INTEGRAL PANEL FOR WALLS AND FLOORS

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ABSTRACT

Integral Panel for walls and slabs integrated by the following elements:
two parallel electro welded wire meshes, galvanized or annealed, cut to the exact measurement of the wall or slab needed.
a plurality of connectors and separators in the shape of a cross which will be welded perpendicularly by their edges to the horizontal and vertical wires or rebars of such electro welded wire meshes, welding in a parallel form to the meshes, fixing, supporting, and separating the polystyrene core.
the insulating core cut to the exact required measurement is placed in the center of the two meshes that form a sandwich.
the electro welded union mesh, with or without being bent, to join walls and/or slabs with each other.
all the union elements: wire, welding points, etc. to join all the components with each other.
all the "cantilevers" of one of the two electro welded meshes that will support the panel in the existing supports of the structure to be built.
the beams and columns integrated to the Integral Panel for walls and slabs.
the connections and union elements, such as annealed or galvanized wire, welding points, etc.
INTEGRAL PANEL FOR WALLS AND FLOORS

OBJECTIVE

[0001] It’s about an integral panel to be used in the industry of construction, specifically for building walls and slabs to the exact required measurement with variable thickness, thermal and acoustic insulating characteristics, adaptable to most building projects, which integrates monolithically and homogeneously, all the necessary structural elements required by a wall or a slab, such as welded steel mesh which can be galvanized or of normal or non-galvanized steel for construction, joined by peculiar cross-shaped steel connectors and separators, and welded perpendicularly. The lightweight insulating can be expanded or extruded polystyrene with fire retardant additive, or similar, placed between the two wire meshes in sandwich form, as well as the electro welded mesh connectors used to join such elements among each other and/or with other structures, and the clamping elements can be made of annealed or galvanized wire for construction or through other alternate clamping devices, such as steel staples, electro welding, arch welding, annealed wire welding, or galvanized wire welding used in construction. It is intended, that when designing this integral panel, we can count with a panel for walls and slabs that has, among other devices, the next particularities:

[0002] Having an integral panel for walls and slabs made at the exact required measurement.

[0003] Its 2 wire electro welded meshes are joined by a cross perpendicular to them. This cross has 3 functions: To join both parallel wire welded meshes, to hold and fix the insulated polystyrene foam, and to ensure a separation between both wire meshes and the polystyrene foam to ensure the proper coating of mortar and concrete when applied over their faces.

[0004] Having a panel to the exact measurement that does not force to join various pieces with each other to make the needed wall or slab nor generate unwanted leftovers, pollution, or wastes.

[0005] Having, optionally, as a preferred modality with an element for walls and slabs that integrates as its own part, the elements known as beams and columns.

[0006] Having a lightweight core made of expanded or extruded polystyrene that works like a thermal and acoustic insulation with fire retardant additive and made to the exact measurement of the needed wall or slab.

[0007] Having a panel for walls and slabs as a preferred modality that can have the possibility of counting with one of its two parallel wire meshes bigger than the other one because the difference of size between the two wire meshes works as a natural support for the panel to the elements of support and anchorage such as columns and beams.

[0008] Having an INTEGRAL PANEL for walls and slabs that because it is made to the exact required measurement, it can assemble with other elements in a short time for any construction project without joining various pieces with each other.

BACKGROUND OF THE INVENTION

[0009] Nowadays, conventional panels used in the construction of walls and slabs are integrated by electro welded wire meshes in both sides and have an insulated core. Several of these wire mesh panels are then fixed to the main structure constituted by the frames consisting of columns and beams that have previously been erected. Until now, this constructive process consists of the following stages:

[0010] 1.—Construct the structure of the building, its foundations, anchorages, and its rigid frames constituted by columns and beams.

[0011] 2.—Place the panels (generally various panels), joining one with the other, in order to make one wall or slab over the previous structure. This produces several joints in the assembly because, for example, a one-story home that measures 100 square meters requires 180 to 200 square meters of wall plus its corresponding 100 square meters of slab which is a total of 300 square meters. Therefore, if it is considered that a panel measures approximately 3 square meters, the conclusion is that 100 panels are needed for the same home. To form the walls and slabs of the home, it is necessary to join these 100 panels together. All of these joints will have to be multiplied by 2 (because the panels have 2 assembling sides), and then by 4 (because the perimeter of the panel has 4 sides). Finally, they will have to be multiplied by the number of tying and joints that are required by each meter or side to be joined together. This type of assembly is never homogenous due to the fact that each panel is clamped to the other in a different way and none of the joining is equal.

[0012] 3.—Reinforce and tie the panels to the structure.

[0013] 4.—Anchor and tie these panels to the structure that will support and hold them.

[0014] 5.—Verify that each joining (2 joints for each assembled panel because it is required to tie both sides) has been made with the required structural reinforcement.

[0015] 6.—Moreover, to build a closet in a home, it is necessary to build a wall that is 0.75 meters long; it is necessary to cut a piece of the panels to adjust it to the size of the closet, which will produce waste and leftovers. Also, if you want to make a wall with a specific measurement, assemble various pieces of patented panels that have predetermined measurements and previously cut them to adjust them to the wall. Besides producing trimmings, wastes, and leftovers, this causes the reinforced steel to not be homogenous in the development of the wall.

[0016] 7.—Similarly, to build a slab, because the existing panels in the market have a pre-established measurement, to assemble a slab with such panels, it is necessary to depend on the measurements that are multiples of the patented products. This prevents making a building with prefabricated panels and slabs to the exact required measurement in any project, consequently generating trimmings that involve time, expenses, tools, and labor that generate leftovers and wastes that contaminate and that have expenses that harm the economy of the consumer and the construction project.

[0017] 8.—It is also necessary to consider that the expanded polystyrene used in the construction as an insulating or lightweight product is sometimes produced with recycled polystyrene wastes and blended with a virgin material for reusing it in the industry of construction. A great amount of this recycled material comes from recycled packing foam with high insulating advantages. This is about expanded or extruded polystyrene with high density that does not have fire retardant additives.

[0018] As it can be shown, these stages result inconvenient for a construction project that requires a great inversion of time and expenses in materials and labor needed for the assembling of so many parts or pieces such as materials that assure security for its consumers.
With the purpose of abolishing these and other inconveniences, the INTEGRAL PANEL was developed. This panel is constituted by only one piece, which means only one piece to the exact measurement of the element that is desired, an entire wall or slab that can integrate within itself, the elements known as wall-beams-columns or slab-beams. These are joined within each other and they represent all the required elements needed in a structure. They behave more economically, monolithically, and efficiently than those forced by the most pieces or parts because it is a wall or slab manufactured to the exact size required in the construction and because it can adapt to most building projects and not generate wastes or leftovers that can contaminate. Moreover, in the actual existing patents that are technologies in use and protected by patents granted to their owners, the following can be observed:

In relationship to the international patent WO 03/093599 A1, it is referred: “... a low-density polystyrene core comprising an octagonal and a hexagonal section respectively, said core being covered with a mesh of electro welded galvanized steel wire”.

