Sept. 28, 1954 R. S. REED 2,690,072

BUILDING STRUCTURE

Filed Dec. 23, 1947 2 Sheets-Sheet 1

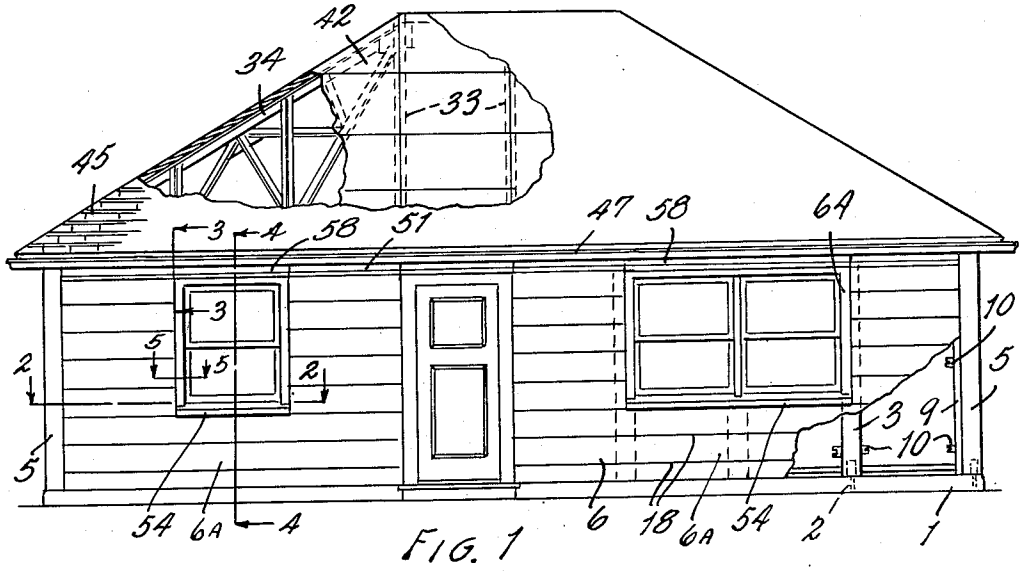


FIG. 1

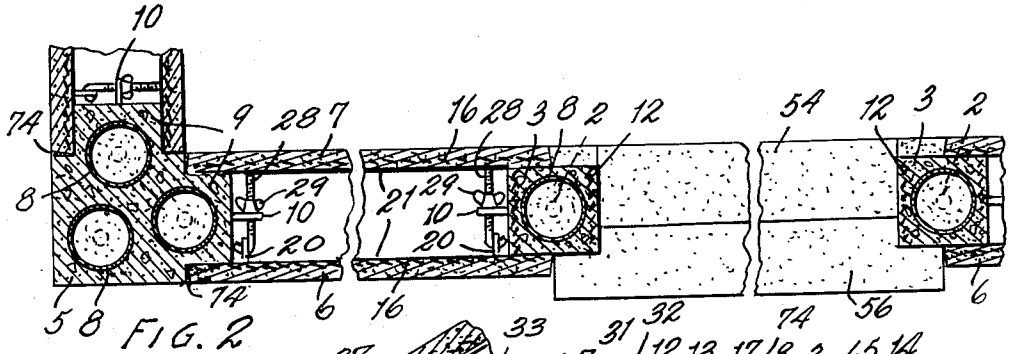


FIG. 2

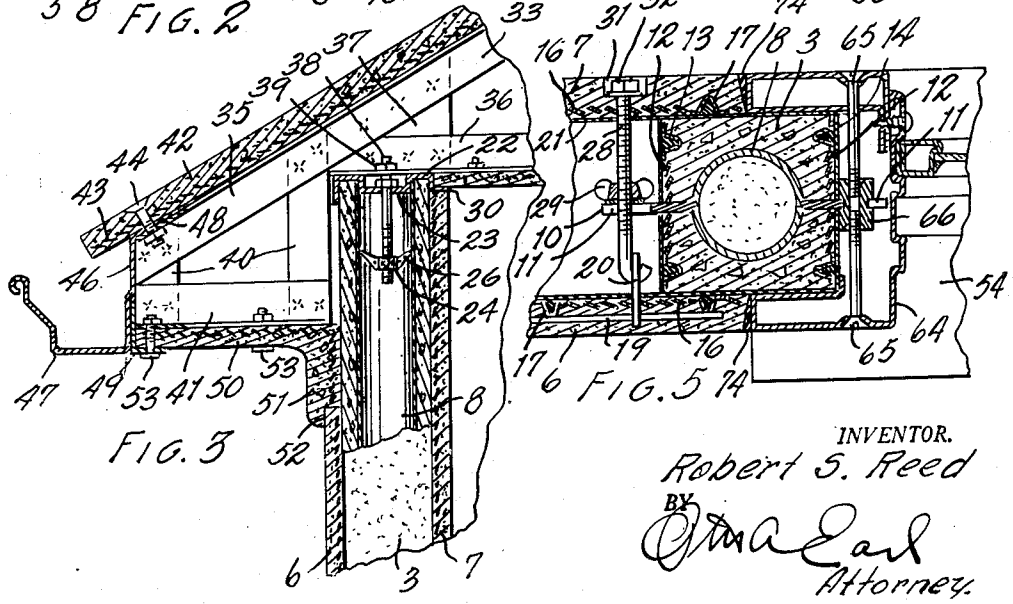


FIG. 3

FIG. 5

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BUILDING STRUCTURE

Filed Dec. 23, 1947 2 Sheets-Sheet 2

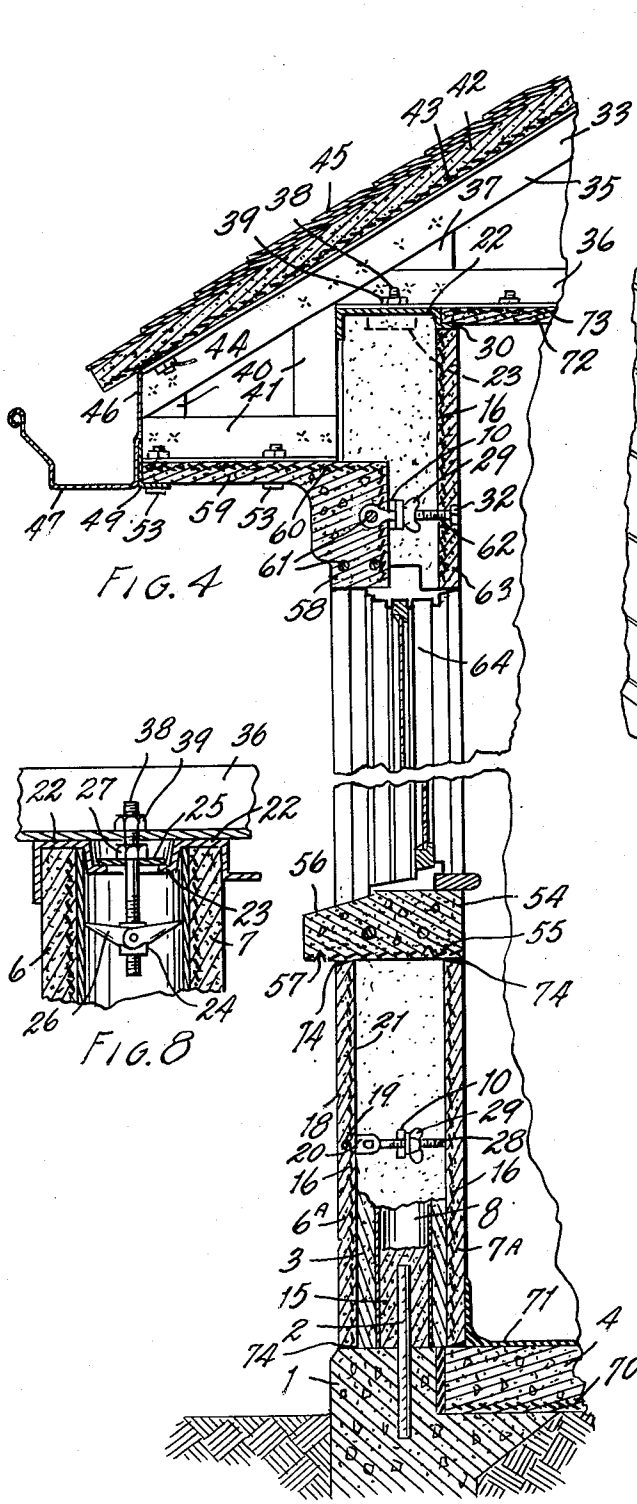


FIG. 4

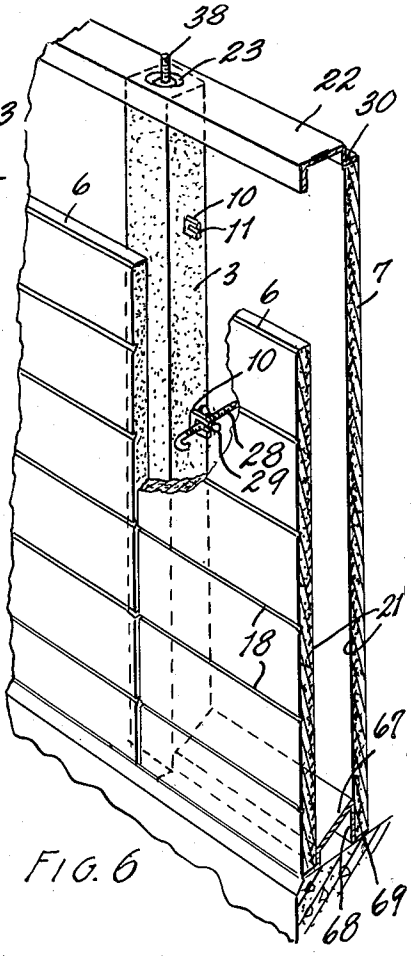


FIG. 6

FIG. 8

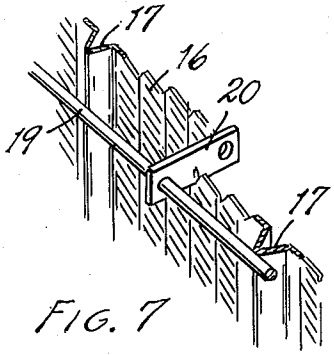


FIG. 7

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2,690,072

BUILDING STRUCTURE

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Application December 23, 1947, Serial No. 793,445

18 Claims. (Cl. 72—1)

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This invention relates to improvements in building structure.

The principal objects of this invention are:

First, to provide a building structure which may be erected in a variety of shapes and sizes from prefabricated building elements to materially reduce the amount of labor necessary in erecting the building.

