

2003

S T R O N G

N E A T

S A F E



SASMOX

GYPSUM BONDED WOOD PARTICLE BOARD

CONTENTS

Properties	2	Installation	8
Application	3	Surface finish	9
Production process	4	Fire resistance and	
Structure	4	sound insulation	9-11
Ambient conditions	4	Sasmox floor	12
Technical data and dimensions..	5	A simple way to make	
Storage and handling	5	a perfect floor	12-13
Edge profiles and joins	6	Sound insulation of	
Fasteners	7	floor structures	14-15
Racking capacity	7	Special products	15
Cutting	8		

PROPERTIES



Fire resistance

- Class "1" surface spread of flame (BS 476:1987 Part 7)
- Class "0" (Building Regulations U.K.)
- Building materials class A2, "non-flammable" (DIN)
- Fire resistance, 15 to 120 minutes (NT FIRE)
- Fire class A2-s1,d0 (European Standard EN 13501-1:2002)



Strong and durable

Sasmox is a strong and durable building panel. It can be fixed with small-headed nails. The wood fibres in the gypsum provide a good hold for screw threads and therefore pictures, paintings etc., can be fixed securely to the Sasmox panel without the need for special fastenings.



Efficient sound insulation

Sasmox wall structures insulate sound very well, especially if the tight Sasmox joint is used in the installation.

Suitable frame structures and proper insulation allow wall structures which will fulfill stringent requirements, for example in hotel rooms, hospitals, schools, offices and industrial buildings.



A safe product

Safe materials, wood and gypsum, are used to make Sasmox. Sasmox does not contain glues or asbestos.



Good working properties

Cutting the board with a saw leaves a clean, sharp edge. The panel can be tongued and grooved, sanded and drilled with an ordinary power drill.



Seamless wall surfaces

Boards can be joined using:
a) Sasmox jointing compound and leaving a joint gap of 5 - 7 mm between the boards to produce a seamless wall surface or
b) Boards with tapered edges and paper joint tape in the same way as standard dry lining.

FOR DURABILITY AND HIGH QUALITY



Sasmox panels open up new horizons in demanding applications, for example in public buildings. Besides its fire resistance and sound insulation, Sasmox produces a seamless surface for wallpapering or

painting. With Sasmox, you also have a choice of finished panels. There is, for example, the wood veneered Sasmox panel, which conforms to the fire resistance standards.



Sasmox panels can be used to improve the fire safety of old buildings. The original interiors can be reproduced by using the

correct Sasmox joint and finish, matching the original finishes perfectly.



Sasmox is an excellent choice in the walls of schools, sports and youth facilities in which maximum durability is the requirement. The Sasmox range has the answer to every problem: Sasmox-10 for standard facilities and ceilings,

Sasmox-12 for the walls of gym halls, classrooms and corridors, and Sasmox-15 for the higher impact areas. Sasmox panels can, in most applications, withstand surface impacts without additional reinforcements.



The good load capacity of Sasmox panels and their suitability for machine nailing are special advantages in prefabri-

cated construction. The edges of cut pieces match those of full-size panels, and the joints are always clean.



Finished panels are in great demand. You can have your Sasmox panels finished with wood veneer, melamine, laminate, plastic, special wallpaper, etc.

The edges are always clean and sharp. The finished Sasmox panels can be glued or fixed by concealed or surface fillets.

PRODUCTION PROCESS

The concept of a wood gypsum board is of German origin. The new panel, which combines wood chips with gypsum, was first introduced at a conference in 1982.

In 1984, Sasmox acquired the right to manufacture the panel in Finland. A factory was built for this purpose and production began in autumn 1985. At the time, the Finnish plant was the first of its kind in the world.

Sasmox panels are produced by the half-dry method, which means that much less water is added to the process than in the other manufacturing methods. This technique gives the very best strength properties.

Sasmox production process:

Pretreatment of gypsum
At the gypsum plant, the raw material is

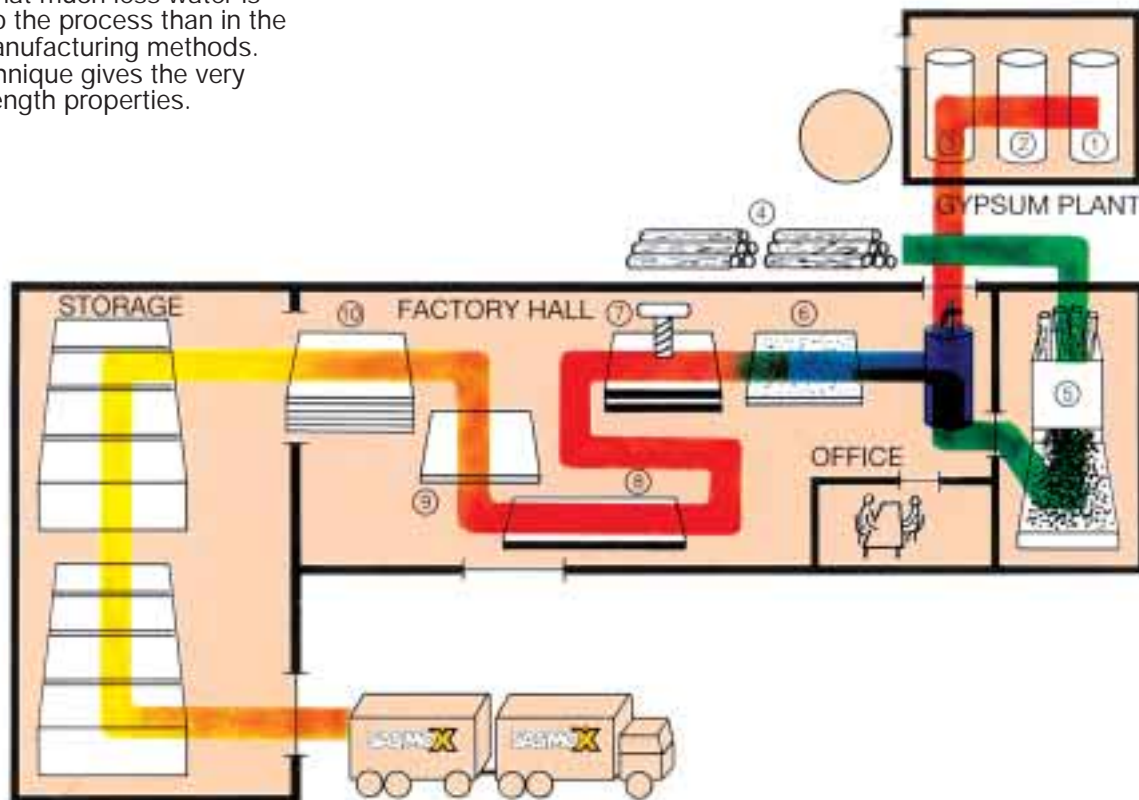
1. Washed
2. Dried, and
3. Calcinated.

Pretreatment of wood
The wood is

4. Debarked, and
5. Cut into chips.

The moist and mixed mass of wood chips and gypsum is

6. Spread on steel plates,
7. The material sets in the press and a durable bond is formed between the wood and gypsum.
8. The pressed boards are dried.
9. The finished panels are cut to size and calibrated.
10. The panels are packed and stored.
11. The panels are dispatched to customers.



