

Gila River Indian Community District Six, Arizona

Work Force Housing Today

Rammed Earth Home, Mary Hardin

The School of Architecture at the University of Arizona and the Gila Indian Reservation partnered to design and build an affordable rammed earth house, drawing on Gila traditions of building with earthen materials. A faculty member and a group of students, supported by a grant from the Kellogg Foundation, designed and produced construction drawings for the residence, and trained several Gila laborers in the techniques of building with rammed earth. The building's shell was constructed collaboratively by the Gila laborers and the University of Arizona faculty and students. The Gila tribe's construction crew then took responsibility for completion of the framing and other trades.

The materials for the rammed earth walls were very cost effective; they came from the reservation's resources of earth (sand, gravel, adobe, cactus ribs). The construction techniques also were designed to be cost effective utilizing simple forms that could be assembled and disassembled by two people, and light weight tamping equipment. Note too that the cost of bringing conventional construction materials to the remote site would be very expensive.

Besides the low initial cost, the life cycle costs also will be low. Rammed earth walls and orientation to solar angles decrease to minimal the use of mechanical heating and cooling. The metal roof and concrete floors were chosen for ease of maintenance and longevity.

The rammed earth residence was designed to fit into a long tradition amongst the Gila people of building with mud packed between wooden or cactus ribs. The designers worked with the residents to achieve aesthetic effects that are valued on the Gila Reservation, such as thick walls, exposed cactus ribs, and arrow weed thatching of outdoor structures. The simple rectangular form also is similar to the traditional "sandwich" house of the past century.



Project Data

Owner Client:	Gila River Indian Community
Project Cost:	\$42,000.
Project Type:	Single Family Detached
Date of Completion:	2000
Number of Units:	1 Three Bedroom unit
Site Area / Density:	0.66 Acres/1.5 D.U.A.



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