Housing for Urban Philadelphia

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HOUSING FOR URBAN PHILADELPHIA
A TERMINAL PROJECT --- SPRING 1979
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DAVID MITCHELL SETTLE
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A terminal project submitted to the faculty of the College of Architecture, Clemson University, in partial fulfillment of the requirements for the Degree of Master of Architecture.

APPROVED:

Committee Chairman

Head, Department of Architectural Studies

Dean, College of Architecture
I would like to thank those people who helped me throughout the programming and design of this project:

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Prof. Robert D. Eflin (Committee Chairman)  
Prof. Johannes F. Holschneider (Committee Member)  
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I dedicate this project to my parents for their love and support.
INTRODUCTION
PROBLEM

The subject of this terminal project is housing for urban Philadelphia. The proposal consist of a one block area within the South Triangle Redevelopment Area which has been designated for residential use. The form of housing is to be 73 condominium units.

SCOPE

The scope of this terminal project is to propose an architectural solution which recognizes the needs of the urban resident and the complexities of building within the urban context.
PHILADELPHIA

Center City Philadelphia is the heart of one of the nation's largest metropolitan regions. Although substantial redevelopment has already taken place there is still a need for residential community development. Within the Center City 1 Redevelopment Area Plan the South Triangle Redevelopment area has been chosen as an ideal location for a moderate to upper income residential community.
The Center City Redevelopment Area encompasses the historic boundaries of the city. Within the Center City area is the sector known as the South Triangle. The portions of this sector which are vacant have the potential of becoming a sound residential community due to its close proximity to the commercial activities of Center City.
SITE LOCATION

The site to be studied in this project is the block contained by 22nd Street on the east, 23rd Street on the west, Race Street on the north, and Cherry Street on the south.
AREA DESCRIPTION

The South Triangle is limited in size by the definite boundaries of the Benjamin Franklin Parkway on the east, the Schuylkill River on the west, the Vine Street Expressway on the north, and the John F. Kennedy Boulevard and the Penn Central Commuter Rail on the south. This containment is ideal for an isolated residential community amidst the center city activities.

The Benjamin Franklin Parkway is the city's cultural center containing art museums, sculpture gardens, scientific institutes, the main library, as well as being the center for many outdoor concerts during the summer. The Parkway is a large boulevard cutting at an angle from the city hall to the art museum and connecting to Fairmont Park. Portions are very spacious providing open green lawns articulated with large old trees.
Along the Schuylkill River a riverfront park is proposed to capitalize on the unutilized riverfront. This park is to be passive in nature and serve as a connecting link to Fairmont Park, one of the largest city parks in the nation.

The John F. Kennedy Boulevard is the edge of the center city business district. This area contains many of the city's corporate headquarters and office towers, several high rise hotel and apartment buildings and several transportation centers.
The Philadelphia City Planning Commission has proposed that the South Triangle Area become a complete residential community due to its unique proximity close to the central business district.

The South Triangle Area includes an obsolescent industrial strip along the Schuylkill River and a small residential nucleus in close proximity to the former industrial area. The original industry and housing were developed between 1850 to 1870. Due to insufficient and inefficient contemporary transportation and warehousing facilities in this area and the center city area as a whole, there has been a substantial decline in the use of the industrial facilities.

The industrial facilities on the two block strip closest to the river have been primarily cleared leaving the area vacant. The existing houses
have already seen a revitalization with extensive renovation taking place. Many of the intermittent vacant lots are being rebuilt with townhouses or developed into small parks and gardens.
The planning commission has envisioned the development to be undertaken fully by private financial means. For this reason a formal comprehensive development plan has not yet been produced.

General development is to follow a three step basic pattern.

1. The revitalization of the existing housing consisting of the renovation of existing structures and the infill of vacant lots.

2. The construction of 225 row house like units on the vacated industrial blocks closest to the existing housing.

3. The construction of high density complexes on the cleared industrial land adjacent to the Schuylkill River. The high density requirement permits high rise tower forms containing 450 dwelling units.
The residential areas around a central city business core must satisfy the increasing demand from singles, old people, unrelated and unmarried couples, single parents and other non-nuclear households employed by the corporate and commercial establishments.