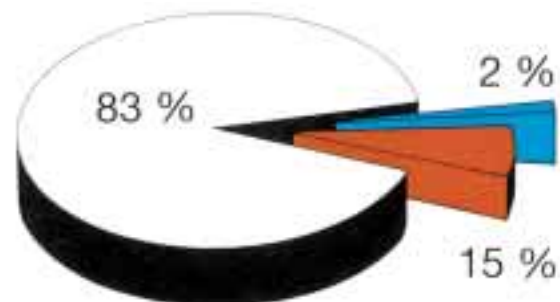
STRUCTURE

Gypsum makes up approximately 83 per cent of the weight of a Sasmox building panel, whilst the share of wood fibres is 15 per cent. The moisture content of the panel is about 2 per cent in normal conditions (RH 65 per cent).

The structure is based on the bond produced in the press between

gypsum and wood fibres. No glue is used in the production. The panels do not contain asbestos and they do not emit substances hazardous to health.

The entire Sasmox panel consists of wood and gypsum. The visible surface is dense, smooth and of a light tone.



AMBIENT CONDITIONS

Sasmox panels can be used in normal indoor conditions as well as in cold industrial and storage facilities where they are not exposed to water or snow.

In bathrooms Sasmox panels can be used under vinyl surfaces and moisture-proof tile lining.

Sasmox is not recommended for use in facilities which are wet

all the time or in conditions where the temperature is regularly above 45°C. The panels should always be adequately protected from water and moisture ingress during storage and following installation.

TECHNICAL DATA

Density	approx. 1250 kg/m ³
Modulus of elasticity (bending and compression)	4000 N/mm ²
Bending strength	9 N/mm ²
Tensile strength parallel to surface	3.5 N/mm ²
Compressive strength	9.5 N/mm ²
Tensile strength perpendicular to surface	0.3 N/mm ²
Surface hardness (Brinell d. 10 mm)	18 N/mm ²
Linear expansion (RH 30%-RH 85%)	0.08 %
Thermal conductivity	0.24 W/Km
Water vapour permeability	approx. 4.5×10^{-12} kg/msPa
Air permeability	approx. 8.5×10^{-9} m ³ /msPa
Moisture content (RH 65%)	approx. 2 %
Specific heat capacity	1320 J/kg deg C
Vapour resistivity	2.98 GNs/kg

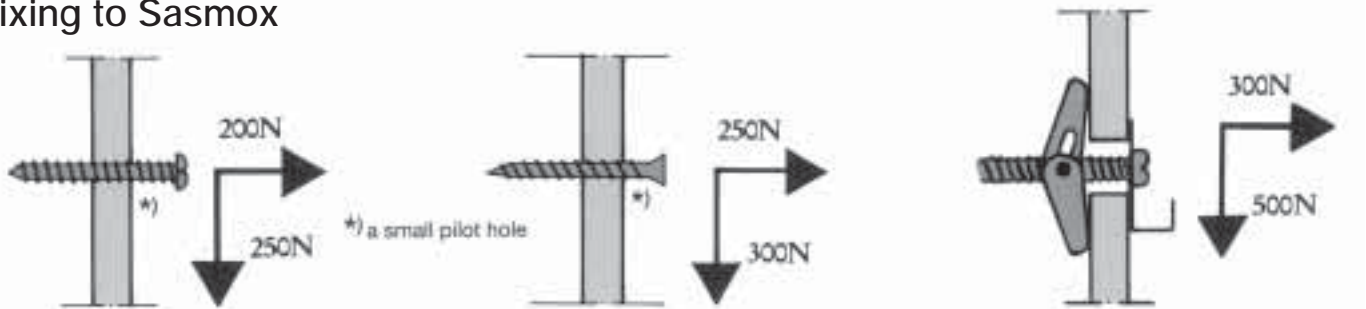
Dimensions

Widths (mm) 600, 1200, 1220
 Lengths (mm) 2400, 2440, 2500, 2600, 3000
 Thickness (mm) 8, 10, 12, 15, 18, 22
 (other thicknesses available on request)
 Edge profiles • Tapered edge
 • Square edge
 • Bevelled edge
 • Half lap (thickness ≥ 12 mm)
 • Tongue and groove (thickness 18-22 mm)

Tolerances

Thickness	8-12 mm	± 0.5 mm
	15 mm	± 0.7 mm
	> 15 mm	± 1.0 mm

Fixing to Sasmox

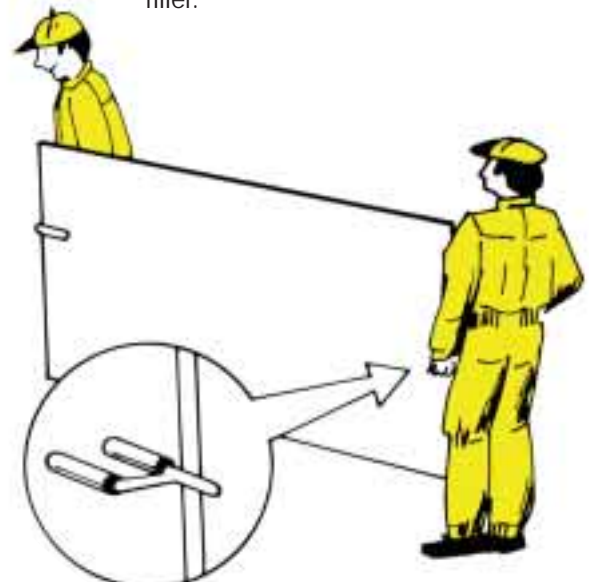
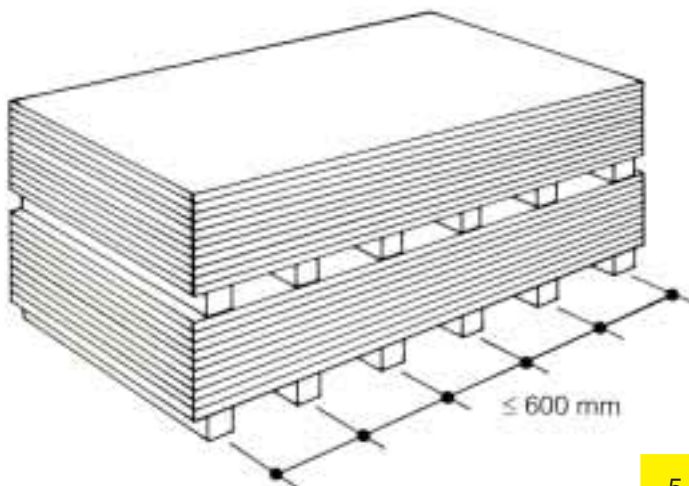


STORAGE AND HANDLING

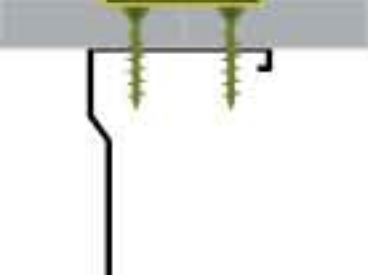
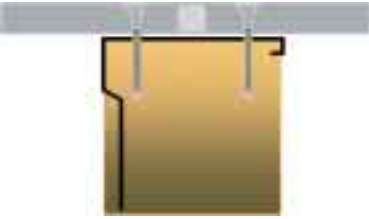
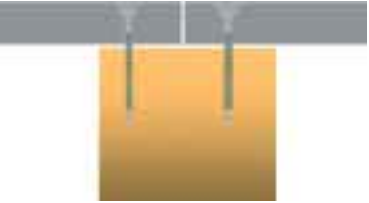

The panels must be stored in a dry location and protected from damp and/or freezing conditions. The delivery package does not provide sufficient protection for the boards to be left outdoors. Bearers should be placed at

600 mm centres, in line for the stacked packages, throughout the pile. Before installation and jointing, the panels should be allowed to acclimatize to average humidity conditions.

