>Thickness of 150 mm</b>		<b>Max. load [kN/m]</b>		
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.timberplanner.com](http://www.timberplanner.com).



## Dimensioning Table for Wall Modules

Width 1.00 m, 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 225 mm 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

Own weight Element	Constant load/ ceiling structure	Live load [kN/m <sup>2</sup> ]					
		1.0	1.5	2.0	3.0	3.5	5.0
<b>Thickness of 125 mm</b>							
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
<b>Thickness of 150 mm</b>							
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
<b>Thickness of 175 mm</b>							
1.11	0.00	5.15	5.02	4.90	4.70	4.62	4.40
1.11	0.50	4.76	4.67	4.59	4.44	4.38	4.21
1.11	1.50	4.28	4.22	4.17	4.08	4.03	3.91
1.11	2.00	4.11	4.06	4.02	3.94	3.90	3.80
1.11	3.00	3.84	3.81	3.78	3.72	3.69	3.61
<b>Thickness of 250 mm</b>							
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

Note on 175 mm: This table can be applied without restrictions for achieving 90-minute fire resistance.

See test report 21-001061 - PR01 by ift Rosenheim.

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

Max. distance between supports of the substructure [m] **without** checking of

Own weight Element	Constant load/ ceiling structure	Live load [kN/m <sup>2</sup> ]					
		1.0	1.5	2.0	3.0	3.5	5.0
<b>Thickness of 125 mm</b>							
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
<b>Thickness of 150 mm</b>							
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
<b>Thickness of 200 mm</b>							
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
<b>Thickness of 250 mm</b>							
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 23:**

MAGNUMBOARD® OSB roof modules, connection between valley and ridge



BALAZS Komforthaus GmbH

# Dimensioning Table for Ceiling Modules

Width 1.00 m, 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 225 mm 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 <sup>2</sup> ]					
		1.0	1.5	2.0	3.0	3.5	5.0
<b>Thickness of 125 mm</b>							
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
<b>Thickness of 150 mm</b>							
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
<b>Thickness of 200 mm</b>							
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
<b>Thickness of 250 mm</b>							
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 <sup>2</sup> ]					
		1.0	1.5	2.0	3.0	3.5	5.0
<b>Thickness of 125 mm</b>							
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
<b>Thickness of 150 mm</b>							
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
<b>Thickness of 200 mm</b>							
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
<b>Thickness of 250 mm</b>							
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 18.00 m  
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.



# Dimensioning Table for Roof Modules

Width 1.00 m, 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 superstructure	Live load [kN/m <sup>2</sup> ]				
		1.0	1.5	2.0	2.5	3.0
<b>Thickness of 75 mm</b>						
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
<b>Thickness of 100 mm</b>						
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
<b>Thickness of 125 mm</b>						
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 multiple-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 superstructure	Live load [kN/m <sup>2</sup> ]				
		1.0	1.5	2.0	2.5	3.0
<b>Thickness of 75 mm</b>						
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
<b>Thickness of 100 mm</b>						
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
<b>Thickness of 125 mm</b>						
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



MMD Magnumboard Manufaktur Deutschland | Tenhumberg Objektbau

## Modern Timber Building: Precisely Built, Solid Day-Care Centre in Gescher, Germany

Across a huge glazed front stretching from floor to roof, one can look far into the interior of the Campus daycare centre. Bright rooms, smooth wood surfaces and plenty of room for kids to play, explore and romp in are what characterise this new daycare centre in Gescher in northwestern Germany near the Dutch border.

### **Intriguing architecture with timber boxes and a high entrance**

The building comprises four rectangular units arrayed around a roughly six-metre-high central section topped by a cantilevered roof protruding out three metres. The tall structure in the middle serves as the entrance, delighting arriving children, parents and staff with lovely visible OSB surfaces on its walls and ceilings.

This ample space doubles as a workshop for the children. From here, there is access to a free play area in back and lateral units which are used as group rooms.

