

Development Workshop

Box 133
238 Davenport Road
Toronto, Ontario
Canada M5R 1J8

project

USE OF PALM FROND STEMS: "Barasti"
problems, properties and potentials

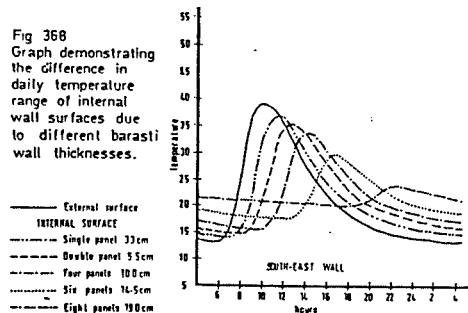
client

Government of Oman

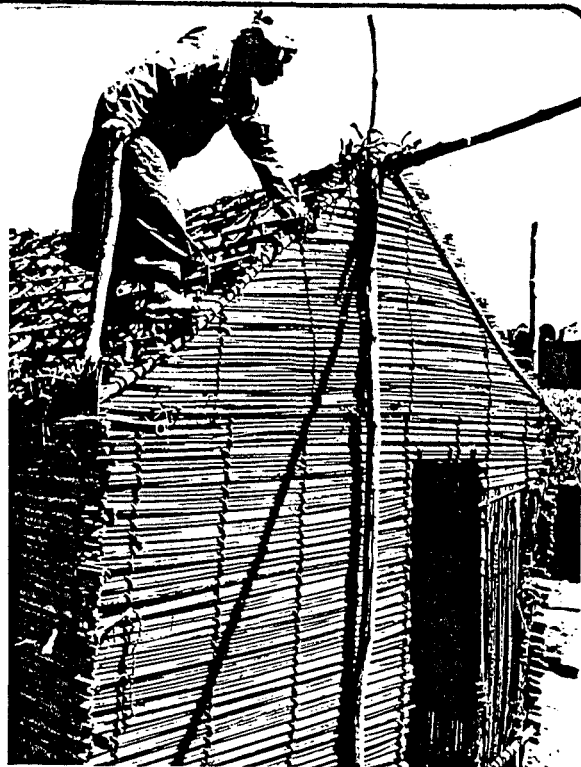


Fire-testing: protected and unprotected stems

Fig 368
Graph demonstrating
the difference in
daily temperature
range of internal
wall surfaces due
to different barasti
wall thicknesses.

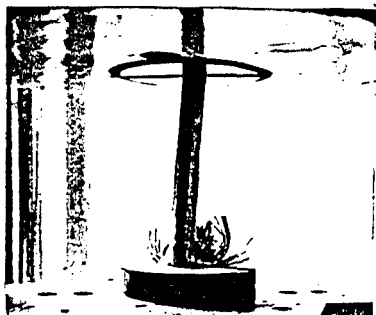
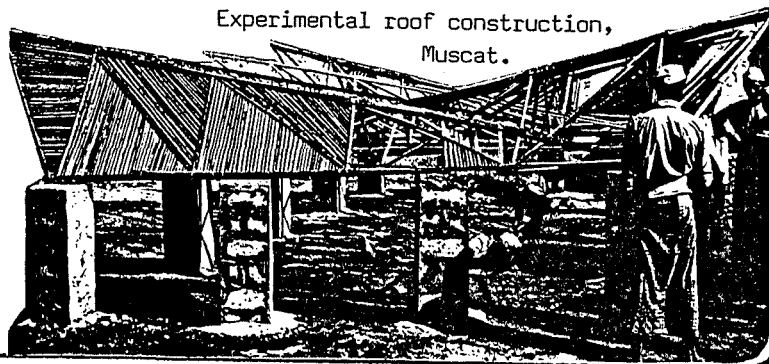


Results of heat transfer tests on panels



Traditional house construction, Sur.

Experimental roof construction,
Muscat.



Compression tests on stem

Since 1978, Development Workshop has been investigating and developing the use of palm frond stems in building.

In coastal regions of Oman, traditional housing was built entirely with palm frond stems. These houses responded excellently to local climate and made use of replenishable local material. Development Workshop assessed local building techniques and seasonal alterations to the buildings in response to climatic changes; tests were done to evaluate physical properties of materials, and to develop improvements in termite and fire resistance.

Prototype construction was carried out in Muscat to develop new roofing systems with palm frond stems.

