



# WALL PLASTBAU® 3

ICF - Insulated Concrete Form



PRODUCT CATALOG



# SELF-SUPPORTING INSULATED FORMWORK - ELEMENTS STANDARD WIDTH 120 CM

## FEATURES OF THE VERTICAL - ICF - FORMWORK

**IT IS AN INSULATING  
DISPOSABLE FORM - ICF -  
DESTINED TO BUILT  
VERTICAL STRUCTURES IN  
REINFORCED CONCRETE,  
CONSISTING OF 2 PANELS  
IN HIGH DENSITY  
EXPANDED POLYSTYRENE  
EPS150  
(SELF-EXTINGUISHING),  
CLASS EUR E, CONNECTED  
TOGETHER, AT A MODULAR  
DISTANCE, BY A SERIES OF  
METAL TRELLIS.**



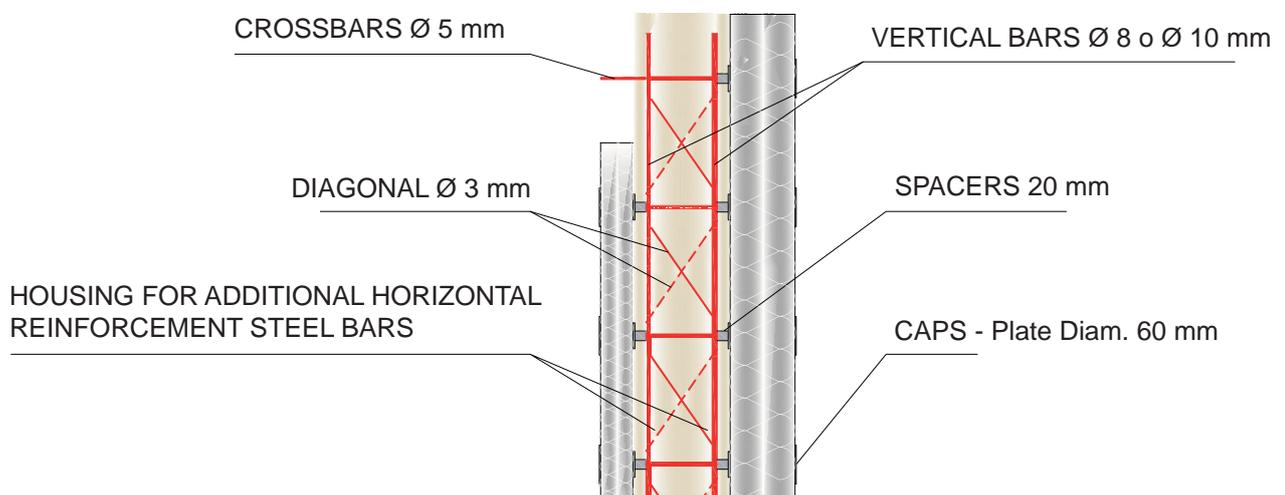
The metal trellis are made up with vertical uprights  $\varnothing 8$ ,  $\varnothing 10$  in B450C, fitted every 20 cm on the two internal sides of the formwork and connected by crossbars  $\varnothing 5$  mm with built-in 2 cm concrete cover spacers and by a series of diagonals  $\varnothing 3$  mm, used to make the formwork stiffer during the casting.

The diagonals are opposed one to the other as to host, before casting, the inside horizontal reinf. steel bars estimated by the designer. The space between two EPS plates is filled with concrete, thus building self-standing vertical walls compliant with standards. It is thus possible to build civil and industrial works and multi-storey buildings, in concrete, suitable insulated and finished.

The special WPB3 polypropylene caps are screwed onto the threaded heads of the  $\varnothing 5$  mm horizontal crossbars; The caps are already screwed in the factory to guarantee the correct sealing of the formwork locking system; WPB3 caps have multiple functions such as the micro adjustment of the locking system itself, the support for construction equipment and also as the a anchoring system and support for external / internal finishing.

