

Betonstyr EPS

Building insulating coupled panels with cement bonded particle board and expanded polystyrene

Beton  **Wood**

Building insulating panels with coupled cement bonded particle boards



| AREAS OF APPLICATION

Betonstyr EPS is an extremely versatile product because it is suitable for many building applications. The advantages of two materials are joined in one coupled: on one hand the cement with a high mass, high density, high compressive strength, suitable for the direct gluing of ceramics and resilient floors, which is essential to obtain an adequate thermal displacement and a great noise reduction; on the other, an EPS expanded polystyrene panel characterized by lightness, high insulation capacity and ease of processing.

Both materials are of excellent quality, worked with the most advanced technologies, subjected to strict process controls, CE marked.

The Betonstyr EPS panel is proposed as construction material with thermo-acoustic insulation in extruded polystyrene incorporated on the part destined to the inside. It adapts to any application in the field of thermal insulation and is particularly suitable for all cases where there is a strong moisture component and the need for a material with considerable compressive strength.

In particular it is used as:

- inverted roofs;
- insulation of roofs and floors;
- insulation of floors for raised floors;
- correction of thermal bridges;
- external and internal thermal coats;
- disposable formworks;
- insulating systems for window frames, in particular for the insulation of roller shutter boxes;
- dry screeds and radiant screeds.

For more informations about the uses and the installation, our offices are ready to answer your questions on www.betonwood.com



| MATERIAL

Beton styr panels in cement bonded particle boards and insulating expanded polystyrene are industrially coupled. The cement bonded particle boards BetonWood has an high mechanical strenght and an high density 1350 kg/m³; the other panel in insulating expanded polystyrene EPS type has a density of 15 ÷ 35 kg/m³. The polystyrene type can be changed depending on the COMPRESSION STRENGHT and the WATER VAPOR PERMEABILITY needs.

| SPECIFICATION

Supply and installation of external and internal reinforced insulation with panels already coupled of dimensions ... mm and thickness mm.

The cement bonded particle board BetonWood is realized in cement conglomerate Portland type and debarked Pine wood fiber, with high density ($\delta=1350 \text{ Kg/m}^3$) and with the following thermo-dynamics characteristics: declared thermal conductivity $\lambda=0,26 \text{ W/mK}$, specific heat $c=1,88 \text{ KJ/Kg K}$, water vapour diffusion resistance factor $\mu=22,6$ and fire reaction class A2-fl-s1, according to the standard EN 13501-1. The wood used in the processing of cement is from forests controlled by FSC reforestation cycles and pressed with water and hydraulic binder (Portland cement) with high cold compression ratios.

The other panel represent the insulating layer and it is made in expanded polystyrene (EPS). This panel is characterized by the following thermodynamic characteristics: coefficient of thermal conductivity $\lambda = 0,026 \div 0,036 \text{ W / mK}$, specific heat $c = 1,450 \text{ J / Kg K}$, coeff. of resistance to vapor penetration $\mu = 50 \div 100$. The panel is supplied already coupled with dimensions ... mm. Building material certified CE.

| TECHNICAL CHARACTERISTICS Betonstyr EPS

Cement bonded particle board

Density ρ [kg /m ³]		1350
Reaction to fire in order to the standard EN 13501-1		A2-fl-s1
Thermal conductivity coefficient λ_D [W / (m * K)]		0,26
Specific heat c [J / (kg * K)]		1.880
Steam penetration resistance μ		22,6
Coefficient of linear thermal expansion α		0,00001
Swelling in thickness after 24h of storage in water		1,5%
Superficial PH value		11
Flexural strength σ [N /mm ²]		min.9
Transversal tensile strength N [N /mm ²]		min.0,5
Air permeability l /min. m ² Mpa		0,133
Modulus of elasticity E [N /mm ²]		4500
Shear strength τ [N /mm ²]		0,5
Resistance to distributed load kPa		9000
Resistance to concentrated load kN		9

| TECHNICAL CHARACTERISTICS Betonstyr EPS

Expanded polystyrene EPS panel

Density ρ [kg /m ³]		15 ÷ 35
Edges		sharp
Thermal conductivity coefficient λ_D [W / (m * K)]		0,026 ÷ 0,036
Specific heat c [J / (kg * K)]		1.450
Water vapour diffusion resistance factor μ		50 ÷ 100
Fire resistance class according to EN 13501-1		E
Compressive Stress at 10% deformation kPa		120 ÷ 250
Compressive Creep kPa		$\leq 100 \text{ mm} = 130 \text{ kPa}$ $> 100 \text{ mm} = 110 \text{ kPa}$
Dimensional stability under specified conditions 70°C; 90% r.h. %		≤ 5
Deformation under specified compressive load of 40 kPa and temperature conditions at 70°C %		≤ 5
Freeze-thaw resistance after long term water absorption by diffusion vol. %		$\leq 100 \text{ mm} \leq 1$ $> 100 \leq 200 \text{ mm} \leq 2$
Modulus of elasticity		12.000

The insulating polystyrene panels are available in various types:

- extruded / expanded
- with an high compression strenght, or with an high thermal resistance value depending on the density and the use.



| AVAILABLE DIMENSIONS **Beton styr EPS**

Min. 300 mq Combinable thicknesses		expanded polystyrene EPS type								
		20	40	60	80	100	120	140	160	
cement bonded particle board	Reduced thicknesses for restorations	8	•	•						
		10	•	•						
		12		•	•	•				
	Insulations for vertical insulations	14				•	•			
		16				•	•	•	•	•
		18	•	•	•	•	•	•	•	•
	Grater thicknesses for dry screeds/floors	20	•	•	•	•	•	•	•	•
		24	•	•	•					
		28	•	•	•					
		40	•	•	•					

| USES

UNBEATABLE in case of INSULATION FLOORS as base RAISED OR FLOATING FLOORS.

The installation mode is strictly linked to the type of use of the panel depending on which it will be appropriate to adopt the most suitable application method.

In the case of laying in particularly humid conditions, the use of extruded polystyrene, as an alternative to the expanded form, is suggested, because it has a closed cell structure impermeable to water.

Standard sizes		
Cement bonded particle board with a thickness from 8 to 40 mm <i>ON REQUEST, EVEN UNTIL 3000X1200</i>	850 x 500	1000 x 500
Cement bonded particle board with a thickness of 20 mm <i>SANDED AND STEPPED</i>	1200 x 500	

- combinations of standard thicknesses
- combinations of thicknesses on request

The table offers standard thicknesses and sizes according to the experience gained by our company in direct contact with the building world for years. We offer the best solutions in the field of thermal insulation.

For the above-mentioned sizes with cement bonded particle boards thicknesses greater than 20 mm or for any other customization, minimum orders of 300 square meters are required.

| CERTIFICATIONS

The **Beton styr EPS** panels are produced with CE certified materials in accordance with current regulations. Product certificates are available on request.



Head office:
Via Falcone e Borsellino, 58
I-50013 Campi Bisenzio (FI)

T: +39 055 8953144
F: +39 055 4640609

info@betonwood.com
www.betonwood.com

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The insulation panel can be also combined with cement bonded particle boards with stepped edges to improve its installation, in particular for the construction of dry and radiant screeds/floors.

BetonStyr, on request, can be realized with stepped or tongue&groove edges to obtain a better installation in case of continuous screed.

Our BetonElastic sealant is highly recommended for panels bonding.

In case of inverted roofs with double waterproofing, the BetonStyr screed must be contained with reinforced concrete curbs.