MODULAR WALL CONSTRUCTION


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ABSTRACT

A wall structure comprising opposed panels supported on spaced apart vertical and horizontal channels mounted on support elements having differently configured structures. The space between the opposed panels can remain open or be filled with a permanent building material. A variety of wall base constructions are provided, together with detachable frame assemblies for mounting doors and windows in the wall structure.

6 Claims, 79 Drawing Figures
MODULAR WALL CONSTRUCTION

BACKGROUND OF THE INVENTION

This invention relates generally to the construction art and, more particularly, to certain new and useful prefabricated, modular building constructions.

There presently exists a need for an inexpensive and practical form of construction for residential housing, industrial, commercial and institutional buildings which can be mass produced and prefabricated off the job site and readily installed at the construction site by unskilled labor with maximum efficiency. In an effort to satisfy this need, various prefabricated modular building constructions have been proposed to provide structures which can be readily installed and which are demountable and movable to shift walls, partitions and the like to other positions. While these prior known prefabricated constructions partially satisfy this need, they possess certain disadvantages. Some of these constructions include structural elements and components which span the entire width between walls to interfere with the placement of conduits, piping and the like. Sometimes, these known constructions do not provide adequate sound and heat control and are not capable of withstanding abnormally elevated temperatures, such as accompany a fire. Moreover, their versatility is often limited so that the various components constituting the prefabricated construction can not be readily interchanged or combined to form a variety of arrangements.

SUMMARY OF THE INVENTION

A primary object of the present invention is to obviate the above disadvantages by providing an improved modular wall construction, which can be quickly erected at the construction site by unskilled labor and which results in a strong and rigid construction, which is attractive in appearance, extremely versatile, relatively low in costs, and which possesses desirable sound and heat control qualities.

Another object of this invention is to provide a detachable, double wall panel construction defining a substantially uninterrupted space therein which can be left undisturbed for the placement of conduits and the like therein, or which can be filled with concrete or other building material in which case the detachable double wall panel construction serves as a pouring form which can either be removed when the building material has set to leave a permanent wall core remaining or which can remain intact to form with such core a composite permanent wall structure.

Another object of the present invention is to provide the foregoing double wall panel construction with a plurality of novel components having a structural configuration whereby they can be used in pairs in a nested relation or combined with each other to support the double wall panel construction in any orientation at perimeter or partition walls.

Still another object of this invention is to provide the foregoing double wall panel construction with various detachable frame assemblies for mounting doors, windows and the like therein.

A further object of the present invention is to provide the foregoing double wall panel construction with supporting base structures in a variety of forms to enable erection of the former in any desired arrangement.

The foregoing and other objects, advantages and characterizing features of this invention will become clearly apparent from the ensuing detailed description of illustrative embodiments thereof, taken together with the accompanying drawings wherein like reference numerals denote like parts throughout the various views.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a fragmentary, perspective view of a modular, double wall structure, constructed in accordance with the present invention;

FIG. 2 is a perspective view of a pair of spaced channel members of this invention;

FIG. 2A is a perspective view of a spacer plug adapted to be interposed between the channel members of FIG. 2;

FIG. 3 is a front elevational view, on a reduced scale, showing the channel members of this invention arranged in a rectangular pattern;

FIG. 4 is a top plan view of a base channel member used with this invention;

FIG. 4A is a vertical sectional view, illustrating one form of a floor edge member incorporated in this invention;

FIG. 5 is a fragmentary, perspective view illustrating basic structural elements in an assembled relation for supporting the channel members in a spaced relation;

FIG. 6 is a vertical sectional view, on an enlarged scale, showing the structural elements of FIG. 5 in combination with the base channel members of FIG. 4, together with various plug elements;

FIG. 6A is a view similar to FIG. 6 showing the assembly of the latter secured together by an anchor element;

FIG. 7 is a horizontal sectional view, on an enlarged scale, taken about on line 7—7 of FIG. 5, illustrating connector clips for joining the channel members together;

FIG. 8 is a fragmentary, vertical sectional view, showing base clips used in conjunction with this invention;

FIG. 9 is a perspective view of a foundation shoe element of this invention;

FIGS. 10 and 11 are perspective views of inner and outer corner foundation shoe elements used in this invention;

FIG. 12 is a perspective view of a combination of differently configured foundation shoe elements arranged to form a ‘T’ intersection;

FIG. 13 is a perspective view of a structural bridging plate incorporated in this invention;

FIGS. 14 and 15 are perspective views of inner and outer corner structural angles used in this invention;

FIGS. 16 and 17 are perspective views of inner and outer structural runner angles used in this invention;

FIG. 18 is a fragmentary, sectional perspective view, on an enlarged scale, taken about on line 18—18 of FIG. 4;

FIGS. 19 and 20 are fragmentary, perspective views, illustrating various stages of the formation of one form of spacer used in conjunction with this invention;

FIG. 21 is a fragmentary, longitudinal sectional view of one form of a spacer assembly of this invention;

FIG. 22 is an exploded view of a fastening assembly of this invention;
FIG. 23 is a longitudinal sectional view, partly in elevation, showing the fastening assembly of this invention securing various structural elements together;

FIG. 24 is a fragmentary, perspective view illustrating a cross brace member assembled with one of the corner structural angles of this invention;

FIG. 25 is a horizontal sectional view illustrating some basic components of this invention for supporting the channel members in a spaced relation;

FIG. 26 is a fragmentary, cross sectional view, partly in elevation, illustrating a tool implement of this invention used for detaching interlocked structural members;

FIG. 27 is a fragmentary, sectional view illustrating a portion of a finished double wall construction incorporating the spaced wall panel members of this invention;

FIG. 28 is a fragmentary, sectional view illustrating a modified wall panel member especially adapted for use as a form in the pouring of a pilent building material;

FIG. 29 is a fragmentary, horizontal sectional view, on an enlarged scale, taken about on line 29—29 of FIG. 1, showing a corner construction in accord with this invention;

FIG. 30 is a cross sectional view of a corner trim element used in this invention;

FIG. 31 is a cross sectional view of an inner corner filler block used in conjunction with this invention;

FIG. 32 is a cross sectional view of a backing strip incorporated in this invention;

FIG. 33 is a vertical sectional view, on an enlarged scale, taken about on line 33—33 of FIG. 1, showing one form of a wall base construction of this invention;

FIG. 34 is a cross sectional view of one form of a filler block employed in the wall base construction of FIG. 33, shown assembled with a modified form of base clip;

FIG. 35 is a view similar to FIG. 33, showing spaced panel members supported on the wall base construction thereof;

FIG. 36 is a cross sectional view of one form of a base edging member utilized in the wall base construction of FIG. 35;

FIG. 37 is a cross sectional view of another form of a base edging member optionally used in the wall base construction of FIG. 35;

FIG. 37A is a cross sectional view of still another form of a base edging member incorporating electrical connection means therein;

FIG. 38 is a cross sectional view, partly exploded, of another form of wall base construction;

FIG. 39 is a view similar to FIG. 38 showing the various components in an assembled relation;

FIG. 40 is a fragmentary, vertical sectional view, of still another form of a wall base construction of this invention;

FIG. 41 is a cross sectional view of a modified base clip used in conjunction with the wall base construction of FIG. 40;

FIG. 42 is a cross sectional view of another form of filler block of this invention;

FIG. 43 is a cross sectional view of another form of filler block of this invention;

FIG. 44 is a view similar to FIG. 40, showing a completed wall base construction;

FIG. 45 is a cross sectional view of an element employed in the wall base construction of FIG. 44;

FIG. 46 is a cross sectional view of a carpet retaining element used in conjunction with the element of FIG. 45;

FIG. 47 is a cross sectional view of a floor edging member used with the wall base construction of FIG. 44;

FIG. 48 is a vertical sectional view, illustrating still another form of a wall base construction of this invention;

FIG. 49 is a cross sectional view of a modified base clip used in conjunction with the wall base construction of FIG. 48;

FIG. 50 is a vertical sectional view, taken about on line 50—50 of FIG. 1, showing one form of a threshold assembly;

FIG. 51 is a vertical sectional view of a wall base construction, showing another form of wall base construction;

FIG. 52 is a vertical sectional view illustrating a modified form of wall base construction and threshold assembly;

FIG. 53 is a partially cut away and sectional perspective view of the double wall construction of this invention, showing a threshold component prior to assembly with the former;

FIG. 54 is a fragmentary, horizontal sectional view of a door assembly used in this invention;

FIG. 55 is a partially cut away and fragmentary, sectional perspective view of a door frame assembly component, showing a portion of the door assembly secured thereto;

FIG. 56 is a horizontal sectional view, on an enlarged scale, taken about on line 56—56 of FIG. 1;

FIG. 57 is a cross sectional view, of a locking member, used in conjunction with the door frame assembly of this invention;

FIG. 58 is a partially cut away and fragmentary, sectional perspective view of a header assembly forming a part of the door frame assembly;

FIG. 59 is a fragmentary, vertical sectional view, on an enlarged scale, taken about on line 59—59 of FIG. 1;

FIG. 60 is a vertical sectional view, illustrating portions of the door frame assembly in a solid wall construction;

FIG. 61 is a vertical sectional view, partly in side elevation, showing the header and side frame of the door frame assembly just prior to assembly;

FIG. 62 is a horizontal sectional view taken about on line 62—62 of FIG. 60;

FIG. 63 is a view similar to FIG. 61, showing the threshold and side frame of the door frame assembly just prior to assembly;

FIG. 64 is a fragmentary, perspective view of the double wall construction of this invention, illustrating a cut out section for the placement of a window therein;

FIG. 65 is an expanded view of a window frame assembly including a window unit therefor constructed in accordance with this invention;

FIG. 66 is a fragmentary, perspective sectional view, on an enlarged scale, taken about on lines 66—66 of FIG. 1;
FIG. 67 is a fragmentary, vertical sectional view, illustrating another form of a window frame arrangement;

FIG. 68 is a perspective view of a glazing assembly of this invention;

FIG. 69 is a fragmentary, perspective sectional view of the frame for a glazing panel in accord with this invention;

FIG. 70 is a perspective sectional view of the frame for a slidable glazing panel used in this invention;

FIG. 71 is a fragmentary, perspective sectional view of a window frame assembly, showing a pocket formation for receiving a slidable glazing panel;

FIG. 72 is a fragmentary, perspective sectional view, showing the end portion of the pocket formation of FIG. 71;

FIG. 73 is a front elevational view of a wall panel member incorporating a window unit having sliding panels in accord with this invention;

FIG. 74 is a view similar to FIG. 70, showing another form of frame for a pair of slidable glazing panels;

FIG. 75 is a fragmentary, horizontal sectional view, taken about on line 75—75 of FIG. 76, showing another form of window frame assembly including laterally spaced glazing panels mounted therein in accord with this invention;

FIG. 76 is a view similar to FIG. 73 incorporating the window unit of FIG. 75;

FIG. 77 is a horizontal sectional view illustrating locking mechanisms incorporated in modified glazing panels shown in a closed position; and

FIG. 78 is a view similar to FIG. 77, showing the glazing panels in a particularly opened position.