The formwork internal and external panels consist of sintered expanded polystyrene (EPS), EPS 150 grey, improved  $\lambda_D = 0.031$  W/mK manufactured according to the standard EN 13163 and to the EC standard as forecast by the Italian and European regulations on insulating materials.

Internal EPS panels can be manufactured with the thickness, 5 cm, 7,5 cm, 10 cm, while external panels, as specified on the table, can be 5; 7,5; 10; 12,5; 15; 17,5; 20; 22,5; 25 cm thick, as to provide for a better thermal insulation.



The range of wall formwork Plastbau3 includes **89** sections, for a total of **178** types with a range for the WPB3 varying from 22 to 45/47,5/50 cm total width. The WPB3 offers a variable geometry as to comply with: the structural designer requirements, with 5 concrete wall sections, from cm 12 to cm 30 and a vertical metal reinforcement  $\varnothing 8$  mm (kg/m<sup>2</sup> 3,95) or  $\varnothing 10$  mm (kg/m<sup>2</sup> 6, 17) B450C transversally connected to n. 25  $\varnothing 5$  mm per sqm<sup>2</sup> already built-in the WPB3 formwork panel. The standard reinforcement will be fitted at the building yard with longitudinal horizontal bars, to be easily inserted within the specific spaces, every 20 cm, inside the formwork, leading to a double metal mesh 20x20, transversally connected.

The thermal-technical designer can select among different thermal transmittance versions of WPB3, from U 0,32 up to U 0,12 W/ m<sup>2</sup>K.

## MODELS RANGE - STANDARD THICKNESS TABLE

### WALL PLASTBAU® 3 - Standard Range & Insulating Performances

EPS panel	EPS panel	Vertical steel bars $\varnothing$ mm	Internal distance between the EPS panels cm			
Internal cm	External cm		12	15	20	25
			U=W/m <sup>2</sup> K	U=W/m <sup>2</sup> K	U=W/m <sup>2</sup> K	U=W/m <sup>2</sup> K
5	5	8/10	0,322	0,321	0,317	0,315
	7,5		0,275	0,274	0,272	0,270
	10		0,239	0,239	0,238	0,236
	15		0,196	0,195	0,167	0,146
	20		0,167	0,167	0,166	
	25		0,146	0,145		
7,5	5	8/10	0,254	0,253	0,251	0,250
	7,5		0,224	0,223	0,222	0,221
	10		0,200	0,199	0,198	0,198
	15		0,169	0,168	0,147	
	20		0,147	0,147	0,150	
	25		0,130	0,130		
10	5	8/10	0,178	0,178	0,177	0,176
	7,5		0,163	0,163	0,162	0,161
	10		0,150	0,149	0,149	0,129
	15		0,132	0,131	0,118	
	20			0,118		

The value of the single raw element calculated according to the technical evaluation European ETA 009 – This evaluation is included into our certificate nr. ETA-13/0066

**NB: Some stratigraphies based on the climatic zone may have interstitial condensation.**

It can be overcome by varying the stratigraphy, even with a plasterboard finish coupled with Vapor barriers in replacement of traditional plasterboard

The above suggested and laboratory data in the applications of construction site may undergo ways that depending on the conditions of installation. The user must verify the suitability of the product, taking all responsibility for its use.

Poliespanso Srl reserves the right to make alterations to any kind without prior notice.

