

Betonstrong

Building insulating coupled panels in extruded PET with high compression strenght

Beton Wood

Building insulating panels with coupled cement bonded particle boards



| AREAS OF APPLICATION

Betonstrong 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; the other is a polyethylene terephthalate (PET) 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 **Betonstrong** panel is proposed as construction material with thermo-acoustic insulation in hard polyethylene PET 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.betowood.com



| MATERIAL

The **Betonstrong** panels in cement bonded particle board and extruded polystyrene terephthalate (PET) are industrially coupled. The hard layer in cement bonded particle board **BetonWood** has a high compressive strength (9.000,00 Kpa) and a density equal to 1350 kg/m³; The other panel is realized in extruded polystyrene terephthalate and has a 115 kg/m³ density. PET is a structurally strong thermoplastic material perfectly suited in a variety of applications to increase performance and decrease weight.

The characteristics of the material make the installation very easy and fast even at high temperatures. It has excellent chemical resistance and is compatible with all bonding systems with commonly used resins (eg polyester, epoxy resins, etc.). With its performance it can easily be used in prefabricated systems.

| SPECIFICATION

Hard insulating panel **BetonStrong** has a thickness ... mm made by two coupled panels, a cement bonded particle board **BetonWood** with high density (1350Kg/m³) realized in cement conglomerate Portland type and debarked Pine wood fiber with a thickness ..mm and an extruded polyethylene terephthalate (PET) panel with a thickness ..mm. The cement bonded particle board **BetonWood** has the following thermo-dynamics characteristics: declared thermal conductivity $\lambda=0,26$ W/mK, specific heat $c=1,88$ 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.

Extruded polyethylene terephthalate (PET) estruso is characterized by the following thermodynamic characteristics: density $\sigma=115$ kg/m³, coefficient of thermal conductivity $\lambda=0,035$ W/mK, compression strength equal to 1,5MPa, and fire reaction class F1.

| TECHNICAL CHARACTERISTICS **Betonstrong**

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 **Betonstrong**

Extruded polyethylene terephthalate PET

Density ρ [kg /m ³]		115
Reaction to fire in order to the standard EN 13501-1		F1
Thermal conductivity coefficient λ_D [W / (m * K)]		0,032
Color		white
Edges		sharp
Volumetric mass (kg/m ³)		125
Compression strength (MPa)		1.5
Compression module (MPa)		100
Cut strength (MPa)		0.9
Cut module (MPa)		28
Cutting elongation (%)		12
Density variation (%)		115



| AVAILABLE DIMENSIONS **Beton strong**

cement bonded particle board	Min. 300 mq Combinable thicknesses	extruded polystyrene terephthalate PET					
		30	40	60	80	100	120
Reduced thicknesses for restorations	8	•	•				
	10	•	•				
Insulations for vertical insulations	12		•	•			
	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.

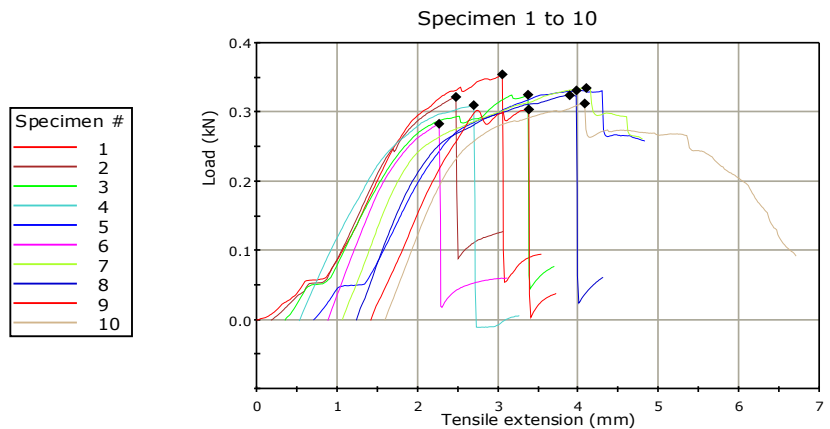
In the case of laying in particularly humid
conditions, the use of extruded polystyrene,
as an alternative to the expanded form, is
suggested, because it has a closed cell
structure impermeable to water.

Foam screw (no welding)
Outside diameter 6mm
Internal core 4 mm
Direction perpendicular to the panel
Temperature +23°C
H.R. 50%

Standard sizes		
Cement bonded particle board with a thickness from 8 to 40 mm <i>ON REQUEST, EVEN UNTIL 3000X1200</i>	1200 x 500	1200 x 600
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

| TRIAL TESTS WITH SCREW



	Density kg/ m ³	Max. load capacity kgf	Depth
1	111.0	> 36.1	> 20.0
2	111.0	> 32.8	> 20.0
3	111.0	> 33.1	> 20.0
4	111.0	> 31.6	> 20.0
5	111.0	> 33.8	> 20.0
6	111.0	> 28.9	> 20.0
7	111.0	> 34.1	> 20.0
8	111.0	> 33.1	> 20.0
9	111.0	> 31.0	> 20.0
10	111.0	> 31.9	> 20.0
Average	111.0	32.6	20.0
Standard offset	0.0	2.0	0.0

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