Concrete in housing

Usonian Automatic: Wright’s concrete masonry

Full-size house in traveling show

BY M. K. HURD

The house of moderate cost is not only America’s major architectural problem but the problem most difficult, if not improbable of solution, for her major architects.

These words of Frank Lloyd Wright, reexamined nearly 30 years after his death, have a surprising freshness—at a time when the news media report that the median-income family can no longer qualify to buy the median-priced home.

The Usonian house

For 20 years after the Depression Wright struggled with the problem of low cost housing against a background, first of shortage of resources, then of rising costs. For him it was a period of continuing innovation as he sought new or different design and material combinations to produce satisfying homes for families of modest means. The smaller homes he designed at this time are collectively referred to as Usonian, derived from the term Usonia,* Wright’s name for the reformed American society that he tried for the last 25 years of his life to bring about. Many of the simplifications and improvements that Usonian houses offered were later incorporated into the broad mass of subsequent homebuilding: the carport; the ranch style home itself; the centralized, sometimes open kitchen; slabs on grade; and a larger common living space, achieved by eliminating the separate dining room.

The earlier Usonian houses were of wood or a combination of wood and brick. Designs were usually modular, often planned on grids of triangles or hexagons as well as rectangles. A few were round, and some were built on circular 1-acre

* Origins of the term are unclear. Wright attributed Usonia to Samuel Butler in the novel Erewhon, but no one today can find the word there.
About 1950 Wright designed a concrete masonry building system that he called Usonian Automatic. Automatic was used to suggest that the owner might participate in the actual construction of the home, laying or even making the blocks. Beginning in 1951 a number of these houses were constructed across the nation from California to New Hampshire. Some owners did indeed participate in building their houses (see Concrete Construction, May 1986, page 496), not always with the ease that Wright had anticipated.

Usonian Automatic construction

The basic concrete block of the Usonian Automatic system is 4x12x24 inches (see drawing); the corner unit is 14 inches long on each face. The blocks are laid up without mortar, with #8 reinforcing bars placed both horizontally and vertically in semicircular voids in the contacting faces. When two blocks are set in place the void in which the rebar is centered becomes a 2-inch-diameter cylinder. After one or two courses of blocks are laid, grout is pumped or poured into the voids to embed the bars and bond the structure together. Beveled block edges form decorative grooves on the exposed face of the wall.

The basic block can be varied in many ways. Some are cast with a 5x17-inch opening for glass. Groups of these blocks form window units of any size desired. Others have indented panels or coffers on the surface to provide pattern in the finished wall. A corner block turned on its side or upside down becomes a roof-line ornament. Deeply coffered blocks serve as ceiling components (see photo of interior). Although a simple dwelling may be built with just a few of the block variations, one of the larger houses built in 1957 required 37 different block designs.

House in traveling exhibit

Perhaps 10 or 20 Usonian Automatic houses have been built in the United States; they are private homes and not readily accessible, although some owners have cooperated with local schools to permit public viewing. But now comes the opportunity to experience this special concrete construction system in a full-size home filled with Wright-designed furniture. An 1,800-square-foot Usonian Automatic house, designed by Wright in 1955, has been re-created as the focal point of a traveling exhibition, "Frank Lloyd Wright: In the Realm of Ideas." The show is not a retrospective; it is an exploration of Wright ideas that are fundamentally valid and significant for building today.
Already seen in Dallas and Washington, DC, the traveling exhibit has been scheduled for six other cities in the next 2 years (see box).

To cope with problems of assembling, disassembling, and moving, the show house is not made of concrete, although it looks like it. The block construction has been simulated with a polystyrene core sandwiched between layers of laminated board material, all covered with a cementitious coating.

Usonian block system may be adapted

Organizers of the exhibition make clear that they are not presenting the Usonian Automatic house as an answer to contemporary housing problems, but only as an illustration of the untapped potential of modular construction. Critics have called the show house a splendid essay in economy of means, “feeling far grander than its 1,800 square feet because of Wright’s deft manipulation of ceilings and walls, and his masterful handling of light.” Complex effects are created by the rearrangement of simple elements.

As with many Wright innovations, Usonian Automatic was never patented. Its concepts are available to the industry for continuing use or adaptation to today’s markets.

References

Acknowledgment
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WHERE TO SEE USONIAN AUTOMATIC

The schedule for “Frank Lloyd Wright: In the Realm of Ideas” is given below. In addition to the full-size Usonian Automatic house, the exhibition includes 160 displays and artifacts from other Wright designs. The National Concrete Masonry Association has also provided an accompanying freestanding section of assembled Usonian blocks showing construction details.

January-March 1989
- CENTER FOR THE ARTS
  Miami, Florida

June-September 1989
- MUSEUM OF SCIENCE AND INDUSTRY
  Chicago, Illinois

October-December 1989
- BELLEVUE ART MUSEUM
  Bellevue, Washington

February-April 1990
- MARIN COUNTY CIVIC CENTER
  Marin County, California

April-July 1990
- SAN DIEGO MUSEUM OF ART
  San Diego, California

December 1990-March 1991
- SCOTTSDALE CENTER FOR THE ARTS
  Scottsdale, Arizona

For details on the exhibit schedule, contact Suzette Lucas at Taliesin West, Scottsdale, Arizona 85261; telephone 602-860-2700.

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