DETAILED DESCRIPTION OF THE ILLUSTRATIVE EMBODIMENT

Referring now in detail to the illustrative embodiment depicted in the accompanying drawings, there is shown in FIG. 1 a portion of a modular, double wall construction embodying various features of the present invention. The double wall construction comprises opposed panel members 40 and 40', defining opposite wall surfaces extending from a concrete substructure 41 to the ceiling (not shown) and which meet to form a corner. A corner post, generally designated 42 and hereinafter more fully described, is located at the juncture of the angularly related walls to provide the requisite stability and strength for the corner construction. The wall construction also includes doors and windows (only one of each being shown in FIG. 1), which are located and held in place by the framing and finishing elements of the present invention, as hereinafter described. It should be understood that the double wall construction of this invention can be used in perimeter walls defining inner and outer wall surfaces as well as in partition walls, shown fragmentarily adjacent the right end of the double wall construction in FIG. 1.

In accordance with the present invention, panel members 40 and 40' are mounted and supported in properly spaced relation by means of spaced-apart studs or structural channels, generally designated 46 (FIG. 2), such channels 46 extending both vertically and horizontally, as shown in FIG. 3, to receive the four side edge portions of the supported panels 40 and 40'. These channels 46, whether vertical or horizontal, are connected together adjacent their ends by fastening assemblies, generally designated 47 (FIGS. 5 and 6) and are maintained in properly spaced relation by spacer elements 48, which extend therebetween as seen for example in FIGS. 6 and 7. The spaced channels 46, together with fastening assemblies 47, constitute a modified or composite I-beam.

Each channel 46 comprises a sheet metal fabrication of unitary, one-piece construction formed to provide an elongated web portion 50 having a front face 51 and a rear face 52. A pair of flanges 53 extend outwardly from the opposite side edges of web portion 50 in a direction generally normal thereto away from rear face 52. Flanges 53 terminate in curved, inturnd portions forming beads 55 adapted to receive complementary shaped beads provided on the inner faces of panel members 40. The opposite ends of channels 46 are beveled at approximately a 45° angle as shown at 56 in FIG. 2 and mate with similarly beveled channels 46 extending at right angles thereto to form corners as shown in FIG. 3. At least two longitudinally spaced, substantially square shaped openings 57 are provided in web portion 50 adjacent each end of channel 46 for receiving the square shank of a bolt as will presently be described. Also, paired openings 57 can be provided intermediate the opposite ends of channels 46, as desired, for receiving fastening assemblies 47 to provide a more rigid and stable composite structural element for more efficiently resisting buckling or deflection intermediate the opposite ends thereof. Panel members 40 and 40', channels 46, fastening assemblies 47 and spacer elements 48, together with various channel support elements, described in detail below, comprise the essence of this invention.

As shown in FIGS. 9 through 17, these channel support elements include a runner foundation shoe element 60 (FIG. 9), an inner corner foundation shoe element 61 (FIG. 10), an outer corner foundation shoe element 62, (FIG. 11) a structural bridging plate 63 (FIG. 13), an inner corner structural angle 65 (FIG. 14), an outer corner structural angle 66 (FIG. 15), an inner runner angle 67 (FIG. 16), and an outer runner angle 68 (FIG. 17). Each of these channel support elements are comprised of a sheet metal fabrication of unitary, one-piece construction and can be formed by a simple stamping operation. Referring now in detail to FIG. 9, each foundation shoe element 60 comprises an upright web 70 and a flange 71 extending generally normal to web 70 and adapted to rest on the floor or other suitable substructure. Web 70 comprises a generally rectangular lower portion 72 and an upper portion 73 projecting upwardly from portion 72 and having a lesser length than the latter. Web 70 is provided with a series of openings 74 adapted to register with openings 57 in channels 46 for receiving the flat-sided shanks of bolts in the assembled relation, as will hereinafter be explained. As shown in FIG. 5, foundation shoe elements 60 are used in pairs in a laterally spaced, opposed relation to support vertically and horizontally extending opposed channels 46 in a double wall construction.

Spacer elements 48, of generally square configuration, are disposed between opposed channels 46 (FIGS. 6 and 7) to maintain the latter in a proper spaced relation. These spacer elements 48 can be welded or otherwise fixedly secured in pairs to the inner face of web 70 adjacent certain pairs of openings 74 and have openings therethrough in alignment with such openings 74. These spacer elements 48 are arranged on web 70 in
such a manner so that each pair of spacer elements 48 attached to the web of one shoe element 60 engages the web of the opposed shoe element 60 and registers with paired openings 74 of the latter when elements 60 are disposed in an aligned, laterally spaced-apart relation. Thus, the thickness of spacer elements 48 determines the spacing between opposed shoe elements 60 with each web opening 74 in registry with the openings of either the spacer elements 48 affixed thereto or the spacer elements 48 of the opposed shoe element 60. The spacing between shoe elements 60 can be varied by providing spacer elements 48 with different thicknesses, as desired.

Where a corner is to be formed, inner and outer corner foundation shoe elements 61 and 62 are utilized. Inner corner shoe element 61 (Fig. 10) comprises right angularly related upward extending webs 76 and 77 provided at their lower ends with inwardly directed flanges 78 and 79, respectively, adapted to rest on a floor or other suitable substructure. Outer corner shoe element 62 (Fig. 11) comprises right angularly related upward extending webs 81 and 82 provided at their lower ends with outwardly directed flanges 83 and 84, respectively, adapted to rest on a floor surface. Corner shoe elements are brought together in a nested disposition and spaced apart by means of spacer elements 48. In a manner similar to the construction previously described in connection with shoe elements 60, each pair of spacer elements 48 are alternately affixed to the outer and inner web surfaces of corner shoe elements 61 and 62 to provide a spacer element 48 between each pair of aligned openings 74 in the opposed shoe elements. With corner shoe elements 61 and 62 in the nested relation, channels 46 are secured to the outer web surfaces thereof by means of fastening assemblies 47.

Structural bridging plate 63 (Fig. 13) has a generally cruciform configuration in plan and comprises four legs 86 spaced approximately 90° from each other. Two pairs of openings 74 are provided adjacent the lateral edges of each leg 86 with one pair provided with spacer elements 48 affixed thereto. These bridging plates 63 are utilized in pairs in a double wall construction and are laterally spaced apart by elements 48. The element of error is eliminated in installing these plates 63 since they will be properly aligned regardless of their angular orientation with a pair of spacer elements 48 of one plate 63 in registry with a pair of openings 74 in the opposed plate 63. Plates 63 are employed to bridge the channels 46 forming the four-way intersection to receive adjacent corner edges of vertically spaced, side-by-side related panel members 40 and 40'. Thus it can be readily seen that the modular double wall construction shown in Fig. 1 can be continued upwardly by means of these bridging plates 63.

Where a three-dimensional corner is to be formed, such as at the ceiling of a corner of a room for example, inner and outer corner structural angles 65 and 66 are utilized. Inner structural angle 65 (Fig. 14) includes right angularly related horizontally extending base portions 87 and 88 and right angularly related web portions 90 and 91 extending vertically upwardly from the marginal edges of base portions 87 and 88. Web portions 90 and 91 are provided with vertical extensions 92 and 93 of lesser widths than web portions 90 and 91.

Outer structural angle 66 comprises right angularly related horizontally extending base portions 95 and 96 and right angularly related web portions 97 and 98 extending vertically upwardly from the marginal edges of base portions 95 and 96. Web portions 97 and 98 are provided with vertical extensions 100 and 101 of lesser widths than web portions 97 and 98. Inner and outer corner structural angles 65 and 66 are adapted to be positioned in a nested relation in use and are spaced apart by spacer elements 48, alternately arranged on opposed faces on both the base portions and web portions of angles 65 and 66 in a pattern similar to that described in connection with foundation shoe elements 60. These corner angles 65 and 66 receive the adjacent ends of right angularly related vertically extending opposed channels 46 to form a three dimensional corner.

Where a two dimensional corner is to be formed, such as at the intersection of right angularly related vertical walls or at the intersection of a vertical wall with a ceiling for example, inner and outer runner angles 67 and 68 are utilized. Inner runner angle 67 (Fig. 16) comprises a base portion 102 pg, 20 a co-planar extension 103 and an upright web portion 105 extending upwardly from one edge of base portion 102 and having a co-planar extension 106. Outer runner angle 68 (Fig. 15) includes a base portion 107 having a co-planar extension 108 and an upright web portion 110 extending upwardly from one edge of base portion 107 and having a co-planar extension 111. Inner and outer runner angles 67 and 68 are adapted to be positioned in a nested relation in use and are spaced apart by spacer elements 48 in a construction similar to that previously described in connection with the other channel support elements.

When foundation shoe elements 60, 61 and 62 are used, the space between the floor and the lower flange 53 of the horizontally extending channel 46 can be closed by means of elongated, generally U-shaped base clips 112 (Fig. 8), each having a web 113 abutting against upright web 72 of shoe element 60 and a lower flange 115 adapted to rest on a horizontally supporting surface. Flange 115 is provided with an offset portion 116 overlying flange 71 of the associated foundation shoe element 60. The upper flange 117 of clip 112 abuts against channel flange 54 and is curved to conform to the curvature of bead 55. Flange 117 terminates in an upwardly directed shoulder 118 for snap-fitted engagement behind the edge of channel bead 55 thereby securing base clip 112 in place.