Remember that the Sasmox panels are heavier than plasterboard or wooden boards. A crack or defect on the edge or surface caused by handling or nailing can be fixed with Sasmox jointing filler.




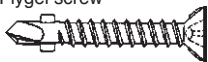
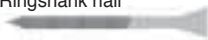
EDGE PROFILES AND JOINTS

Board code SXR-RO Seamless surface: Tapered edges on long edges of the boards and paper joint tape	
<ul style="list-style-type: none"> - Thickness 12 and 15 mm - Frame width \geq 38 mm stud <p style="text-align: center;">Fastening distance \geq 12 mm</p> <p style="text-align: center;">↔</p> 	<p>Joint tape</p> <ul style="list-style-type: none"> • 50 mm wide paper joint tape intended for jointing gypsum boards. • No other joint tapes are permitted. <p>Fastenings</p> <ul style="list-style-type: none"> • The heads of fasteners should be driven to a depth of 1-2 mm below the surface of the tapered edge. • Normal fastening does not require pre-drilled holes. • Screws: Screws with small countersunk heads eg: Sasmox and Hobau. <p>Installation (steel or wooden frame)</p> <ul style="list-style-type: none"> • Tapered edge is provided as standard on long edges of the boards. • Boards with tapered edge are placed in a butt position (not tightly side by side) • Jointing can start once a state of equilibrium has been reached between the relative humidity of the room space and the moisture content of the board. • The paper joint tape is fastened onto the tapered edge in dry indoor conditions using an appropriate jointing filler. • The joint surfaces are then smoothed over using a light filler appropriate for smoothing gypsum boards. • Sufficient amounts of filler are left underneath and on top of the tape to enable adhesion and surface finishing.
Board code SXR-SR Seamless surface: Sasmox jointing compound and square-edged boards	
<ul style="list-style-type: none"> - Thickness 10, 12 and 15 mm - Frame width \geq 38 mm <p style="text-align: center;">Fastening distance \geq 12 mm</p> <p style="text-align: center;">↔</p> 	<p>Sasmox jointing compound</p> <ul style="list-style-type: none"> • Sasmox gypsum compound is used as jointing filler. <p>Fastenings</p> <ul style="list-style-type: none"> • The heads of fasteners should be driven to a depth of 1-2 mm below the surface of the board. • Normal fastening does not require pre-drilled holes. • Screws: Screws with small countersunk heads eg: Sasmox and Hobau. • Nails: Small-headed and sharp-pointed ringshank nails (see p.7) • The best tool for the nail fastening is a nail gun (ie: Paslode or similar) <p>Installation (steel or wooden frame)</p> <ul style="list-style-type: none"> • An open joint gap 5-7 mm should be left between boards on installation. • Jointing can start once a state of equilibrium has been reached between the relative humidity of the room space and the moisture content of the board. • The open gap left between the boards should be filled, to the full depth of the board with Sasmox jointing compound. Once the compound has dried, another layer of filler is applied if necessary. • The joint surfaces are then given a finishing treatment using a light filler appropriate for smoothing gypsum boards and sanded as required. • Areas requiring additional reinforcement should have a paper joint tape placed over the joint, and bedded and finished with filler.
Board code SXR-SR Visible joints: Boards installed in a butt position, joints are not smoothed over	
<ul style="list-style-type: none"> - Thickness 10, 12, 15 and 18 mm - Frame width \geq 38 mm <p style="text-align: center;">Fastening distance \geq 12 mm</p> <p style="text-align: center;">↔</p> 	<p>Fastenings</p> <ul style="list-style-type: none"> • As Board code SXR-SR (seamless surface). <p>Installation (steel or wooden frame)</p> <ul style="list-style-type: none"> • Boards with square edges are placed in butt position. • If necessary, indents left by fastenings can be smoothed over. • The joints are intended to left unfilled (not smoothed over).
Board code SXR-RV Bevelled joint: Bevelled edge on long edges of boards, installation into butt position, no smoothing over	
<ul style="list-style-type: none"> - Thickness 10, 12, 15 and 18 mm - Frame width 38 mm <p style="text-align: center;">Fastening distance \geq 12 mm</p> <p style="text-align: center;">↔</p> 	<p>Fastenings</p> <ul style="list-style-type: none"> • As Board code SXR-SR (seamless surface). <p>Installation (steel or wooden frame)</p> <ul style="list-style-type: none"> • Boards with bevelled edges are placed in butt position. • The bottom of the bevelled groove can be finished with an acrylic compound. • The joints are intended to left unfilled (not smoothed over).

FASTENERS USED WITH SASMOX BUILDING BOARDS

The best way to fasten SasmoX boards to steel or timber studs is to use small-headed, countersunk screws (SasmoX or Hobau). Sharp-pointed ringshank nails are also suitable when fixing to timber studs. In normal circumstances

pre-drilling is not required. If the fixings are finished over using filler, the heads of the screws or nails must be driven to a depth of 1-2 mm below the board surface. The edge distance to the fasteners must be ≥ 12 mm.

Fasteners for different board layers				
Fasteners	Type	Fastener Lengths (mm)		
		Single board layer 1x10 or 1x12 or 1x15	Double board layer	
			2x10 or 2x12	2x15
 SasmoX & Hobau screw	Steel Frame, thickness 0,6 mm			
	SasmoX screw	3.9x30	3.9x45	3.9x45
 Flygel screw	Hobau screw	4.2x35	4.2x45	4.2x45
	Steel Frame, thickness >1 mm (drill-point screws)			
	Flygel screw	4.2x32	4.2x45	4.2x45
 Ringshank nail	Wooden Frame			
	SasmoX screw	3.9x45	3.9x55	3.9x55
	Hobau screw (coarse)	4.2x41	4.2x51	4.2x55
	Ringshank nail	2.2x35	2.5x45	2.8x55

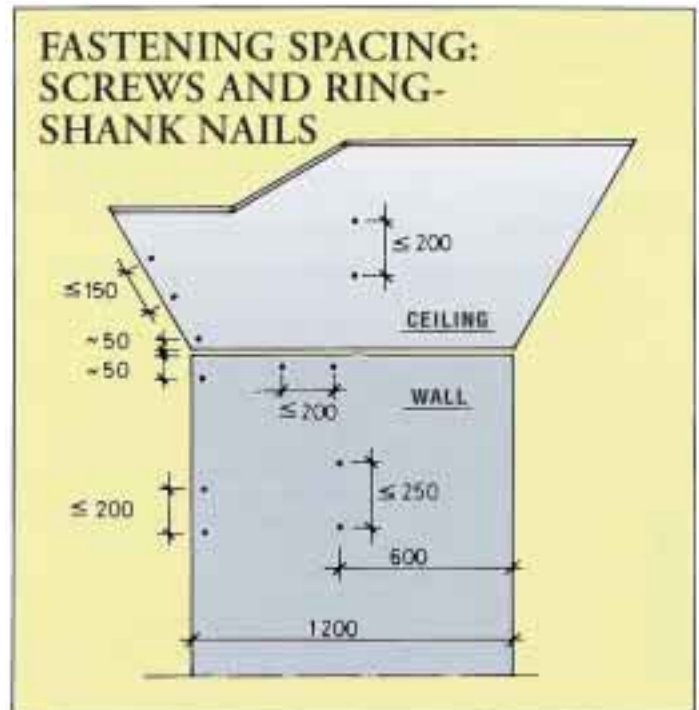
FASTENING SPACING

Fastening spacing and numbers of screws required

Structure/ stud spacing [mm]	NUMBER OF FASTENERS / SQ. METRE OF BOARD	
	Fast. Spacing, board edge / centre [mm]	
	CEILING 150 mm / 200 mm	WALLS 200 mm / 250 mm
600	20 / m ²	15 / m ²
400	24 / m ²	18 / m ²
300	28 / m ²	22 / m ²

In normal applications, ringshank nails can be used at the same spacing as screws.