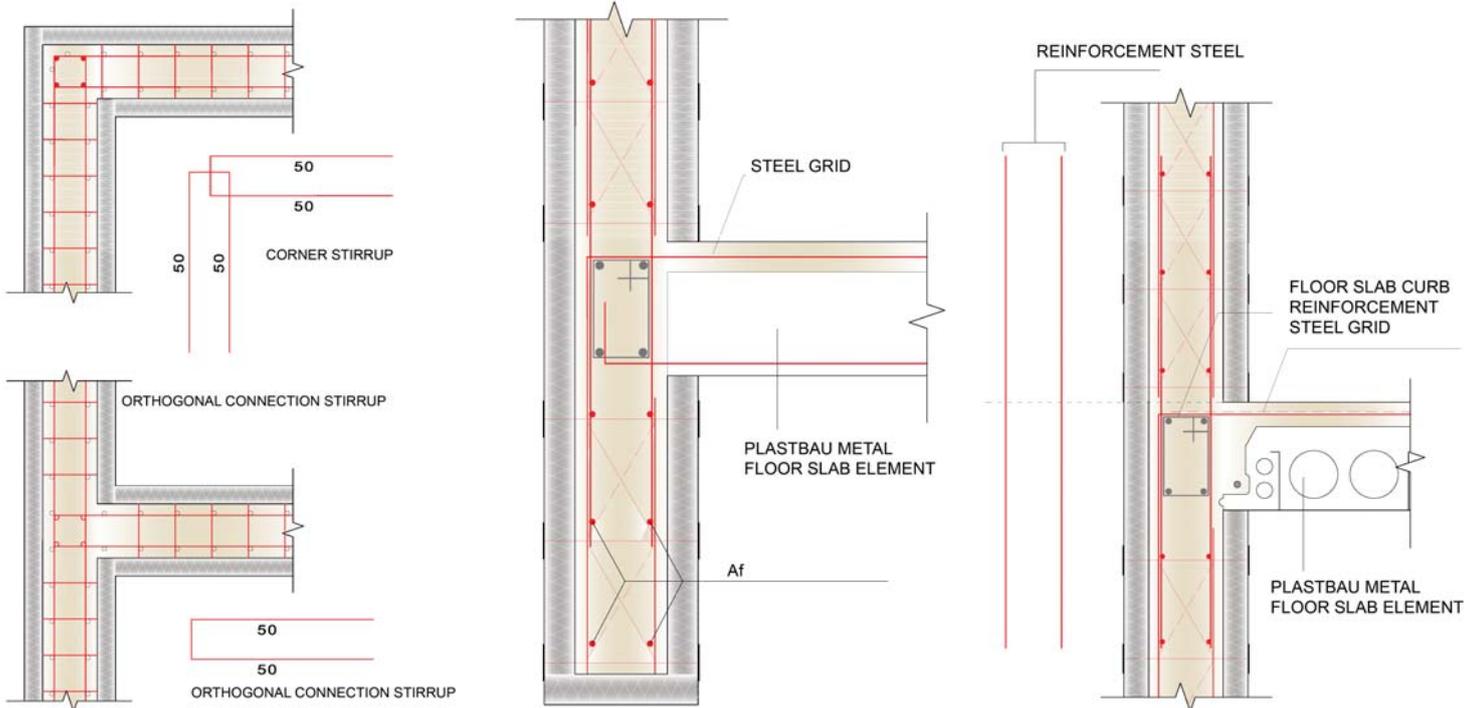
## STATIC DESIGN AND SEISMIC RESISTANT BUILDING

Extended walls in reinforced concrete casted on site represent the ideal structural solution, with a coherent behavior, strictly connected to their geometric characteristics. More precisely, the extended reinforced walls, such as Wall Plastbau® 3 ICF, have further advantages and possibilities for designing anti-seismic and seismic-resistant structures.

Similar structures therefore exhibit more consistent and higher self-standing capacities (if compared to similar works, in brickworks or with a framed self-standing structure), both in case of vertical (gravity) and horizontal loads as well (wind and earthquake).

Under such conditions, concrete extended reinforced wall structures, duly taking their features into account, allow in many cases (not consistently high structures or structures placed in low seismicity areas), complying with requirements imposed by the anti-seismic design, with no need to fit any additional vertical reinforcement, if compared to what originally forecast by the manufacturer (such a feature should be duly checked case by case by the accountant designer).