Second, to provide a type of building construction in which the elements of the building may be prefabricated with accurately controlled tolerances to fit tightly in the finished structure.

Third, to provide a type of building construction in which the fixtures for joining and holding the various elements of the structure are securely and accurately located on the various elements during the fabrication of the elements and prior to erection of the structure.

Fourth, to provide a prefabricated building structure which is extremely rigid and able to withstand wind and snow loads.

Fifth, to provide an eave or cornice construction for a prefabricated building which will carry the laterally directed loads of the building and strengthen the roof and wall structure.

Sixth, to provide a type of building construction which may be rapidly erected by relatively unskilled labor.

Seventh, to provide a prefabricated structure in which the several elements of the structure are fabricated of reinforced concrete and in which the reinforcing members of the several elements constitute pallets for supporting the elements during the fabrication and setting of the concrete.

Eighth, to provide elements for a prefabricated building structure having reinforcing metal lath along one or more surfaces thereof arranged to reinforce the concrete body of the elements and provide support for fixtures for connecting the elements in the building.

Ninth, to provide a type of prefabricated building construction which will materially reduce the cost of dwelling houses.

Other objects relating to details and economies of the invention will appear from the description to follow. The invention is defined in the claims.

The drawings, of which there are two sheets, illustrate a preferred form of my building construction and the several elements therein.

Fig. 1 is a side elevational view of a building constructed according to my method and partially broken away to illustrate the relationship of the roof and wall elements.

Fig. 2 is a fragmentary horizontal cross sectional view through one wall and corner of my building taken along the line 2—2 in Fig. 1.

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Fig. 3 is a fragmentary vertical cross sectional view illustrating the connection between the wall and roof structure of my building and taken along the line 3—3 in Fig. 1.

Fig. 4 is a fragmentary vertical cross sectional view through the wall and window opening of my building taken along the line 4—4 in Fig. 1.

Fig. 5 is an enlarged fragmentary horizontal cross sectional view through the edge of the window opening and taken along the line 5—5 in Fig. 1.

Fig. 6 is a fragmentary perspective view of the wall construction in my building partially broken away to illustrate the connecting members for joining the inner and outer walls to the supporting columns.

Fig. 7 is a fragmentary perspective view of the reinforcing members employed in my wall elements.

Fig. 8 is an enlarged fragmentary vertical cross sectional view through one of the columns of my building and illustrating the connection between the roof and trusses and the wall structure.

My building structure is erected on a suitable foundation 1 in which is embedded a series of metal rods or dowels 2 which are arranged to project above the surface of the foundation with regular intervals along the periphery of the foundation to locate the pillars 3. A suitable floor panel 4 is provided of prefabricated sections as will be more particularly described presently.

The walls of my building are supported by the intermediate columns 3 and corner columns 5 which are spaced at regular intervals along the walls to receive the outer wall panels 6 and inner panels 7. The interior columns 3 are preferably of square cross section with a metal reinforcing tube 8 positioned in the center thereof. The corner columns 5 are enlarged and provided with laterally extending projections 9 of the same thickness as the intermediate columns 3. The corner columns 5 are preferably provided with three reinforcing tubes 8 of the same size as the tubes of the interior columns.

Each of the reinforcing tubes 8 prior to being cast in the columns is provided with a series of laterally projecting ears 10 which are welded to the sides of the tubes (see Fig. 5) and arranged to project beyond the surfaces of the columns. The ears 10 are horizontally slotted as at 11 to receive connecting bolts as will be described presently. The ears 10 are provided on the reinforcing tubes of the corner columns only where

they will project into the meeting walls as shown in Fig. 2.

The intermediate wall columns 3 are provided on their side faces with strips of expanded metal lath 12 through which the ears 10 project. The reinforcing lath 12 is preferably provided with vertically extending ribs 13 and the side faces of the columns in which the reinforcing lath is embedded are coated with a layer of asphalt or other rust proofing material as at 14. The manner of constructing the wall columns will be described in greater detail presently.

Each of the wall columns is erected over one of the dowels 2 so that the dowel projects upwardly into the reinforcing tube and after being properly aligned, a quantity of cement 15 is poured into the top of the reinforcing tube to permanently locate the columns on the foundation. Note that the position of the columns can be shifted relative to the dowels to obtain accurate alignment and spacing of the columns.

The outer wall panels 6 consist of a body of concrete having a mesh of expanded metal lath 16 embedded along the inner surface thereof. The lath 16 is of the same type as that used on the sides of the intermediate columns and is provided with inwardly projecting vertical ribs 17 at intervals along its width. The outer panels 6 are of such width as to extend from center to center of the intermediate columns and from the edge of the projection 9 of the corner columns to the center of the adjacent intermediate column 3 as shown in Fig. 2. The height of the outer panels 6 is shorter than the height of the columns 3 and 5 to leave room for the eave construction as illustrated in Figs. 3 and 6. The outer surface of the outer panels 6 is illustrated as having a series of horizontal grooves 18 formed therein to simulate the appearance of lapped siding, but the panels may be left plain or provided with simulated brick or stone surfaces as desired.

