CARNEGIE-MELLON UNIV Advanced Bldg. Studies Program Pittsburgh PA 15213	EARTHQUAKE RESISTANT BUILDING PERU	CHAPTER TITLE	TOPIC	NUM KEY / PAGE NO	PART

I | II

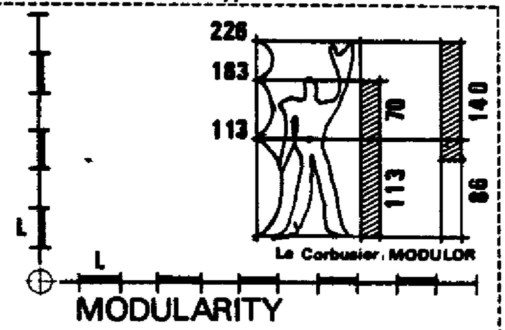
a

Composite Design
Superimposition of Structure

General

In order to achieve symmetry for earthquake improved design, a modular concept as an organizational basis for layout and structural design can be applied.

The square or rectangular shaped floorplan will be generated from a grid of a single modular length and a single modular width. (p Ia)

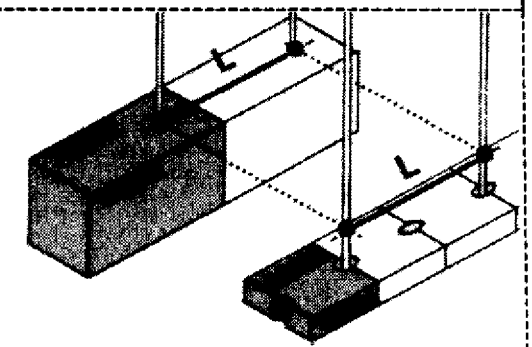


b

For Tapial walls the dimensions of the slipform, which produces the tapial layers will be based on this grid. Accordingly, the vertical reinforcement members of the wall will follow this system.

Similarly the sizes of the adobe brick will be related to the modular dimensions. (p Ib)

In the case of a superimposition of either an adobe or tapial structure and a quincha - bahareque structure, the vertical members of reinforcement and construction can then be simply attached to each other. (p IIb)



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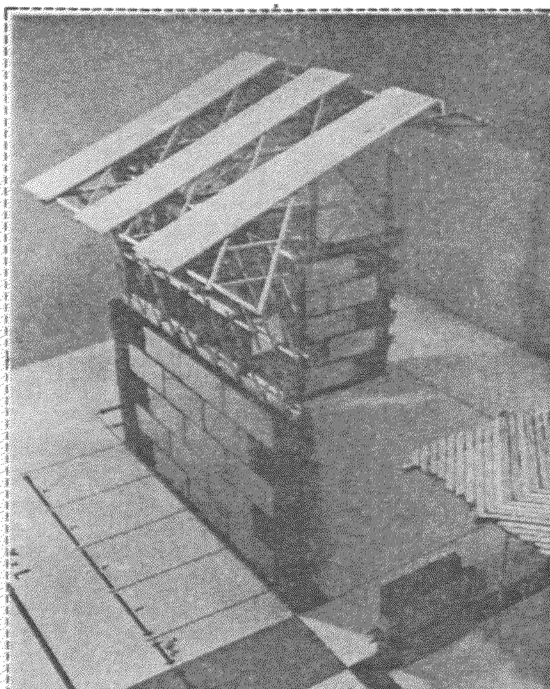