It also describes how a “System of Structural Nodules” formed by pieces of 2.44 mm x 0.4066 m x 10 cm “that when grouped”... they form nodes of 2.44 mm x 1.22 m x 10 cm, 2.44 mm x 0.8132 m x 10 cm, and 2.44 mm x 0.4066 m x 10 cm”.

This means that the patent PCT WO 03/093599 A1, refers to a piece of dimensions whose prototype begins from a small element that measures 2.44 mm x 0.4066 m x 10 cm and that to make a wall with greater dimensions it is enough with joining various equal pieces to the basic prototype which has a width of 0.4066 m. This makes it possible to produce a wall of several pieces with a width of 0.4066 m joined together to make walls with measurements always multiples of 0.4066 m and given that it is about an element covered on all its sides with electro welded meshes, when joining a panel with the other, the result is a electro welded wire mesh perpendicular to the face of the panel that will be covered with mortar. This panel will be joined with another panel, producing a wall that has an electro welded wire mesh perpendicular to the face of the wall every 0.4066 m. The wall that results from assembling various prototype pieces that measure 0.4066 m, will always be a multiple of 0.4066 m, and that the insulating core of the polystyrene will never have a fixed position in respect to the mesh that envelopes it because this mesh surrounds the polystyrene core and covers all of its sides. Afterwards, when applying mortar or concrete, it is necessary to place the separators on this panel to ensure the right cover of concrete or mortar, according to technical standards of construction. Moreover, if a wall or slab with greater dimensions is required, it is necessary to assemble and join several equal pieces among each other. This that always to a constant distance of 0.4066 m will exist 2 perpendicular electro welded wire meshes to the face of the mesh that will later be covered with mortar or concrete which will be joined to form a wall, having as a consequence, a wall that contains an electro welded mesh joined to another from the adjacent panel every 0.4066 m. This union of meshes is perpendicular to the faces of the panel that forms the wall. If in the situation of building a wall for a closet that measures 0.75 m, the panels of the patent WO 03/093599 A1 are used, it is necessary to assemble two pieces of 0.4066 m on both sides on their edges that results in a panel of 0.8132 m, which afterwards makes it necessary to cut it to the needed size of the wall for a closet and its electro welded wire mesh will not be proportionally the same in the development of the wall because to every distance of 0.4066 m, two meshes are joined, which form the face of the edges of the two pieces that have been joined. The same situation is presented if a wall for a bedroom with a dimension of 2.75 m is needed. In this case, it is necessary to join 7 panels that measure 0.4066 m, having as a result, a new wall of 2.8462 m which has to be cut afterwards to adjust the needed size of the wall, making a non-homogenous wall in the development of the wall. Due to the fact that patent WO 03/093599 A1 refers to a panel with sections of 0.4066 m wide, the conclusion is that the limitation of this patent results in that it is only possible to assemble walls or slabs that are multiples of 0.4066 m and if this is the case, the wall or slab will have the union of two panels at its edges every 0.4066 m, joining each of them with the electro welded mesh, generating a wall that has two electro welded meshes that are independent and perpendicular with each other every 0.4066 m.

As regarding to the patent WO 03/093599 A1, it is seen that such slab starts from a basic unit of 2.44 mm x 0.4066 m x 10 cm (8 feet x 1.33 feet x 4 inches) and the owner describes it as “... structural nodules formed by elements in the shape of a trapezoidal beam whose dimensions are 40 cm wide and 8.88 m long”. The owner of this patent also states that he "designed a beam-shaped prototype of 2.44 mm x 0.4066 m x 10 cm for his system of slabs" and he describes it: “... it is made from a 5.08 cm x 5.08 cm galvanized wire multi-mesh (2x2 inches) ... that surrounds the polystyrene core ...”.

