

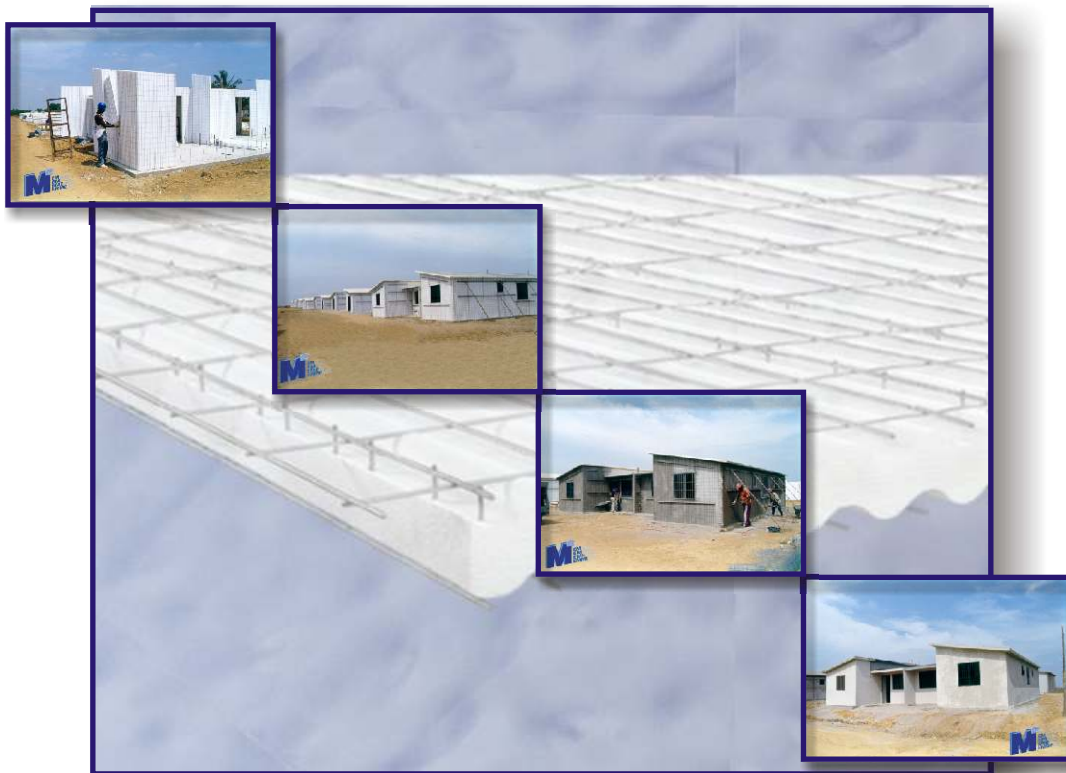


Advanced
Building
System

EMMEDUE System
Earth-quake resistant, acoustic and
heat insulating construction system

EMMEDUE CONSTRUCTION TECHNICAL SYSTEM

INTRODUCTION
TO EMMEDUE TECHNOLOGY



Rev. 00 of 18/04/2000



Certificato n° 50 100 0605

EMMEDUE S.r.l. - Via Toniolo - 61030 Fano Z.I. (PU)- ITALY
Tel. ++39/0721 855650/1- 856211 Fax ++39/0721 854030
www.mdue.it - info@mdue.it

INDEX:

1. Introduction to Emmedue system
2. Emmedue system's features
3. Raw Materials
4. Emmedue panels plant - manufacturing and production cycle
5. Description of the production plant
6. Emmedue panels: technical specifications
7. Building design with Emmedue panels
8. Emmedue panels: erection and organisation on site

1 - INTRODUCTION TO EMMEDUE SYSTEM

Emmedue, a patented construction system, represents today one of the most advanced challenges, from a technical point of view, in terms of time as well as of global and economic advantages, to the planning of world-wide intensive realisation of buildings, as shown by the success achieved in all continents.

The basic idea is given by the possibility of combining, in conditions of great advantage, the structural and heat and acoustic insulation requirements normally solved by the RC (reinforced concrete) structures and by masonry in the traditional construction system.

