

Kronobuild®



OSB Pyrotite ECO

kronospan

OSB **Pyrotite** ECO

EVERY SECOND COUNTS

Fire can destroy buildings, equipment and even lives. The importance of quick evacuation of personnel associated with the proper design of escape routes and the use of suitable materials for the final surface of walls and ceilings plays an important role in the initial stage of a fire.

That is why today's visionary constructors rely on sophisticated materials such as OSB Pyrotite ECO which provides structural

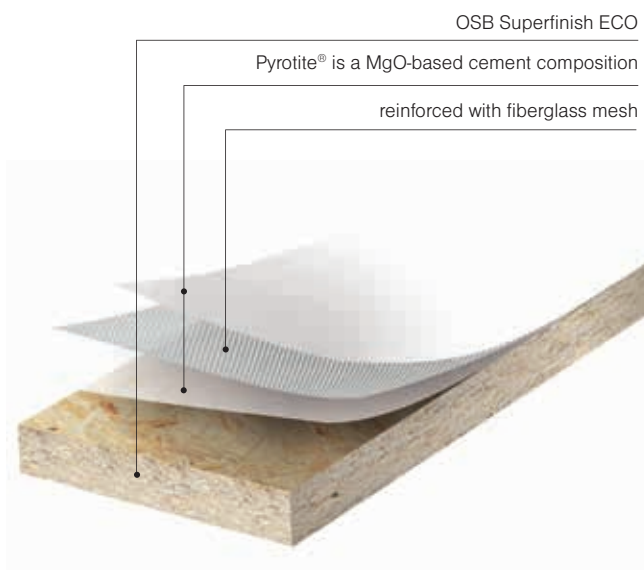
strength and burn resistance at the same time. In addition to providing excellent fire features, OSB Pyrotite ECO board also features surface finish characteristics similar to plasters and drywall. In contrast to drywall, OSB Pyrotite ECO boards are highly resistant to cracking and damage during handling, installation and operational load at the time of use.



OSB Pyrotite ECO

The base plate is OSB Superfinish ECO board, to EN 300 standard, labeled as OSB 3 and equipped with patented fire-resistant Pyrotite® finish on one or both sides.

As opposed to conventional wood-based boards, the OSB Pyrotite ECO has a better classification in the evaluation of reaction to fire. According to European classification (EN 13501-1), it meets class B-s1, d0. The Pyrotite® finish coating consists of fireproof materials on the basis of magnesium oxide, reinforced with fiberglass mesh. This finish provides a very strong connection with OSB boards and in addition to a high resistance to burning, it increases OSB board bending and shear strength in all thickness categories.



AREA OF USE

Load bearing and non-load bearing structure

- Internal wall and ceiling linings
- Construction of roofs or shelters
- Interior - exhibition stands, television and theatre scenery

Packaging

- Pallets for the chemical industry
- Military equipment such as crates and containers

Especially for building structure materials where a B-s1, d0 or higher reaction to fire is required. It applies to multi-story apartment buildings, terraced family homes and public buildings.

The national fire code of each EU country require the use of materials with a B-s1, d0 reaction to fire, especially for the final lining of escape routes or assembly areas.

At exhibition buildings there is a requirement for materials used for the construction of exhibition stands.

