M2 EMMEDUE

Advanced
Building
System

EMMEDUE
Living the future

Advanced
Building
System

EMMEDUE® technology, the most versatile and flexible building system in the world.

EMMEDUE® is an innovative earthquake-resistant and insulated building system based on a series of modular panels which are industrially produced and accomplish the required structural functions efficaciously guaranteeing a high thermal insulation and soundproofing, high fire resistance and earthquake resistance.

Compared to any previous building system, both traditional and pre-fabricated, EMMEDUE® is the best solution as for rapidity of execution and reliability, putting all the most meaningful advantages together.

The EMMEDUE® single panel is made up of a spatial steel trestle enclosing a foam polystyrene plate; it is finished on site with spritz beton.

Single Panels

This panel is perfect for walls, partitions, claddings, floors and roofing of buildings, both civil and industrial. Used as a load-bearing structure, for four storey buildings, with application of structural plaster on both sides, for partitions and claddings in buildings, either new or to be renovated; as a curtain wall and partition in large-sized industrial and commercial buildings; as an insulating disposable form for roofing and floors of reduced span, prepared with or without pre-installed ribs.

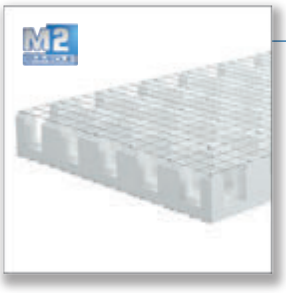
“HP” Single Panel

Panel created to face with particular building requirements. This is a special panel whose characteristic is the application of a double electrowelded mesh on each side, and its high structurality gives a remarkable resistance to the horizontal actions, both static and dynamic.

In order to meet with the various requirements, it is possible to ask for the supply of single panels with different supplementary insulating materials such as cork, rock wool or lead foil.

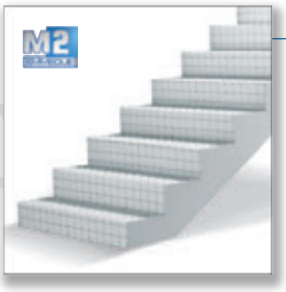
Double Panel

Insulating double panel, excellent for reinforced concrete walls such as load-bearing walls and retention walls. The double panel consists of two basic panels, suitably shaped and joined one another by double horizontal connectors creating internally a space to be filled with concrete having suitable characteristics and strength. The thickness of the concrete casting inside the “double panel” as well as the characteristics of the concrete itself will be defined according to the structural needs. Finally, the panel is finished with the application of the external plaster. The double panel, supplied with reinforcement certified by an Official Laboratory in conformity with the Law 5/11/1971 no.1086 - D.M. 14/01/2008, complies with the provisions concerning reinforced concrete structures according to the EUROCODE 2 (EC2).



Landing Panel

Panel for the realization of landings, floors and bi-directional reinforcements. It gives continuous insulation to the panel intrados. The EMMEDUE® landing panel is an excellent solution for the realization of landings positioned next to the stairs realized with the EMMEDUE® stairs panel. The landing panel can also be used for any plate or slab of r.c. to be reinforced in two directions, with the advantage of a weight smaller than a full slab and the presence of a continuous insulating material used also as a form.



Stairs Panel

For a lightweight, resistant staircase of rapid realization. It is made up of a foam polystyrene block, shaped according to design requirements, coated with two layers of steel wire mesh assembled with electro-welded steel wires. This panel, suitably reinforced and finished with casting on site in the proper spaces, is used for the realization of flight of stairs to be externally finished with traditional plaster, tiles or whatever material.
The stairs panel is characterized by comfortable and rapid installation along with a special lightness and structural resistance.

Floor Panel

Panel for the realization of floors and roofing with r.c. joists, giving great advantages as to lightness, insulation and rapidity of assembling. Using the EMMEDUE® floor panel composed of a foam polystyrene shaped plate it is possible to realize floors and roofing of buildings with the addition of supplementary steel inside suitable joists and subsequent cast on site of concrete.

In the photograph: panel equipped with reinforcements for the installation phase.

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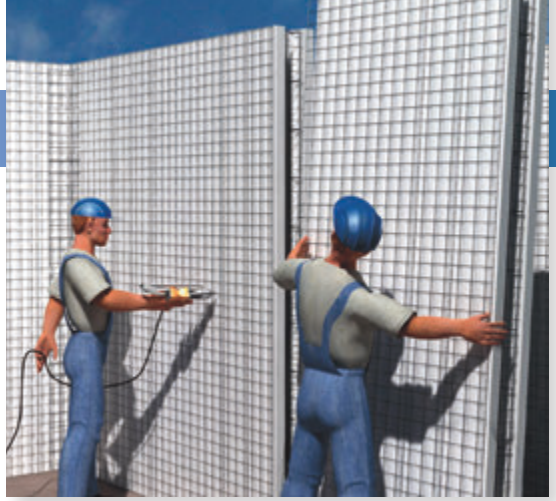
EMMEDUE®

everywhere in the world



Thanks to their remarkably light weight, EMMEDUE® panels are easy and rapid to carry and handle. EMMEDUE® panels can be placed by hand and are connected one other with either a pneumatic gun or ordinary building wire.

EMMEDUE® is a flexible and absolutely versatile system thanks to which it is possible to realize earthquake-resistant buildings up to 20 floors and architectural structures, both the simple and the very complex ones.

An unique panel for both floor and roof.