Each of the outer panels 6 has embedded therein a series of horizontally extending reinforcing bars 19 (see Fig. 5) which bear against the inner edges of the vertical ribs 17 and which are located opposite the ears 10 on the columns when the columns and panels are in erected position. The reinforcing rods 19 serve to increase the lateral stiffness of the panels and also support the lugs 20 which extend through the metal lath 16 and are slipped over the rods near the edges of the panels as is most clearly illustrated in Figs. 2, 5 and 7. The rear surfaces of the outer panels are provided with a rust proofing coating 21 to protect the exposed surface of the reinforcing lath.

After the columns 3 and 5 of the walls have been erected and aligned and cemented in position, a plate member 22 of downwardly opening channel shaped cross section is placed on top of the columns to connect their upper ends. The plate 22 is provided with a series of cup-shaped depressions 23 arranged to project into the upper ends of the reinforcing tubes of the columns as is more clearly illustrated in Fig. 8. The bottoms of the depressions 23 define apertures for passing the jaws of an expansion bolt 24 and a washer 25 is positioned over the hole to support the head of the expansion bolt. The jaws 26 of the expansion bolt are permitted to swing outwardly into engagement with the reinforcing tube and the bolt is drawn up by rotation of the head 27. The several columns of the walls are thus accurately spaced and connected at their top and bottom and ready for reception of the wall panels.

The outer wall panels are then placed against the outer sides of the wall columns with the lugs 20 positioned opposite the ears 10 of the columns. A hook bolt 28 is engaged with each of the lugs 20 and passed through the slotted end of the ears 10 and the panel and bolt are drawn tight by means of the thumb screw 29.

The inner wall panels 7 are of similar construction to the outer panels 6 except that they are not provided with the reinforcing rods 19 and are longer so as to extend almost the full heighth of the columns to abut the under side of the laterally turned flange 30 on the inner edge of the plates 22. The inner panels 7 are provided with countersunk apertures 31 arranged to pass the inner ends of the bolts 28 and nuts and washers 32 are threaded on the bolts to secure the inner panels in place.

The roof for my building consists of prefabricated main trusses 33 and suitable jack and hip trusses 34 to form a clear span hip roof for the building. The trusses 33 and 34 are preferably fabricated from aluminum angles and plates to reduce their weight and are provided with conventional rafters 35 and beams 36 joined to gusset plates 37 at their junction with the rafters extending beyond the sides of the wall to form eaves for the building. The rafters are conveniently located and held in place by providing an upwardly extending screw shank 38 on the expansion bolts 24 and passing this shank through an aperture in the base of the beam 36 to be secured by the nut 39.

Exteriorally of the wall, the rafters 35 are provided with vertical hanger plates 40 supporting the horizontal extending cove beams 41. The rafters 35 serve to support the prefabricated concrete roof panels 42 which are similar in construction to the wall panels, being provided with a metal reinforcing lath 43 along their lower surfaces. The roof panels 42 are secured in place by means of the bolts 44 secured to the flanges of the rafters and if desired, an outer decorative roof of shingles may be applied as at 45 although this is not necessary as the joints between the roof panels can be made water tight by calking the joints with a cement or asphalt material.

The edges of the eaves are closed by the inner wall or fascia 46 of the gutter 47 which is provided with a laterally turned flashing 48 bolted to the rafters before the application of the roof panels. The rear surface of the fascia 46 is outwardly offset along its lower edge and secured as by welding to the inwardly facing angle strip 49. The angle strip 49 is positioned below the cove supports 41 and arranged to support the cove molding 50. The cove molding 50 is pre-cast in sections equal in width of the outer panels and is provided with a downwardly extending thickened portion 51 having a groove 52 formed along its lower edge and arranged to overlap the upper edge of the outer wall panel 6. Bolts 53 are passed through the flange of the angle strip 49 and cove support 41 to support the outer edges of the cove molding. The inner edges of the cove molding are supported on the tops of the outer panels 7. A weather tight joint is thus obtained continuously along the edges of the building.

The window openings of my building extend the full width between adjacent colums of the wall and are most clearly illustrated in Figs. 4 and 5. Special short wall panels 6A and 7A enclose the space below the windows and I provide a precast sill member 54 which extends between adja-

cent columns and rests upon the upper edges of the panels 6A and 7A. The sill member is provided with expanded metal reinforcing lath 55 on its under surface and is shaped to provide downwardly sloping water shed 56 along its outer edge. It will be noted that the downwardly opening V-shaped rib 57 in the lath 55 forms a convenient drip groove for the sill to prevent water from leaking to the wall underneath the sill.

The top of my window opening is defined by a lintel element 58 which has an outwardly projecting flange 59 to join with the cove molds of the adjacent wall sections. The lintel element is provided with a reinforcing lath 60 along its top and inner surfaces and is also provided with reinforcing rods 61, one of which supports inwardly projecting eye bolts 62 arranged to pass through and be secured to the ear 10 in the same manner as the outer panels 6 and 6A. The bolt 62 also serves to secure an inner panel 63 above the window opening. The ends of the thickened portion of the lintel member are notched so as to fit between the columns at the sides of the window.

The window casing 64 which fits within the window opening is preferably made of folded sheet metal construction as most clearly illustrated in Figs. 4 and 5 and is held in place by means of screws 65 engaged with the double ended nuts 66 positioned in the slot of the ears 10 projecting into the window opening. Window casings of various designs can be adapted to my windows so the casing construction is not described in greater detail.