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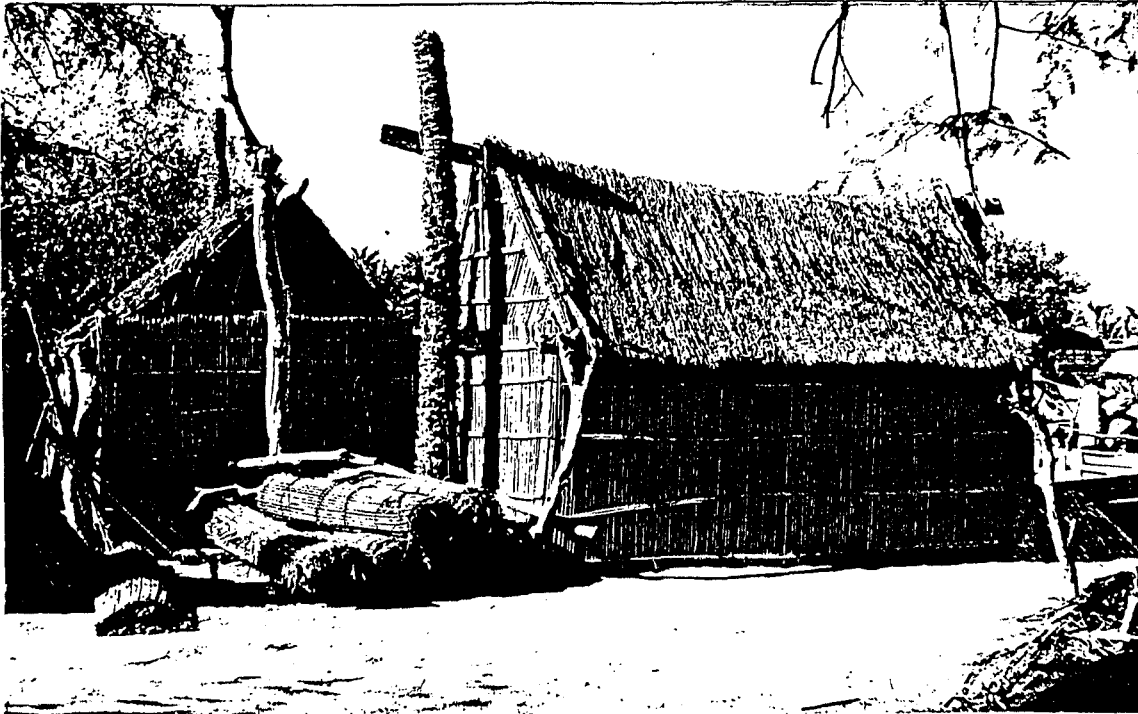
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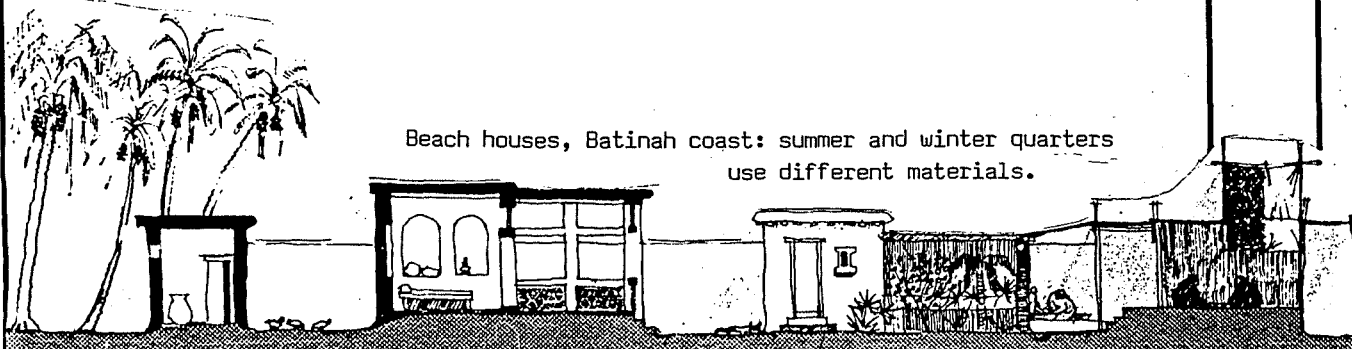
OMAN'S INDIGENOUS BUILDING SYSTEMS AND
THEIR POTENTIAL: Survey & Analysis:
(1) RURAL DEVELOPMENT & BUILDING.

client

Sultanate of Oman.



Palm frond stem houses in date gardens, Sohar: well-suited to local ecology.



Beach houses, Batinah coast: summer and winter quarters
use different materials.

A nation-wide field survey of Oman's indigenous built environment, followed by an analysis of findings, was carried out by Development Workshop* in 1973-74, at the request of the Ministry of Planning and Development.