In facilities where the walls are exposed to dynamic stresses (e.g. sports facilities), the boards need to be fastened using screws.



RACKING CAPACITY

SasmoX boards are an excellent means of achieving racking resistance to wall panels.

1) SasmoX has been tested by the University of Surrey in accordance with BS EN594:1996 to confirm its capability as a sheathing board for timber frame wall

construction. Tests were carried out on a 2400 x 2400 panel, using 12 mm board, nailed with 3.35 diameter plain nails at 150 mm centres to the board perimeter, 300 mm centres to internal studs. A full copy of the test results is available upon request.

2) The German DIBt type approval (Z-9.1-336) as per DIN 1052 1-3 for bracing SasmoX wall and element structures is also available upon request.

CUTTING



A jig saw can also be used without the suction unit to produce different - even complicated - cuts on the panel.



Using a hard-metal circular saw and a guide rail to enable fast and safe sawing of the boards. Narrow strips can be sawn with the board resting on the stack.



During the cutting operation, the guide rail rests on the panel by adhesion. A suction unit operates at the same pace with the saw extracting chips and dust into a bag.



A cut made with a power drill is neat. The tight fit meets the requirements of sound engineering and the sockets are installed securely on the wall.



When using mechanised screw insertion the penetration of the screw head into the board can be set to the desired depth (with boards to be filled it should be approx. 1-2 mm).



Fillers adhere to the gypsum surface of the board readily. Any dust and other impurities on the board surface should be removed before surface coating the board.

INSTALLATION

Walls

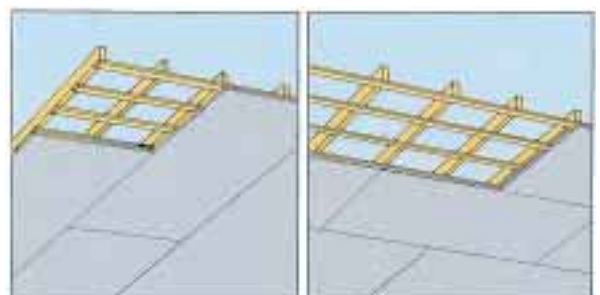
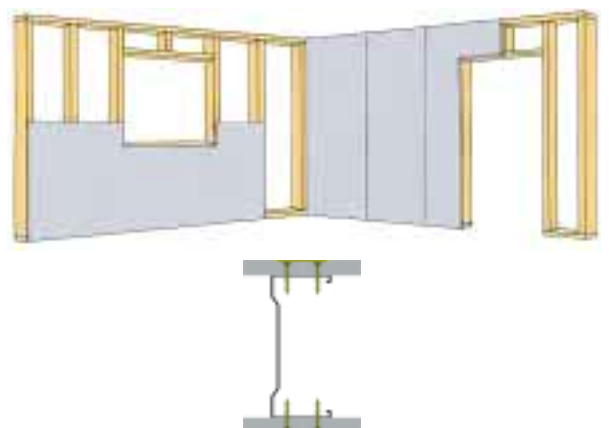
The boards can be positioned either vertically or horizontally when constructing walls. The edges of the boards must always be supported by a stud behind. The stud spacing is typically 300-600 mm (see p.2).

Avoid joints directly above window or door openings. In order to avoid stressing the board during installation, the following order of fastening should be applied: edge - centre line - edge. Never try to force a board into a space too small for fit.

As a rule, boards on either side of a wall should be fastened so that their joints coincide (overlie the same studs) as this ensures wall straightness. In double layers, the joints of double layered panels fixed to the same side of the wall or partition must be staggered.

Ceilings

The joist spacing in ceilings should be ≤ 400 mm. Cross joints should be avoided by locating the end joints of the boards as shown in the figure. The boards used in constructing ceilings should be provided with tapered edges and the joints covered by using paper joint tape. When fastening boards, they need to be pressed evenly against the space structure.



SURFACE FINISH

The firm light-coloured surface of the Sasmox panel provides a good base for most surface finishes. It is possible to produce a continuous jointless wall surface because of the very small moisture adjustment on the panel.

Painting

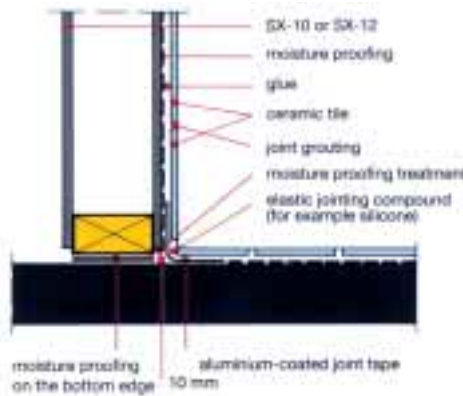
The Sasmox panel can be finished with emulsion paint, with the first coat thinned with water, if necessary. Some latex paints require that the surface is first primed with a base coat. Follow the paint manufacturer's instructions for gypsum surface.

Wallpapering

Ordinary wallpapers can be applied to the Sasmox panel with wallpaper paste. Gluing is generally recommended with plastic as well as with special finishes and wallpapers.

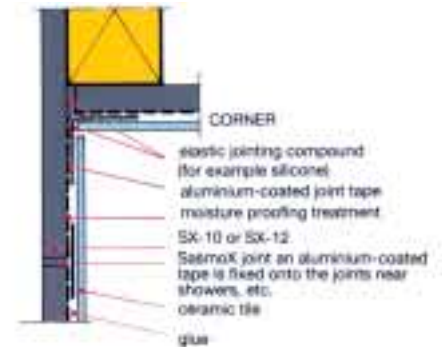
Tiling

Sasmox makes a very good base for tiling, for example, in kitchens, toilets and bathrooms. In wet areas, it is advisable to use solid structures (for example brick) under the tiles instead of panels.



Panel surfaces, including the bottom edges and the areas around the leadthroughs, are treated by applying two or three coatings of a moisture proofing treatment. If necessary, the substance is thinned down for the first treatment.

No moisture proofing is needed under the tiles in dry conditions.



FIRE RESISTANCE AND SOUND INSULATION

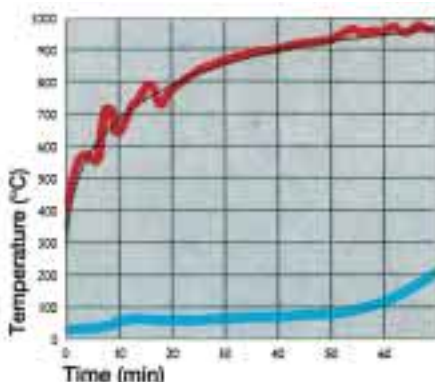
General

Gypsum makes up 83 per cent of the weight of a Sasmox panel. If a fire breaks out, the crystal water in the gypsum is released by the effect of heat and prevents the spreading of the fire as long as there is crystal water left.