Fig. 6 illustrates a folded metal drip and reinforcing panel 67 which I prefer to position at the bottom of each wall section to direct any possible condensation from between the walls outwardly to the bottom of the outer wall where it may seep out to the outside of the building. The panel 67 is provided with a vertical inner flange 68 and laterally projecting bottom flanges 69 positioned underneath the inner and outer wall panels and it will be seen that the panel will reinforce the center of the inner wall panels against being forced outwardly as when the wall is bumped by movement of furniture within the house. The reinforcing panels 67 are laid in place when the columns are erected and serve to properly space the bottoms of the columns.

The floor panels 4 are preferably formed in prefabricated sections similar to the wall panels 6 and 7 and I provide them with reinforcing mats 70 on their under surface. A linoleum of other composition floor covering 71 covers the floor. Ceiling panels 72 having reinforcing lath 73 are bolted to the flanges of the beams 36 and the outer edges of the ceiling are supported on the flange 30 of the plate 22.

All of the concrete elements of my building are formed of a mixture of pumice stone or any similar aggregate which is lighter in weight than ordinary sand and Portland cement and are vibratorily cast in molds of proper size, using a low water content mixture to provide extremely compact and strong building elements. In casting the wall, floor, roof and ceiling panels, I pour a predetermined quantity of the concrete mixture into an appropriate master mold mounted on a vibratory machine and press the reinforcing mesh with the reinforcing rods 19 and lugs 20 secured thereto into the top of the mass of concrete as it is being vibrated and until the expanded metal lath is partially embedded in the concrete and approximately flush with the surface of the panel. I then invert the mold and support the panel on suitable platforms or forks for transportation to a storage area where the panels are cured. By use of the metal lath in this manner, I eliminate the necessity of a supporting mold or pallet for each panel during its curing period and thus greatly reduce the cost of equipment for manufacturing the panels. The expanded metal lath acts as a palate for the newly formed panel because the relatively dry vibratorily cast concrete will not flow or fall through the holes in the lath and because the lath and other reinforcing elements give sufficient rigidity to the newly formed panel to permit its being handled and moved with reasonable support and care. That is, a continuous palate coextensive with the under surface of the panel is unnecessary so that forks of a lift truck or hoist may be used to transport the panel and the racks of a curing frame may have spaced supporting bars to permit the panels to be disposed on the racks by the forks. The V-shaped ribs in the lath aid the lath in performing its supporting function. Since each panel is cast in the same master mold all panels will have identical dimensions and will fit accurately into the building construction without any cutting or trimming to size.

The columns are similarly cast in vibratory molds, the process differing only in the location of a reinforcing lath and the reinforcing tubes in the mold prior to introducing the charge of concrete. The cove molds, lintel elements, and window sills are similarly cast in appropriately shaped molds and with the reinforcing laths pressed into the upper surface of the elements as they are vibrated. All of the elements after being cured, are given the protective coating of asphalt or other rust proofing material, previously referred to, to protect the exposed edges of the reinforcing lath.

The mixture of pumice stone and cement from which I form my elements has a high compressive strength well adapted to support the loads applied to the several elements and also has a very favorable heat conduction factor so that the house is in fact self-insulated. All of the joints between the several elements may be calked with a cement grout as illustrated at 74 in the drawings and the resulting surfaces are smooth and weather tight. The building can be left in its natural color or painted to suit the desires of the occupant.

Particular attention is directed to the construction of the eaves in which the plate elements 22 and fascia 46 of the eave trough form spaced parallel elements connected at intervals by the rafters 43, cove supports 41, and coves moles 59 to in effect form a box girder completely around the building. This construction materially stiffens the upper portion of the walls against lateral collapse and leaves the walls to function mainly as vertical supports for the roof.

Since all the elements of my building are of uniform standard sizes, buildings may be constructed of various sizes and shapes in multiples of the width of the wall elements without requiring cutting or fitting of the various elements. Once the dowels 2 have been located in the foundation in the proper alignment and spacing and the columns 3 and 5 properly aligned, and spaced, the remainder of the elements may be quickly added to the building by relatively inexperienced workmen since the elements will only fit in their proper position and since it is impossible to connect the elements in an improper alignment or relationship. It will be noted that my building construction comprises a relatively small number

of different types of elements and it is possible and practical to load the elements on a truck at their point of manufacture in the proper order for their erection in a building. The material may be trucked to the erection site and immediately erected upon removal from the truck without storage or re-handling.

All of the features of my building construction function to materially reduce the cost of erecting the building.

I have thus described a highly practical commercial embodiment of my building structure so that others may reproduce the same without further disclosure.

I claim:

1. A prefabricated building structure erected upon a foundation having a series of dowels projecting thereabove at regular intervals along the walls of the building comprising, a square column element having a metal reinforcing tube therein positioned over each of said dowels, slotted vertically disposed ears extending from the opposed sides of said column elements and welded to said reinforcing tubes, a downwardly opening channel shaped plate positioned along the top of said column elements and having locating bosses engaged in the tops of said tubes, expansion bolts securing said plate to said column elements, outer wall elements bearing against the outsides of and extending between said column elements, expanded metal lath embedded in the inner surface of said outer wall elements and having vertically extending ribs spaced at intervals along said lath and projecting into the body of the wall elements, reinforcing rods embedded in said outer wall elements and bearing against the edges of said ribs and opposite said ears on said column elements, metal lugs engaged with said rods and projecting through the inner surface of said outer wall elements, screw members engaged with said lugs and extending through said slotted ears, nuts on said screw members bearing against said ears and drawing said lugs and outer wall elements toward said columns, inner wall elements having expanded metal lath embedded in their outer surfaces, said inner wall elements bearing against the insides of and extending between said column elements and defining counter-sunk apertures for passing the inner ends of said screw members, and other nuts on said screw members clamping said inner wall elements to the inner surfaces of said column elements, said wall and column elements being of preformed concrete and having coatings of asphaltic material for protecting the exposed surfaces of said reinforcing laths, said laths extending substantially over one surface of the element in which they are embedded.