From this, it is deduced that the mesh only surround and envelops the polystyrene core without fixing it in a determined position, allowing it to move from its place because it lacks fixing connectors, which makes it necessary to place separators between the electro welded wire mesh and the polystyrene core to ensure that the wire mesh is covered with mortar or concrete as required by construction standards. Also, from the description made by the owner of the patent WO 03/093599 A1, it is stated that to construct a slab, it is necessary to place “piece after piece” and place “... 2 corrugated steel rebars that measure 0.9525 cm (⅜ inches) or 1.27 cm (½ inch) ... placed in the lower ends of the trapezoidal section ... and one corrugated steel rebar that has a ¾ inch diameter placed in the upper hole.” Due to the fact that “a piece is placed after another”, this produces to have only slabs with sizes multiples of 0.4066 m, preventing that slabs with different measurements than their multiples are formed without having to cut or generate wastes and leftovers besides requiring tools, labor, and more materials such as ⅜ and ½ inch diameter rebars. Secondly, to have an element that is not uniform in the distribution of the wire of the welded mesh, product of its multiple joints and trimmings during the development of the panel, makes the distribution of the wire and isolating core heterogeneous. In the description of the elements that form the walls and slabs in their construction, the elements known as beams and columns are not part of the patented element because the inventor describes them as elements to be substituted and he later states that the “MODIFIED STRUCTURAL THERMAL PANEL WALL AND MODIFIED STRUCTURAL THERMAL PANEL SLAB is ideal for mixing the structural elements such as columns and beams”. From here it is concluded that the elements known as beams and columns are not part of the invention that is described in document WO 03/093599 A1, because the inventor speaks about beams and columns only as a reference for fixing his invention in different structures, according to the description of the elements needed to make his walls.
while, in the description of STRUCTURAL THERMAL PANEL WALL AND MODIFIED STRUCTURAL THERMAL PANEL SLAB, when he cites the components for producing the panel, he does not mention them as integrated elements of the patented panel, which ratifies in the description of his patent. He refers his patented panel as a plurality of rectangular columns formed by a welded wire mesh that surrounds the polystyrene core, whose section is 0.305 m and 0.4066 m in width per 0.10 m, 0.15 m, 0.20 m, and 0.25 m of variable thickness. Also, his drawings show his panel in a predetermined section (single 0.4066 m; double 0.8132 m; triple 1.22 m) and that to make a larger wall or a slab it is necessary to join such pieces with each other, but none of these include as an integrated part the beams and the columns. In his description of the patented WO 03/093559 A1, the drawings that he refers to never signal the columns and the beams as an integrated element of the wall or slab rather than as an alternate system of subjection for joining such panels. Observe such document the drawings and description for producing the panels, analyzing its components where beams and columns will never be considered as integrated parts of the panel but they are only referred to as options for tying, lying, or placing his panel, for example, over a metallic structure or over a foundation (FIG. 10). Moreover, according to his descriptions, it is deduced that if the patented panel described in document WO 03/093559 A1, columns and beams would be included as integrated parts of the panel, these (columns and beams) should be included as integrated parts of the patented panel in the description and the drawings of the parts for producing it. Independently, if these panels are to be placed over a metallic structure or over columns and beams of concrete, which do not form part of the patented panel, in no case and when beams and columns appear in the drawings, as in the cases of FIGS. 4 and 5, they only explain how to place the patented panel over these elements without forming part of the patented panel because if they did, the drawings must include the beams and columns independently to the structure to be fixed. Moreover, the patent WO 03/09359 A1 does not include columns and beams. Such case can be appreciated in the assembly of the panel over the metallic structure in FIG. 7, which does not include the concrete beams and columns. Furthermore, the patented element cited in the document WO 03/09359 A1 does not include nor does it integrate within itself the columns and beams that only work as reference to a basic patented unity constituted by a piece of polystyrene which has been enveloped by all its sides by an electro welded wire mesh that does not have an integrated separator that ensures that the minimum covering of concrete or mortar as required by technical construction standard. This patented panel that is not designed to the exact measurement of the required element for a building project, which makes it necessary to cut after joining several panels among each other to adjust them to the exact and required measurement, producing as consequence, wastes and leftovers. This makes it necessary to join various panels within each other and requires more time, materials, tools, and labor for assembling them. As it can be seen in the alluded patent, its description refers to “only one wire mesh” which envelops the polystyrene core by “all” its sides without adjusting it and without keeping the core in a fixed and immovable position. The present requested patent refers to only “two wire meshes” independent with one another, which do not envelop the polystyrene core by all its sides, but that are joined by a cross-shaped wire which will be welded to both meshes to join them after placing the polystyrene core in a parallel form to the electro welded wire meshes. This element in the shape of a cross ensures the polystyrene core to remain in the required position, preventing any movement and displacement, and assures that the covering of concrete or mortar is applied in the permitted place, according to the construction standards. This is the main function of the cross-shaped wire that joins the two electro welded wire meshes and that has perforated the polystyrene core. The present requested patent refers to a uniformed wall that exclusively contains electro welded wire mesh only on its two faces to be recovered by concrete because this requested patent proposes a wall that exclusively has electro welded wire mesh only in its two faces where concrete will be applied without having a perpendicular wire mesh to such faces every 0.4066 m as it is said in the previous cited patent and without having to join several pieces of panel by their edges to form a wall. The present requested patent proposes a wall or slab built exactly to the measurement of the required element without joining various panels nor cutting and generating wastes or leftovers when making a construction.

[0025] The proposal for the requested patent refers to a wall or slab with electro welded wire mesh whose feature is that it is homogenous, uniform, to the exact measurement required by the project, without interruptions or joints in the development of the wall or slab, and without electro welded wire mesh on its edges. For this reason, the applicant thought of designing a structural element that does not have the necessity of cutting to make walls or slabs to the needed measurement without depending on multiple measurements of 0.4066 m, without generating wastes or leftovers, nor counting on an element that will have electro welded wire mesh placed perpendicularly to the principal face of the wall or slab, precluding of many joints of various pieces, which implies divergence of quality in each tying, additional materials, expenses of labor, and mainly, possibility of different structural behavior of the wall or slab, when constituting as product of the assembling of various pieces within each other. The applicant proposes having a connector that does not exist in today’s market, whose function is to join the two parallel meshes that constitute a wall or slab and that works over all, the function of keeping the polystyrene core in its proper position, preventing its displacement at the moment when applying mortar to the wall or slab and also, the function of separating the meshes from the polystyrene core, with the least number of welding points.

[0026] In the present requested patent application, the creation of an element for walls and slabs built to the exact and required measurement was thought. This creation would not have many additional element accessories that would not require the joining of additional rebars to join a panel with the other nor diagonal reinforcements. To create a panel, it was also thought that it would be different to the existing panels, that it would have a different and new connector that joins the two parallel meshes and separates the polystyrene core with a connector that only needs three welding points to assure subjection and separation of the polystyrene core from the meshes. This reduces material, time, and labor as well as designing a panel for walls and slabs with low costs of attachments of various pieces within each other to form a wall or slab to the exact measurement. This also eliminates and reduces the risk of having heterogeneous joints as in the other patented panels, without generating cuttings, wastes, or leftovers, which until now, is not possible with the existing pat-
ented panels. The panels proposed in this requested patent application for walls and slabs that have been designed to be built to the exact measurement of the required element, without producing wastes, leftovers, or cuts and proportioning a uniform distribution of electro welded wire mesh in the development of the panel and assuring via a cross-shaped connector, (formed by the welded union of two perpendicular pieces of rebars or wires) the subjection and fixation of the polystyrene core, and that it does not require more materials, joints, and labor to have the required separation between the polystyrene core and the wire mesh which will be applied with mortar or concrete recommended by the construction standards.

[0027] When referring to the patent JP8134027 A (KA-JIMA CORP), it is about a panel that joins two wire meshes through a metallic element that penetrates the insulating core and crosses it diagonally. This element has the function of joining its wire meshes in diagonal form, which generates four welding points, two for each diagonal wire, and the beams and columns are not part of all the elements that constitute such panel.

[0028] The requested patent application considers the design of an element to be used mainly in walls and slabs that are made to the exact and required measurement by any project for building a wall or a slab. This method allows the construction of any type of building in which the proposed panels are adapted for building walls and slabs, and that this panel does not look like any other product in the market.

[0029] When referring to the patent FR2545126 A1, it can be said that this panel joins the two wire meshes through concrete cylinders which have centers with a subjection hook for joining both wire meshes. The difference between patent FR2545126 A1 and the requested patent application is that in this requested patent application, no concrete element perforates the polystyrene core to join both wire meshes, rather this joint is made through a cross-shaped wire formed by two previously welded perpendicular pieces of wire, which will be welded to each electro welded wire mesh through only two welding points, one for each wire mesh, making it different to the known technologies until now, and benefiting that with this cross-shaped wire the two wire meshes will be joined and that the polystyrene core does not move out of place and is fixed in its proper position, leaving the necessary space to be covered with concrete or mortar according to the construction standards.