## EXECUTION DETAILS



**Corner reinforcements and walls connections - Horizontal sections**

**Details of the lintel**

**Floor slab curb**



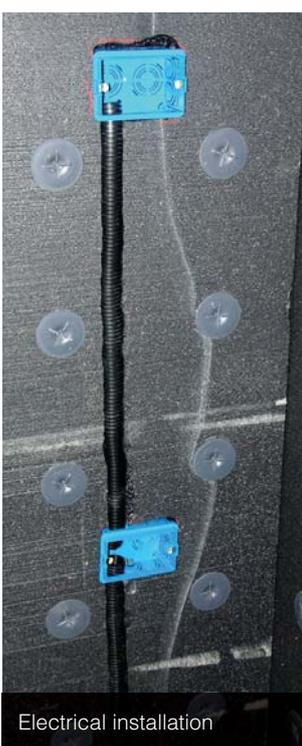
WPB3 elements are placed in line using U-shaped hot deep galvanized metal profiles fixed to the base; elements are connected together with steel wire and the same horizontal reinforcement steel; cutted on size EPS panels will be provided for closing up wall corners, windows and doors shoulders. The last intervention before concrete casting, will be the lead seal of the formwork that is obtained using push-pull props, or any equipment that the contractor deems suitable for the purpose. Depending on the type of wall and following the provisions of the project manager can prepare push-pull props every two elements. The fixing against the upper edge of the formworks can be achieved by using the same polypropylene screw WPB3 caps. The foot of the push-pull props is usually nailed to the ground concrete using boards and nails driven into the concrete floor.

## LAYING

The concrete casting filling can be forecast with a bucket, different pumps, or conveyor belts. The casting capacity should never be higher than 8 - 10 m<sup>3</sup> per hour and the casting itself should be oriented to the element vertical centre. The concrete fluidity should comply with a S4 slump, with a granulometry curve, whose more consistent inert matter accounts maximum for 15-18 mm. The aggregate concrete casting is to be divided on the entire formwork height, moving from forward to backward, inside the formworks, laying some casting layers, 40-50 cm high, up to the entire height, 10-15 cm from the internal side upper level.



## CONCRETE CASTING



Designing and laying any generally forecast installation inside a building is not different from any other building constructed with traditional systems, as in the majority of cases cable trays are held inside the wall thickness, 5 -7.5 - 10 cm, that is the EPS internal panel thickness. Electric boxes, or anything else whose thickness is more consistent than the EPS panel, are to be positioned, before casting, in the wall formwork. The setting and realization of the "track" for the installations on the wall is eased by the EPS surface, with a simple tool with hot blade or a cutter it will be possible to perform a rapid and orderly groove within the thickness of the EPS sheet and you will obtain the required path to fit the electric, water and sanitary cables/pipes trays as well as any cable connecting box.

The installation piping, inside the traces, could be closed or partially covered with plaster or rapid concrete or polyurethane.

## INSTALLATIONS

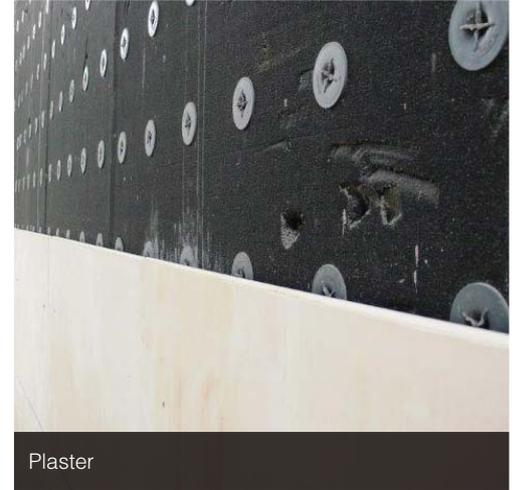
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## INTERNAL FINISHES

Three different types of finishes can be laid on the Wall Plastbau® 3 wall, from plastering coating to dry finishes. The internal finish besides conditioning the wall thicknesses and their external appearance, leads to different sound performances in the surrounding rooms. It is possible to lay a plastering coating according to the suitable product suggested by manufacturers.