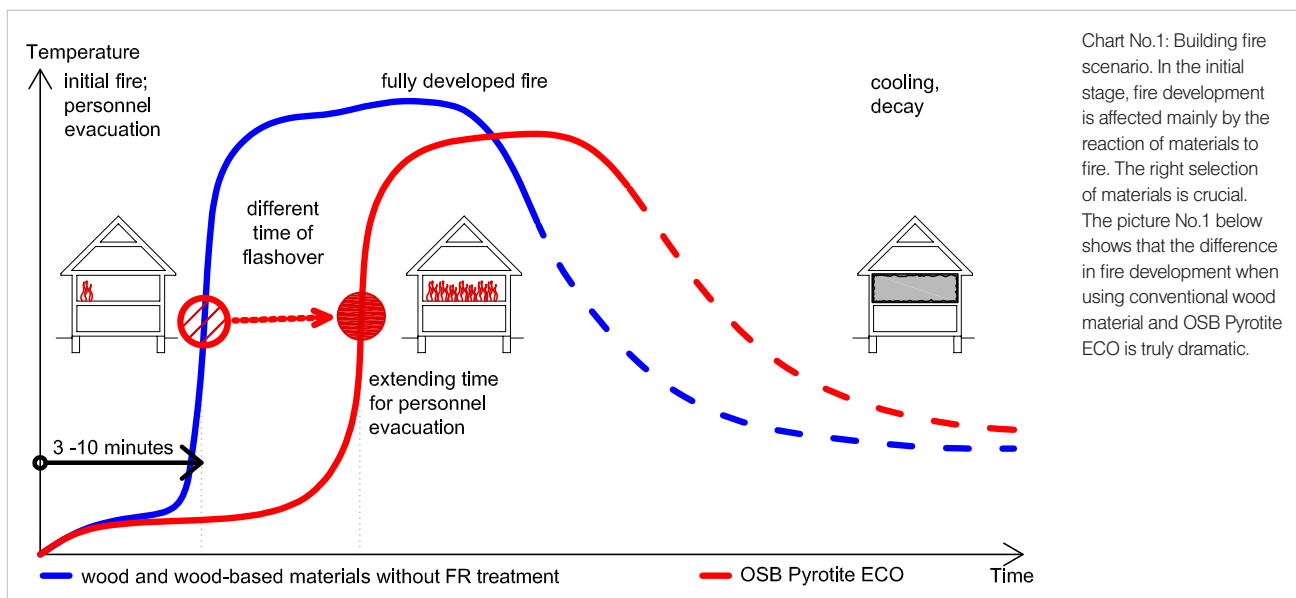
ADVANTAGES

- Mechanical strength and load capacity in OSB class 3
- Reaction to fire class B-s1, d0
- 2 litres of crystal-bound water in one board (2,5 x 1,25 m) is released during the fire, thus increasing resistance to fire
- The composition of the Pyrotite® surface layer with fiberglass increases the strength properties of OSB boards
- Enables faster and more cost-effective solutions than construction combined with drywall
- Lighter and easier handling and processing compared to silicate - based wallboards (gypsum, gypsum fibreboard and cement-bonded chipboard)
- High air tightness for use in building envelopes
- More than fifteen years of practical experience
- High dimensional accuracy and stability
- Resistant to shock or damage during handling
- High-speed dry construction
- Application in seismic areas
- Environmentally friendly, even under fire no hazardous chemicals are emitted
- Made of wood originating from sustainably-managed forests
- OSB Pyrotite ECO boards are glued with formaldehyde-free binders

HOW THE PYROTITE® COATING AFFECTS THE BUILDING FIRE

The course of a fire can be divided into three time phases - initial - fully developed fire - decay, see chart No.1. When the fire starts, it grows from its point of origin, ignites with combustible materials and spreads to other combustible materials. Surface materials used in construction and building interiors such as furniture, etc. have great importance in the initiation of fire and its subsequent development during the crucial initial stage. For the fire to spread, the initial stage is the most important. This may last a considerably varied time - from several minutes

to several hours. Extending the fire development time provides time for the evacuation of endangered personnel and gives the opportunity to extinguish the fire before irrecoverable losses occur (see chart No.1). Building equipment is not regulated by building codes. In contrast, the using surface linings of building structures is determined in most EU countries by building code requirements for minimal reaction to fire class, as well as other fire safety regulations.



Picture No. 1

THE IMPORTANCE OF USING OSB **Pyrotite** ECO

PYROTITE® - YOUR PROTECTION

Pyrotite® the unique cement mixture is a non-flammable, non-toxic, inorganic material which is designed to inhibit the ignition and spreading of flames. The patented cement mixture consists of crushed non-combustible magnesium oxide and additives which are firmly connected to the bearing OSB board. The mixture is reinforced with glass fibre, which increases the consistency and strength of the whole layer in normal use and under fire conditions.