Concerning the cross-shaped wire that is proposed in the requested patent application, it is an element of the integral panel for walls and slabs and it can be said that today there is no panel with such elements in the market. The product that refers to patent FR2545126 A1 does not include monolithically the beams and the columns that are necessary in all structures to support the corresponding structural conditions to which it will be exposed to.

[0030] U.S. Pat. No. 5,119,606 A, it talks about a wall that has been prefabricated and precasted that contains several elements such as:

- beams and columns inside of it forming several boards inside the panel
- screws or bolts
- steel angles that support and fix the panel to the rest of the building structure
- “C”-shaped metallic columns (section C steel columns) which support and fix the insulating core, the threaded connectors, threaded nuts, and poured concrete placed over a horizontal formwork called “bed” which provides a finished surface in the concrete panel and that requires the use of products that prevent the adherence of the concrete to the formwork that works as a “bed.” After this, it is necessary to use a mechanical vibrator to have a regular and uniform concrete surface that is free of irregularities. In a second stage, the assembly of the prefabricated panel is inserted over the first layer of subjacent concrete, and after placing its corresponding accessories, place a second layer of concrete, vibrating it mechanically to get a uniform distribution and curing. The formwork removal and storage of the panel will be done with the previously installed connectors for its lifting. In general, it can be said that it is about a precasted element that does not have electro welded wire mesh where the concrete will be applied. It is a precasted element that has threaded connectors and anchorage elements for its lifting and for its posterior embed assembly to the structure of the building. In general, it is concluded that this patented panel is a different element than the proposed in the present requested patent application because this panel presented in the requested patent application is not a precasted element, it does not have threaded screws or ducts. It does not have “C”-shaped metallic columns (section C steel columns) for attaching the polystyrene core or tying with screws and washers; while the panel proposed in the present requested patent application does have two parallel electro welded wire meshes joined by a cross-shaped wire connector that is perpendicular to the meshes. This cross-shaped wire connector joins both electro welded wire meshes with only two welding points, one for each mesh, that has been welded perpendicularly to them. This cross-shaped wire connector perforates the polystyrene core perpendicularly from one side to the other, and the horizontal wire of the cross supports and fixes the polystyrene core to prevent displacement or movement of the core, ensuring that the mortar or concrete covering is made according to the corresponding construction standards.

[0035] When designing the integral panel of the requested patent application, it was required to have the possibility of having a panel for walls and slabs that has, among others, the following characteristics:

- Its 2 electro welded wire meshes joined by a cross that is perpendicular to them.
- The joining of the two electro welded wire meshes is done by only two welding points when welding each edge of the cross welded to the parallel wire meshes that works as their connector.
- This cross has two perpendicular arms, one that works as a top for the polystyrene core and as a support for the core, assuring and preventing displacement of its proper position, and preventing that the mesh does not join the insulating core, generating a proper separation between them to assure the required concrete covering according to the corresponding construction standards.

[0039] Having a panel for walls or slabs that will have the exact measurement to build any type of construction project where the panels can be adapted without generating several joints of various pieces within each other for making a needed wall or slab, and without generating wastes and leftovers.
Having, optionally, a panel for walls and slabs with inserted beams and columns as an integrated part of the panel.

Having a thermal and acoustical insulating core of expanded polystyrene, extruded or similar, with fire retardant additives.

Having a panel for walls and slabs that can have the possibility of having a panel with one parallel electro welded wire mesh greater than the other in order to have a panel with the upper mesh greater than the lower mesh, having as a consequence, a panel with a "cantilevered" wire mesh that works as a natural support and anchorage of this panel to the elements that will support it, such as columns, walls, foundations, etc.

The efficiency in the work of the INTEGRAL PANEL of the present requested patent application shows that as it has been exposed, this contains the basic elements of a structure, that structurally work monolithically between each other, conjunctively with its connectors, separators, joining wire meshes, insulating core, tyings and connections, forming all this parts with only one piece within the INTEGRAL PANEL system that does not require any other additional element to make its structural function in the construction process and being only necessary to anchor and tie this INTEGRAL PANEL to the base that will work as its support of the structure regardless if it is a building of one or various stories or levels. Until now, it has not been possible with the existing conventional panels.

The design and contained materials of the INTEGRAL PANEL that is the requested patented panel application, such as its distribution, placement, quantity, exact size, conjugation, disposition, assembling, and combination of the different elements that form it, constitute in part, the novelties of the INTEGRAL PANEL for building walls and slabs. This invention provides for the construction industry a PANEL that is INTEGRAL for building walls and slabs, of only one piece and totally different to the existing panels, designed to the exact measurement of the needed element, that does not produce trimmings nor joining of various panels within each other, due to an internal and novelty construction, whose main characteristic is that it integrates in one element and in one measurement of the wall or slab, and in an homogeneous form, all of the required structural components.

The general specifications of the elements that integrate the INTEGRAL PANEL are:

INTEGRAL PANEL fabricated to the exact size of the required wall or slab and whose width dimension is greater than 2 inches.

The Electro welded wire mesh for the panels, are trimmed to the exact size of the required wall or slab, and so are the union wire meshes with each other. These meshes will be of steel for the construction or galvanized, with rebars or wires with diameters of 2 millimeters or greater, with a minimum separation of rebars of one inch or greater according to the structural calculus and the minimum resistance determined by the construction standards.

The Insulating core can be expanded or extruded polystyrene, polyurethane or similar, with the minimum required density according to the correspondent construction standards for assuring thermal and acoustical insulating. It will be to the exact measurement of the required wall or slab and with a variable width of 2 inches or greater. It will be placed in the center of the two meshes in sandwich form. Its separation from the two wire meshes will not be greater than three quarters of an inch (¾ in.).

A Cross-shaped wire connector for joining, by their edges, through welding points, the two parallel electro welded wire meshes; the cross will consist of wire or rebars with a minimum diameter of 2 mm and with the required resistance by the corresponding construction standards. The longitude of this connector will be equal to the width of the INTEGRAL PANEL required by the corresponding wall or slab. This connector will permeate the insulating core from one side to the other to fix it between the two wire meshes and placing it in its proper position.

Prefabricated columns and beams: will be made of structural steel with rebars in diameters of 3 mm and with the required resistance and minimum diameter as stated the construction standards. These elements can be placed to the panel with ties or welding points.

Metallic columns and beams: can be made of ¾ inch minimum steel plate with sections C, I, U, squared, rectangular, or circular.