The programme examined indigenous settlements, housing, water and waste disposal systems, locally available materials and production methods for building materials, and the climatic performance of materials, houses and settlements. The analysis was done in the context of the social, economic and environmental conditions of each area of Oman.

The programme resulted in guidelines for rural development, making use of local resources, and aimed at stimulating the development of local capacity to meet building needs.

[Development Workshop's Oman research work is being published by the Aga Khan Award.]

*Survey work in association
with Omar El Farouk.

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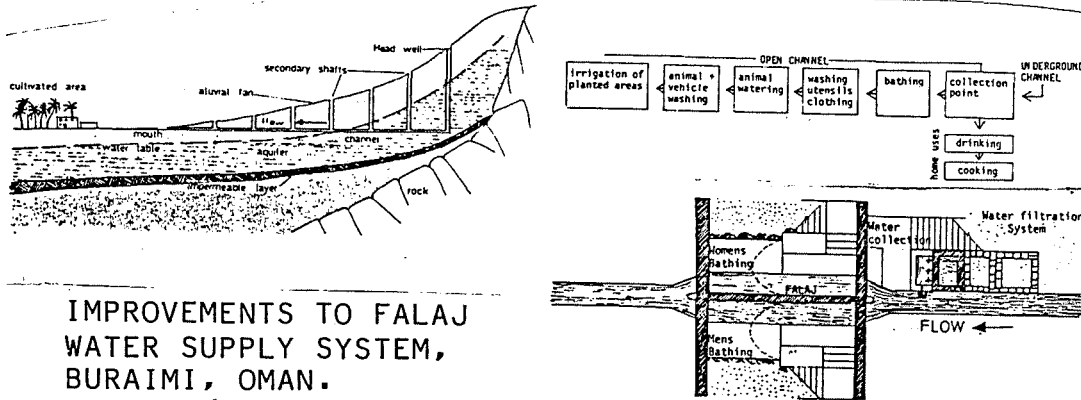
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WATER SUPPLY SYSTEMS UPGRADING
Oman; Iran.

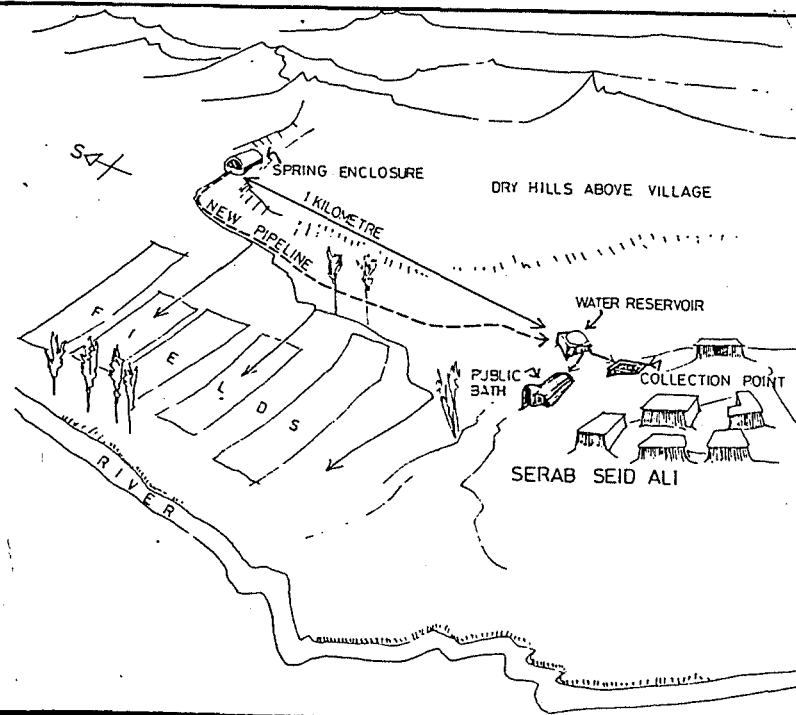
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Sultanate of Oman Govt.; S.I.D.P., Iran.



IMPROVEMENTS TO FALAJ
WATER SUPPLY SYSTEM,
BURAIMI, OMAN.

Falaj Level Plan



WATER SUPPLY
PROJECT,
LURISTAN, IRAN.

Horizontal underground channels have been used traditionally to tap the water table on high ground or hillsides in several parts of the Middle East. In Iran, known as "QANATS", in Oman as "FALAJ", the system allows water to flow out into lower cultivated valleys and plains.

In the Buraimi Oasis, Development Workshop formulated plans for water purification and bathing area improvements.

In Luristan, a similar project led to the enclosure of a spring, in order to stop contamination by animals, and the piping of water to a village 1 kilometre away, where a reservoir, public bath and water collection point were built.