Pyrotite® unique surface technology of OSB Superfinish ECO contains crystal-bound water molecules. In the case of the board surface being exposed to intense heat created by fire (temperature rises above cca 100°C) the crystal-bound water is released. Up to 2 litres of water is released from one board of 2,5 x 1,25 m during a fire. The resulting water vapour cools the surface structure which helps to resist burning through and slows the spread of fire.

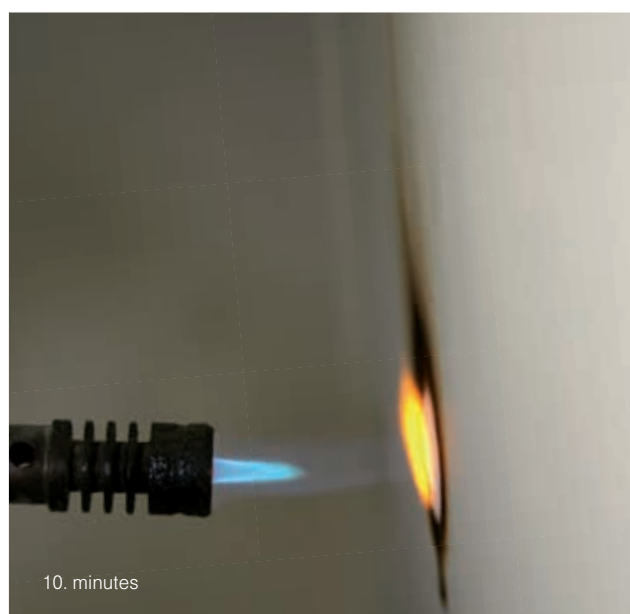
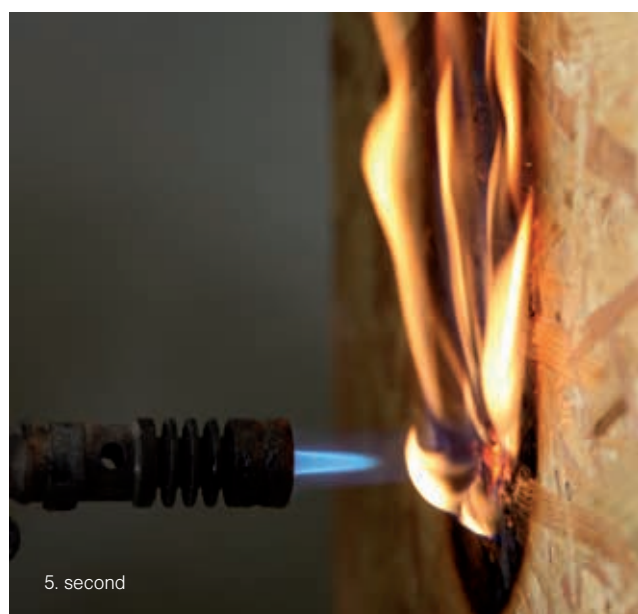
Pyrotite® is environmentally friendly. It contains no hazardous chemical substances. There is no need for the special treatment or storage of waste residues. It is installed as standard cladding without the need for special tools and protective equipment.

OSB **Pyrotite** ECO - THE MOST ADVANTAGEOUS SOLUTION

The application of Pyrotite® cement mixture to the surface of OSB boards together with the glass fibre reinforcement increases the strength of the OSB board. OSB Pyrotite ECO boards provide the strength and safety of building structures. During a fire they ensure anti-fire integrity for a much longer time than, for example, drywall.

OSB Pyrotite ECO boards are lighter and stronger than drywall. With the same thickness they achieve similar fire qualities to cladding systems based on a combination of OSB boards and drywall. Using OSB Pyrotite ECO boards saves assembly time and is more cost-effective.

Pyrotite® technology for OSB boards has more than fifteen years of verified functionality. In contrast to conventional fire protective coatings designed for wood-based products, Pyrotite® does not lose its protective qualities over time.



Picture No. 2.: Using OSB boards with Pyrotite® coating can extend the time to flashover from several minutes to a few tens of minutes.

REACTION TO FIRE CLASSIFICATION BASED ON EN 13501-1

COMMON EUROPEAN CLASSIFICATION SYSTEM

Reaction to fire classification varies not only for individual products and materials, but also in the evaluation and testing under different national rules and methods, which is often very confusing and misleading.