The interest of the public and the builder has shifted from the quantitative to the qualitative aspects of the dwelling and residential environment. In the past, the traditional city home presented a strong public side in order to display the identity of the household. Circumstances change and one cannot continue to build marketable housing without responding to the new requirements. Many people now place greater emphasis on the individual dwelling unit and factors of security, controlled outdoor space, supervision of children, and easy access and security.
of the automobile. In order to respond to these new requirements, new urban housing must become more internally oriented. Therefore, access becomes more controlled, parking is provided directly adjacent or under the dwelling and outdoor areas are set apart from the general city fabric. The need for personal identity is answered on a more human scale by the treatment of the individual doors, gates or gardens.
PHYSICAL PROGRAM

The Philadelphia City Planning Commission has standards for residential development which apply within the designated Center City Redevelopment Area. Some of these standards are as follows.

1 dwelling unit per 1000 square feet (43.5 units per acre) minimum lot size if parking is to be provided on site.

5% to 10% of each block to be utilized as a "block park" for block residents.

SITE STATISTICS

Total Area of Site 78,624 sq. ft.
7.1% of Site for Block Park 5,624 sq. ft.
Area for Dwelling Units 73,000 sq. ft.

PROGRAM REQUIREMENTS

Dwelling Units 73 units
Parking Spaces 146 cars
Park and Open Space 5,624 sq. ft.
UNIT TYPE

The principal owner of the dwelling unit is to be a small family or single individual requiring a unit made up of fewer rooms than a typical family oriented unit, but not sacrificing size. Each unit is to have an open space in the form of a garden court or roof deck facing the south or southwest for maximum sun. Several of the larger three bedroom units are to be single dwelling units occupying the full three stories to provide an alternative to the two story stacked unit.

One Bedroom Units 25%
Two Bedroom Units 45%
Three Bedroom Units 14%
Three Bedroom Single Family Units 10%
BUILDING TYPE BACKGROUND

Throughout history the house has stood as a representation of the owner's individuality. No matter what economic group, the individual has always expressed his own desires, aspirations, values and cultural background through the physical form of the dwelling unit. When space and economic factors force the elimination of the single family dwelling unit there is still the desire to express one's individuality. Thus, the form which housing takes must consider the generalized desires and ambitions of the user group as well as allow flexibility for individual expression.

Whenever individuals or groups have been directly involved in the creation and development the resultant environments have a special character. A group of correlated individual efforts conforming to a system of order is the ultimate goal.
When life revolved around the home and providing that shelter was a major human effort one could not help but be involved. When a high density of people was necessary the participation and cooperation of everyone was required for mutual physical and political support. The Mediterranean hilltowns are a good example where independent efforts create a uniquely ordered entity.

In modern times, technological, social and political complexities have reduced the possibilities for the participation found in the form of the hilltown. Institutions and agencies have evolved to act as the providers and representatives. In multi-family housing the actual user has no contact with the person responsible for providing the environment in which the user is to live. Only generally represented desires, aspirations and values of the potential user can be evaluated through the marketing process. The architect and
builder cannot take into account the diversity among the potential users, but must assume a certain renter and buyer profile. The most successful developer is the one most responsive to the market.

In present day, the goal is to provide a multi-family form which responds to the needs on the economic scale and the need for individual choice and change. Development of uniform units and complexes over many blocks can not respond to the needs of the residents for a sense of individuality. Development of each block into different type units should be encouraged. Personal expression should be permitted in the details of the dwelling which represent the cultural identity or lifestyle of each family.

In order for housing designs which accommodate change and encourage choice to be successful the
cities into which they fit must do the same.
The large scale housing projects of the past which relied on repeated high rise blocks have not succeeded in meeting these criteria. Rather, the grid plan, the age old urban structure, which encouraged incremental growth and regeneration of cells within an overall city grid seems to work better. Because of this, the restoration and renovation of older areas of the city are finding renewed support.
THE GRID PLAN

The grid plan used in conjunction with the row house proved very valid in providing housing for an increasing urban population. The combination was capable of achieving a very high density yet still allowing individual identity and ownership. The front of the row house could be pushed as close to the street as possible leaving only the front entry stairs as semi-public space. The street trees and sidewalk also played an important part in the development of the community. The street trees helped define the space of the street and emphasized the rhythm set up by the houses. This system allowed for an individual ownership in the context of an ordering principal.
THE ROW HOUSE

The Row House: The basic component of the Philadelphia Neighborhood.5

The row house was originally developed in Britain around 1600. The house-type was gradually refined over the next 180 years both architecturally and in terms of increasingly efficient use of interior space. By the time of the American Revolution the row house had become a permanent part of the British cityscape. The residential development in Philadelphia and other American cities of this period were considerably influenced by this house-type.