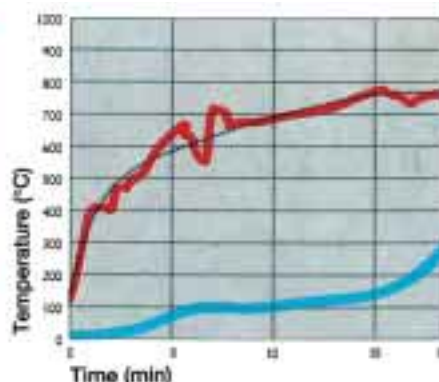
The wood fibres which make the board strong are protected by the gypsum inside the panel. That is why no sudden changes take place in the panel when exposed to a fire.

Fire resistance standards in different countries:

- European Standard
 - fire class A2-s1,d0 (EN13501-1:2002)
- Finland
 - ignitability/spread of flame 1/1 (NT FIRE 002, 004), the approval includes veneered panels
 - coverings: resistance to fire 15 minutes (NT FIRE 003)
 - non-bearing partition constructions 15 to 120 minutes
 - fire protection of bearing steel constructions 30 to 180 minutes
- Germany
 - Sasmox-A2, "nichtbrennbar" (DIN 4102, Part 1)
- Netherlands
 - fire spread and smoke development, class 1
- Norway
 - fire class K1-A
- Commonwealth of Independent States
 - spread of flame (includes veneered panels)
 - resistance to fire
 - partition walls
 - fire protection of bearing steel constructions
- Sweden
 - protective covering, surface class I
 - difficultly ignitable material (ISO 5657)
 - caloric value 3270 kJ/kg (ISO 1716)
- Switzerland
 - protective covering F30 (SX-18)
- UK
 - building regulations class "0" (BS476: Part 6:1981 and Part 7:1987)
 - surface spread of flame class "1" (BS476: Part 7)
 - partition: 30 to 90 minutes (BS476: Part 22:1987)



The fire resistance of Sasmox wall construction code SW 15; the temperature remains below 100°C for about an hour, at the same time the furnace temperature rises to nearly 1000°C.



In the fire resistance test for coverings the surface of a Sasmox panel (10 mm) is subjected to the thermal stress represented by the upper diagram. On the opposite side, the temperature remains around 100°C as long as there is crystal water in the gypsum of the Sasmox board.

THE VALUES SHOWN ARE FOR STEEL CHANNEL FRAME AND TIMBER STUD FRAME

1. The panels are butted or jointed with Sasmox jointing compound (see joints p.6). The boards can be positioned either vertically or horizontally when constructing walls. The edges of the boards must always be supported by a stud behind. The stud spacing is typically 300-600 mm (see p.2).

Avoid joints directly above window or door openings. In order to avoid stressing the board during installation, the following order of fastening should be applied: edge - centre line - edge. Never try to force a board into a space too small for it.

As a rule, boards on either side of a wall should be fastened so that their joints coincide (overlie the same studs) as this ensures wall straightness. In

double layers, the joints of double layered panels fixed to the same side of the wall or partition must be staggered.


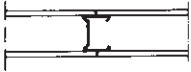
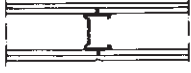




2. The numbers in the table below are tested laboratory values which can be reached in practical applications by careful sealing and proper design. To allow for working errors, these values should be decreased by 2 to 4 dB. The sound insulation measurements were made according to ISO 140/3-1978 and Rw according to ISO 717/1. 1982.

3. Non load-bearing walls. Fire partition tests were made according to NT FIRE 005 (originally ISO 834-1975). Some

of the structures were also tested according to BS476:Part 22:1987, and assessments made.

4. The insulation must remain in a fire. It is therefore secured by special fastenings or made approx. 10 mm wider than the free space between the studs. The thickness of the insulation is chosen according to the cavity. Rock based mineral wool, sintering point $\geq 900^{\circ}\text{C}$ and density 30 to 60 kg/m^3 , is suitable for fire insulation. All types of mineral wool, density $> 17 \text{ kg}/\text{m}^3$, are suited for sound insulation.

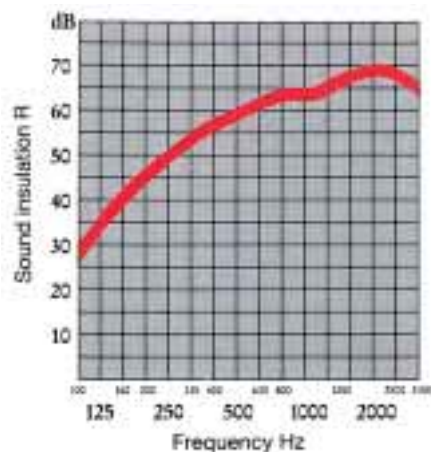
5. For sound compartmentation, adjacent studs must be placed at least 5 mm apart.

Steel Channel Frame				Panel Thickness			
				10 mm		12 mm	
Code	1) Construction	Steel Channel Depth (mm)	4) Insulation Thickness (mm)	2) Sound Insulation R_w (dB)	3) Fire Resistance (min)	2) Sound Insulation R_w (dB)	3) Fire Resistance (min)
SS3 SS4		70 95	-	-	-	38 38	30
SS7 SS8		70 95	-	39 40	15	42 43	30
SS11 SS12		70 95	-	47 47	60	52 52	60
SS14 SS15		70 95	70* 95*	47 49	30	49 51	30
SS19		70	70	53	60	58	60
SS20		95	95	56	90	59	90
SS23		5) 70 + 70	70 + 70	-	-	69	120

The effect of the structure on sound insulation performance

The table gives examples of typical Sasmox structures. The upper value is a measured result in laboratory conditions. It can be reached in practical applications by proper jointing, careful installation, and good sealing.

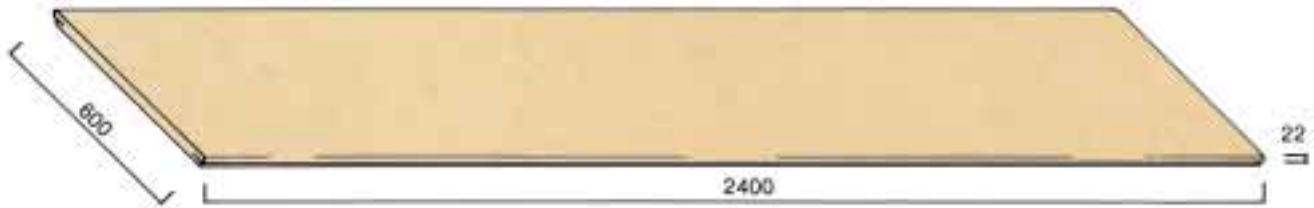
The table shows that Sasmox structures achieve good sound insulation.



The sound insulation diagram for the Sasmox partition code SS20 (SX-12 mm) is based on the measured results.

Timber Stud Frame				Panel Thickness			
				10 mm		12 mm	
Code	1) Construction	Timber Stud Depth (mm)	4) Insulation Thickness (mm)	2) Sound Insulation R_w (dB)	3) Fire Resistance (min)	2) Sound Insulation R_w (dB)	3) Fire Resistance (min)
SW3 SW4		70 95	-	35 35	15	36 36	30
SW7		70	-	39	15	41	30
SW8		95	-	40	30	42	30
SW11 SW12		70 95	-	44	60	46	60
SW13 SW14		70	70* 70	42 -	30 -	- 43	- 60
SW15		95	95	43	60	45	60
SW19		70	70	48	60	52	60
SW20		95	95	51	90	55	90
SW23		5) 70 + 70	70 + 70	65	120	67	120

SASMOX FLOORING BOARDS



The Sasmox flooring board (SXL) is tongued and grooved on all edges. The boards must be dry when they are installed. Please ensure that they are stored in a place where they are protected from snow and water.