A better comparison of how materials contribute to the fire intensity and development and how they behave during combustion in the initial stages of fire, is provided by a unified European classification system for reaction to fire (Euroclass system), defined in the EN 13501-1 standard.

The system recognizes seven basic classes A1, A2, B, C, D, E, F (F class is the worst). Most classes are also specified by additional classification in terms of smoke (s - smoke) and falling off particles (d - drops).

Production of smoke is an important criterion for flammable materials therefore it is required for classes A2 to D. There are three levels of smoke intensity: s1, s2 and s3, based on visual measuring of smoke density. Level s1 is considered the best, i.e. without smoke production.

Falling flaming particles may cause further spread of the fire, that's why they are required for the classes A2 to E and are similarly sorted from best d0, d1 to d2.

Note: A more detailed description and basic information on the comparison of national classification systems, and also information on the classification of all Kronobuild boards in individual reaction to fire classes can be found in the Kronobuild catalogue in Chapter 6, Fire Protection.

REFERENCE TEST (ROOM CORNER TEST)

The Common European classification system for reaction to fire is directly related to the perception of risk in the course of fire.

The system is based on the definition of building materials accor-

ding to their propensity to contribute to the overall ignition of fire (flashover).

The collapse limit (flashover) during fire occurs when combustible gases reach a temperature of around 600°C, heat release increases dramatically and smoke production rises. In real conditions flammable gases may reach a temperature of 600 to 1300°C.

The classification system for reaction to fire is derived from large-scale fire tests in the corner of a room, from a so-called reference test carried out in accordance with EN ISO 9705 (Room Corner Test). This method is used as an evaluation tool by some international insurance companies.

A reference test according to EN ISO 9705 consists of igniting the burner in one corner of the room, usually with the dimensions of 2,4 x 3,6 m and a height of 2,4 m. The test is terminated immediately after the overall ignition (flashover), or after 20 minutes of exposure to flames. The relationship between reaction to fire class and the overall ignition is shown in the table below.

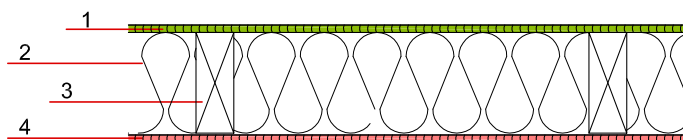
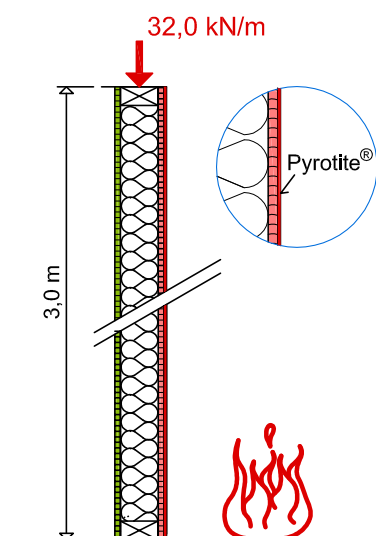
OSB Pyrotite ECO

According to the results of tests in accordance with EN 13501-1, OSB Pyrotite ECO boards reach the reaction to fire class B-s1, d0. The boards do not produce smoke during the fire, no burning particles fall off neither do they contribute to overall ignition. These are the qualities that are required for materials used as final wall and ceiling linings in rooms with high risk of fire.

Class	Material reaction to fire	Flashover during the reference test
A1	Without contribution to fire	No
A2	No significant contribution to growth of fire	No
B	Very limited contribution to growth of fire	No
C	Limited contribution to overall ignition	After 10 minutes
D	Contribution to overall ignition	Up to 10 minutes
E	Significant contribution to overall ignition	Up to 2 minutes
F	Unable to reach class E, not rated	Not specified