It is a particular feature of this invention that the space between the various channel support elements and between panels 40 and 40' can be left substantially uninterrupted except for the fastening assemblies 47 extending therethrough to provide a space which is virtually completely open for the passage of conduits and the like and in which direct conduction of sound and heat is virtually eliminated, or such space can be filled with a filler, such as concrete, plaster, gypsum or other suitable building material, as desired, to form a composite permanent wall structure. Moreover, the detachable and reusable components including panels 40 and 40' can be removed to leave a permanent, solid wall core structure, if desired.

Since it is intended that concrete or other building materials can be poured in a plastic condition into the space between panel members 40 and thereby between shoe elements 60 to form a central concrete core, if desired, there is a tendency for webs 113 of clips 112 to
be displaced outwardly by the weight of such plastic building materials. To this end, removable wedge blocks 120 are forced into the spaces between channel webs 51 and shoulders 118 adjacent the module centers to resist this outward displacement of clips 112.

FIG. 12 illustrates another form of a runner foundation shoe element and an inner corner foundation shoe element, generally designated 60' and 61', respectively, which are especially adapted for use in constructions employing permanent filler materials and which differ from originally described elements 60 and 61 by the provision of axial extensions 121 on the opposite ends of their respective flanges. Extensions 121 have beveled, generally semicircular notches 122 along the opposed edges thereof to form openings for receiving upwardly projecting stub anchor elements 123' (FIG. 38).

Otherwise, elements 60' and 61' are similar to elements 60 and 61 and the same reference characters are applied to identical structure. In a similar construction, outer corner structural angles 62 may be provided with similar extensions having notches therein for the purpose described above.

A significant feature of the present invention is that the various channel support elements thus far described can be used in various combinations to produce a desired joint connection. FIG. 12 illustrates one such exemplary combination used where a partition wall meets a perimeter wall at a T intersection. In this construction, a runner foundation shoe element 60' and a pair of inner corner foundation shoe elements 61', placed in back-to-back relation, are arranged to form a generally T-shaped construction for supporting channels 46 where one wall meets another wall at right angles thereto.

FIGS. 4 and 18 illustrate an elongated floor or base channel member, generally designated 125, especially adapted for use in those constructions employing permanent filler materials and is adapted to be assembled with those foundation shoe elements having extensions 121 and notches 122. Base channel 125 comprises a web 126 provided with a central offset portion 127, a pair of side walls 128 extending generally normal to web 126, and a pair of interturned flanges 130 having edge portions 131 retreating and terminating within the opening provided between side walls 128. As shown in FIGS. 6 and 6A, base channel 125 is positioned on a substructure foundation or footer with the offset portion 127 of web 126 overlying the flanges of associated foundation shoe elements and serves as a form for receiving concrete or other suitable building material. Each opposite end portion of base channel 125 is slotted as at 132 (FIGS. 4 and 18) to fit over the upstanding webs of opposed foundation shoe elements. A circular opening 133 in offset portion 127 is adapted to register with the opening defined by undercut notches 122 to receive an upstanding stub anchor element 123' therethrough, as shown in FIG. 38. The circular head of element 123' has a flat outer surface which is flush with the underside of extension 121. Suitable nuts 124' are threaded on anchor elements 123' to firmly secure base channel member 125 to the foundation shoe elements. A plurality of intermediate, longitudinal slots 135, (FIG. 4) of varying lengths, are provided in offset portion 127 to accommodate variations in the spacing of anchor elements 123 affixed to the substructure between modules as shown in FIG. 6A. Base channels 125 are cut in various lengths, as dictated by the module centers, from continuous stock by means of a double miter cut so that each end portion is provided with a double beveled, V-shaped end 136 having sloping portions angled at approximately 45° to the longitudinal axis of channel 125 in order to mate with similarly beveled edges on base channels 125 extending normal thereto. Where base channels 125 are coaxially aligned in a continuous construction, the resulting double V-shaped notches between adjacent base channels 125 are covered with suitable anchor components.

The spacer elements 48 heretofore described are unitary pieces separately formed and suitably welded or otherwise fixedly secured to the various channel support members. FIGS. 19 through 21 depict a preferred form of spacer construction of this invention generally designated 137, and the method of forming the same. Spacer assembly 137, comprises four, generally triangularly shaped tabs 138 formed by cutting intersecting slots 139 at right angles to each other in the web of any of the channel support elements, such as in web 70 of runner foundation shoe element 60 for example, and bending such tabs 138 outwardly from the plane of web 70 to extend normal thereto. A sleeve 140 (FIG. 21), having outside dimensions similar to spacer element 48, is forcibly fitted over tabs 138 and projects slightly beyond the free ends of tabs 138. Spacer assemblies 137 can be used in lieu of spacer elements 48 and the axial dimensions of sleeves 140 determine the spacing between opposed shoe elements 60.

As shown in FIGS. 22 and 23, each fastening assembly 47 comprises a bolt 141, a sleeve 142 and a nut 143. Bolt 141 is provided with an enlarged, flat-sided head 145 and a flat sided shank 146 terminating in a threaded portion 147. Sleeve 142 fits snugly about shank 146 and is formed of an elastomeric, resiliently yieldable material to eliminate metal-to-metal contact between bolt 141 and the metal components through which bolt 141 is inserted. Sleeve 142 also is provided with an annular flange 148 adapted to be interposed between bolt head 145 and the front face 51 of channel 46, as shown in the assembled relation of FIG. 23. Nut 143 is provided with a gasket 150 adhesively secured to the inner face thereof and adapted to be disposed between nut 143 and front face 51 of the opposed channel 46 in the assembled relation. Due to the material of which flange 148 and gasket 150 are composed, they will yield somewhat under compression to accommodate any expansion of the assembly caused by thermal variations. Also, they prevent metal-to-metal contact and serve as fluid tight seals precluding the passage of moisture and other foreign matter. While the shapes of bolt head 145, shank 146, sleeve 142 and nut 143 preferably are square, it should be understood that they can take various flat-sided configurations within the purview of this invention, so long as they are complementary to the configurations of the openings through which they extend. These fastening assemblies 47, together with spacer elements 48 or spacer assemblies 137, are used throughout the modular construction system of this invention to support channels 46 in a properly spaced relation.

FIG. 24 illustrates the manner in which a cross brace member 144, having a plurality of longitudinally spaced openings 149 therein, is attached to a channel support element, such as inner corner structural angle 65. Cross brace members 144 are adapted to extend from between a pair of opposed channel members 46.
In order to close the space between adjacent, side-by-side related vertically extending channels 46, an elongated channel connector clip 156 (FIG. 7) extending lengthwise of channels 46 is utilized. Clip 156 comprises a web 157 and a pair of opposite side flanges 158 extending in a direction generally normal to web 157. The outer ends of these flanges 158 are curved outwardly to conform to the shape of channel beads 55 and terminate in turned shoulders 160 for snap-fitted engagement behind the edges of channel beads 55. These clips 156 are used in pairs as shown in FIG. 7 and extend lengthwise of channels 46 to close the gap therebetween for the retention of the building material poured between channels 46.

As herebefore described, base clips 112 (FIG. 8) are snapped in place to close the space between the lower horizontally extending channels 46 and the floor surface when elements 60, 61 and 62 are utilized. When elements 60', 61' are used, a base channel member 125 is employed, as shown in FIG. 6, between each pair of longitudinally spaced channel support elements. In the latter embodiment, removable elongated plug strips 161 are employed to close the gap between the curved portions of flanges 130 of base channel 125 and the beads 55 of channels 46. Strips 161 are coextensive with base channel 125 and the cross-sectional configuration of each strip 161 is such as to fit snugly within this gap to prevent leakage of the plant building material poured into base channel 125. Also, since base channels 125 are open at their opposite ends, end plugs 162 are used to close such open end portions, each plug having a peripheral outline conforming to the shape of the space within one half of base channel 125 at the opposite ends thereof.

Where a corner is to be formed, inner and outer corner foundation shoe elements 61 and 62, respectively, are used as shown in FIG. 25. In order to close the space between the outer, right angularly related channels 46, a curved channel connector clip 163 is employed. Clip 163 is similar to clip 156 except for the web 157' thereof, which is bent through 90° conforming to the curvature of outer corner foundation shoe element 62. Also, the edges of flanges 158 are rounded as opposed to the sharp, flat abutment shoulders 160 provided on connector clips 156. The space between the inner, right angularly related channels 46 is closed by a filler post 165, of a generally square cross sectional configuration, extending lengthwise of channels 46. A modified form of filler post 166 can be used in lieu of post 165, if desired, post 166 being provided with a bulbous prong 167 projecting outwardly from one of the corners of post 166 for snap fitted engagement between the adjacent beads 55 of the inner right angularly related channels 46. Of course, filler post 166 is moved inwardly into position from the outer side of the wall before channel connector clip 163 is placed in position.

For the purpose of closing the large, rectangularly shaped spaces defined by the framework of channels 46, such as shown in FIG. 5. In preparation for the filler pouring operation, pouring pans or forms 170 are provided. Each pan 170 is provided with a flange 171 along its entire peripheral edge extending generally normal to the body of pan 170. The outer end of flange 171 is rounded as at 172 conforming to the shape of flange beads 55 and terminates in an abutment shoulder 173 for snap fitted engagement behind the edges of
channel beads 55. After the filler, such as concrete for example, is poured and has set to produce a permanent concrete wall 174 (FIG. 27), pans 170 and channels 46 are removed. In order to prevent the loosening of nut 143, a grommet 168 (FIG. 25), formed of a substantially rigid synthetic plastic material, is provided with a central, square shaped opening 169 for snugly receiving nut 143. The opposite marginal edges of grommet 168 engage against the rounded portions 172 of flanges 171. If desired, such grommets 168 also can be applied to bolt heads 145.

