



A HOUSING DEVELOPMENT

"Design of a Neighborhood  
Community in Tegucigalpa, Honduras"

R.V. PADILLA VALENZUELA

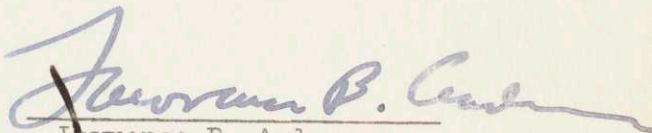
Report submitted as partial requirement for the  
Degree of Bachelor in Architecture from the  
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April 4, 1960

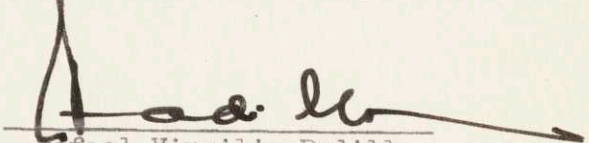
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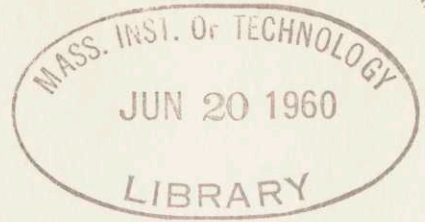
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Pietro Belluschi

The Head of the  
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Lawrence B. Anderson

Submitted by

  
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Rafael Virgilio Padilla



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April 4, 1960

Dear Dean Belluschi:

In partial fulfillment of the requirements for the degree of Bachelor in Architecture, I submit the following thesis entitled: "Design of a Neighborhood Community in Tegucigalpa, Honduras".

Sincerely yours,



R. V. Padilla

RVP:mj

Dean Pietro Belluschi  
School of Architecture and Planning  
Massachusetts Institute of Technology  
Cambridge 39, Massachusetts

April 4, 1960

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R. V. Padilla

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School of Architecture and Planning  
Massachusetts Institute of Technology  
Cambridge 39, Massachusetts



## ABSTRACT

"Design of Neighborhood Community in Tegucigalpa, Honduras".

The community consists of 520 family houses. The site is located some four miles south of the center of Tegucigalpa. The ground is fertile for the growth of large trees, especially pines and grass covered areas, it slopes westward towards the Rio Grande, in some places as much as 45 per cent and in some places it is flat. The rainy season extends from April to September and the temperature varies between 65 degrees to 80 degrees Fahrenheit.

see p 5.

Economy, the desire to form varied, small scale urban environments and the site have been major influences on the design of the community as a whole as well as the houses. Economy and its site seem to have indicated a solution having the least amount of roadways. Economy also dictated the use of concrete in the houses.

The community has been divided into four smaller subcommunities, one at a high northern plateau, another one at a low level flanked by the river at its southern border, and the other two are next to each other running south bound, paralel to the contour lines of the site. The community center has been located at the geometrical center of the subcommunities being thus centralized and easily accessible for everybody. The church has been placed directly visible from the entrance road, thus dramatizing the spiritual concepts of man. Each subcommunity has a central open space bordered by a school which besides educating the children of the subcommunity can also serve as cultural, political and social center for the adults of each subcommunity.

The housing blocks are formed by the groupings of raw houses on lots of 25 by 75 feet. The groupings of blocks form large common open spaces or patios and each house in itself has a private walled patio for planting and for drying clothes. Most of the houses are oriented toward the west and north to take full advantage of the view and the breeze which comes from the northwest. The sun can be controlled by the use of precast concrete sun-breakers and wooden blinds. Light weight concrete shells are an economic and functional feature in the simple and characteristic structure of the houses.

The solution strides to symbolize and provide adequate facilities for the strong sentiment of neighborhood and community characteristic of Spanish-American cities.

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## PART I

The Problem

## a) Site and Environment.

Responding to the great housing shortage in Tegucigalpa, the government of Honduras in cooperation with private institutions is studying the possibilities of creating satellite communities in the outskirts of the city.

The present proposal is design to provide houses for some 520 families of lower middle income. They would commute by bus and foot to the factories and offices located in the southern sector of Tegucigalpa, Comayaguela, some one or two miles away.

The available site for the proposed community is located five miles south of the center of Tegucigalpa. It is bordered at its western side by the Rio Grande which runs northbound and parallel to the Carretera del Sur (Southern Highway), at the East it is bordered by rapidly rising hill, at the South by a canyon formed by the rivers and the approaching hills, and at the North by a loop of the Rio Grande. The site slopes down toward the river. In some places the slopes are as high as 50 per cent making the ground unsuitable for construction; in some places it is nearly flat. The site is covered now with pasture grass and isolated trees, but it is fertile enough for the growth of large trees, especially pine.