The target has been validly achieved by the design development of a light prefabricated (modular) panel made up of one or two slabs of expanded polystyrene (EPS), of proper density, and two or four nets of galvanised and electro-welded steel wire connected one another.

Such panels are finished, after their installation, with the addition of concrete, according to easy work procedures.

The Emmedue system allows, in such a way, to set up vertical building elements such as loaded and unloaded walls, as well as horizontal or inclined slabs for decks, roofing and stairs.

2 - EMMEDUE SYSTEM'S FEATURES

Talking about building technology and economical aspects that represent the peculiarity of the Emmedue system, compared to the traditional one as well as to the heavy prefabrication, it can be summarised as follows:

2.1- The typology of Emmedue panels is flexible; it allows an easy adaptation to the architectural exigencies of the project, also permitting the execution of every plane or bent wall and roofing.

It also presents a very good workability even during the erection, before the application of concrete, thus allowing to easily obtain the rooms required for the embedded networks, for plumbing and electrical installation as well as for openings of whatever shapes for windows, doors, etc.

In this way, the final application of concrete with the addition of reinforcing nets where required, grants the perfect hiding of networks as

well as the “monolithic” structure of the wall concerned with a great advantage in terms of time and quality of execution.

2.2- Emmedue panels are light, their weight ranging between approx. 4 and 10 dN/sq.m, (Kg/m²). Differently from traditional heavy prefabrication systems, Emmedue panels may be easily moved and handled up to their installation on site, when concrete is applied so as to complete the static function of the panel.

Such an easy handling of panels is ensured through all working phases: from the production to the erection, which can be carried out manually by the workers, without using any other equipment.

2.3- Set up and finishing operations with Emmedue panels are easy; assembly and successive application of structural concrete require simple aligning and propping equipment (further to few means of work) and may be easily implemented also in the most difficult environments. For instance, the addition of concrete on the outer surfaces of wall panels and on the intrados of decks and roofing can be carried out either by directly spraying the mortar, which is contained in a portable hopper, or by a normal air-compressor, in case the concrete turbo-pump is not available for such applications.

2.4- Emmedue panels optimise its structural components; the typology of the elements, the distribution of the steel wires inside the nets, the polystyrene’s features as well as the finished shape of the panel make the structure light and resistant and allow to optimise the quantities of structural components such as steel and concrete.

2.5- A building carried out by Emmedue system can be really defined as “monolithic” if compared with the traditional structures.

In fact, the structural continuity among the horizontal and vertical elements of surface, which delimit the rooms, is assured by reinforcing nets, which are then embedded in the concrete, applied in the finishing phase.

Such a characteristic offers great advantages of resistance in case of typical dynamic actions such as seismic forces.

The concept of “monolithicity” can certainly be extended to the global characteristics of insulation of the building, free of heat conduction points, thanks to the continuous presence of the insulating material on all the surfaces which come in contact with the outside.

2.6- Emmedue system usually requires a continuous foundation, with a more rational distribution of vertical loads and with great advantages of cost (particularly in case of one-storied buildings) due to the lower loads transmitted on the ground.

2.7- Emmedue system is extremely fast, the concrete, further to have structural function, also acts as plaster, whereas insulation is given by polystyrene contained inside the panel.

Particularly, in case of walls realised with double panel (“PDM” type), the “EPS” slabs, which are placed between the reinforcing nets, realise the best solution as “lost forms” for the concrete casting of the wall bearing core, thus avoiding the use of normal form-works. A further simplification is obtained in case of one-storied housing units, since it is possible to erect both walls and roofing by the use of a unique type of simple panel.

2.8- Emmedue system is versatile; the “EPS” panel can be correctly sized in thickness and density, so as to easily satisfy the conditions of housing comfort required by different weather conditions in all different countries.

When required (particularly in cold countries), the realisation of a “vapour barrier” through the application of compatible products upon the surface of the “EPS” panel, does not represent a special difficulty.

In conclusion, the Emmedue system represents the best solution in terms of structural requirements and “housing comfort”, as well as of economic advantages which extend from erection up to the final use of the house. In fact, when the local weather conditions need the installation and the use of heating system and/or air-conditioning, the contribution of the panel’s insulating power as to the energy saving will be remarkable.