FIRE RESISTANT CONSTRUCTION – REI 45

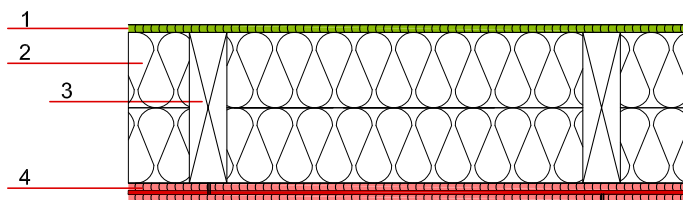
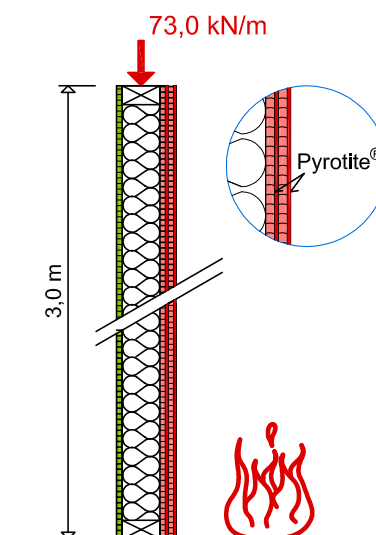
Construction	Load-bearing wall with the fire resistance 45 minutes from OSB Pyrotite ECO side
Fire resistance according to EN 13501-2	REI 45 / REW 45 (i > o)
Maximum load	32,00 kN / bm



	Description of layers	Th. [mm]
1.	OSB Superfinish ECO	15
2.	Thermal insulation from mineral wool (~16 kg / m ³)	120
3.	Timber frame construction (60/120, e = 625 mm)	120
4.	OSB Pyrotite ECO, cemented board joints	16

FIRE RESISTANT CONSTRUCTION – REI 60

Construction	Load-bearing wall with the fire resistance 60 minutes from OSB Pyrotite ECO side
Fire resistance according to EN 13501-2	REI 60 (i > o)
Maximum load	73,00 kN / bm

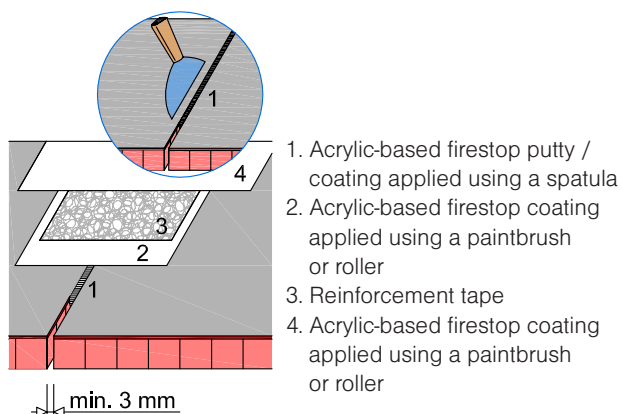


	Description of layers	Th. [mm]
1.	OSB Superfinish ECO	15
2.	Thermal insulation from mineral wool (~16 kg / m ³)	160
3.	Timber frame construction (60/160, e = 625 mm)	160
4.	OSB Pyrotite ECO, cemented board joints	2 x 16

