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BULKHEAD CONSTRUCTION FOR CONCRETE STRUCTURES HAVING CONTINUOUS REINFORCEMENTS

Andrew A. Arquilla, 6824 W. Armitage, Ave.,
Chicago, Ill. 60635

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12 Claims

ABSTRACT OF THE DISCLOSURE

A bulkhead structure having an edge support with a plurality of free ended vertically spaced fingers fixed at one end to the support and defining reinforcing-rod accommodating spaces therebetween.

This invention is directed to a novel bulkhead structure and more specifically to a novel device which is particularly useful in reinforced concrete structures.

In the building construction art there is no practical means available for partitioning the pouring of concrete and yet allow the reinforcing rods to extend past the joint so that the next section to be poured may be integrated with the preceding section. At best only makeshift structures have been used which are expensive to erect and remove and are also time consuming.

The objects of the invention is to provide a novel bulkhead structure which is practical, easy to use, requires little nailing, eliminates drilling of forms, minimizes carpentry work, is easy to strip, is easily reassembled, is always available like any reusable form; has at least a 50% accessible area for doweling; is adjustable, is lightweight, is reversible to use either right or left or up or down, lasts indefinitely, is dependable, may be placed after the reinforcements are in although more tedious, and eliminates the practice of having dangerous debris lying around construction work, namely, short lumber with many nails.

These and other objects and advantages inherent in and encompassed by the invention will become more readily apparent from the specifications and the drawings, wherein:

FIGURE 1 is a top plan view of a wall construction incorporating the invention;

FIGURE 2 is a cross-sectional view of the structure taken substantially on the line 2—2 of FIGURE 1;

FIGURE 3 is a longitudinal sectional view taken substantially on line 3—3 of FIGURE 1; and

FIGURE 4 is a side elevational view of the bulkhead member; and FIGURE 5 is a side elevation of a modification.

The invention is disclosed in association with a wall or foundation structure generally designated 2 wherein there are provided a pair of spaced generally parallel upright forms 3 and 4 defining a mold cavity 5 therebetween into which the concrete 6 is poured.

Prior to such pour, there are assembled in the mold reinforcing rods 7, 7 running generally parallel to the length of the wall and these are supported from and extended through the bulkhead structure generally designated 10.

The bulkhead structure of the present invention includes a premoulded hardboard or pressboard 11 coated with the usual tar or oil base compositions. This board is usually relatively thin perhaps about 1/8" thick and rather easily perforated so that it can be easily cut to provide a plurality of openings in through which the reinforcing rods 7 can be extended.

The hardboard 11 comprises a pair of laterally spaced

coplanar panel sections 13 and 14 extending perpendicular to the forms 3 and 4 and between these sections 13, 14 there is provided a channel portion 15 which is adapted to form a keying slot 16 with the subsequent section to be formed.

An important aspect of the invention is in providing a metallic bulkhead or bracing element 20 which includes an elongated edge portion 21 running the length of the element along one edge and for a 12" wall may be about 1 1/8" wide. A series of vertically spaced fingers 22, 22 project laterally from one edge 23 of the portion 21, these fingers being 11 1/8" long and having their longitudinal, herein show as upper and lower edges 24 and 25, converging toward the free edges 26 of the fingers whereat the juncture between edges 24, 26 and 25, 26 is formed with a radius of 9/16". Similar radius is formed with the juncture of these edges with the adjacent edge 27 of portion 21.

The reinforcement-rod-accommodating-spaces 28 between the fingers widen toward the free ends of the fingers. Nail holes 29 are provided at intervals through portion 21 and other holes 30 in free ends 31 of the fingers.

The bulkhead element 20 is buttressed against the back side 32 of the portions 13, 14 of the pressboard 11.

A pair of 2" x 2" fastening beams 34, 35 are positioned behind the ends 31 of the fingers and behind the portion 21 and the fingers may be nailed to the beam 34 through holes 30 and the portion 21 secured by nails through holes 29. The beams 34, 35 are nailed at their upper and lower ends by nails 36, 37 to the interior sides 38, 39 of the forms 3 and 4. Cleats 40, 41 are nailed by nails 42, 43 to the sides 38, 39 and butted against the beams 34, 35.

The upper and lower end portions 45, 46 of the edge portion 21 may be cut out or notched at 47, 48 to provide wedge surfaces 49, 50 sloping transversely toward the edge 51 of the backing or bulkhead element.

A series of dowel pin holes 52 of about 9/16" may be provided medially on the fingers for the use of wood keys, if desired, which may be inserted after the pour.