The choice of timber and engineered wood products, and specifically SWISS KRONO **MAGNUMBOARD® OSB** and SWISS KRONO OSB/3 EN 300, for building the centre was no accident. In HOMERA, a meta-study conducted by the Technical University of Munich, researchers looked at more than 40 individual studies to learn how the use of wood affects buildings' indoor climate and the people who use them. They concluded that timber and engineered wood products pose absolutely no health hazards; in fact, the opposite is true: they actually improve human wellbeing.





### Prefabricated construction for fast completion

The peripheral units were prefabricated from SWISS KRONO OSB/3 EN 300 using timber frame techniques and transported to the construction site along with larch wood casings.

The two six-metre-high walls of the central structure consist of SWISS KRONO **MAGNUMBOARD® OSB**. The cantilevered roof comprises 18-metre-long hollow-box elements, also made of SWISS KRONO **MAGNUMBOARD® OSB**; various calculations had shown that in terms of both weight and structural strength, this was clearly the best possible approach for implementing a roof with such large spans between supports.

Owing to extensive prefabrication of the individual components, it was possible to complete the project in just eight months.

The earthmoving work began in December 2018, and the centre was ready to welcome the first children for the 2019/2020 school year in August 2019.





ERNE AG Holzbau

## Administration and Rehab Clinic of DRV

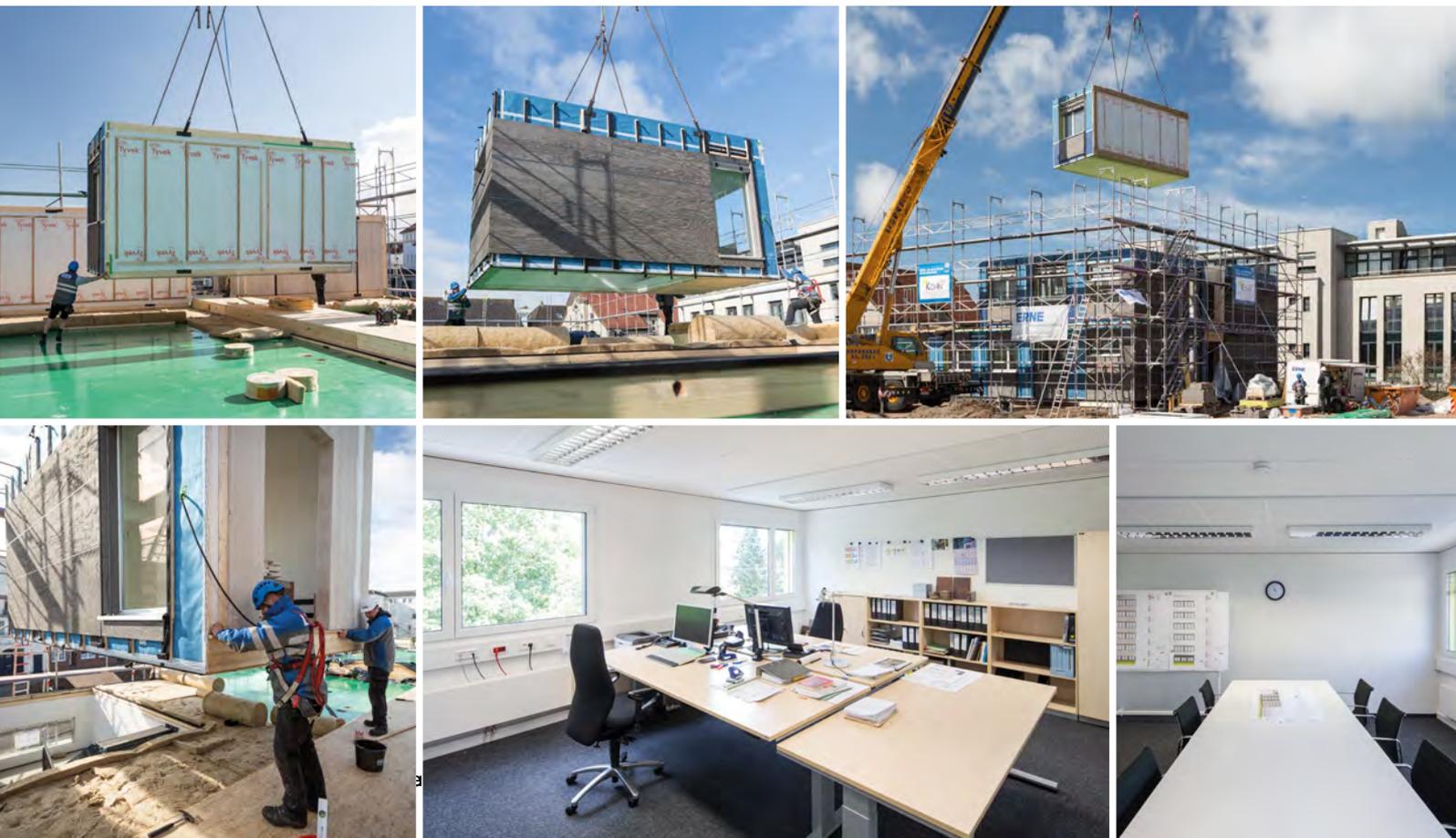
Nearly 9,000m<sup>2</sup> of SWISS KRONO OSB were used to erect a new administration building for Deutsche Rentenversicherung (DRV), Germany's largest state pension insurer, with total floor space of 2,400m<sup>2</sup>. The breakdown was 4,200m<sup>2</sup> of SWISS KRONO OSB/4 and 4,500m<sup>2</sup> of SWISS KRONO OSB/3 EN 300 square-edge, thus sequestering 173 tonnes of CO<sub>2</sub>.