Welding points: can be made through arc welding or by another approved welding method that structurally assures the force required by the elements to be joined.

Electro welding points can be joints generated by electrical discharge of high tension for melting both materials and joining them together.

Joints: can be made with annealed or galvanized wire for construction, through joints by industrially used staples, welding arc, electro welding between the elements, or by an alternative method, that it assures the force or strength of the joints according to the corresponding construction standards.

Separation between the electro welded wire meshes and the insulating core: the separation between the mesh and the polystyrene core can be as minimum as ¾ inch, in compliance with the construction standards, and according to the correspondent construction codes.

Mortars and concretes for the coverings: the mixtures for covering will be those specified by the correspondent construction standards and according to the structural function of the elements.

Joining mesh: made of electro welded wire mesh, for joining the panels with each other or for joining the panels to another preexisting structure: They can be made of the same quality of the electro welded mesh of the corresponding INTEGRAL PANEL. Its length will be the same as the ones of the elements to be joined and will have by each of its sides, a measurement of at least 40 cm. These joining meshes will be placed by both sides of the joining panels, (interiorly and exteriorly).

DETAILED DESCRIPTION OF THE INVENTION OF THE INTEGRAL PANEL FOR WALLS AND SLABS

In reference with the figures, the invention of the INTEGRAL PANEL (11) for walls and slabs will be used in all construction projects that requires walls and slabs where such panels will be adapted; it has the next process for its fabrication and assembly:

It is necessary to have the following basic elements:

Two electro welded wire meshes (88) cut to the exact measurement of the required wall or slab.
Two pieces of wire or rebar (#4) cut to the exact measurement of the width of the required panel to be fabricated.

A cross-shaped connector (#5) formed by the perpendicular union of the two pieces of wire or rebar (#4), joined through a welding point placed in the center of the rebar that constitutes the horizontal arm of the cross and to a distance of ¼ inch from the edge of the other rebar that constitutes the vertical arm of the cross.

A polystyrene plate or board (#6) cut to the exact measurement of the required wall or slab and with the thickness or width needed.

This INTEGRAL PANEL is formed on its exterior, by the combination of the two parallel electro welded wire meshes, (#8) cut by pairs to the exact measurement of the required wall or slab to be built, which one of them (#27) and (#28) has been welded perpendicularly to a cross-shaped connector (#5) in each of the intersections of its horizontal and vertical rebar, or in any other needed point, having an insulating core (#6) in the center of the form of a sandwich, which has been previously cut to the exact measurement of the wall or slab needed and that has been inserted in the cross-shaped connectors (#5), allowing that these perforate the polystyrene core from one side to the other (#6) obtaining a new element (#29) and (#30) called “partially fabricated panel” formed by the union of the first electro welded wire mesh (#8) the connector elements in the shape of a cross (#5) and the polystyrene core (#6) in the center. The next step is to place the second electro welded wire mesh (#8) in parallel form to the first electro welded wire mesh (#8) of the “partially fabricated panel” (#29) and (#30) place this second wire mesh (#8) in the other edge of the cross-shaped connector (#5) that exceeds the polystyrene core (#6) which it has perforated for joining the second wire mesh (#8) and the cross-shaped connector (#5) with a welding point, having as a result the INTEGRAL PANEL (#14) required to the exact measurement of the designed element. When welding the electro welded wire mesh (#8) to the cross-shaped wire connector (#5) a separation with each other must be verified between the connector (#5) and both wire meshes (#8) at least of ¼ inch to assure that there is a minimum space for the final covering of concrete, according to the corresponding construction standards relative to the reinforced concrete.

All these conjugated elements should be joined with each other through their joining elements which can be annealed or galvanized wire (#31) or through welding machines (#32) or through any other authorized alternative welding method.

It should be taken into consideration that the INTEGRAL PANEL (#14) for walls and slabs, fabricated to the exact measurement of the needed element, will have the preferred modality of opting for the inclusion or not of the structural reinforcing elements known as beams and columns (#3) for which it will be enough to attach such elements to the INTEGRAL PANEL (#14) with the correspondent connection or tyings, or omitting them making it enough by not attaching them to the INTEGRAL PANEL (#14).

Another important consideration in this preferred modality is that such INTEGRAL PANEL (#21) can be produced with two electro welded wire meshes of different sizes (#22) in order to optionally have an INTEGRAL PANEL (#21) in which one of its two electro welded wire meshes (#22 B) exceeds in dimensions to the other electro welded wire mesh (#22 A) being that this shorter mesh has been cut, as well as the polystyrene core (#6), to the exact measurement of the needed wall or slab forming it like a sandwich. The difference in the size of these two electro welded wire meshes (#22) generates a “cantilever” in the mesh with larger dimensions (#22 B) than the shorter wire mesh (#22 A), which allows the free support of this INTEGRAL PANEL (#21) to the structural elements of support and have previously been erected such as beams and columns (#3, #13). To build this INTEGRAL PANEL with a “cantilever”, it is necessary to cut two electro welded meshes “A” and “B”. The first (A), will have to be cut to the exact measurement of the needed wall or slab in the corresponding project of construction as well as the polystyrene core forming the sandwich, while the second wire mesh (B) will be greater than the first wire mesh (A) only because the second (B) will be larger than the first (A) just to form the “cantilever” with these exceeding measurements that will have the second mesh (B) in all the perimeter of the INTEGRAL PANEL (#21). These “cantilevers” will constitute the natural support of the panel to the rest of the projected construction structure, and can measure the same thickness that the support has, the beam or columns which it will be in contact for its provisional support.

To form the panel with these two electro welded wire meshes, it is necessary to attach them to the rest of the element that composes such panel, similarly to how the fabrication of the panel for walls and slabs is described without a “cantilever” such as:

The perpendicular connectors (cross-shaped wires) that join the two parallel meshes and that are also separators of the polystyrene core.

The polystyrene core that has been cut to the exact measurement of the needed wall or slab.

The beams and columns in case of requiring them, to be placed perimetral over the smaller mesh (A) to the exact required measurement by the corresponding wall or slab.

The corresponding joints needed between all elements that form the panel for walls and slabs should be performed by tyings with annealed wire for the construction, with galvanized wire, or through electro welding, or any other alternative system for joining that complies with such requirements, taking into consideration that all the elements will have to be joined and combined in the previously described form in the case of the panels without “cantilever”.