Fire safety and protection

- Ignitability, class 1 (NT FIRE)
- Spread of the flame, class 1 (NT FIRE)
- Partition constructions up to 30 min.

Excellent sound insulation

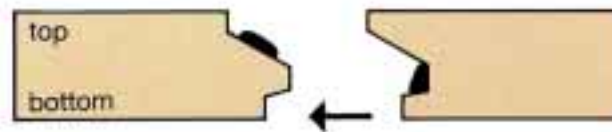
- Good insulation of airborne sound
- Good insulation of impact sound non-creaking.

Non-Hazardous

- No adhesives or glues
- No asbestos
- No hazardous emissions.

A variety of surface options

- Vinyl
- Cork
- Parquet
- Ceramic tiles
- Paving



The panels are installed so that the tongue is located as shown in the above drawing. The tongue should be glued with PVAC or one component PU glue.

A coarsely threaded, countersunk screw (for example Grabber, Torx 20 or equivalent) is used for fixing. The minimum length of the screw must be 2.5 times the thickness of the panel.

A SIMPLE WAY TO MAKE A PERFECT FLOOR

For ordinary indoor conditions

The Sasmox floor board is suited for normal and dry indoor conditions. The panel has minimal movement in use. The distances between expansion joints according to structural design.

The Sasmox floor board is suitable for use in combination with under-floor heating systems.

Clean and neat cut

Using a chamfered rotary saw, the Sasmox boards can be cut while still on the pallet. The saw is equipped with a guide rail and the saw blade can be adjusted very accurately, which means that cutting can be done on the floor as well. An efficient suction unit extracts the cuttings into a bag.

Small holes are made quickly by a box drill and larger holes by a jig saw.

Sanding and finishing

If necessary, Sasmox board surfaces can be finished by sanding and with a gypsum filler. Since the board is of a uniform consistency, the quality of the surface is not affected by sanding. The resulting dust must be removed before the final finish is applied.

The surface of the board may be pretreated depending on the gluing of the surface material.

A variety of surface options

Dispersion and polyurethane glues are used for fixing,

depending on material. The glue manufacturer's instructions must be followed.

Before tiling, the board surface (moisture permeable joints) must be treated by moisture proofing or a moisture-proof glue is used for fixing.

Step attenuation

To improve the sound insulation of solid and hollow-core concrete slab, an elastic insulating material and a board are installed on the slab.

The irregularities of the concrete surface are smoothed out by dry sand or by grouting. Moisture release from the concrete is prevented by moisture proofing.

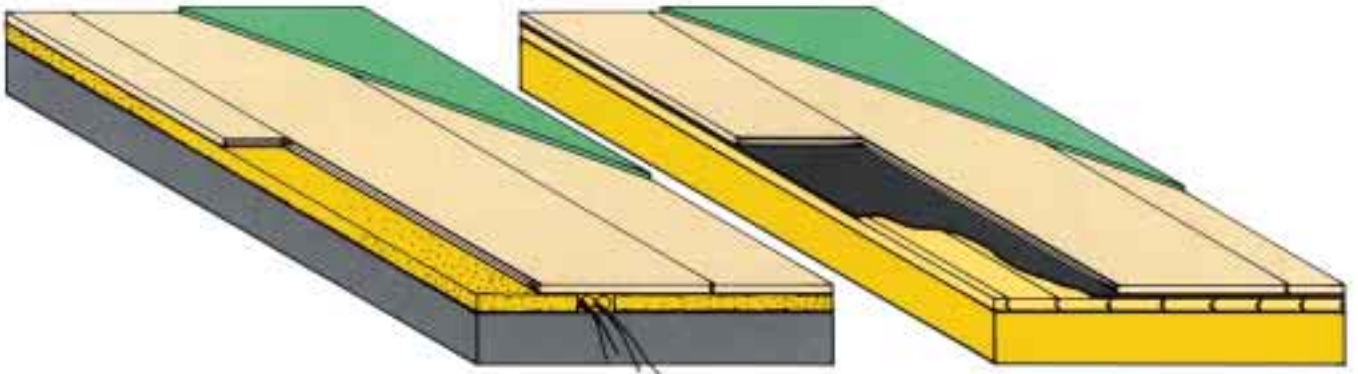
Floor renewal

If the old floor is straight and fairly even, the boards can be installed without any supporting timber. A cork board is placed on the dry bottom to even out minor irregularities and to improve sound insulation. A moisture

resisting material or moisture proofing should be used on the concrete surface to prevent moisture release.

A sloping floor is adjusted by using supporting timber or other material. Minor irregularities can

be evened out by grouting. A sufficient layer of insulation under the panel also provides space, for example, for the installation of electric cables.



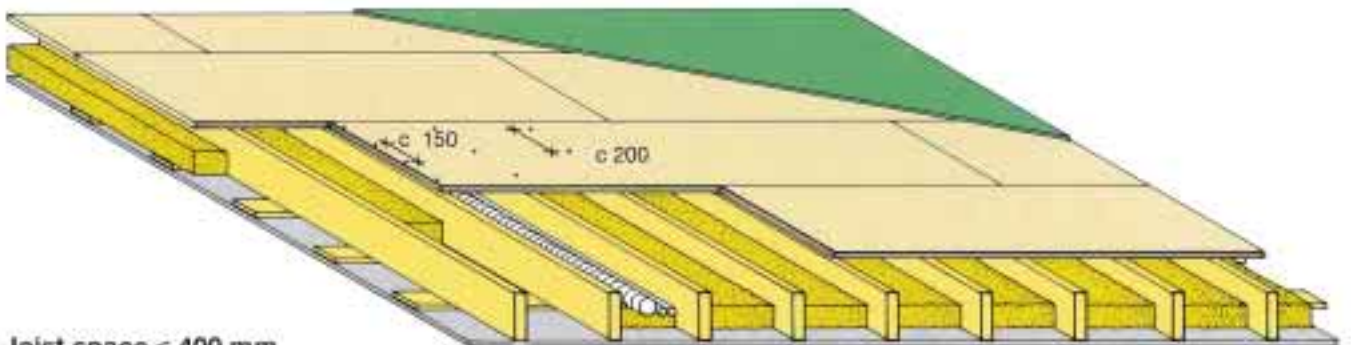
Intermediate floors

A structural engineer determines the main joists according to the span and the load. The use of insulation in the cavity and the fixing of the boards under the supporting joists must be decided according to the requirements for sound insulation (see

the section on sound insulation). In regard to board, support spacing and load, the structure dimensioning has to be done for each case separately.

Spacing of joists max 400 mm centres. For the heavy load, the joist space must be ≤ 300 mm.

The boards (SXL-22) are installed so that the long sides are laid across the main joists. The short sides, which should overlap by at least two joist spaces, are placed on the bearers. The boards must continue over a minimum of two joist spaces.