A special tool, generally designated 175 (FIG. 26) is provided for the removal of pans 170, and channel connector clips 156 and 163. Tool 175 comprises a handle 176, formed of wood, plastic or any other suitable material, in which one end of a metal tool implement 177 is imbedded as shown in FIG. 26. Implement 177 has a generally flat, rectangular shape in cross section with the width being many times greater than the thickness thereof. Implement 177 projects axially from handle 176 and is bent approximately 90° to form a lateral extension 178, which is further bent inwardly at an angle to form a second extension 180. The end of extension 180 is bent inwardly at an acute angle to the plane of extension 180 in substantially parallelism with extension 178 to form a work engaging end portion 181. In use, the hook portion of tool 175 is placed within the space defined by the channel bead 55 with the tip of end portion 181 engaging the edge of shoulder 173, as shown in FIG. 26. As tool handle 176 is moved clockwise in the direction of arrow A, the juncture between extensions 178 and 180 bears against the web of channel 46 serving as a fulcrum point to urge the tip of end portion 181 against the edge of shoulder 173 and displace the latter outwardly away from the edge of channel bead 55. Tool 175 is used at spaced intervals along the length of pan 170 until shoulder 173 is displaced along its length out of engagement with the edge of channel bead 55. When installing pans 170, they are urged toward channels 46 with the resiliently yieldable shoulders 173 riding on channel beads 55 until such shoulders 173 pass the edge of beads 55, whereupon shoulders snap into assembled position against such edges. Channel connector clips 156 and 163 are similarly set up and removed.

Each panel member 40 and 40' includes a body 182 (FIGS. 27 and 29) preferably formed of foamed plastic material, adhesively secured to a slab 183, preferably formed of wood, covered with a thin skin 179 of metal or other thin sheet material which can be painted or decorated to provide any desired effect. It should be understood that slab 183 can be formed of any rigid material, as desired, and can consist of a plurality of layers or laminations 183', as shown in FIG. 29. The inner panel member 40' is slightly shorter than the outer panel member 40 to permit the former to be slipped into place without engaging the floor and ceiling surfaces and thereby preclude scratching or mar ring of these surfaces. The inner panel members 40' are of the same widths as members 40 except at the corners, as shown in FIG. 29. The other distinction is that the outer member 40 has a thicker slab 183 to more readily resist weathering. Otherwise, panel members 40 and 40' are identical and a detailed description of member 40 only is believed sufficient.

As shown in FIGS. 27 and 29, a continuous locking strip 185 of a generally rectangular shape in plan is provided on the inner face of slab 183 and is spaced inwardly from the marginal edges of member 40 so as to be completely concealed in the assembled relation. Strip 185 serves as a marginal border for the plastic foam body 182. Strip 185 is secured to slab 183 by suitable fasteners 184. Of course, any suitable attaching means, including adhesives, can be used in lieu of fasteners 184, as desired. Strip 185 can take various configurations in cross section, two different shapes being shown in FIG. 27 at 185 and 185'.

In those applications where resilient caps or covers 186 are employed over the nuts 143 and/or bolt heads 145 to act as insulators and/or lock-nut means, the locking strip 185 used comprises a generally U-shaped body portion having generally parallel legs 187 and a flat-sided bight portion 188 bearing against cover 186 and precluding rotation of nut 143. One of the legs 187 is provided with a curved extension 190 fitted about channel bead 55 and having a locking bead 191 for locking engagement behind the edge of channel bead 55 with a snap fit, thus securing panel member 40 or 40' to channel 46. The other leg 187 abuts against the inner face of slab 183 and provides additional supporting means for fastener 184.

Locking strip 185' is similar to strip 185 except that one of the legs 187' is folded outwardly from bight portion 188 away from curved extension 190 in a direction generally normal to portion 188 in overlying relation to bolt head 145 as shown in FIG. 27 or nut 143 if cover 186 should be disposed about the bolt head 145. Also, instead of bead 191, an offset portion 191' can be provided on curved extension 190 to serve as an abutment shoulder for snap fitted engagement behind channel bead 55.

Once the opposed panels 40 and 40' have been properly installed in the spaced relation shown in FIG. 27, concrete 174 or other building materials may be poured in a castable state into the space between panels 40 and 40'. The principles of this invention also contemplate the use of a plastic foam filler blown or otherwise introduced between panel members 40 and 40' in a flowable state. When the plastic foam filler has set, it forms a strong bond with the plastic bodies 182 of the panels 40 and 40' and is substantially integral therewith.

FIG. 28 illustrates another form of panel member, generally designated 40", which can be used in lieu of panel member 40 and which serves as a pouring form or pan during the concrete pouring operation. Panel member 40" comprises a body of plastic foam 192 sandwiched between a pair of thin sheets of metal 193 and 195 which are brought together in overlying relation adjacent the marginal edges thereof as shown at 196 in FIG. 28 and curved to fit about channel bead 55. The curved portion 196 constituting the two sheets 193 and 195 terminates in an abutment shoulder 197 fitted behind channel bead 55. One side of a relatively thin board 198 is adhesively secured to sheet 195, the other side of board 198 constituting the exposed face of panel member 40". Since the detachable interlocking portion 196 is located at the edge of panel member 40", a batten strip clip 200 is utilized to conceal channel 46 and fastening assembly 47. Clip 200 comprises a relatively thin board 201 having the same general appearance as boards 198 and adapted to overlap the adjacent ends of the latter. A metallic strip 202 is rigidly secured to the inner or concealed face of board 201.
and is provided with flanges 203 terminating in outwardly flared tips 205 adapted to fit behind shoulders 197 in the assembled relation as shown in FIG. 28.

In providing a corner for the modular double wall construction of this invention, a corner post 42 (FIG. 29) is utilized at the juncture between the outer, right angularly related panel members 40 to close the space therebetween and to provide a firm, secure corner wall construction. Corner post 42 is generally square in cross section and has a central bore 206 extending axially therethrough to conserve materials and to provide a large passage for conduits and the like. The two inner sides 207 and 208 of post 42 abut against the adjacent ends of outer panel members 40 and meet at a beveled edge 210 formed at the intersection of sides 207 and 208.

A corner trim element 211 (FIG. 30) is used in conjunction with corner post 42, extending substantially lengthwise thereof, and is provided with a pair of right angularly related legs 212 and 213 joined together by a web 215 formed integral therewith. Web 215 is adapted to abut the beveled edge 210 of corner post 42 and is provided with longitudinally spaced, counterbore openings 216 for receiving fasteners 217 threaded into post 42 for securing the latter to trim element 211. Legs 212 and 213 have side walls 218 and 219 extending outwardly at an angle from the opposite ends of web 210 in a diverging relation for engagement with corner post sides 207 and 208. These legs also define an inner arcuate surface 220 adapted to serve as a dam against which concrete is poured to form a rounder corner of the concrete core 174 in the assembled relation. Legs 212 and 213 have outer faces 221 and 222 provided with thin strips 223 of compressible, resiliently yieldable material to provide a fluid tight relation between the inner faces of panel members 40 and trim element 211. At this point, it should be noted that the resilient stripping 223 is employed along the marginal edges of panel members 40 and in many other mating areas where a fluid tight sealing effect is desired. Legs 212 and 213 are provided with bulbous formations 225 and 226 at the distal ends thereof which have detents 227 and 228 adapted to interlock behind channel beads 55 to fix trim element 211 in place.

To complete the inside enclosure for the corner construction shown in FIG. 29, an inner corner filler block 230 is utilized to reinforce the inner, right angularly related panel members 40 and to connect them to the adjacent beads 55 of the inner right angularly related channels 46. As shown in cross section in FIG. 31, block 230 comprises a web body 231 having a pair of tongues 232 at the opposite ends thereof adapted to engage behind adjacent channel beads 55 as shown in FIG. 29. A pair of legs 233 and 235 extend outwardly from one side of web 231 in a diverging relation and are provided with extensions 236 and 237 of reduced thicknesses adapted to engage the inner faces of the adjacent ends of the inner right angularly related panel members 40 as shown in FIG. 29. The distal ends of these fingers 236 and 237 are provided with short pieces of the resiliently yieldable stripping 223. The transition between legs 233 and 235 and their respective fingers 236 and 237 define shoulders having semicircular grooves 238 and 240 therein, respectively.

Also extending outwardly from web 231 is an intermediate rib 241 disposed between legs 233 and 235 and having a pair of resilient fingers 242 and 243 connected to the distal end thereof projecting away from rib 241 in a diverging relation. Fingers 242 and 243 are provided with tongues 245 and 246 at the free ends thereof and are adapted to be received in grooves 238 and 240, respectively, in the assembled relation shown in FIG. 29. Filler block 230 serves as a compression member to provide a constant-acting seal against the peripheral edges of inner panel member 40.

In erecting the corner wall construction depicted in FIG. 29, the corner trim element 211 is first attached to corner post 42 by fasteners 217. This outer corner assembly is then placed in position with detents 227 and 228 of element 211 disposed behind the adjacent channel beads 55. Thereafter, the outer right angularly related panel members 40 are snap fitted into position on channels 46 with the adjacent lateral edges thereof abutting sides 207 and 208 of corner post 42. In a similar manner, filler block 230 is positioned in place prior to placing the inner right angularly related panel members 40 in position. As shown in the illustrative embodiment of FIG. 29, locking strips 185 are different from those previously described in that the portions 188 are provided with extensions 189 embedded in the boards of panel members 40.