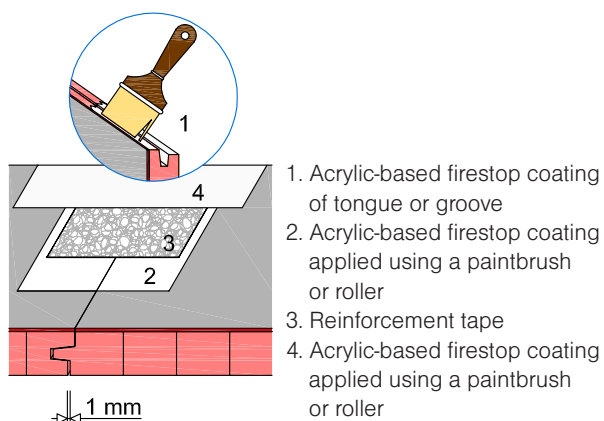
JOINTS AND CORNERS

SOLUTION FOR JOINTS OF WALL AND CEILING SHEATHING WITH FIRE SEPARATION FUNCTION

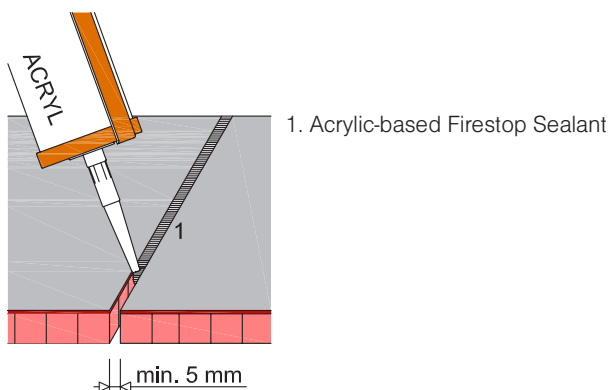
1. Hidden joints – straight edges boards



2. Hidden joints – tongue & groove boards

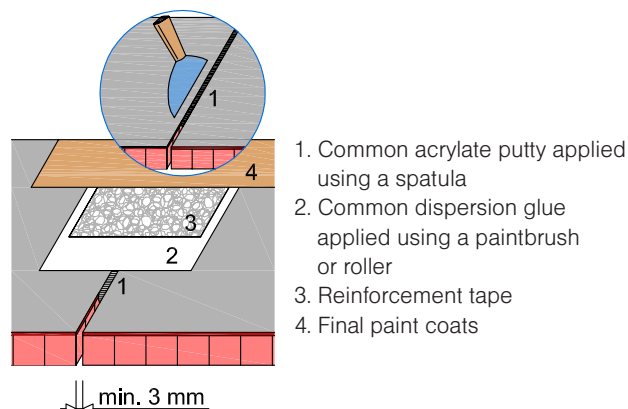


3. Joints without surface quality treatment requirements

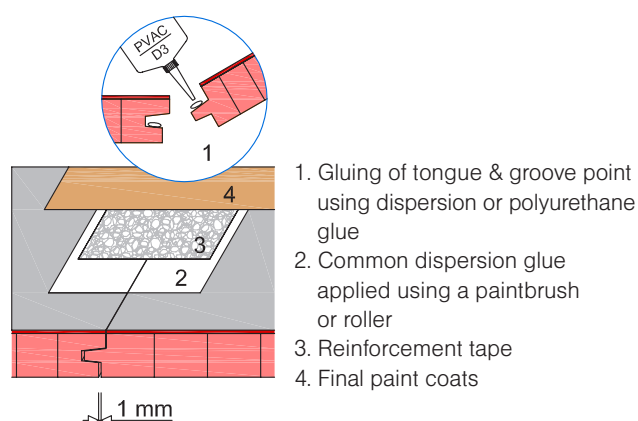


SOLUTION FOR JOINTS OF INTERNAL LINING WITHOUT FIRE SEPARATION FUNCTION

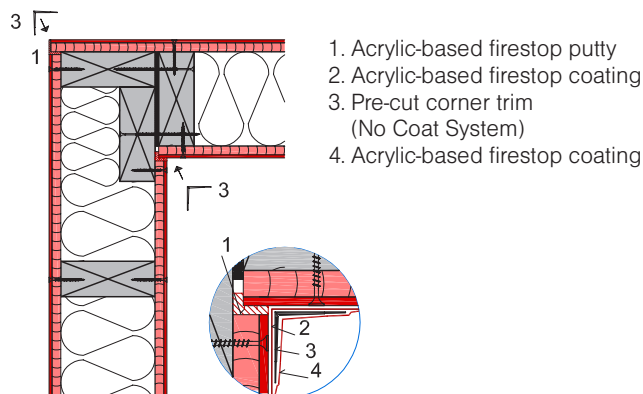
1. Hidden joints – straight edges boards



2. Hidden joints – tongue & groove boards



CORNER SOLUTION FOR JOINTS OF INTERNAL LINING



BOARD FEATURES

OSB Pyrotite ECO boards are manufactured and tested according to valid European standards (OSB type 3 according to EN 300). Features of these boards comply with the harmonized standard

EN 13986 and other valid regulations of the European Union. General requirements for OSB boards based on the standards EN 300 are listed in the Kronobuild catalog, Chapter 2, section OSB boards.