Once the panels for walls and slabs have been fabricated to the required exact measurement needed by a construction project, then it is possible to place them over the rest of the structures that will support them, and the assembly must be done according to the requirements of the project, for which it will be necessary to use the electro welded wire mesh joining elements (#24), (#25), (#26) placing these joints, which corresponds, depending on the needed elements for joining according to an angle of intersection, taking the precautions of placing two joining electro welded wire meshes (by both sides of the walls and/or slabs of the INTEGRAL PANEL) which means to place such joining meshes, internally and exteriorly. Until here, the best known way or method to fabricate the invention is described.

DESCRIPTION OF THE FIGURES

The characteristic details of this innovation called INTEGRAL PANEL for walls and slabs to be used in the...
construction industry are clearly shown in the correspondent description and in the attached drawings, as well as an illustration of such panel and following the same signs of reference to indicate the shown parts and figures of the elements that constitute it as an invention.

[0075] FIG. 1 is an isometric view of the INTEGRAL PANEL as a preferred modality that has the option of including the assembling of columns and beams on it with all the parts that form it and fabricated to the exact measurement of the two electro welded wire meshes needed in any construction project, and that it is ready to be assembled on the element that will support it. Its size will be the exact measurement required by the project, and its thickness will vary from a minimum of 2 inches or greater according to the needed and required element.

[0076] All the walls and slabs required in a construction project will have the same characteristics of this prototype PANEL and will be equal among themselves. The only difference between them is that every element will have a different size according to the required measurement of the needed wall or slab as well as the thickness of each element, which will vary in the case of requiring a structural element or only one separating element with no structural function.

[0077] FIG. 2 is a rolled electro welded wire mesh, galvanized or annealed, for construction.

[0078] FIG. 3 is a prefabricated electro welded beam or column, cut to the exact measurement of the required wall or slab, to be placed, if the project requires it, as many times as needed by the structural design of the project.

[0079] FIG. 4 is a pair of rebars or wire for construction that will be used to form a cross through a welding point in the intersection of these rebars or wires, such as it is shown in the correspondent drawing cut to the required measurement of the PANEL for walls or slabs, assuring the three functions that such cross will perform: to join the two electro welded wire meshes; to separate the meshes and the polystyrene core; to fix the polystyrene core in its proper position.

[0080] FIG. 5 is a wire cross formed by the perpendicular union of the two pieces that constitute FIG. 4 through a welding point. This cross is formed by the perpendicular union of its two arms, welding the center of the horizontal arm to a minimum distance of ¼ inch of the edge of the vertical arm as it is shown in the corresponding figure. The forming of the cross will have to be made carefully so that it works as a connector of the two parallel electro welded meshes among themselves, welding the cross perpendicular to such meshes at each of its edges on the intersection point of the horizontal and vertical wires of the meshes, or in any other desired point, with the condition that such connector joins the two parallel meshes and allows a separation between the electro welded wire meshes and the insulating core at least ¼ inch so that this cross firmly fixes the polystyrene core, preventing its movement and assuring the minimum required covering of concrete or mortar that will be applied to the PANEL according to the correspondent construction standards.

[0081] FIG. 6 is the insulating and lightening core for the INTEGRAL PANEL that can be extruded or expanded polystyrene, polyurethane, or other similar insulating and lightening core, with the addition of a fire retardant additive. This core will be cut to the exact measurement of the wall or slab required in any construction project and will have a thickness of 2 inches or greater in case of needing a wider panel according to the structural function that it will perform. This polystyrene core will be placed as a sandwich in the center of the two electro welded wire meshes as it is shown in the correspondent drawing, and it will be perforated from one side to the other by the cross-shaped wire connector that joins both electro welded wire meshes as it is described in the corresponding drawings, seeking to fix its position so that it is separated from both electro welded wire meshes to a minimum distance of ¼ inch or to a distance that determines the corresponding construction standards to assure minimum concrete coverings. This insulating core can have variable thickness for adapting to the measurements required by the panel and will be placed over the first electro welded wire mesh to which the cross-shaped wires have been welded perpendicularly, procuring that such insulating core is perforated from one side to the other by the cross-shaped connector and placing the other electro welded wire mesh and welding it to the cross-shaped connector that perforates the polystyrene, assuring that the second wire mesh is separated from the polystyrene core to a minimum distance of ¼ inch or to the required distance to assure the compliance with the corresponding construction standards.

[0082] FIG. 7 as a preferred modality is a piece of electro welded wire mesh, galvanized or not, to which FIGS. 8 and 3 have been welded, cut to the exact required measurement of the needed wall or slab for the projected construction and placed as shown, as many times as required by the structural element, if the project requires it, place more elements of such accessories. In this case, the union of the beams and columns can be performed by perimetraly placing such elements to the electro welded wire meshes or tied to the meshes, and the cross-shaped connectors will be placed welding or tying such elements to the rebars or wires of the electro welded wire mesh, either at the point where horizontal and vertical wires are intersected or in any other point of such wires. Over this figure, the previously cut (to the exact measurement of the required wall or slab) polystyrene core will be attached with the required thickness allowing that the cross-shaped wires perforate it from one side to the other, to later place the other electro welded wire mesh, which will be welded or tied to the edge of the cross, and procuring a minimum separation of ¼ inch between the two parallel wire meshes and the polystyrene core, as it is shown in the corresponding drawings and according to the construction standards.

[0083] FIG. 8 is a piece of electro welded wire mesh for construction, galvanized or not, cut by pairs to the exact measurement of the wall or slab needed. These two wire meshes will incorporate to the insulating core in sandwich form, as shown in the corresponding figures.

[0084] FIG. 9 is an aerial (top) view of the INTEGRAL PANEL for walls and slabs, including beams and columns embedded on the perimeter of such panel. This panel, together with the finished walls and slabs that have been produced to the exact required measurement, will be ready for their placement over the corresponding supporting structure, allowing the joining of such panels with their respective joining electro welded wire meshes as described in the corresponding drawings.

[0085] FIG. 10 is a lateral view of the INTEGRAL PANEL for walls and slabs, embedded or attached into beams and columns, which has been fabricated to the exact measurement of the wall or slab needed for the project to be built. This panel, together with all the finished walls and slabs that have been produced to the exact required measurement, will be ready for their placement over the supporting structure,
allowing the joining of such panels with their respective joining electro welded wire meshes as described in the corresponding drawings.

[0086] FIG. 11 is a lower view of the INTEGRAL PANEL which has the exact measurement of the required wall or slab with beams and columns embedded or attached to the INTEGRAL PANEL. This panel, together with the finished walls and slabs that have been produced to the exact required measurement, will be ready for their placement over the corresponding supporting structure, allowing the joining of such panels with their respective joining electro welded wire meshes (joining electro welded meshes) as described in the corresponding drawings.