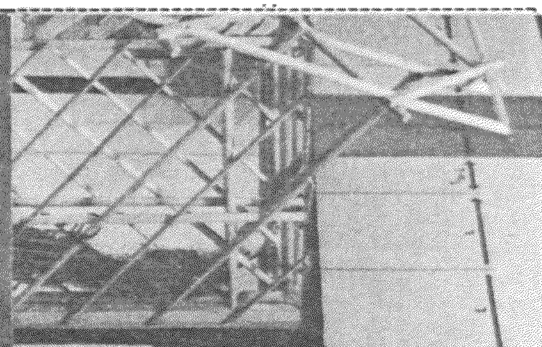

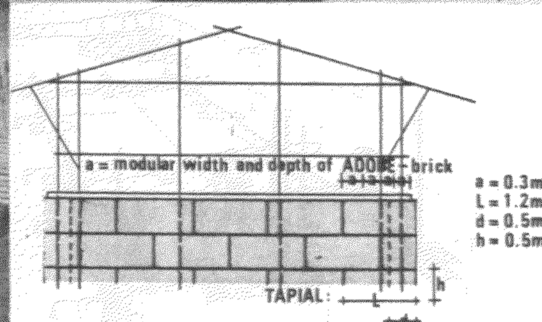

Proposed Stating of Construction Methods

CARNEGIE-MELLON UNIV Advanced Bldg. Studies Program Pittsburgh, PA 15213

EARTHQUAKE RESISTANT BUILDING PERU

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a

Finishing Quincha - Bahareque Walls

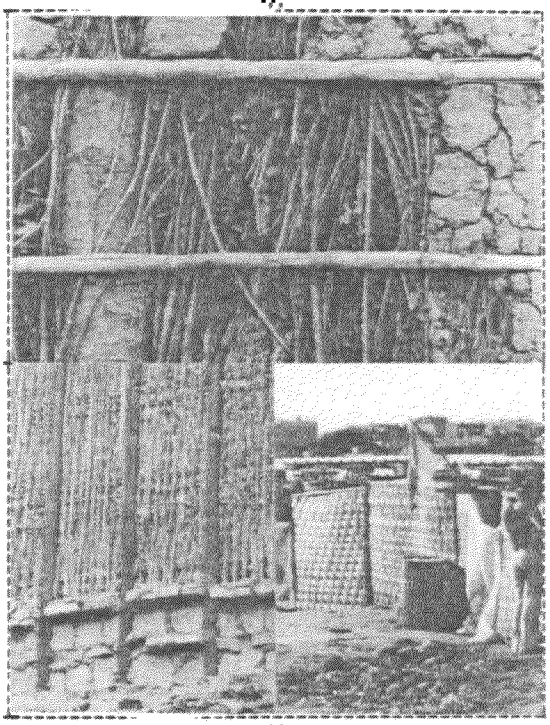
Traditionally, the branches used for infill also can serve as a support for the plaster.

b

Another potential support structure is shown on the picture IIb, where 'cancs' are inserted in a wooden frame.

The 'criss-cross' straw-mats are very effective lightweight walls.

I



a

b

II

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EARTHQUAKE RESISTANT BUILDING PERU

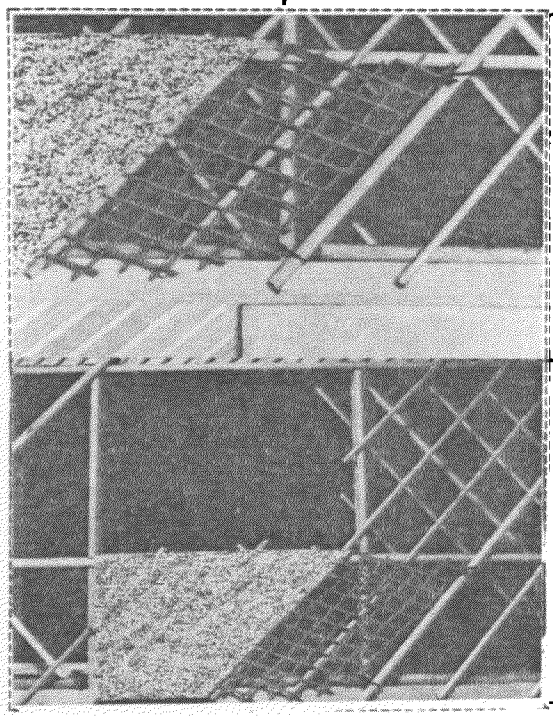
CHAPTER TITLE

TOPIC

NUM KEY | PART

PAGE NO

I



a

b

II

Finishing Quincha/Bahareque Walls

Proposed Improvement

The production of grass-rope nets of appropriate density and strength could serve two purposes:

1. In the villages a new market for manufacturing of such grass-rope nets could create employment.

2. The application of the rope net as shown in picture Ia, Ib structurally would enhance structural stability. An advantage is light-weight.

An infill material such as paper, grass, mud, branches, etcetera could serve as thermal insulation of the wall.

a

b

Indigenous and Proposed Material Combination