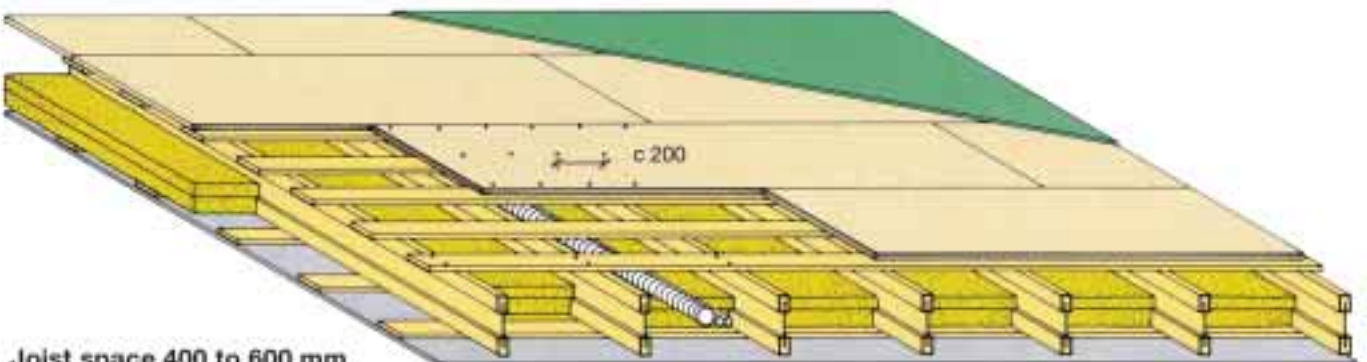


Joist space ≤ 400 mm

Timber cross battens (22 x 100) at 280 mm centres are fixed onto the joists so that there is a timber batten in the middle of the Sasmox board and under the long sides. The battens are fixed to each joist with two galvanised wire nails, for example 100 x 3.4. The Sasmox

boards (SXL-22) are laid in a staggered pattern and installed so that the long sides are parallel to the cross battens. The ends must be above the main joists. No battens are needed if two layers of Sasmox are used. The first layer is installed on the joists and

fixed by screws. The next layer is fixed by screws to the first panels with joints overlapping by at least 200 mm. In both layers, the long sides are laid across the main joists and the short sides of the first layer are at the support.

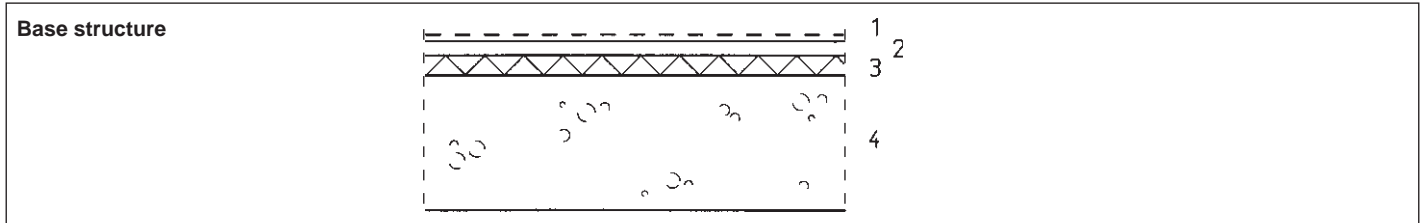


Joist space 400 to 600 mm

SOUND INSULATION OF FLOOR STRUCTURES

The values shown are sound insulation values of various types of floor structures. All the dB ratings shown do not include allowance for floor coverings. Coverings such as linoleum, mosaic or parquet will significantly improve impact sound insulation in structures. The results shown are laboratory measurements as per ISO 717.

Massive steel-reinforced concrete slab as bearing structure

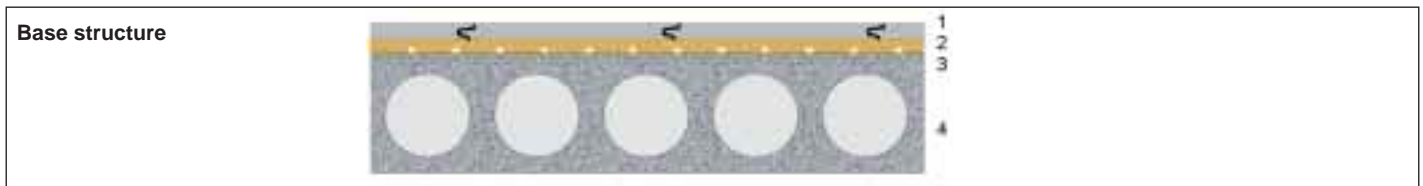


FL 1 (a,b, c)
Structure
1 Floor covering as per room specification
2 1 x Sasmox floor board (SXL-22) 22mm
3 Porous wood-fibre board 22mm
4 Massive concrete slab 160-210mm
Sound insulation
Impact sound level value Ln,w :
FL1a: Slab 160mm, Ln,w = 52 dB
FL1b: Slab 190 mm, Ln,w = 50 dB
FL1c: Slab 210mm, Ln,w = 49 dB
Sound reduction capacity Rw = 60 dB

FL 2 (a,b, c)
Structure
1 Floor covering as per room specification
2 1 x Sasmox floor board (SXL-18) 18mm
3 Porous wood-fibre board 12mm
4 Massive concrete slab 160-210mm
Sound insulation
Impact sound level value Ln,w :
FL2a: Slab 160mm, Ln,w = 55 dB
FL2b: Slab 190mm, Ln,w = 53 dB
FL2c: Slab 210mm, Ln,w = 52 dB
Sound reduction capacity Rw = 60 dB

FL 3 (a,b, c)
Structure
1 Floor covering as per room specification
2 1 x Sasmox floor board (SXL-22) 22mm
3 Mineral insulation wool ($\geq 100 \text{ kg/m}^3$) 20mm
4 Massive concrete slab 160-210mm
Sound insulation
Impact sound level value Ln,w :
FL3a: Slab 160mm, Ln,w = 53 dB
FL3b: Slab 190mm, Ln,w = 51 dB
FL3c: Slab 210mm, Ln,w = 50 dB
Sound reduction capacity Rw = 60 dB

Hollow-core concrete slab as bearing structure

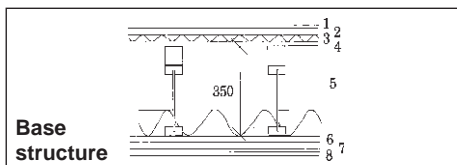


FL 4 (a,b, c)
Structure
1 Floor covering as per room specification
2 1 x Sasmox floor board (SXL-22) 22mm
3 Porous wood-fibre board 22mm
4 Hollow-core concrete slab 265-400mm
Sound insulation
Impact sound level value Ln,w :
FL4a: Hollow-core concrete slab 265mm, Ln,w = 53 dB
FL4b: Hollow-core concrete slab 320mm, Ln,w = 51 dB
FL4c: Hollow-core concrete slab 400mm, Ln,w = 49 dB
Sound reduction capacity Rw = 60 dB

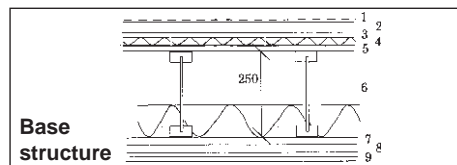
FL 5 (a,b, c)
Structure
1 Floor covering as per room specification
2 1 x Sasmox floor board (SXL-18) 18mm
3 Isora Step 30mm
4 Hollow-core concrete slab 265-400mm
Sound insulation
Impact sound level value Ln,w :
FL5a: Hollow-core concrete slab 265mm, Ln,w = 54 dB
FL5b: Hollow-core concrete slab 320mm, Ln,w = 52 dB
FL5c: Hollow-core concrete slab 400mm, Ln,w = 50 dB
Sound reduction capacity Rw = 60 dB

