

PROJECT SUMMARY

FARMHOUSE AND VILLAGE
Kot Karamet, Manga Mani
District Lahore, Pakistan

130.
PAK.L13.
121.

The farmhouse and ancillary buildings are part of an agricultural compound and were intended to serve as prototypes.

completed: 1970

I. OBJECTIVES

- A. To encourage the residents to collaborate in the development of their village.
- B. To construct prototypical workers' houses in order to demonstrate the advantages of permanent dwellings.
- C. To explore the potential of local materials, within the restraints of costs, climate, and available skills.

II. DESCRIPTION

A. Site

The village of Kot Karamat is about 50 kms from metropolitan Lahore, 5 kms from the National Highway (Peshawar-Lahore-Karachi). It is connected to the electric power grid and has a number of electric water pumps.

The site forms part of the village, is surrounded by cultivated fields, and includes orchards and a pond. A communal well lies roughly in the center of the compound.

B. Population

The Kot Karamat villagers are not overly poor; every house has a radio and many have a T.V. There are 2 or 3 large landowners (including Zahid Karamat, the owner of the farmhouse with 300 acres). The larger landowners do not live in the village. The other families are small owners, some with tenants, and a few are landless laborers.

C. The Compound

1. The compound consists of a farmhouse for the owner and his family, a row of 8 storage sheds, and 4 workers' houses. One of the sheds has been converted to the foreman's residence and a workers' house was modified to a three-room school.

2. According to the architect, Mumtaz Khan, Zahid Karamat, the owner of the farmhouse, belongs to an enlightened landlord family from the village of Kot Karamat. After completing his studies in England, Zahid Karamat decided to take up farming on his family land in the village.
3. Initially, he intended to build only a farmhouse and ancillary buildings. Later, the scope of the project was increased to try to improve the conditions of the village. A Master Plan was developed providing permanent dwelling units, utilities and social services (street drains, community toilets, mosque, school, etc.)

The workers' houses were intended as prototypes demonstrating to the villagers the advantages of permanent dwellings. Due to skepticism on the part of the local inhabitants, and problems with financing, the Master Plan was not realized. However, the local council took an interest in the project, and paid half the cost of the school.

III. DESIGN, CONSTRUCTION AND USE

A. Exploitation of Local Materials

1. A number of prototypical houses for the villagers were constructed. The main goal became the development of a system which would be very low in cost and sufficiently flexible to permit a variety of uses. Since the cheapest available and permanent building material was brick (steel and cement have to be imported), it was decided to exploit the potential of brick to the maximum.

It was further decided to adopt a structural system which could provide a roof using brick along: thus the vault.

2. A module of 3 foot 4 inches (approximately 1 meter) was adopted as a planning discipline which was related to the dimension of a brick and the dimension of the form work used for constructing the vault.

The curve of the vault was based on a catenary (chain) modified to take the load of earth fill over the vault.

The vault spans 13 feet and has a rise of 6 feet. The end bays are provided with buttresses to take the horizontal thrust from the vault.

B. Climatic Considerations

1. In the farmhouse and one of the worker's houses, the vaults are covered with earth (retained by brick

parapets) to act as an insulation while providing an upper floor area. Due to cost restraints, the earth fill was omitted in the later buildings.

2. The buildings are oriented to reduce direct sun penetration. Openings in the living quarters face north or south, and are kept to a minimum size.

C. Construction

1. A set of 3 forms for centering were made on the site with which 3 sections, each 2 meters wide, could be constructed at the same time. These forms were reused for the entire project.
2. Construction workers of whom 80% were unskilled were all nationals.

D. Use

Over the years the families living in the three prototype houses have added a number of significant features such as mud compound walls, mangers for the animals, outdoor kitchens. Some of the ventilating windows have been blocked. One of the prototype houses had been converted into a girls' school. Now the building has been given to the teacher and the space enclosed by the 3 houses is used as an open air school. (The main school which was built in the center of the village is for boys.)

IV. CONSTRUCTION SCHEDULE AND COST

- A. The project was defined near the end of 1968, and designs were completed in a year. Construction began in early 1970 and was completed by the end of the year.
- B. The project was financed through private funds, except the school of which half the costs were furnished by the local village.

Total Cost: US\$12,450.

Professional Fees: US\$750.

V. PROJECT SIGNIFICANCE

A. Achievements

What was new in this project was the application of modern structural design and analysis to develop the most efficient forms and most economical use of material.

B. Replicability/User Reaction

Although intended as prototypical, the structural system did not gain acceptance among the village population.

While the use of brick arches and vaults has been known

throughout the region, it is normally reserved for very prestigious buildings.

In the words of the architect, the local population "did not like to imitate such strange looking houses."

VII. PROJECT PERSONNEL

Client/owner : Zahid Karamet
Architect : Kamil Khan Mumtaz
Structural engineer : Hashim Khan

COST BREAKDOWN

	<u>Amount</u>	<u>Cost per Ft²</u>
Farmhouse	\$ 6500.00	\$ 2.97
8 Sheds	2800.00	.93
3 Workers' Houses	1200.00	.93
School	1200.00	1.30

Date: May 1980
Doc.: F. Stambouli (Technical Reviewer)

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