As previously mentioned, the marginal edges of panel members 40 project substantially outwardly beyond locking strips 185. In order to prevent these marginal edges from freely projecting outwardly in a cantilevered fashion to provide a solid underlayment, and to furnish additional sealing means, an elongated backing strip, generally designated 250, is employed at the juncture of adjacent panel members 40. As shown in FIG. 32, backing strip 250 comprises an elongated strip of wood 251 of generally rectangular shape in cross section rigidly secured along one of its longer sides 252 to an elongated, thin sheet of metal 253. Sheet 253 is provided with inturmed flanges 255 along the opposite edges thereof, which flanges are provided with inturmed lips 256 adapted for snap fitted engagement behind the adjacent beads 55 of a pair of side-by-side related channels. The exposed sides of strip 251 are covered with a compressible sheathing 257, preferably formed of plastic foam, adapted to engage and be compressed against the concrete core 174 and between the adjacent flanges 53 of the side-by-side related channels 46. The outer face of sheet 253 is provided with resilient stripping 223. Backing strip 250 is snap fitted between two side-by-side related channels 46 and serves as an abutment against which the edge portions of adjacent panel members 40 and 40 may bear in the assembled relation, the edge portion of each panel member 40 and 40 bearing against one half of backing strip 250 as shown at the bottom of FIG. 29.

Referring now to FIGS. 33 and 34, there is shown an illustrative embodiment of a wall base construction supported on the upper surface of a previously cast footer 260 disposed below the surface of a concrete slab 261 cast subsequent to the footer and which constitutes the floor or floor foundation of a room. FIG. 33 is a vertical sectional view through this wall base construction, it being understood that such construction and the components forming said wall base extend lengthwise of footer 260 for any desired or required length to form a longitudinal base for the double wall construction.

As shown in FIG. 33, horizontally extending channels 46 are attached to laterally spaced runner foundation.
th elements 60 as hereinbefore described. A pair of differently shaped base clips 262 and 263 are snap fitted into engagement with the lower beads 55 of the opposed channels 46 and serve as the inner and outer base elements for the inner and outer walls of the double wall structure. Clip 262 overlies flange 71 of shoe element 60 and has a footer engaging portion 265 provided with a generally inverted U-shaped formation 266. Portion 265 is bent at substantially a right angle to form a slab engaging outer wall 267, in turn, reversely bent to form an inner wall 268 in substantial parallelism with wall 267 and laterally spaced therefrom. If desired, wall 267 can serve as a dam or form during the pouring of concrete to form slab 261.

A filler block, generally designated 270, is used in conjunction with base clip 262 and comprises a generally box-like body 271 having an inverted U-shaped recess 272 for receiving formation 266 and a recessed corner 273 for a purpose that will presently become apparent. Filler block 270 is provided with an upper, resilient tongue portion 275 (FIG. 34) formed integral with body 271 and adapted to overlie the upper wall of body 271. The distal end portion 275 is provided with a tab 276 formed integral therewith and arranged to extend normal to portion 275 for engagement against nut 143 of fastening assembly 47 in the assembled relation.

FIG. 34 illustrates a slightly modified form of filler block 270 used in conjunction with a base clip comprised of two parts 262 and 262' juxtaposed in a side-by-side relation to form a composite base clip. In this embodiment, the lower end of filler block 270 rests against adjoining clips 262 and 262' and is provided with a relatively deeper recess 272' to snugly embrace the adjacent end abutments 277 and 278 of clips 262 and 262' respectively.

Base clip 263 overlies flange 71 of the opposed shoe element 60 and has a footer engaging portion 280 provided with an inverted U-shaped formation 281. Clip 263 has a vertically extending outer side wall 282 and a top wall 283 provided with a U-shaped formation or recess 285. Top wall 283 is provided with an upturned flange 286 adapted to engage against the bolt head 145 of fastening assembly 47. The U-shaped formations 281 and 285 are adapted to receive complimentary shaped gaskets 287 for sealing engagement against footer 260 and the edge of a panel member 40 respectively, as shown in FIG. 35.

A filler block, designated 290, is employed in conjunction with base clip 263 and comprises a generally rectangularly shaped box-like body 291 having a top wall 292, a bottom wall 293 and a pair of opposite side walls 295 and 296 joined at their opposite ends to such top and bottom wall, respectively, and formed integral therewith. Top and bottom walls 292 and 293 are provided with recesses 297 and 298 for snugly receiving formations 285 and 281 therein. A strip of suitable backing filler 300 is interposed between filler block side wall 296 and base clip side wall 282.

When base clips 262 and 263 together with their associated filler blocks 270 and 290 are properly assembled and interlocked with the lower horizontally extending beads 55 of opposed channels 46 as shown in FIG. 33, the locking strips 185 of inner and outer panel members 40 and 40' are snap fitted into engagement with the upper, horizontally extending beads 55 of the opposed channels 46 with the lower horizontal edges of panels 40' and 40 resting against and supported on filler block 270 and top wall 283 of base clip 263, respectively, as shown in FIG. 35. Outer side wall 282 of base clip 263 forms the lower trim for the outer exposed surface of the double wall construction. In order to complete the inner, horizontally extending corner between the floor and the inner wall, a cove strip or floor edging member, generally designated 301, extends along the floor of the structure and is adapted to be snapped in place as shown in FIG. 35.

In cross section (FIG. 36), cove 301 comprises a horizontally extending base portion 302, a lower vertically depending loop portion 303 adapted to extend downwardly into the space between the outer wall of filler block 270 and the inner wall 268 of base clip 262, and an upper, vertically extending loop portion 305 having an inner surface 306 adapted to abut against the outer surface of inner panel member 40'. Cove 301 is provided with an angular protuberance 307 between loop portions 303 and 305 projecting outwardly into the space defined by recessed corner 273 of filler block 270 and the lower horizontal edge of panel member 40'. Loop portion 305 has an outer surface 308 which has a major portion extending vertically downwardly and then curving outwardly to merge with base portion 302 to form therewith an attractive exposed surface which can be pointed or decorated to provide any desired effect.

FIG. 37 illustrates another form of cove strip 310 comprising a base portion 311 having an angular protuberance 312 projecting downwardly and adapted to be received in the space defined by the outer wall of filler block 270 and the inner wall 268 of base clip 262. Cove 310 is provided with an inner, bulbous extension 313 adapted to fit snugly between the recessed corner 273 of filler block 270 and the lower horizontal edge of panel member 40'. Cove 310 also is provided with a vertically extending loop portion 315 having an inner surface 316 adapted to abut against the outer surface of inner panel member 40' and an outer surface 317 having a major portion extending vertically downwardly and then curving outwardly to merge with base portion 311. Either cove strip 301 or 310 can be employed to cover the reveal between the inner wall and the floor, as desired, it being understood that these cove strips are readily snap fitted into position. As shown in FIG. 35, concrete or other suitable material can be poured into the open space between panel members 40 and 40' to form a permanent concrete wall 174, if desired.

FIGS. 38 and 39 illustrate another form of wall base construction employing base channels 125 rather than the base clips described above and include means adapted to be used in those constructions wherein it is desired to secure carpeting in place on concrete floors. As shown in FIG. 38, horizontally extending channels 46 are attached to laterally spaced runner foundation shoe elements 60'. Elements 60' and base channel member 125 are tied together and supported on footer 260 by means of stub anchor element 123' and corresponding nuts 124'. Base channel member 125 also is tied to footer 260 by means of anchor element 123 projecting upwardly through the base channel slot 135 as shown in FIG. 6A. Base channel 125 is clamped against the flanges 71 of shoe elements 60' and footer 260 by a suitable nut 124 illustrated in FIG. 6A. In the form of wall base construction depicted in FIG. 38, a form or
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dam 320 is employed and is provided with a vertical abutment 321 against which slab 261 is formed and is provided with a series of vertically spaced projections 322 extending outwardly from abutment 321 and which serve as indicators in determining the level to which concrete is poured in forming slab 261 to the desired height. A plurality of longitudinally spaced gusset plates 323 can be provided to reinforce abutment 321. It will be observed that the lower extremities of gusset plates 323 engage the side wall 12B of base channel 125 for a more rigid construction.

In order to close the reveal between footer 260 and the outer wall of the structure, an exterior anchor base, generally designated 325, is provided and comprises an elongated strip of metal having an irregular polygonal configuration in cross section. Anchor base 325 comprises an exterior side wall portion 326, an upper wall portion 327 having a resilient extension 328 terminating in a flange 330 adapted to engage against the lower inner face of panel member 40 in the assembled relation. Anchor base 325 further includes a lower wall portion 331 having an offset wall portion 332 connected together by a depending vertical wall portion 333, and an inner side wall portion 335 having an inwardly extending flange 336 terminating in a peripheral groove 337. Resilient extension 328 is adapted to be cammed inwardly against flange 336 upon placing outer panel member 40 in place and is provided with a projection 338 adapted to be received in groove 337 in the assembled relation. A backing filler 340 is located in the space defined by side wall portions 326, 327, 331, 332 and 333 to provide adequate support and reinforcement for anchor base 325.

A plug formation 341 is provided at the juncture of inner side wall portion 335 and bottom wall portion 331 for insertion into the space defined between base channel flange 130 and channel bead 55 to prevent the escape of plastic concrete therethrough during the pouring operation. Also, plug formation 341 serves to secure anchor base 325 in place. The other space on the opposite side of base channel 125 is closed by a plug formation 342 provided on one end of an anchor element 343 extending lengthwise of base channel 125. The other end of element 343 is provided with a plurality of spaced teeth 345 adapted to telescopically receive a ratchet channel member 346 secured at its closed end to the inner beveled surface of a floor edge member, generally designated 347. As shown in FIG. 38, ratchet channel member 346 comprises a pair of legs extending outwardly in a diverging relation, each leg having a series of teeth 348 cooperable with teeth 345 on element 343 to adjustably retain floor edge member 347 in the desired position. Due to the specific teeth formation on ratchet channel member 346 and element 343, member 346 can slide inwardly on element 343 but is restrained against outward movement relative thereto. When it is desired to withdraw floor edge member 347, element 343 is withdrawn along with member 346.

Floor edge member 347 serves to close the reveal between slab 261 and the inner wall of the structure and comprises a vertically extending leg 350 adapted to engage against the lower portion of inner panel member 40' as shown in FIG. 39. Floor edge member 347 also is provided with a horizontal leg 351 having an upper surface 352 provided with an insert strip 353 formed of any suitable material, such as plywood, decorative laminate, or simulated marble for example. The lower portion of leg 352 is provided with a plurality of rearwardly inclined teeth 355 for engaging wall-to-wall carpeting 356 and pulling the same taut as the member 347 is pressed into place along the floor as shown in FIG. 39. Concrete can be poured into the open space between panel members 40 and 40' to form a permanent core or concrete wall 174, as desired.