STRUCTURAL PHYSICAL FEATURES		
Feature	Test procedure	OSB Pyrotite ECO
Air permeability (at 50 Pa)	EN 12114	0,002 m ³ /m ² .h
Coefficient of thermal conductivity λ	EN 12664	0,11 W/m.K
Coefficient of diffusion resistance μ	EN 12752	170 (dry) / 150 (wet)
Airborne sound insulation R_w (C;Ctr)	EN ISO 717-1	16 mm: 27 (-1; -2) dB
		19 mm: 27 (-2; -2) dB
		23 mm: 26 (0; -1) dB
Reaction to fire	EN 13501-1	B-s1,d0

ASSORTMENT

OSB Pyrotite ECO					
Board type	Size [mm]	Thickness [mm] / pcs in package			Packing / truck
		16	19	23	
Straight edge	2500 x 1250	44	37	30	15
	2800 x 1250	44	37	30	14
4T&G	2500 x 1250	44	37	30	15
	2500 x 625	44	37	30	30

EASY AND SAFE ASSEMBLY

OSB Pyrotite ECO boards can be processed and installed just as standard OSB plates. Cutting, drilling and nailing with screws or staples is possible without problems. OSB Pyrotite ECO boards

can create contacts, edges or corners just like using drywall. In the same way, board surfaces can be finished with conventional painting techniques.



Picture No. 3: Cutting handheld circular saw.



Picture No. 4: Cutting feed slower then for solid wood.



Picture No. 5: Cutting with a table circular saw.



Picture No. 6: Cutting using conventional saw blade for solid wood.



Picture No. 7: Simple and easy handling.



Picture No. 8: The use of protective equipment.



Picture No. 9: Nailing, stapling.



Picture No. 10: Fastening with screws.

TRANSPORT AND MANIPULATION

• Transport and manipulation

Boards on vehicles must be securely fixed against movement during transport and protected against damage by fixing ropes, straps or other bandages. Boards must be suitably protected from direct exposure to water. In particular, the edges must be protected from rain or accidental soaking. When loading, unloading and handling board packages, it is recommended to use a forklift and necessary to avoid any damage to the surface and especially the T&G edges.

• Packaging, storage

The boards are supplied in packages fastened with tape. The edges of boards are painted and the top board is protected with cardboard. Board packages must always be stacked horizontally on a flat surface. OSB Pyrotite ECO boards must be stored horizontally on a level, non corrugated surface to keep them from flexing and twisting. The boards must be stored so that the whole surface fits tightly on each other with mating edges. Underlying prisms are oriented in the direction of the shorter edge of the board with a maximum spacing of 600 mm, the length corresponds to the width of the board. The minimum distance of board packages from the ground is 100 - 300 mm to avoid contact with the ground, water or vegetation. When stored outdoors it is necessary to protect the boards properly from direct sunlight, excessive heat and rain.

• Boards air-conditioning and protection against water and moisture

Before construction assembly it is required to acclimate the boards for at least 48 hours due to moisture equilibrium corresponding to the location of use.

When stored on site and during installation, the boards must be completely protected against direct exposure to water. It is recommended to cover the outer walls and roof with protective insulation (sheet, foil) immediately after their installation.

To prevent damage of the structural components of OSB boards, it is necessary to avoid excessive moisture increase by installing overly-damp or wet materials, installation on wet-based processes at non-dried construction sites, errors in isolation, inadequate protection against atmospheric conditions, etc.

BOARDS PROCESSING AND MAINTENANCE

• Boards installation

Boards can be installed using known methods, standard tools and fasteners (screws, clips, etc.).

It has been demonstrated in tests that OSB Pyrotite ECO board surface coatings do not have an effect on the corrosion of fasteners.