2. A prefabricated building structure erected upon a foundation having a series of dowels projecting thereabove at regular intervals along the walls of the building comprising, a column element having a metal reinforcing tube therein positioned over each of said dowels, slotted vertically disposed ears extending from the opposed sides of said column elements and welded to said reinforcing tubes, a downwardly opening channel shaped plate positioned along the top of said column elements and having locating bosses engaged in the tops of said tubes, expansion bolts securing said plate to said column elements, outer wall elements bearing against the outsides of and extending between said column elements, expanded metal lath embedded in the inner surfaces of said outer wall elements, reinforcing rods embedded in said outer wall elements and bearing against said lath and opposite said ears on said column elements, metal lugs engaged with said rods and projecting through the inner surface of said outer wall elements, screw members engaged with said lugs and extending through said slotted ears, nut on said screw members bearing against said ears and drawing said lugs and outer wall elements toward said columns, inner wall elements having expanded metal lath embedded in their outer surface, said inner wall elements bearing against the insides of and extending between said column elements and defining counter-sunk apertures for passing the inner ends of said screw members, and other nuts on said screw members clamping said inner wall elements to the inner surfaces of said column elements, said wall and column elements being of preformed concrete and having coatings of sealing material for protecting the exposed surfaces of said reinforcing laths, said laths extending substantially over one surface of the element in which they are embedded.

3. A prefabricated building structure erected upon a foundation having a series of dowels projecting thereabove at regular intervals along the walls of the building comprising, a column element having a metal reinforcing tube therein positioned over each of said dowels, slotted vertically disposed ears extending from the opposed sides of said column elements and welded to said reinforcing tubes, outer wall elements bearing against the outsides of and extending between said column elements, metal lath embedded in the inner surface of said outer wall elements and having vertically extending ribs spaced at intervals along said lath and projecting into the body of the wall elements, reinforcing rods embedded in said outer elements and bearing against the edges of said ribs and opposite said ears on said column elements, metal lugs engaged with said rods and projecting through the inner surface of said outer wall elements, screw members engaged with said lugs and extending through said slotted ears, nuts on said screw members bearing against said ears and drawing said lugs and outer wall elements toward said columns, inner wall elements having metal lath embedded in their outer surface, said inner wall elements bearing against the insides of and extending between said column elements and defining counter-sunk apertures for passing the inner ends of said screw members, and other nuts on said screw members clamping said inner wall elements to the inner surfaces of said column elements, said wall and column elements being of preformed concrete and having coatings of asphaltic material for protecting the exposed surfaces of said reinforcing laths, said laths extending substantially over one surface of the element in which they are embedded.

4. A prefabricated building structure erected upon a foundation having a series of dowels projecting thereabove at regular intervals along the walls of the building comprising, a rectangular column element having a metal reinforcing tube therein positioned over each of said dowels, means aligning and equally spacing the tops of said column elements, laterally slotted vertically disposed ears extending from the opposed sides of said column elements and welded to said reinforcing tubes, outer wall elements bearing against the outsides of and extending between said column elements, metal lath embedded flush with the inner surface of said outer wall elements, reinforcing rods embedded in said outer wall elements and bearing against said lath and opposite said ears on said column elements, metal lugs en-

gaged with said rods and projecting through the inner surface of said outer wall elements, screw members engaged with said lugs and extending through said slotted ears, nuts on said screw members bearing against said ears and drawing said lugs and outer wall elements toward said columns, inner wall elements having metal lath embedded flush with their outer surface, said inner wall elements bearing against the insides of and extending between said column elements and defining countersunk apertures passing the inner ends of said screw members, and other nuts on said screw members clamping said inner wall elements to the inner surfaces of said column elements, said wall and column elements being of preformed concrete and having coatings for protecting the exposed surfaces of said reinforcing laths, said laths extending substantially over one surface of the element in which they are embedded.

5. A prefabricated building structure comprising, aligned column elements having metal reinforcing members therein, slotted vertically disposed ears extending from the opposed sides of said column elements and secured to said reinforcing members, outer wall elements bearing against the outsides of and extending between said column elements, metal lath embedded flush with the inner surface of said outer wall elements and having vertically extending ribs spaced at intervals along said lath and projecting into the body of the wall elements, reinforcing rods embedded in said outer wall elements and bearing against the edges of said ribs and opposite said ears on said column elements, metal lugs engaged with said rods and projecting through the inner surface of said outer wall elements, screw members engaged with said lugs and extending through said slotted ears, nuts on said screw members bearing against said ears and drawing said lugs and outer wall elements toward said columns, inner wall elements having metal lath embedded flush with their outer surface, said inner wall elements bearing against the insides of and extending between said column elements and defining countersunk apertures passing the inner ends of said screw members, and other nuts on said screw members clamping said inner wall elements to the inner surfaces of said column elements, said wall elements being of preformed concrete and having coatings for protecting the exposed surfaces of said reinforcing laths, said laths extending substantially over one surface of the element in which they are embedded.