FIGS. 40-47 illustrate still another form of wall base construction, showing the base for the inner wall only and comprising a composite base clip consisting of a first section 360 having a shouldered flange portion 361 at one end thereof adapted to be snapped into engagement with the lower bead 55 of the horizontally extending inner channel 46 and provided with a loop formation 362 at the other end thereof. The second section 363 (FIG. 41) comprises a horizontally extending footer engaging portion 365 terminating in a loop formation 366 disposed in abutting relation with loop formation 362 of the adjacent section 360. Section 363 also comprises a vertically extending wall 367 which is reversely bent to form an inner wall 368 laterally spaced from but parallel to wall 367. Wall 367 can serve as a dam or form during the pouring of concrete to form slab 261. Wall 368 is connected to a relatively short, horizontally extending portion 370 overlaid and contiguous with portion 365, in turn, connected to a vertically extending wall 371 substantially parallel with walls 367 and 368. A plate of metal or other rigid material 372 is welded or otherwise fixedly secured to the inner surface of wall 371 and extends lengthwise thereof.

A filler block, generally designated 373 (FIG. 42), is used in conjunction with the modified base clip and comprises a body having a top wall 375, a bottom wall 376 and a pair of opposite side walls 377 and 378. Upper and lower channel-shaped recesses 380 and 381 are formed in top and bottom walls 375 and 376, respectively, and a resiliently yieldable pad 382 is adhesively secured to the outer surface of wall 378 for engagement with the shouldered flange 361 of section 360 in the assembled relation. Lower recess 381 receives the juxtaposed loop formations 362 and 366 of sections 360 and 363, respectively, with bottom wall 376 disposed against these sections in the assembled relation, as shown in FIG. 40.

In those constructions where wall-to-wall carpeting is not contemplated, an auxiliary filler block 383 (FIG. 43) is employed to fill the gap between filler block 373 and the inner vertical wall panel 40'. Filler block 383 comprises a body having an inner side wall 385, a bottom wall 386 provided with a projection 387, an outer side wall 388 having a lateral projection 390 defining a shoulder 391, a top wall 392 and a generally vertically depending skirt 393 provided with an intumescence flange 394 adapted to engage against the inner surfaces of side wall 385 and bottom wall 386 in the assembled relation shown in FIG. 40. In assembling block 383 to filler block 373, projection 387 is placed in recess 380 with bottom wall 386 resting on the top wall 375 of block 373 and plate 372 of the composite base clip. The upper portion of filler block 383 is sprung outwardly as shown in FIG. 43. When positioning inner panel member 40' in place, the bottom edge thereof engages top wall 392 and urges the latter downwardly into the position shown in FIG. 40 with the lower inner face of panel member 40' abutting the upper portion of filler block.
side wall 385. A suitable vinyl covering can be applied to the outer surface of filler block 383 to provide a better wear-resistant surface, if desired. To complete the inner corner construction, either of the cove strips 301 (FIG. 36) or 310 (FIG. 37) can be snapped in place in a manner similar to that shown in FIG. 35.

Where wall-to-wall carpeting is employed, a differently configured filler element, generally designated 396 (FIG. 45), is used in lieu of block 383 and comprises a solid body having a base 397 adapted to rest on top wall 375 of filler block 373 and plate 372 of base clip element 363. The lower portion of base 397 is provided with an intermediate projection 400 adapted to be disposed in the space between plate 372 and inner wall 368 of base clip element 363 in the assembled relation. Element 396 also includes an upright leg 401 which is provided with an upper surface 402 and a vertical lip 403 forming a corner for receiving the inner lower edge of panel member 404. The upper surface of base 397 has a plurality of teeth 405 for adjustably securing a carpet retaining element 406 in place in the assembled relation.

Retaining element (FIG. 46) comprises a base 407 adapted to rest on slab 261 and is provided with a tooth 408 at one extremity thereof for ratcheting engagement with the teeth 405 of element 396. Base 407 has an offset portion 410 provided with an upper bearing surface 411 and a pair of downwardly extending teeth 412 for engaging wall-to-wall carpeting 356 and pulling the same taut as retaining element 406 is moved inwardly in place relative to element 396 as shown in FIG. 46. The upper surface 407 is provided with a series of corrugations 413 adapted to mate with complementary corrugations 415 provided on a floor portion 416 of a floor edge member 417 (FIG. 47). Floor edge member 417, together with carpet retaining element 406, serves to close the reveal between slab 261 and the lower edge of the inner panel member 404 and comprises a horizontal leg 418 adapted to bear against the upper bearing surface 411 of element 406. Floor edge member 417 also comprises a vertical leg 420 adapted to engage against the lower portion of inner panel member 404 as shown in FIG. 44. Foot portion 416 is located at the juncture of legs 418 and 420 and is provided with an upper surface 421 for snugly fitting against the lower, inner edge of inner panel member 404 in the assembled relation.

In assembling the various components to form the inner wall base construction shown in FIG. 44, the two base clip sections 360 and 363 are placed in an abutting relation on footer 260 with the shouldered flange portion 361 of section 360 snap fitted into place behind the edge of channel bead 55. Filler block 373 is then fitted into position with the lower recess 381 receiving loop formations 362 and 366. Next, filler element 396 is placed on block 373 with projection 398 extending into recess 380. The inner panel element 400 is then snap fitted into position with the lower edge thereof resting against the upper surface 402 of filler element 396. Teeth 412 of carpet retaining element 406 are then inserted into carpet 356 along the edge thereof and element 406 is forced inwardly relative to filler element 396 until the carpet is drawn sufficiently taut. Finally, floor edge member 417 is placed in position in overlying relation to element 406 and pushed inwardly locking all elements together and completing the inner base wall construction.

FIG. 48 illustrates still another form of base wall construction for use in applications where the floor of the room is composed of panel members 404'. In this form of construction, the laterally spaced, horizontally extending channels 46 are attached to a shoe element 60 and an inner running angle 67, respectively, the latter being spaced from shoe element 60 and secured thereto by fastening assemblies 47. A horizontally extending, right angularly related channel 46 is secured to extension 103 of running angle 67 by means of a stub anchor element 123', which also secures appropriately-placed, integrally-extended fingers 422' of resilient pad 422 through countersunk openings therein. The space between the adjacent beads 55 of the right angularly related channels 46 is closed by a filler post 165 extending lengthwise of channels 46. The horizontal panel member 404' is secured in position by snap fitting the locking strip 185 thereof into interlocking engagement with the outer channel bead 55. The elongated resilient pad 422 extends lengthwise of horizontal channel 46 and is sandwiched between footer 260 and the web 50 of channel 46 and provides a continuous, resilient seal when core material 174 is poured as in FIG. 35.

A corner clip element 423 is used in conjunction with this form of construction and comprises a plastic body having a pair of bifurcations 425 and 426 provided with bulbous portions 427 and 428 for engagement with the adjacent beads 55 of the right angularly related channels 46. Clip element 423 also is provided with a pair of diverging legs 430 and 431 extending normal to each other and terminating in flat edges. An anchor member 432 is used in conjunction with element 423 and is provided with a pair of grooves 433 and 435 for securement about the edges of legs 430 and 431 of element 423. A channel 436 is provided in anchor member 432 and is defined by side walls having a series of ratchet teeth 437 thereon. A floor edge member 438 is used to close the opening between the vertical panel member 404 and the horizontal panel member 404' and comprises a horizontal leg 440 engageable against the exposed face of panel member 404' adjacent the edge thereof and a vertical leg 441 engageable against the exposed face of panel member 404' adjacent the lower edge thereof. Legs 440 and 441 are connected by a web 442 having a metal clip 443 secured to the undersurface thereof by means of a suitable fastener. The distal end of clip 443 is provided with an enlarged formation 445 for engagement with teeth 437.

To complete the outer side of the base wall construction depicted in FIG. 48, a modified form of base clip section 446 (FIG. 49) is used in conjunction with base clip section 360. Section 446 includes a generally vertical extending leg 447 and a horizontal footer engaging leg 448 terminating in a loop formation 450 adapted to abut against loop formation 362 of section 360. A plate 451 is secured to the outer face of leg 447 and is provided with a resiliently yieldable pad 452 adhesively secured to the lower edge thereof. As shown in FIG. 49, a filler block 373, oriented oppositely from that shown in FIGS. 40 and 44, is used to retain base clip sections 360 and 446 in place with the recess 381 thereof receiving loop formations 362 and 450. A resiliently yieldable pad 453 is disposed on base clip section 446 and filler block 373 and is provided with a projection 455 insertable in recess 380 of filler block 373. Pad 453 is partially sheathed in a metal skin 456 having an end.
portion 457 interposed between bolt head 145 and the inner face of outer panel member 40 in the assembled relation.

Where electrical connections and outlet plugs are desired adjacent the floor of a room, still another form of floor edge member 409 (FIG. 4A), preferably formed of a resiliently yieldable material such as rubber or neoprene, can be used in lieu of the floor edge members heretofore described. By way of example, floor edge member 409 may be substituted for member 438 shown in FIG. 48. Floor edge member 409 comprises a vertical leg 414 adapted to engage against the exposed face of inner panel member 40' and a horizontal leg 419 interposed into the space defined by the lower edge of panel member 40' and anchor member 432. A pair of sockets 424 are formed in the upper end of vertical leg 414 for the reception of electrical plugs. These sockets 424 are connected to a pair of electrical conductors 429 extending vertically through leg 414 and then horizontally through leg 419 and outwardly thereof. Conductors 429 make electrical contact with leads 434 extending lengthwise of floor edge member 409 which, in turn, make electrical contact with other socket outlets (not shown) spaced longitudinally of floor edge member 409. The ends of conductors 429 are received in an intermediate plug 439 and are connected to another pair of conductors 444 projecting into a plug 449 having projections 454 inserted into channel openings 57 with a friction. Plug 439 can be frictionally supported between plug 449 and the end of horizontal leg 419 or can be formed integral with plug 449, if desired. Conductors 444 are connected by means of contacts 458 to a pair of leads 459 leading to a suitable source of electrical power (not shown). Thus floor edge member 409 can be used to provide electrical circuitry connections leading to exterior power sources.