[0087] FIG. 12 is a prefabricated electro welded beam, with galvanized or annealed wire or rebars, cut to the exact required measurement of the integral panel, placed as many times as required by the wall or slab of the construction project and with rebars with a diameter of 1 inch or greater or adding more rebars in case if the structural project needs it.

[0088] FIG. 13 are metallic columns and/or metallic beams, with square, circular, rectangular, “C” type, “I” type, “T” type, or a similar section, cut to the exact measurement of the required wall or slab needed in the construction project.

[0089] FIG. 14 is the wall or slab, purpose of this present patent application, fabricated to the exact measurement of the required element which will be embedded or attached to the columns and beams that will support and anchor it. This panel, together with the finished walls and slabs that have been produced to the exact required measurement, will be ready for their placement over the corresponding supporting structure, allowing the joining of such panels with their respective joining electro welded wire meshes (joining electro welded meshes) as described in the corresponding drawings.

[0090] FIG. 15 is a joining piece of electro welded wire mesh, with galvanized or annealed wire for construction, with rebars or wires of diameter and separation according to the structural calculus, bent at a 90 degree angle that will work to join two walls which intersect with each other at a point or vertex of a construction or to join a vertical wall with a horizontal slab in its development. This mesh will be placed by both sides of the required union, interiorly and exteriorly. The bending angle can vary according to the resulting angle that finally forms the elements to be joined and its longitude will be determined by the size of the elements to be joined. Its minimum width will be of 40 cm.

[0091] FIG. 16 is the union of two panels, a vertical wall with an inclined slab through a union mesh, galvanized or annealed, previously bent and cut to the exact measurement required by the elements to be joined in their development. This union will be placed by both sides of the elements to be joined, interiorly and exteriorly, and the mesh will be bent with the resulting angle that the elements to be joined will have. Its length will be equal to the length of the elements to be joined, having a minimum width of 40 cm by side.

[0092] FIG. 17 is the union with electro welded wire mesh (union mesh), galvanized or annealed, of a vertical wall with a horizontal slab, both made of integral panel cut to the exact measurement that is equal to that of the elements to be joined. Such union must be made on both sides, interiorly and exteriorly, in all the development of the elements to be joined. Its length will be equal to the length of the elements to be joined, having a minimum width of 40 cm by side.

[0093] FIG. 18 is the union of a wall made of the integral panel with its foundation, through two electro welded wire meshes (union meshes) previously bent at an angle of 90 degrees, or any other required angle, and cut to the length equal to the measurement of the element to be joined. Such union must be made on both sides, interiorly and exteriorly, in all the development of the elements to be joined. Its length will be equal to the length of the elements to be joined, having a minimum width of 40 cm by side.

[0094] FIG. 19, purpose of the present patent application represents a panel for walls or slabs attached to preexisting columns and/or beams in a structure previously constructed; it only represents the panel to the exact measurement for the wall or slab, joined with the corresponding electro welded wire mesh union to the connecting elements of beams and columns of the structure. Its length will be equal to the length of the elements to be joined, having a minimum width of 40 cm by side. Such union must be made on both sides, interiorly and exteriorly, in all the development of the elements to be joined.

[0095] FIG. 20 is a piece of electro welded mesh (union mesh) used to join an INTEGRAL PANEL for walls and/or slabs, with another panel, when it is required and when it is intended to build a larger wall or slab, greater than the maximum dimensions that can be transported by trailers or trucks. Such mesh for union will be cut to the exact required measurement needed by the elements to be joined in all its development and it will work as an overlap of two or more elements, according with the construction standards. Such union must be made on both sides, interiorly and exteriorly, in all the development of the elements to be joined. Its length will be equal to the length of the elements to be joined, having a minimum width of 40 cm by side.

[0096] FIG. 21 represents the INTEGRAL PANEL for walls and/or slabs as a preferred modality, when preferring to build such element with one of its two electro welded wire meshes bigger than the other and also than the insulating core with the purpose of such panels having one of its meshes with a "cantilever" to be used as a natural support, in provisional form, without any union connector to the structure that will support it and which it will have to be anchored for a further, monolithic, and definitive union of the INTEGRAL PANEL to the structure that will support it. To fabricate this INTEGRAL PANEL, the normal procedure should be followed as it is described similarly to the fabrication of a panel without "cantilevers", only that in this case, the two electro welded wire meshes will have to be cut in different sizes. This means that the shorter mesh and the insulating core will have the same measurement and this measurement will be the same as the needed wall or slab, while the larger mesh will be cut, adding the needed measurement of the cantilever to the dimensions of the size of the shorter mesh that is equal to the size of the insulating core. This cantilever will freely support the panel to the structure that will support it. This will allow the option to first make the structure of the building and then to place, freely supported and in provisional form, the INTEGRAL PANEL for walls and slabs of the building, and finally once the placing of all the elements is concluded, the definitive union of all these elements can be done to the structure of the building, assuring that all the structure, including the fabricated walls and slabs with an INTEGRAL PANEL, works monolithically.

[0097] FIG. 22 represents two electro welded wire meshes “a” and “b” to build the INTEGRAL PANEL with the pre-
ferred modality of having a panel with a mesh with "cantilever". This "cantilever" allows the panel to be supported by a previously fabricated support that can be made of columns or beams, allowing the assembly of all the walls and slabs of the projected construction, as well as the columns and beams, and then perform the union of all elements with each other.

FIG. 23 represents an INTEGRAL PANEL with one of its two electro welded wire meshes having a "cantilever" supported over prefabricated or metallic beams or columns.

FIG. 24 represents an electro welded union mesh with a length equal to the needed union, bent at a 90 degree angle, which will join the 90 degree intersection of walls and/or slabs with each other, and will have a minimum width of 40 cm by side, to be placed by both sides of the elements to be joined.

FIG. 25 represents an electro welded union mesh with a length equal to the needed union, bent at a different angle than 90 degrees, which will be used to join intersections of walls and/or slabs with each other, at an angle that is not 90 degrees and that will have a minimum width of 40 cm.

FIG. 26 represents two electro welded union meshes bent at a 90 degree angle, with an equal length to that of the elements to be joined, for the connection of walls with foundation beams or with other elements that require it, and will have minimum height measurements of 40 cm, width 30 cm, and a length of development equal to the length of the elements to be joined.

FIG. 27 represents one of the electro welded wire meshes, cut to the exact measurement of the required wall or slab, to which the cross-shaped connectors have been welded perpendicularly (this cross is formed by the union through welding points of the two rebars described in Fig. 4).