6. A prefabricated building structure comprising, aligned column elements having metal reinforcing members therein, slotted vertically disposed ears extending from the opposed sides of said column elements and secured to said reinforcing members, outer wall elements bearing against the outsides of and extending between said column elements, metal lath embedded flush with the inner surface of said outer wall elements, reinforcing rods embedded in said outer wall elements and bearing against said lath and opposite said ears on said column elements, metal lugs engaged with said rods and projecting through the inner surface of said outer wall elements, screw members engaged with said lugs and extending through said slotted ears, nuts on said screw members bearing against said ears and drawing said lugs and outer wall elements toward said columns, inner wall elements having metal lath embedded flush with their outer surfaces, said inner wall elements bearing against the insides of and extending between said column elements and defining countersunk apertures passing the inner ends of said screw members, and other nuts on said screw members clamping said inner wall elements to the inner surfaces of said column elements, said wall and column elements being of preformed concrete and having coatings for protecting the exposed surfaces of said reinforcing laths, said laths extending substantially over one surface of the element in which they are embedded.

7. Wall structure for a prefabricated building comprising a foundation having dowels projecting therefrom at regular intervals along said wall, column elements having tubular reinforcing members therein and positioned over said dowels, vertically disposed apertured ears secured to said reinforcing members and projecting from the opposed sides of said columns, said column elements being held relative to said dowels by a mass of concrete in the bottom of said reinforcing members, a downwardly opening channel shaped plate extending along the tops of said column elements, said plate having depressions formed in the web thereof and locating the upper ends of said column elements, means connecting said plate to said reinforcing members, spacers extending between the lower ends of said column elements, outer wall panels having lugs projecting from the inner face thereof, screw elements engaged with said lugs and extending through said ears, projections on said screw elements engaged with the opposite sides of said ears from said outer wall panels, inner wall panels defining apertures receiving the inner ends of said screw elements, and nuts on said screw elements holding said inner wall panels to said columns, said panels and columns being preformed of concrete with the lugs and ears associated therewith partially embedded in the concrete.

8. Wall structure for a prefabricated building comprising a foundation having dowels projecting therefrom at regular intervals along said wall, rectangular column elements having tubular reinforcing members therein and positioned over said dowels, ears secured to said reinforcing members and projecting from opposed sides of said column elements, said column elements being held relative to said dowels by a mass of concrete in the bottom of said reinforcing members, means locating the upper ends of said column elements, outer wall panels having lugs projecting from the inner face thereof, screw elements engaged with said lugs and extending through said ears, projections on said screw elements engaged with the opposite sides of said ears from said outer wall panels, inner wall panels defining apertures receiving the inner ends of said screw elements, and nuts on said screw elements holding said inner wall panels to said columns, said panels and columns being preformed of concrete and longitudinally folded metal spacer panels extending between adjacent columns at the bottom of said wall and having outwardly sloping center sections and vertical wall reinforcing sections lapped on the outside of said inner panels and inner sides of said outer panels.

9. Wall structure for a prefabricated building comprising a foundation having dowels projecting therefrom at regular intervals along said wall, rectangular column elements having tubular reinforcing members therein and positioned over said dowels, said column elements being located relative to said dowels by a mass of concrete in the

bottom of said reinforcing members, a downwardly opening channel shaped plate extending along the tops of said column elements with its flanges lapped along the inner and outer sides of said columns, said plate having depressions formed in the web thereof and locating the upper ends of said column elements, expansion bolts extending through said depressions and engaging the inside of said reinforcing members, and inner and outer wall panels secured to said column elements, said panels and column elements being formed from concrete.

10. Wall structure for a prefabricated building comprising a foundation having dowels projecting therefrom at regular intervals along said wall, column elements having tubular reinforcing members therein and positioned over said dowels, said column elements being located relative to said dowels by a mass of concrete in the bottom of said reinforcing members, a plate extending along the tops of said column elements, said plate having depressions formed therein and locating the upper ends of said column elements, expansion bolts extending through said depressions and engaging the inside of said reinforcing members, and inner and outer wall panels secured to said column elements.

11. Wall structure for a prefabricated building comprising a foundation having dowels projecting therefrom at regular intervals along said wall, column elements having tubular reinforcing members therein and positioned over said dowels, said column elements being held relative to said dowels by a mass of concrete in the bottom of said reinforcing members, a plate extending along the tops of said column elements, said plate having depressions formed therein and locating the upper ends of said column elements, expansion bolts extending through said depressed portions and engaging the inside of said reinforcing members, preformed inner and outer wall panels secured to said column elements, roof trusses positioned over said columns and having apertured portions passing the upper ends of said bolts and secured to said plate by nuts on the upper ends of said expansion bolts, and longitudinally folded metal spacing members extending between and abutting the lower ends of said columns and panels.