Where it is desired to provide a door, a door frame assembly, generally designated 460 (FIG. 1) is mounted within an opening provided in the double wall structure as shown fragmentarily in FIG. 53. The door frame assembly includes a threshold assembly 461 (FIG. 50), a pair of opposite vertical side frame assemblies 462 (FIG. 56) and a header assembly 463 (FIG. 59). As shown in FIG. 50, the threshold assembly 461 comprises an elongated channel member 465 of a generally inverted U-shaped configuration in cross section having a base or web 466 adapted to overlie the wall base construction of the double wall structure and a pair of integral legs 467 and 468. The wall base construction is formed of a plurality of components hereinbefore described and includes the lower portions of a pair of laterally spaced, horizontally extending channels 46, the upper portions thereof having been removed to form the door frame opening. The lower surface of base 466 is provided with a layer 470 of rubber or a resiliently yieldable synthetic plastic material, such as neoprene for example, to provide a fluid tight seal between the threshold assembly 461 and the wall base construction. Also, this layer of resiliently yieldable material prevents metal-to-metal contact between the parts. The inner leg 467 extends downwardly into the space defined by plate 372 and inner wall 368 of base clip section 363. The outer leg 468 extends downwardly and partially over the face of plate 451 of base clip section 446. Both ends of legs 467 and 468 project axially beyond base 466 in overlapping relation to the exposed faces of the inner and outer panel members 40' and 40 as shown in FIG. 53.

The upper portion of base 466 is recessed as shown at 471 in FIG. 50 and forms an abutment shoulder 472 against which the lower outer edge of the door assembly 473 abuts. As shown in FIG. 54, door assembly 473 comprises a stationary frame element 475 of a generally L-shaped configuration in cross section having inner surfaces which serve as a door jamb and is provided with an attached threshold base 476 adapted to be received in the recess 471 of base channel member 465 (FIG. 50). Door assembly 473 also includes a pivot door 477 connected to frame element 475 by a suitable hinge assembly 478 having a plate member 480 secured to the lateral side of door 477 and a plate member 481 secured to the opposed surface of frame element 475. The entire door assembly 473, including frame 475, attached bottom threshold base 476, and door 477, is positioned in place as a unit in recess 471 against shoulder 472. To secure door assembly 473 in place, a locking threshold member 482 is positioned on base 466 and is provided with a depending portion 483 having an inclined end surface and inserted into a complementary shaped groove 485 in the upper surface of base 466, as shown in FIG. 50. Thus, after the door assembly 473 is positioned in recess 471 against shoulder 472, member 482 is fitted against the inner side of the door assembly base 476 with portion 483 being received in groove 485 to lock the bottom portion of the door assembly in place.

Referring now to FIGS. 55 and 56, each of the opposing side frame assemblies 462 comprises an elongated frame member 486 having a web portion 487 disposed against the outer edges of panel members 40 and 40' and a pair of laterally extending flanges 488 and 490 overlying the exposed faces of panel members 40' and 40. An intermediate leg 491 extends outwardly from web portion 487 in substantial parallelism with flanges 488 and 490 and is adapted to be inserted between the opposed panel members in the assembled relation as shown in FIG. 56. The outer surface of web portion 487 is recessed as at 492 and defines an abutment shoulder 493 against which the frame 475 of door assembly 473 is positioned. The outer surface of web portion 487 also is provided with a groove 495 for receiving the projection 496 formed along one edge of a locking member 497 (FIGS. 56 and 57). The mating surfaces of groove 495 and projection 496 are inclined as shown in FIG. 56. Locking member 497 also includes a pair of right angularly related legs 498 and 500 adapted to snugly embrace the outer surfaces of a portion of web 487 and flange 488. Leg 500 terminates in an internally flanged 501 snap fitted behind the terminal edge of flange 488. Thus, when the frame 475 of door assembly 473 is positioned in recess 492 against shoulder 493, locking member 497, which extends lengthwise of member 486, is snap fitted into place to firmly secure door assembly 473 in position.

FIGS. 58 and 59 illustrate the header assembly 463, which comprises an elongated frame member 502 having a web portion 503 disposed against the cutout undersurfaces of the panel members and a pair of upwardly extending flanges 505 and 506 overlying the exposed faces of panel members 40' and 40. An intermediate leg 507 projects upwardly from web 503 in substantial parallelism with flanges 505 and 506 and is adapted to be inserted between panel members 40 and 40' in the
assembled relation as shown in FIG. 59. The outer surface of web 503 is recessed as at 508 and defines an abutment shoulder 510 against which the upper horizontal portion of frame 475 of door assembly 473 is positioned. The outer surface of web 503 is further provided with a groove 511 for receiving a projection 512 formed along one edge of a locking member 513 extending lengthwise of frame member 502. The mating surfaces of groove 511 and projection 512 are inclined as shown in FIG. 59. Locking member 513 also includes a pair of right angularly related legs 515 and 516 adapted to engage against the outer surfaces of a portion of web 513 and flange 505. Thus, when the frame 475 of door assembly 473 is positioned in recess 508 against abutment shoulder 510, locking member 513 can be fitted into place to securely lock door assembly 473 in position. Locking member 513, when positioned, is supported and further locked-in at its opposite longitudinal ends by locking members 497 acting as opposite pillars. Thus, the ordered sequence of locking component assembly is: threshold member 482, header member 513 and lastly, vertically extending snap-in side members 497. It should be understood that header member 513 may further be modified by a top snap-in configuration similar to that shown in FIG. 57.  

FIG. 51 illustrates a modified form of threshold assembly 461' adapted to be used in conjunction with a wall base construction interposed between two slabs 261 constituting the floors of adjacent rooms for example and wherein it is desired to provide a door in the wall separating such rooms. As shown in FIG. 51, the wall base construction is formed of a plurality of components previously described and differs from that shown in FIG. 50 by employing base clip sections on both sides of the wall base construction. Threshold assembly 461' comprises an elongated channel member 525 of a generally inverted U-shaped configuration in cross section having a web 526 adapted to overlie the wall base construction and a pair of opposing legs 527 and 528 extending downwardly into the spaces defined by plates 372 and inner walkways 368 of the opposite side base clip sections 363. As in the embodiment of FIG. 50, the upper surface of web 526 is provided with the layer 470 of resiliently yieldable synthetic plastic material providing a fluid tight seal between threshold assembly 461' and the wall base construction. 

The upper portion of web 526 is provided with spaced grooves 530 and 531 defining therebetween a support surface 532 on which is mounted the base 476' of frame element 475. Base 476' differs from the base 476 of the embodiment of FIG. 50 by being substantially thicker than the latter. To secure door assembly 473 in place, an outer locking member 533 is positioned on the upper surface of web 526 and is provided with a depending lug 535 inserted into groove 531 and having an inclined end surface complementary to the bottom surface defining groove 531, as shown in FIG. 51. The upper surface of outer locking member 533 is tapered downwardly from base 476' toward slab 261 to provide a smooth transition therebetween and prevent a safety hazard. An inner locking member 536 is positioned on the other side of base 476' on the upper surface of web 526 and is provided with a depending lug 537 inserted into groove 530 and having an inclined end surface complementary to the bottom surface defining groove 530. The upper surface of member 536 is flat and has a cantilevered portion 538 overlying the edge of carpet 356. In assembling the door and frame structure depicted in FIG. 51, channel member 525 is initially placed in position over the wall base construction and outer locking member 533 is then fixed in position with the lug 535 inserted into groove 531. Next, door assembly 473 is placed in position on surface 532 against the inner face of member 533 and finally inner locking member 536 is locked in place, depressing edge portions of carpet 356, thereby providing anchoring means and substantially flush adjacent surfaces.  

FIG. 52 illustrates still another threshold assembly 461'' used in connection with a block type wall base construction comprising a block 540 and includes a channel member 541 having a web 542 overlying block 540 and a pair of legs 543 and 545 overlapping the front and rear faces of block 540. The upper surface of web 542 is recessed as at 546 and forms an abutment shoulder 547 against which the lower outer edge of the door assembly 473 abuts. To secure door assembly 473 in place, a locking member 548 having right angularly related legs 550 and 551 is positioned on web 542 on the inner side of door assembly 473. Leg 550 is provided with a depending portion 551 having an inclined end surface inserted into a complementary shaped groove 553 in the upper surface of web 542. The other leg 551 is positioned firmly against leg 545 of channel member 541 in the assembled relation. Shown in fragmentary outline is a typical, conventional solid vertical wall optionally used with a block-type base construction. 

FIGS. 60, 61, 62 and 63 illustrate the door framing assembly in solid wall and flat slab floor surface adaptations as typically utilized in conventional partition construction. Although not anchored or otherwise tied to foundation 260, threshold assembly 461'' is secured in place by means of side frame assemblies 462 and locking members 497 when door assembly 473 is placed in position. Threshold assembly 461'' differs from assembly 461'' in that vertical legs 543 and 545 of member 541 are eliminated and the vertical leg 551 of locking member 548 is shortened. Optional floor segments or deep-pile flush carpeting abutting threshold assembly 461'' and overlying the top of the slab base are shown in dashed outline in FIG. 60.  

Where it is desired to provide a window, a suitable opening 554 is provided in the double wall structure, such as shown fragmentarily in FIG. 64 for receiving a window frame assembly (FIG. 65) comprising a primary sill 555, a pair of primary side jambs 556, a primary header 557, a fenestra unit 558 which includes glazing 560 and a frame 561 therefor, a finishing sill 562, locking jambs 563 and a finishing header 564. The primary sill 555 is of a generally channel shaped configuration in cross section comprising a web 566 adapted to overlie the lower severed edges of spaced panel members 40 and 40', which define the bottom of the opening in the double wall construction. Sill 555 also includes a pair of overhanging side legs 567 and 568 adapted to overlie the outer exposed faces of panel members 40 and 40'. An intermediate leg 570 extends downwardly from web 566 in substantial parallelism with legs 567 and 568 and is adapted to be inserted between the opposed panel members in the assembled relation as shown in FIG. 66. The upper or outer surface of web 566 is provided with a recessed portion 571 defining an abutment shoulder 572 against which the
of primary sill and primary header legs 568 in the assembled relation for receiving segments 578 of the finishing sill 562 and finishing header 564, respectively. The flange 579 of locking jambs 563 will then be flush with the end surfaces of finishing units 562 and 564 when positioned.