The tongue and groove hardboard is nailed at its lateral edges to the beams 34, 35 over the metal bulkhead.

Also for purposes of stripping a 2" x 2" shim 53 may be tacked to the bottom of the bulkhead and a wedge peg or shim 54 may be driven into the lower shim-accommodating notch 48 to elevate the bulkhead structure. The purpose for notching at the top and bottom is to permit the bulkhead to be used either end up.

It will be realized that a novel simple and effective bulkhead structure has been provided which is easy to apply and remove. To remove the bulkhead the cleats 40, 41 are removed and then the shims 53 are removed so that the bulkhead may drop to disengage any reinforcement. The tapered ribs or fingers, which may be embossed or beaded, easily disengage from the reinforcement by moving the bulkhead transversely of the reinforcement and endwise thereof.

It will be realized that each of the bulkhead elements is preferably 22" long and that they may be placed in end to end relation or overlapped depending upon the wall height in which the device is to be used. The cut-outs at 47, 48 permit the pieces to be brought edge to edge so that accurate distances may be maintained to insure that the reinforcing rods may be placed to pass between the fingers.

FIGURE 5 shows a modification or a single finger 22a with openings 29a for attachment to member 34 and opening 30a for attachment by nails to member 35. The converging top and bottom edges are identified at 24a and 25a. This member is used in conjunction with structure 10 to add to it or several may be used separately where

the spaces between the fingers must be greater than in the structure 10.

The foregoing disclosure is of several forms of the invention. However, other modifications will now become readily apparent which are intended to be covered by the appended claims.

I claim:

1. A bulkhead structure for a mold of a building wall formed in modules of poured concrete with elongated reinforcement members extending from one module to another through a side edge of the module, said module being formed in a mold having a pair of opposed, horizontally spaced, upright form members, the improvement comprising a deflectible, perforable sheet of material extending transversely of said form members and having perforations therethrough accommodating extension of said reinforcement members therethrough beyond the module; a rigid, metallic bulkhead disposed in backing relation to said sheet of material and extending flatwise transversely of said form members, means releasably securing said sheet and bulkhead in position with said form members, said bulkhead having a continuous vertically elongated portion and a plurality of generally horizontal vertically spaced fingers extending from said elongated portion transversely of said form members and accommodating said reinforcement members therebetween.

2. The invention according to claim 1 and said fingers defining interstices therebetween and said interstices widening toward a lateral edge of said bulkhead.

3. The invention according to claim 1 and said elongated portion being disposed along one longitudinal edge of said bulkhead and said interstices being open at the opposite edge of said bulkhead and said interstices widening from said one edge to said opposite edge.

4. The invention according to claim 1 and said bulkhead having top and bottom edges and at least one of these edges having a shim-accommodating notch therein.

5. The invention according to claim 4 and said bulkhead having top and bottom edges with a shim-accommodating notch in at least one of said edges in said notch defined by an edge surface disposed at an acute angle to said longitudinal edge.

6. The invention according to claim 1 and wooden frame beam members secured to said forms along opposite edges of said bulkhead nail means securing said sheet material and bulkhead to said beams, nail means securing

the beam members to the forms and supplementary cleats nailed to said forms in bracing relation to the beams.

7. A generally rectangular bulkhead element for a concrete pour mould from which extend reinforcement rods, said element comprising an elongated portion along one longitudinal edge, and a plurality of free-ended bracing means secured rigidly to said elongated portion and spaced from each other longitudinally of said element and extending in the plane of said element toward the opposite edge thereof and defining a plurality of reinforcement-rod-accommodating spaces therebetween open toward the opposite edge to permit withdrawal of said element from such reinforcement rods after the pour has hardened.

8. The invention according to claim 7 wherein said bars have edges converging toward said opposite edge and said spaces widening toward said opposite edge.

9. The invention according to claim 7 and said bars being rounded adjacent to their free ends.

10. The invention according to claim 7 and said bars being substantially flat.

11. A rectangular bulkhead structure comprising a sheet of perforable deformable material, of generally rectangular shape, a rigid element disposed in backing relation to the sheet and having a longitudinal solid portion running along one longitudinal edge of the sheet and having a plurality of spaced fingers extending from said portion toward the opposite longitudinal edge of said structure and defining passages therebetween, and longitudinal frame members removably secured to opposite longitudinal edges of said sheet and element.

12. The invention according to claim 11 and said element having shim-accommodating notches therein at the transverse edges thereof.

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J. SPENCER OVERHOLSER, *Primary Examiner*.

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