12. Eave and cornice construction for a prefabricated house having a channel shaped plate along the tops of the walls thereof and supported by spaced vertical columns comprising, metal roof trusses having cross beams supported over said columns and secured thereto, rafters on said trusses extending beyond the outside of said walls, hangers depending from said rafters outside of said plates, cove beams secured to the bottoms of and extending horizontally outwardly from said hangers and secured at their outer ends to said rafters, a gutter member having its inner wall folded over the top of said rafters and secured thereto and forming a fascia for the ends of said rafters and cove beams, an angle strip secured to said gutter and having an inwardly turned flange along the lower edge thereof, reinforced concrete cove mold elements extending longitudinally between adjacent cove beams and positioned between said cove beams and said flange, and bolts securing said cove mold elements to said flange and cove beams, said plate on said walls and said fascia forming horizontally spaced stiffening elements when erected to brace said wall and roof against lateral deflection.

13. A preformed wall panel for a prefabricated building comprising a relatively thin body of concrete, a reinforcing metal lath embedded in but exposed to the inner surface of said concrete and substantially co-extensive with said panel, said lath having vertically extending ribs formed at intervals thereacross and projecting into the body of the panel, horizontal reinforcing rods embedded in said concrete and bearing against the inner edges of said ribs, attaching lugs secured to said rods and projecting through said lath and the inner surface of said panels, and a protective layer of asphaltic material covering the inner surface of said panel.

14. A preformed wall panel for a prefabricated building comprising a relatively thin body of concrete, a reinforcing metal lath embedded in but exposed to the inner surface of said concrete and substantially co-extensive with said panel, horizontal reinforcing rods embedded in said concrete, attaching lugs secured to said rods and projecting through said lath and the inner surface of said panels, and a layer of sealing material covering the inner surface of said panel.

15. A preformed portable wall panel for a prefabricated building comprising a relatively thin body of concrete, a reinforcing metal lath embedded in but exposed to the inner surface of said concrete and substantially co-extensive with said panel, said lath having vertically extending ribs formed at intervals thereacross and projecting into the body of the panel, horizontal reinforcing rods embedded in said concrete and bearing against the inner edges of said ribs, attaching lugs secured to said rods and projecting through said lath and the inner surface of said panels, and a layer of sealing material covering the inner surface of said panel.

16. Prefabricated building construction comprising a series of spaced column elements, a plate member secured to the tops of said columns, roof trusses secured to said plate member and over said columns, rafters on said trusses projecting outwardly from said plate member, hanger members depending from said rafters and outside of said plate member, horizontal beam members connecting the ends of said hanger members with the ends of said rafters, a fascia panel closing the ends of said rafters and beam members and having a flashing secured to the tops of said rafters, and a cove molding of reinforced concrete secured to the bottom of said beam members.

17. A prefabricated buliding structure erected upon a foundation having a series of dowels projecting thereabove at regular intervals along the walls of the building comprising, a square column element having a metal reinforcing tube therein and positioned over each of said dowels, ears extending from opposed sides of said column elements and welded to said tubes, a downwardly opening channel shaped metal plate positioned along the top of said column elements and having locating bosses engaged in the tops of said tubes, expansion bolts securing said plate to said columns and engaging the inside of said tubes, outer wall elements bearing against the outsides of and extending between said column elements, expanded metal lath embedded in the inner surface of said outer wall elements, metal lugs projecting from the inner surface of said outer wall elements and retained in said elements by said metal lath, screw members engaged with said lugs and extending through part of said ears, nuts on said screw members cooperative with said ears and drawing said outer wall elements toward said columns, inner wall

elements having expanded metal lath embedded in their outer surfaces, said inner wall elements bearing against the insides of and extending between said column elements and defining countersunk apertures passing the inner ends of said screw members, other nuts on said screw members clamping said inner wall elements to the inner surface of said column elements, roof trusses having beams supported at their ends over said columns, said expansion bolts extending through said beams and being secured thereto, rafters on said roof trusses projecting outwardly beyond the walls of the building, cove beams secured to and extending horizontally from the outer ends of said rafters inwardly toward said wall, hangers carried by said rafters and rigidly connected to the inner ends of said cove beams, cove molding elements secured to part of said cove beams and extending between the adjacent column elements, expanded metal lath embedded in the upper and inner surfaces of said cove elements, lintel elements secured to others of said cove beams and having horizontal cove mold portions forming continuations of said cove mold elements, said lintel elements having thickened inner portions positioned between adjacent columns and expanded metal lath embedded in the upper and inner surfaces thereof, lugs extending inwardly from the inner surfaces of said lintel elements and cove mold elements and secured thereto by the lath therein, screws securing the lugs on said lintel elements and mold elements to others of the ears on said column elements, and an eave trough for the roof of said building having an inner vertical wall forming a fascia for the ends of said rafters and cove beams and being secured thereto, said fascia and said plate on said wall forming horizontally spaced longitudinal members for laterally reinforcing said roof and wall, said wall elements, column elements, lintel elements and cove molding elements being preformed of concrete.

18. A prefabricated building structure comprising equally spaced concrete column elements each having a reinforcing member extending longitudinally therethrough, slotted vertically disposed and spaced ears extending from the opposed sides of said column elements and secured to the reinforcing member in the column from which they extend, outer concrete wall panels lapped upon the outer sides of said column elements and extending between adjacent column elements, metal lath embedded in the inner surface of said outer wall panels, reinforcing rods embedded in said outer wall panels and bearing against said lath and located opposite said ears on said column elements, metal lugs engaged with said rods and projecting through the inner surface of said outer wall panels, screw members releasably engaged with said lugs and extending through the slots in said ears, and nuts on said screw members bearing against said ears and drawing said outer wall panels against said columns, said lath extending substantially over the inner surfaces of said outer wall panels.

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