The composite frame 561 of fenestra unit 558 can vary in thickness, as desired, as illustrated in FIG. 67 wherein such frame 561 is of a lesser thickness than that shown in FIG. 66. To this end, finishing sill 562 is provided with an integral extension 585 projecting beyond projection 577 so as to engage the inner side of frame 561. It will be appreciated that the length of extension 585 can vary dependent on the thickness of frame 561. Finishing header 564 and locking jambs 563 also are provided with similar extensions when utilizing frames 561 of reduced thicknesses.

In FIG. 68, there is shown another form of fenestra unit, generally designated 590, of the sliding panel type comprising a sash or frame 591 consisting of a unitary, one-piece fabrication formed to provide a top bar 592, a bottom bar 593 and a pair of opposite side bars 595. The terms top, bottom, upper and the like as used herein are applied only for convenience of description with reference to the drawings and are not used in a limiting sense. The opposed surfaces of top and bottom bars 592 and 593 are provided with guide slots 596 and 597 (FIGS. 69 and 70) for receiving a pair of glazing panels 598 and 599. The inner limitations of these guide slots 596 and 597 are provided with ribs 601 extending lengthwise thereof and serve as tracks projecting into complementary grooves in the upper and lower horizontal surfaces of panels 598 and 599 for guiding the latter during sliding movement thereof. As shown in FIG. 69, the inner ends of slots 596 and 597 overlap and terminate in abutments 602 and 603 serving as stops for limiting inward movement of panels 598 and 599 in their closed positions. Elongated through-slots 605 are provided in each side bar 595 to provide passage of panels 598 and 599 therethrough when sliding the latter outwardly into an open position.

Fenestra unit 590 is mounted in a window frame assembly 606 comprising components similar to those for mounting fenestra unit 558 except that the primary side jambs are modified to accommodate panels 598 and 599. To this end, modified primary side jambs 556' (FIG. 71) are provided with rectangularly shaped enclosures 607 defining panel receiving pockets 608 extending generally parallel to legs 567 and 568 between panel members 40 and 40' and substantially the length of jambs 556'. Enclosures 607 may be slightly thicker than the normal spacing between panel members 40 and 40' so as to compress the plastic foam bodies 182 and 182' thereof to firmly stabilize and secure the cantilevered enclosure 607 in place and prevent any lateral play thereof. The lower end of enclosure 607 is provided with a rib 610 extending longitudinally thereof in alignment with rib 601 of frame 591 to guide the sliding glazing panel when moved to its open position into pocket 608 of enclosure 607. As shown in FIG. 73, panels 598 and 599 can be slid outwardly relative to each other into the dotted line positions where they are concealed by panel members 40 and 40'. Primary sill 555, primary header 557, finishing sill 562, finishing header 564 and locking jambs 563 are employed to complete the window frame construction.
Rather than form through the slots in the opposite sides of frame 591, a pair of laterally spaced slots 611 in one side thereof may be provided, such as shown in FIG. 74 to permit passage of spaced glazing panels 609 therethrough outwardly in the same direction into an open position. Slots 611 are separated by a vertically extending partition 612 and are aligned with laterally spaced guide slots 613 in the bottom bar 593 of frame 591, which slots 613 are provided with tracks in the form of ribs 615 for guiding the panels in their sliding movements. In order to accommodate the two panels 609, a modified enclosure 607 (FIG. 75) is provided in primary side jamb 556 and defines a pocket 608 having a pair of ribs 616 serving as tracks for guiding panels 609 into their open, extended positions within pocket 608. As shown in FIG. 76, panels 609 are slid laterally outwardly in the same direction into the dotted line position where they are disposed in a spaced, parallel, and coextensive relation and concealed between panel members 40 and 40'.

FIGS. 77 and 78 illustrate locking mechanisms, generally designated 620, each mounted in a rectangularly shaped channel 621 formed in at least one side of a modified glazing panel 609'. Channel 621 is provided with a relatively short front face 622 and an opening 623 leading into the interior of channel 621. Each locking mechanism 620 comprises a body 625 pivotally mounted at one end thereof about a hinge pin 626 and having an offset tab 627 depressible for pivoting body 625 about hinge pin 626. An integral lug 628 is provided on body 625 for engagement against the inner edge surface 630 of frame side bar 595 or into a notch 631 provided in partition 612 to lock panels 609' in their closed positions. The free end of body 625 is provided with a lip 632 normally biased by means of a hairpin spring 633 against the backside of front face 622 when lug 628 is disposed in locating engagement with frame side bar 595. In order to release locking mechanisms 620, tabs 627 are simply depressed to swing bodies 625 inwardly against the bias of springs 633 and withdraw locking lugs 628 from engagement with side bar edge surface 630 or from out of notch 631. Panels 609' are then free to be slid into an open position into pockets of enclosures 607'.

From the foregoing, it is seen that the present invention fully accomplishes its intended objects by providing an improved modular wall construction which can be quickly erected and readily dismantled. The channels which serve as studs, the various supporting elements therefor, and the fastening assemblies connecting them together provide a strong, rigid and easily assembled framework on which detachable panels can be readily fitted in place in an opposed relation. The opposed panel construction defines an intermediate space which selectively may remain undisturbed or be filled with a suitable building material, as desired. In the former construction, there is provided a substantially uninterrupted space for the unrestricted placement of conduits, piping, wiring and the like and the direct transmission of sound and temperature is eliminated. In the latter case, the permanent building material, when set, serves as a barrier against the transmission of sound and heat and the fastening assemblies, which are subsequently removed, leave passages in the permanent wall construction for conduits and the like. Also, as a result of this invention, improved door and window frame assemblies are provided for supporting doors and windows in an improved and more efficient manner, such assemblies being quickly fitted and installed in place in the double wall construction of this invention or in any other existing wall structure. By the provision of a variety of wall base constructions, the double wall constructions of this invention can be erected in numerous ways to satisfy various requirements in a modular building construction.

Illustrative embodiments of this invention having been disclosed in detail, it is to be understood that this has been done by way of illustration only, without thought of limitation.

I claim:

1. Means for supporting a glazing assembly in a wall construction comprising: a wall structure provided with a rectangular opening therethrough defined by vertical and horizontal edges; a window frame assembly comprising a plurality of separably mounted channel shaped members arranged and interfitted vertically and horizontally to form an assembled frame for said opening; each of said members comprising a web overlying one of said edges and spaced, parallel outer legs extending in a direction generally normal to said web in overlapping relation with portions of the exposed surfaces of said wall structure; said web having a longitudinal recess substantially centrally thereof for supporting a glazing assembly; said recess defining a longitudinal abutment shoulder against which one side of said glazing assembly is positioned; said web having a longitudinal groove adjacent said recess and a separable locking member concealing a portion of said channel member and having a projection snap fitted into said groove and engageable against the other side of said glazing assembly for securing said glazing assembly in place.

2. Means for supporting a glazing assembly in a wall construction comprising: a wall structure provided with a rectangular opening therethrough defined by vertical and horizontal edges; a window frame assembly comprising a plurality of channel shaped members arranged vertically and horizontally to form a frame for said opening; each of said members comprising a web overlying one of said edges and spaced, parallel outer legs extending in a direction generally normal to said web in overlapping relation with portions of the exposed surfaces of said wall structure; said web having a longitudinal recess for supporting a glazing assembly and a longitudinal groove adjacent said recess; and a separable locking member having a projection snap fitted into said groove for securing said glazing assembly in place; said wall construction comprising a pair of spaced panel members and said channel shaped member including an intermediate leg in substantial parallelism with said outer legs and extending between said opposed panel members.

3. Means for supporting a glazing assembly in a wall construction comprising: a wall structure provided with a rectangular opening therethrough defined by vertical and horizontal edges; a window frame assembly comprising a plurality of channel shaped members arranged vertically and horizontally to form a frame for said opening; each of said members comprising a web overlying one of said edges and spaced, parallel outer legs extending in a direction generally normal to said web in overlapping relation with portions of the exposed surfaces of said wall structure; said web having a longitudinal recess for supporting a glazing assembly and a longitudinal groove adjacent said recess; and a separa-
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31. A locking member having a projection snap fitted into said groove for securing said glazing assembly in place; said locking member being provided with right angularly related legs; one of said legs overlying one of said channel member outer legs and the other locking member leg overlying a portion of said web and terminating in said projection.

4. Supporting means as defined in claim 3 wherein said one locking member leg is provided with an inturned flange for snap-fitted engagement behind the edge of said one channel member outer leg.

5. Supporting means as defined in claim 3 wherein the opposite ends of said one locking member leg project axially beyond said other right angularly related leg thereof and are provided with inturned segments engagable against the edges of said one channel member legs of said vertically extending channel shaped members.

6. Means for supporting a glazing assembly in a wall construction comprising: a wall structure provided with a rectangular opening therethrough defined by vertical and horizontal edges; a window frame assembly comprising a plurality of channel shaped members arranged vertically and horizontally to form a frame for said opening; each of said members comprising a web overlying one of said edges and spaced, parallel outer legs extending in a direction generally normal to said web in overlapping relation with portions of the exposed surfaces of said wall structure; a glazing assembly; said web having a longitudinal recess for supporting said glazing assembly and a longitudinal groove adjacent said recess; a separable locking member having a projection snap fitted into said groove for securing said glazing assembly in place; said glazing assembly comprising a rectangularly shaped primary frame having a recessed offset portion for supporting a glazing panel for defining an abutment bearing shoulder off one side of said glazing panel; and a secondary rectangularly shaped frame secured to said offset portion and bearing against the other side of said glazing panel to secure the latter in place.

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