FIG. 28 represents Fig. 27 in a lateral view.

FIG. 29 represents the "partially fabricated panel" formed by Fig. 27 to which the polystyrene core has been attached and (the polystyrene core) has been cut to the exact required measurement of the needed wall or slab.

FIG. 30 represents the "partially fabricated panel" in a lateral view.

FIG. 31 represents the wire (annealed or galvanized) to tie the elements of construction with each other.

FIG. 32 represents the welding that will be applied to join the elements together.

POSSIBILITIES OF USAGE OR APPLICATION OF THE INTEGRAL PANEL FOR WALLS AND SLABS

This way, how an INTEGRAL PANEL can be made to be applied in the construction or in building projects, whose characteristics and applications are the following:

All the described elements that form the INTEGRAL PANEL constitute, only in one piece and to the exact measurement of the needed wall or slabs, all the parts required to have a structural integral element formed by walls, slabs, columns, and beams that can be used for the construction of walls and slabs in any building project in which the INTEGRAL PANELS can be adapted.

The versatility of the constructive system of the INTEGRAL PANEL for walls and slabs allows the producing of such panels to the exact and required measurement in any project, eliminating the waste and leftovers, and reducing the contamination and the cost of the assembly of several pieces with each other for building a determined project. The INTEGRAL PANEL can be built with the structural and reinforcement requirements needed by the calculus, making it possible to have a panel with all the steel and reinforcement in compliance with the structural calculus.

THE INTEGRAL PANEL makes the placement of electric, hydraulic, and sanitary installations easier, more economic, and faster because these can be placed during the fabrication process or during the assembling of the INTEGRAL PANEL to the main structure.

The mounting of the INTEGRAL PANEL, it is enough to place it over the previously fabricated structure that will work as a support, then it is necessary to tie and anchor it to the connectors that support it.

To make the mounting of the INTEGRAL PANELS, these works can be done by hand because it is enough with two not qualified workers to place them on the structure that support them. Each INTEGRAL PANEL for walls or slabs is lightweight (approx. 5 to 9 Kg/m²) and can be placed by two workers to assemble each INTEGRAL PANEL until completely building the whole structure.

In the case of needing the assembling of any construction projects, due to the characteristics of the INTEGRAL PANEL, its assembling can be performed in less time, reducing consequently, the financial expenses, the materials and labor, and benefiting to the general savings for the construction.

The INTEGRAL PANEL requires a recovering of a cement-sand mortar, which can be considered as the final finished covering, eliminating the placing of any other finishes, and reducing the application of these finishes and consequently, its inherent expenses.

The final recovering based on fine aggregates (cement-sand mortar) placed over the INTEGRAL PANEL, provides waterproofing properties against humidity, reducing as a consequence, the expenses of waterproofing.

As the INTEGRAL PANEL has included all the required structural elements according to the corresponding structural design, it is possible to construct a building of several stories, which until now, cannot be done with the existing conventional panels.

The INTEGRAL PANEL can be used in auto-construction projects because if necessary, qualified labor is not required.

The INTEGRAL PANEL can benefit to families with low income because it allows the purchase some panels according to their economical capacity to purchase them until finishing the project.

The INTEGRAL PANEL allows the versatility to be used to build fences, walls, roofs, retaining walls, dead formworks, etc. and its purposes are all types of building projects such as homes, buildings, departments, commercial buildings, auditoriums, office buildings, schools, churches, storage rooms, factories, cold storage rooms, and in general, any type of project to be constructed and that requires walls and slabs.

The INTEGRAL PANEL allows the construction from an independent wall or slab, to a succession of continuous walls or slabs that can be constituted as only one piece and only one structural element in the construction project.
The INTEGRAL PANEL allows only one monolithic and lightweight element to be obtained, that does not require lifting equipment to build a wall or roof, that already has all the structural and insulating elements integrated, homogeneously distributed, without having to make partial joining of various elements to form such wall or roof.

The INTEGRAL PANEL allows savings in any project of construction due to, until now, that there is not a panel for walls and slabs that has the corresponding characteristics described in the present patent application because no other known panel is fabricated to the exact measurement of the required wall or slab, neither do they have a cross-shaped connector and support that separates and joins the electro welded wire meshes only through two welding points and that assure the subject of the polystyrene to allow the required recovering according to the construction standards. Nor is there a panel in the market that has a “cantilever” which allows it to be freely supported in provisional form over the structure while the totality of the structure is assembled, then once placed in their definitive position, all the elements that make up the building must be tied and anchored, making the unions of the structure monolithic. This reduces the number of workers, time of construction, and the expenses of the construction.

Having sufficiently described my invention, I consider it as a novelty and therefore claim as my exclusive property:

1. INTEGRAL PANEL FOR WALLS AND SLABS, composed by a first electro welded wire mesh (8) made by the intersection of vertical and horizontal wires; a second electro welded wire mesh (8) that presents the same structural characteristics than the first mesh (8); both meshes (8) are disposed in a parallel form with each other and are joined through a plurality of cross-shaped wire connectors (5), which have been welded perpendicularly by their edges to each of the meshes (8) in the intersections of the vertical and horizontal rebars or wires, producing an internal space between both meshes (8), which is occupied by a thermal and insulating core (6).

2. INTEGRAL PANEL FOR WALLS AND SLABS, according to the clause 1, whose characteristic is that it has an insulating core which can be expanded or extruded polystyrene, polyurethane, or any other insulating material with fire retardant additive.

3. INTEGRAL PANEL FOR WALLS AND SLABS, according to the clause 1, whose characteristic is that the core must maintain a minimum distance or separation of ¾ inch from the electro welded wire meshes.

4. INTEGRAL PANEL FOR WALLS AND SLABS, according to the clause 1, whose characteristic is that one of the electro welded wire meshes is greater than the other, where the exceeding dimensions of the larger mesh, constitute supports that allow the panel to be supported by any other structure.

5. INTEGRAL PANEL FOR WALLS AND SLABS, according to the clause 1, whose characteristic is that its plurality of cross-shaped connectors are welded in any part of the parallel wire meshes.

6. INTEGRAL PANEL FOR WALLS AND SLABS, according to the clause 1, whose characteristic is that the panel has prefabricated columns and beams attached to it perimetral.

7. INTEGRAL PANEL FOR WALLS AND SLABS, according to the clause 6, whose characteristic is that the union of the columns and beams to the panel is through welding points or tyings.

8. INTEGRAL PANEL FOR WALLS AND SLABS, according to the clause 1, whose characteristic is that it has a union mesh to join two integral panels with each other and allowing the panel’s union with other structural elements.

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