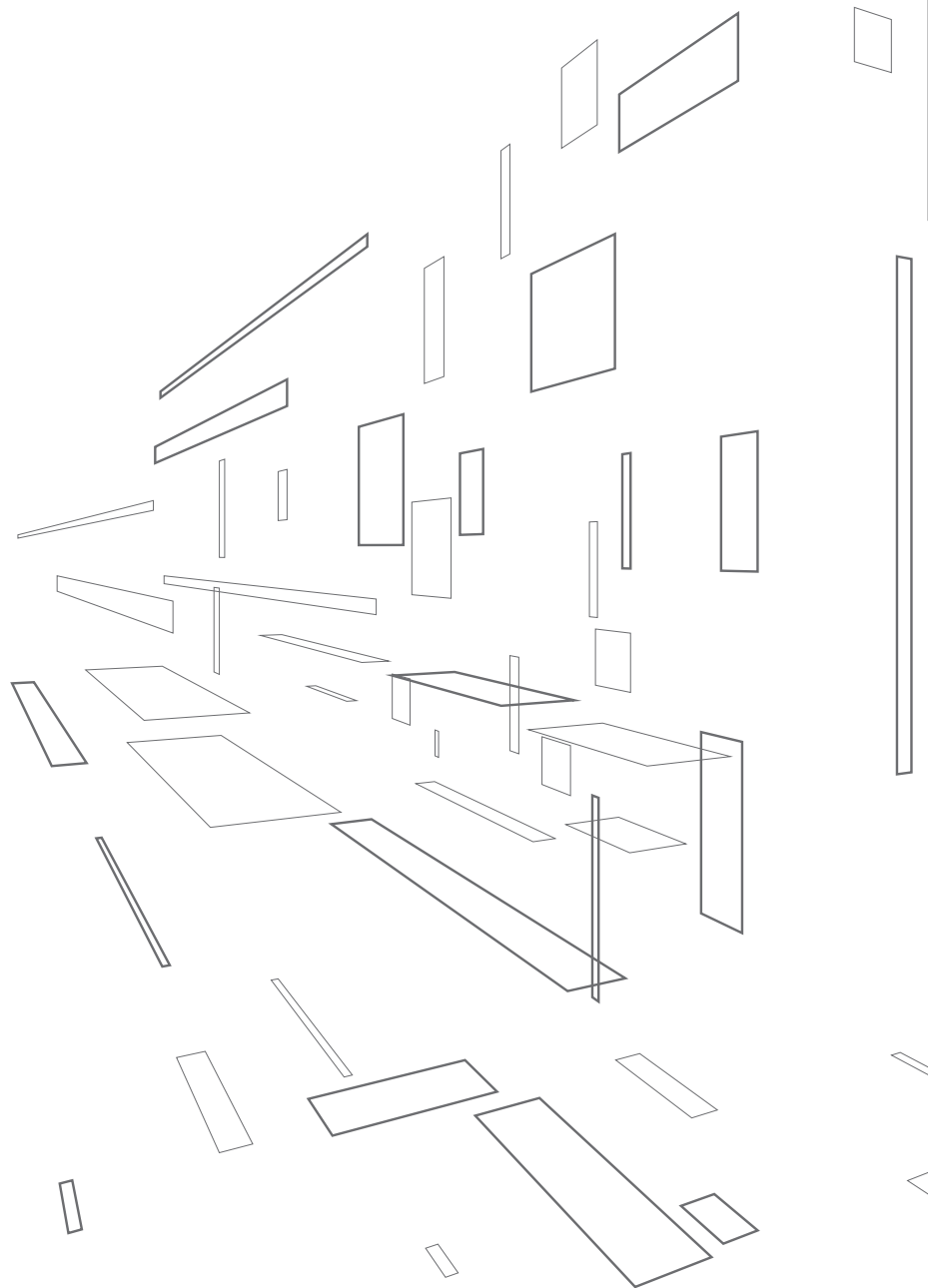
• Cutting, milling, drilling

It is not necessary to use special tools. OSB Pyrotite ECO boards can be cut, drilled or milled using conventional woodworking tools. The feed of saw blade when cutting depends on the tool used. It is generally recommended that the values be slightly lower than for solid wood processing. Boards should be fastened so they cannot vibrate. Cutting with portable power tools is also possible.

It is recommended to use cutting or drilling tools with cutting edges made of cemented carbide.

Saw blades and other tools for cutting OSB Pyrotite ECO boards can be sanded or replaced about 20% more often than during the cutting of standard panels.

More information can be found in the Kronobuild catalog Chapter 5 – Instructions for use of load bearing boards.



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