During the period of the Revolution, the American center of commerce, culture and the Revolution itself was Philadelphia. Extremely rapid growth in population took place at this time leading to speculative row house development spreading westward from the Delaware River following the grid laid out by Thomas Holme for William Penn in 1682.
Although William Penn had intended the development to be single family detached houses, the simplicity and regularity of the grid plan coupled with the need for high density encouraged row house development. The row house very rapidly became the predominant form of residential development throughout Philadelphia.

The typical Philadelphia row house was constructed of brick on a rectangular lot, with narrow street frontage and substantial depth. The early form was between 2⅓ and 3½ stories with the entrance and circulation to one side. Each floor contains two or three windows facing front and back. Each house had a garden or yard at the rear, usually opening onto a service alley.

Developers began using the row house about 1800 as the dominant house-type because it was cheap, quick and easy to build. High density could
easily be reached and relatively few marketing problems due to the similarity of every house. Advances in 18th and 19th Century building construction technology allowed the row house to be built by individual craftsmen working with a minimum of equipment and limited number of materials.

Limitations such as high density and uniformity are an outcome of the row house but they were and still are attractive to many buyers due to the qualities of being extremely inexpensive to construct and maintain, make good use of interior space, has in most instances a private garden and provides the psychological advantage of individual ownership.

Over time, the Philadelphia row house has undergone modifications and redesign producing both extremely large and luxurious residences and very
simple two story dwellings. However, the row house is essentially the same which has been built in Philadelphia since the 18th Century. The consistency with which Philadelphians have held on to this house-type is an indication of both their conservatism and their extremely good common sense. Having found a good flexible design, they have continued to adapt it to respond to many various conditions and needs.
CONDOMINIUM

Until the 1960's home ownership in the United States had been tied to land ownership, and property law had no provisions for condominium ownership. Condominium development provides some of the psychological and all of the tax advantages traditionally associated with real property ownership. The laws making condominium ownership possible had a significant impact on design. Up until this time, the individual homeowners had a number of advantages over a renter. The least tangible of these is the most important, having to do with the emotional, psychological and status advantages of "owning your own home." The federal income tax deductions permitted for real estate taxes and mortgage interest payments on the homes, and the treatment of value increments as capital gains.

The passage of the laws allowing the development of condominiums was coupled with the changing
housing needs of the public. A large group of non-nuclear households desired an alternative housing form. The market demanded a more cost efficient design geared to a more transient society and second home resort settlement market. In another important area, condominiums are "dwellings designed to reap scale economies from clustering smaller units, reducing land cost per unit, and thereby permitting the marketing of less expensive houses better tuned to the emergent demands of small households."
SPECULATIVE DEVELOPMENT

All housing that is created on a speculative base must aim at satisfying a particular way of life. No single housing development can satisfy all ways of life. The design must be directed at satisfying only a small group of individuals.

This project is to be the first redevelopment to take place within the South Triangle. By being the first project it can be utilized to set the trend and standards for the rest of the redevelopment area. The utilization of high quality design and establishment of the precedent for higher priced homes can be utilized to create spin-off development which will maintain and promote further quality development creating a highly desirable community.

The economics of such a project will undoubtedly result in higher cost per dwelling unit. A high
density of 43.5 units per acre (1000 sq. ft. per dwelling unit) must be maintained to assure that it will remain economically feasible. An assumption has been made that the location of the project directly adjacent to the central business district of Philadelphia, which, most likely, will employ most of the residents, will assure that a market for such a project exists.
Development to create a sense of security within an urban context becomes a major design determinant.