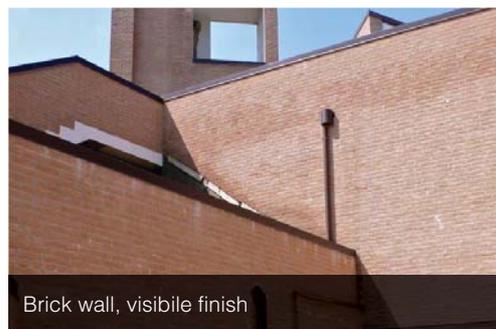
As for dry finishes, it is possible to use the standard methods, on the specific structures supplied by the manufacturers, to be screwed onto the special WPB3 screw plugs, used for the lead adjusting.



## EXTERNAL FINISHES

Wall Plastbau® 3 wall can be finished as follows:

- > ***Thin finish with mesh and a skim plaster***
- > ***Thick finish with plaster***
- > ***Finish in stone or bricks***
- > ***External mechanically screwed dry finish***
- > ***Dry front***
- > ***Stone wall, visible finish***
- > ***Brick wall, visible finish***
- > ***Plastered wall***



- Simplification of the material selection
- Mass AND lower specific weights with the same static capacities
- Design flexibility in a seismic area too
- Monolithic structures.
- Possibility to design AND easily build beams and walls
- Simple calculation and assessment of any component for vertical and horizontal structures (number and sizes).
- Project variants easily applicable when no casting has been made yet
- Availability of official certifications of the formwork materials.
- Availability of test reports certifying the thermal-sound proofing features according to the regulations in force on the constructed buildings
- Insulating material (plates in EPS) compliant with the regulation EN 13163.

## STRUCTURAL ENGINEER AND DESIGNER



- Lower equipment costs when building concrete vertical structures.
- Laying speed and simplicity: extremely light formworks can be handled by hand.
- Incidence of the total laying times (that is formwork laying and reinforcement, casting, extremely reduced to the bare minimum: about 0.30 h/m<sup>2</sup>).
- Maximum safety and cleaning in the yard.
- Very low use of timber in the yard
- No waste material when accurately managing the required parts. Possible wastes to be easily reused.
- Reduced company staff (max 3 - 4 people).
- Easily and rapidly laid installations: using simple tools.
- Rapid and simple internal and external finishing.

## BUILDING COMPANY



- Better living comfort taking the best sound and thermal features into account
- Higher energy saving, for heating and conditioning too.
- Higher safety: a single building in reinforced concrete.
- Higher use of the internal surface with the same external project shape (on average 5 % - 6 % more)
- Lower cost of the building with the same thermal performance

## FINAL USER



The integrated Poliespanso Construction System with - ICF- insulated Wall Plastbau® 3 Vertical formwork, thanks to its lightness, safety, flexible use, workability and simple laying allows building structures, in seismic areas too, with normal and unspecific tooling.



# POLIESPANSO ICF CONSTRUCTION SYSTEM



**FLOORS SLAB**



**WALL**



**PARTITION WALL**

"We aim at producing building materials for more ecologically sustainable buildings, leading to a more consistent energy saving, as to provide for a better comfort to the building dwellers, with a higher laying safety and speed for the building constructors; higher certainty of the final result for the designer, engineer, construction company and final user."

POLIESPANSO s.r.l. (z.i. Valdaro)  
Via A. Vespucci, 10, 46100 Mantova Italy  
Tel. +39 0376 343011 . Fax +39 0376 343020

[www.poliespanso.com](http://www.poliespanso.com) - [info@poliespanso.it](mailto:info@poliespanso.it)