Methods of construction:

Ease of handling and simple assembling

The EMMEDUE® panel can be easily hand transported by one/two operators, even in the assembled way and when the dimensions exceed 4 m². Afterwards, during the assembling phase, it can be worked and manually positioned just by one operator without the use of lifting equipment. This facilitates and speeds up the installation of the panels in any situation. These operations do not demand any specialized labourers.

Concrete cast inside double panels braced with light props.

Preparation of the facility chases

The laying of the systems is easy, fast and clean, since it does not require any masonry work. The chases in the polystyrene are carried out by means of a hot-air generator and the system canalizations are laid behind the metal mesh. In case of rigid or semirigid pipes, the metal mesh is cut in the required length by using normal shears and then restored with portions of reinforcement plane meshes.

Plaster application

Once the panels have been joined one another, the plumbing system has been completed, the concrete casting, in the case of double panels, has been done and once the pipes have been arranged, the plaster can be applied directly onto the panel.

Here again, if compared to other systems, the advantages of the EMMEDUE® system are evident. The galvanizing of the support mesh does not prevent the use of different types of plaster. Moreover, the plaster, if applied on joined walls and if reinforced with metal meshes, will turn out to be monolithic, excluding any possible phenomenon of flaw due to mechanical and/or thermal strains. What is more, since there are no patches of the system chases - that are, instead, always visible in the traditional systems - the plaster will turn out to be homogeneous and improved as for quality and even from an aesthetic point of view.

Chases are made by melting polystyrene behind the meshwork by means of a hot-air gun or any other source of heat.

Pipes (electricity, water, gas, etc) are easy and rapid to place behind the metal meshwork.

Spraying of the coating layer on the panel by using the plaster sprayer.

Technical characteristics and advantages of the EMMEDUE® product

Sustainability and Energy Saving

The considerable improvement of the thermal comfort inside the houses built with the **EMMEDUE® system** is guaranteed by the widespread presence of polystyrene and i ts very low heat conductivity which, eliminating the heat bridges, reduces dramatically the **consumption of energy** and favours those strategies aiming at sustainable development.

Lightness

The EMMEDUE® panels are lightweight and sufficiently rigid at the same time, even before their finishing with spritz-beton, so that they turn out to be extremely manageable and easy to handle and to assemble even in the most uncomfortable operating conditions.

Rapid Installation

Several experiences carried out in various conditions, in many countries of the world and using different labourers, have shown a remarkable shortening of the time of realization as for the constructions carried out with the EMMEDUE® system if compared to those carried out with the traditional systems, thanks to the use of an industrial product which optimizes the assembling sequences and reduces the operations of the construction site personnel to a minimum.

Convenience

The EMMEDUE® panels represent a real advantage both for the final users and the firms since they permit to obtain better performances than the traditional products and at more reduced costs.

Versatility

The EMMEDUE® building system favours absolute design flexibility, since it is equipped with a full range of building elements: load-bearing walls, curtain walls, floors and stairs. Furthermore any kind of geometrical form, either plane or curve, is easily obtainable just by simply cutting the elements at the site.

Load Resistance

Several laboratory tests carried out in different areas of the world as well as in Italy have put into evidence the high load resistance of the EMMEDUE® panels. For example, compression tests with centred load carried out on a finished single panel, cm 270 high, have shown that the same panel can sustain a maximum load of 1530 kN/m.

Wide choice of finishing

As for their finishing, the walls realized with the EMMEDUE® panels can be completed both with the application of a thickness covering directly on the raw plaster and, as an alternative or a traditional paint on the smoothened plaster. Finishing of any type are possible without any limitation.

Fire Resistance

The quality of the foam polystyrene used for our panels is of the self-extinguishing type; moreover, the two concrete layers which coat the panel sides prevent its combustion. The fire resistance has been also verified in tests carried out at different laboratories, complying in full with the minimum requirements of the most demanding regulations. For example, a wall realized using the PSM80 panel has shown a fire resistance greater than REI120.

Earthquake Resistance

Laboratory tests carried out on one of the EMMEDUE® prototypes made up of two stairs in true scale have shown that the structure withstands, with no damages, strains greater than those calculated for a First Class Earthquake, that is the maximum provided for by the Italian Earthquake regulation. The results obtained during these tests represent the scientific confirmation of what has already been experimented in nature many times.

Cyclone Resistance

Buildings realized with the EMMEDUE® system in areas with high risk of cyclones have proved, throughout the years, their capacity to withstand the passing of the most destroying cyclones, thus confirming the high resistance of the EMMEDUE® buildings to the complex strains and thrusts of the force generated by cyclones.

Blast Resistance

EMMEDUE® has evaluated for blast resistance some panels of different combinations of high strength cement together with different styles of EMMEDUE® steel reinforced EPS building panels. The panels were tested against a commercial high explosive in a test chamber optimized to produce a uniform blast wave at the face of the panels. EMMEDUE® panels have successfully overcome the various tests.

Integrating

EMMEDUE® is a versatile construction system which is completely compatible with all other existing construction systems; in fact, EMMEDUE® products are suitable for completing reinforced concrete or steel structures. In addition, EMMEDUE® products can be easily associated with other construction elements, such as wooden roofs and pre-stressed, brick or slab floors, and can even be utilised with plasterboard walls. EMMEDUE® products can also be used in conjunction with any type of finish available on the market and can be adapted to all types of doors and windows. EMMEDUE® structures do not limit designers to choosing certain products for completing their buildings.

Soundproofing

The soundproofing of the EMMEDUE® panels represents one of the advantages of the building system. The possible application of acoustic insulation materials onto the panel (such as cork, cocoa fibre, plasterboard, rock wool, etc…) optimizes the insulation of the walls in accordance with the hardest acoustic legislation.

EMMEDUE® plants in the world

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