FL 6 (a,b, c)
Structure
1 Floor covering as per room specification
2 1 x Sasmox floor board (SXL-22) 22mm
3 Mineral insulation wool ($\geq 100 \text{ kg/m}^3$) 20 mm
4 Hollow-core concrete slab 265-400mm
Sound insulation
Impact sound level value Ln,w :
FL6a: Hollow-core concrete slab 265mm, Ln,w = 52 dB
FL6b: Hollow-core concrete slab 320mm, Ln,w = 50 dB
FL6c: Hollow-core concrete slab 400mm, Ln,w = 48 dB
Sound reduction capacity Rw = 60 dB

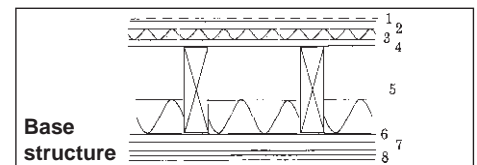
Multi-storeyed wooden building's floor structures



FL 10
Structure
1 Floor covering as per room specification
2 1 x Sasmox building board (SXL-22) 22mm
3 Mineral insulation wool (130 kg/m^3) 30mm
4 Plywood 12mm
5 Load-bearing wooden framework 350mm, spacing 400mm (Studs 100mm + Thin-web wooden I-beams 250mm) Mineral insulation wool 100mm (along edges at width of 1000mm) 200mm
6 Board-and-space 20x97, spacing 400mm, 20mm
7 Acoustic framework AP 25, spacing 400mm, 25mm
8 Gypsum boards (2x13mm) 26mm
Sound insulation
Impact sound level value Ln,w = 48 dB
Sound reduction capacity Rw = 64 dB

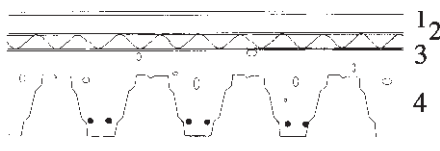
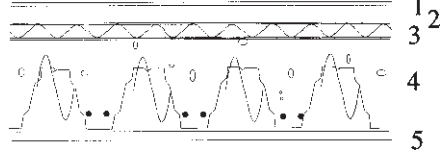



FL 11
Structure
1 Floor covering as per room specification
2 1 x Sasmox building board (SXL-22) 22mm
3 1 x Sasmox building board (SXL-12) 12mm
4 Mineral insulation wool (130 kg/m^3) 30mm
5 Plywood 12mm
6 Load-bearing wooden framework 250mm, spacing 400mm (Thin-web wooden I-beams 250 mm) Mineral insulation wool 100mm
7 Board-and-space 20x97, spacing 400mm, 20mm
8 Acoustic framework AP 25, spacing 400mm, 25mm
9 Gypsum boards (2x13mm) 26mm
Sound insulation
Impact sound level value Ln,w = 48 dB
Sound reduction capacity Rw = 64 dB



FL 12
Structure
1 Floor covering as per room specification
2 1 x Sasmox floor board (SXL-22) 22mm
3 Mineral insulation wool (130 kg/m^3) 30mm
4 Plywood 12mm
5 Load-bear. wood frame 75x223, spacing 400mm Mineral insulation wool 100mm
6 Board-and-space 20x97, spacing 400mm, 20mm
7 Acoustic framework AP 25, spacing 400mm, 25mm
8 Gypsum boards (2x13mm) 26mm
Sound insulation
Impact sound level value Ln,w = 49 dB
Sound reduction capacity Rw = 64 dB

Steel floor structures

<p>Base structure</p> 	<p>Base structure</p> 	<p>Base structure</p> 
<p style="text-align: center;">FL 13</p>	<p style="text-align: center;">FL 14</p>	<p style="text-align: center;">FL 15</p>
<p>Structure</p> <ol style="list-style-type: none"> 1 Floor covering as per room specification 2 1 x Sasmox floor board (SXL-22) 22mm 3 Mineral insulation wool (OL-K-30) 30mm 4 Composite slab 200mm (RAN 120 / 1.0 + concreting h=200mm) <p>Sound insulation Impact sound level value $L_{n,w} = 53$ dB</p>	<p>Structure</p> <ol style="list-style-type: none"> 1 Floor covering as per room specification 2 1 x Sasmox floor board (SXL-22) 22mm 3 Mineral insulation wool (OL-K-30) 30mm 4 Composite slab 200mm (RAN 120 / 1.0 + concreting h=200mm) 5 Sasmox board (SX-22) 22mm Slab cores with insulation material as well <p>Sound insulation Impact sound level value $L_{n,w} = 52$ dB Sound reduction capacity $R_w = 60$ dB</p>	<p>Structure</p> <ol style="list-style-type: none"> 1 Floor covering as per room specification 2 Composite slab 200mm (RAN 120 / 1.0 + concreting h=200mm) Mineral insulation wool 100mm 3 Steel auxiliary beam fastened by its ends Mineral insulation wool 100mm (17 kg/m³) 1 x Sasmox building board (SXL-10) 10mm <p>Sound insulation Impact sound level value $L_{n,w} = 54$ dB Sound reduction capacity $R_w = 64$ dB</p>

SPECIAL PRODUCTS

1. Access floors



Structure:

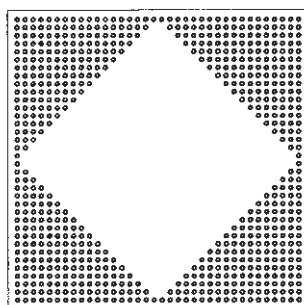
- Adjustable metal installation legs, Sasmox board, size 15 x 600 x 1200
- Plastic film
- Gypsum-based anhydrate plaster layer, approx. e.g. 30–50 mm.

2. Acoustic boards

The fire-resistant and solid Sasmox panel is ideal for use as an acoustic boards in demanding applications. Sasmox can be surfaced with wood veneer, laminate and film, or the panel can be primed at the factory.

To provide for the acoustic requirements, the Sasmox panel is perforated or slotted to a wide variety of different patterns.

The edge of the panel can be provided with grooves, etc. for installation.



3. Fire protection boards (SXP)

The Sasmox fire protection board is 22 mm thick and

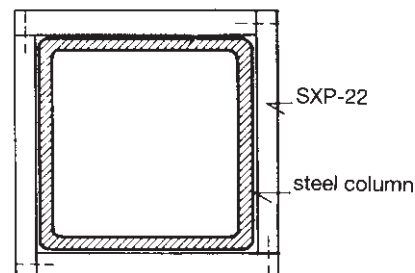
tongued. It can be fixed by screws (to other boards or metal angles), or by shoftfiring to the steel. Sasmox fire protection boards are rigid and strong units which do not stretch or contract and resist moisture during installation.

The fire protection boards are easy to install and the fixing technique is very simple. The same surface options are available as in the other walls, i.e. painting, wall papering, decorative plaster, etc.

The fire protection board combination must be chosen for each application according to the dimensioning diagrams.

Approximate structural thicknesses with respective protection (NT FIRE):

- 30 min SXP-15
- 60 min SXP-22
- 90 min SXP-(15+22)
- 120 min SXP-(2 x 22)
- 180 min SXP-(3 x 22)





SASMOX



SASMOX OY

P.O.B. 1105, FIN-70701 KUOPIO

Tel. +358 17 487 511, Fax +358 17 3616 262

E-mail: info@sasmox.fi, www.sasmox.fi