Because of the altitude (around 3,200 feet) the temperature varies only from 65 degrees to 80 degrees Fahrenheit during the entire year. There is little humidity, and in the hotter days the

north-westernly breezes provide great comfort and a source of ventelation.

b) The Program

The present plans for the new community made up by economist, the government, the Institute of Housing and social workers called for the following facilities:

- |                              |                     |
|------------------------------|---------------------|
| 1. - Density                 | 60 - 80 hab/acre    |
| 2. - Bldg. coverage          | 30 - 40% of land    |
| 3. - 500 0 600 dwellings:    |                     |
| 3 br. - 50%                  |                     |
| 2 br. - 40%                  |                     |
| 1 br. - 10%                  |                     |
| 4. - Kindergarten            | 150 children        |
| 5. - Schools                 | 1.6 students/family |
| 6. - Cinema                  | 300 people          |
| 7. - Adult Recreation Center | 5,000 sq. ft.       |
| 8. - Market and Local Stores | 15,000 sq. ft.      |
| 9. - Church                  | 400 people          |
| 10. - Medical Unit           | 1,000 sq. ft.       |
| 11. - Post Office            | 600 sq. ft.         |
| 12. - Police Station         | 1,000 sq. ft.       |
| 13. - Playareas for adults   |                     |
| 14. - Playareas for children |                     |
| 15. - Parks.                 |                     |

## PART II

The Solution

## a) General Community Plan.

The slope of the site made it necessary to avoid the ~~cross-~~ ~~gross-~~ axial planning of typical Hispanic-American towns. Instead the houses are grouped in subcommunities where the slopes are less steep with the main road running parallel to the contour lines and crossing or bordering the subcommunities. The division of the whole community into subcommunities was influenced by the desire to provide more intimate and closer related small neighborhoods, and because of the accidents of the ground. I believe that the small subcommunities, with small spaces and distances relating and bringing together the dwelling units and families in contact with each other, strengthen the characteristic desire for identification and closeness characteristic of the housing sectors (barrios) of Latin American cities.

The sequence of open spaces in the subcommunities comes to a climax in the larger open spaces bordered by the schools; because of the function of the schools as educational centers for children and social, educational and political center for adults, these spaces with their school constitute the heart of the subcommunities. The subcommunities are essentially pedestrian in character; the walking paths are covered with round river stones, providing a strong surface for walking and at the same time allowing grass to grow between the stones and thus avoiding the monotony of solid and bare walking paths; they are wide enough to be used by vehicles which perform services such as waste removal and ambulances but are not intended to serve any regular traffic. The buses leave the people on the road which borders or crosses the subcommunities, and they would



walk to their houses distances not exceeding 400 feet.

A minimum of vehicular roads was sought for because of economic and aesthetic reasons. In countries without heavy construction equipment, the construction and maintenance of roads constitute a considerable economic burden if they are to be well built and maintained. To minimize the length of these roads a minimum frontage of the houses was required; in this solution the proper minimum frontage came to be 25 feet.

Beneath the higher plateau where a subcommunity is located and in approximately the geographical center of the whole community the community center is located; it follows the theme of sequence of open spaces of the subcommunities; it is formed by a sequence of larger open spaces stepping down gradually from a closed one, bordered by the market and shops in the main floor and recreational center, medical units and government offices in the second floor, until it completely opens out in a large green space bordered by a river beach, a sunken stadium and a subcommunity. A dramatic feature of this whole center is provided by the church, a symbol of the external, since it dominates the entrance of the community.

To avoid bordering completely the central plaza with vehicular roadways, the building closing it has a wide corridor in its periphery so that product can be discharged in one loading area and later moved along this corridor.

The entrance to the whole community ~~is~~<sup>is</sup> provided through an existing bridge which would be conditioned to dam~~med~~ the river in order to widen it and provide water recreational facilities for the residents of the community as well as the people in the southern part of Tegucigalpa, who plan to develop a park between the Carretera del Sur (Southern Highway) and the Rio Grande.

b) The Houses.

Economic considerations recommended the development of ~~raw~~<sup>row</sup> houses in order to use common walls, and sewage facilities. From an aesthetic point of view, I think this is also more satisfactory because it is easier to play and shape space with blocks of raw houses ~~than~~<sup>a</sup> with individual small houses.

The common walls would be of concrete blocks which are economically manufactured and assembled. The structural system of the roofs would be lightweight concrete shells poured in situ on reusable forms. The interior walls are made of brick to provide warmth in relation to the concrete shells and common walls. The windows are wooden blinds with rubber ribbons in their underside to close them more tightly. Where the living or dining spaces face westward, their openings are provided with precast concrete sunbreakers. The living and dining spaces do not have ceiling, just the concrete shells. The bedrooms, however, have a plywood ceiling to protect them from animals and insulate them to some extent from possible minor outside noises.

Most of the houses are oriented toward the west or north, this would take full advantage of the view and the breeze. The

sun can be controlled by the use of sun-breakers and wooden blinds.

The living rooms are generally small because they mostly serve only the social functions of women, the men by tradition socialize in public common places.

A walled around courtyard is provided for each house in order to have clothes drying space and provide space for planting.

To simplify the design and construction of the houses a module of four feet has been adopted.

c) Solution Statistics

1. - 520 dwelling units
2. - 2600 habitants
3. - Net area 38 acres
4. - Gross area 147 acres
5. - Area developed 26% of land
6. - Net density 69 hab/acre
7. - Gross density 18 hab/acre



### CONCLUSION

This project provided an opportunity to the author to explore many different possible solutions to solve the problem of low cost housing in an underdeveloped country; of course, most of these possibilities were discarded for a number of reasons, but the educational value to him has been enormous.

His hope now is that the solution would provide comfort, environmental richness and strong community sentiment to the people who would live there.