The appearance of the three-storey building was designed to reflect DRV's corporate architecture. Featuring accents in its official colours and an attractive exterior, 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 923m<sup>2</sup> of floorspace.

In all, about 3,030m<sup>2</sup> of SWISS KRONO OSB/4 BAZ sanded and 1,050m<sup>2</sup> 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 1,000m<sup>2</sup> on two storeys.





3BTEC MagnumBoard GmbH | Wood & Light Holzbau GmbH

## Housing Project in Merzig, Germany

In Merzig in Germany's Saarland, about 35 minutes by car from Saarbrücken, a new community comprising 20 two-storey single-family homes is taking shape.

The project comprises several detached houses of different sizes and a few terraced houses. The owner-builders are doing parts of the work themselves to varying extents. The idea is for each house is to meet the personal expectations of its owner-builder while still harmonising with the settlement's overall concept. SWISS KRONO MAGNUMBOARD® provides enormous flexibility for this, as the modules can be flexibly fashioned out of multiple linked OSB/4 boards without the need to adhere to a fixed grid. Nearly all architectural wishes can be met, including windows stretching all the way to the ceiling and atriums.

As it only takes one or two days to erect the build carcasses, SWISS KRONO's solid timber construction system enables significantly faster progress than is possible with conventional timber-frame methods. The interior walls can also be directly coated or otherwise finished, eliminating the need to apply a layer of plasterboard first.

This too saves time. And the pace of construction is additionally accelerated by the fact that no additional installation layer is needed: all of the conduits and pipes are inserted in the modules ahead of time during prefabrication.





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 continuously 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 high-rise filled with offices was assembled from more than 370 modules. It impressively demonstrates the potential of modern timber construction for efficient planning and completion in record time.





## Contact

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SWISS KRONO OSB is a fascinating modern building material which is made from renewable raw materials and imparts a feeling of wellbeing to most people.

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SWISS KRONO OSB is a versatile high-tech building material offering a long list of convincing benefits for cost-effective, eco-friendly construction.

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Freedom of design, healthy living and fast completion: modular and panelised construction with SWISS KRONO OSB offers all this. What more could you possibly want?



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