FORM WALL AROUND SITE WITH PERIMETER UNITS.

MINIMIZE ACCESS TO INTERIOR COURT AREA.

MINIMIZE OPENINGS ON PERIMETER UNIT WALLS.
The location of the site within the 100 year flood plain of the Schuylkill River becomes an important design determinant.
The Penn's Landing Square project is located adjacent to Society Hill Towers and was developed on a vacant lot and restricted to three story residential units. A density of over 50 units per acre was reached while still providing most units with a garden or outdoor deck. The units are a combination of townhouse condominium and garden apartments.

The design attempts to make the necessary transition between the high rise towers of Society Hill and the 18th and 19th Century houses on the other side. The security problem of any urban complex is handled in an interesting way. The initial cost of units make it reasonable for middle income occupancy. The design seems to appeal
to this income group returning to the city from the suburbs. The value of these units have increased significantly in the past few years, thus proving their validity in concept and location.
COLDSPRING, BALTIMORE, MARYLAND 1978
Architect---Moshe Safdie and Associates
Client------City of Baltimore Redevelopment Agency

The deckhouse portion of Coldspring utilizes a row house type construction and achieves a very high density. The use of a pedestrian deck over the parking area separates the pedestrian circulation from the vehicular circulation.

The design achieves a high density, but its location in a non-urban area allows for the open space to utilize the surrounding park and eliminates the high need for security.
ARCHITECTURAL PROPOSAL
PROBLEM DEFINITION
PROBLEM

The development of a housing design is always a critical problem since one is dealing with a person's way and style of life. Individuality and ownership recognition are major problems where high density is a requirement. A livable arrangement with ample open space, easy circulation access must be achieved.

Conditions of the site, such as, the flood plain requirements and security must be recognized and used as an advantage and stimulus in reaching a solution.
OBJECTIVES

To design a complex which will achieve the density suggested by the Philadelphia City Planning Commission.

To design a complex which provides a livable arrangement of space suitable for a particular group seeking urban housing.

To design a complex which provides housing for a large number of people yet maintains a sense of individuality and ownership recognition.
DENSITY CONCEPT

SUGGESTED

1 dwelling unit per 1000 square feet (43.5 units per acre)
(Philadelphia City Planning Commission)
5% to 10% of each block area for park

dwelling unit one

individual entrance to each unit

dwelling unit two

740 square feet circulation and open space

1260 square feet coverage by two units

ACHIEVED

1 dwelling unit per 1000 square feet (43.5 units per acre)
630 square feet coverage per unit
370 square feet circulation and open space per unit
UNIT IDENTIFICATION

- The light post is a traditional residential element.
- Metal panel may be color of the owner's choice to aid in personal identification.
- Use of brick as a traditional residential element.
- Planters can become a personalized garden and exhibit feature in addition to minimizing height of rail, allowing more light to reach ground level, increasing privacy of courts and softening the edge.
- Personalized entrance gate with sculptural iron work provides expression of individual character.
- Number of unit clearly visible.
UNIT ORIENTATION

- minimum winter sun
- maximum summer sun

- maximize opening on south side for natural light
- provide sufficient solar shading against summer sun
- courtyards and decks orient to south for sun

- minimize openings on north side of units for climatic conditions and privacy of other units
structural bay determined by parking requirements and spatial relationships within the units above

cement waffle slab structure used over parking level to minimize deflection in a square bay

living units utilize hollow core deck bearing on masonry walls which line up with the column bays
MECHANICAL

- Roof mounted heat pump compressors make up separate systems for each dwelling unit.

- Parapet for visual isolation of mechanical units.

- Fan system.

- Duct circulation to windows or most reasonable economic run.
HOUSING FOR URBAN PHILADELPHIA
SOUTH TRIANGLE REDEVELOPMENT AREA

A TERMINAL PROJECT SUBMITTED TO THE FACULTY OF
THE COLLEGE OF ARCHITECTURE, CLEMSON UNIVERSITY,
FOR THE DEGREE OF MASTER OF ARCHITECTURE.
SITE STATISTICS
AREA: 75,624 SQ. FT.
1.80 ACRES
BUILDING COVERAGE: 38,358 SQ. FT.
48.0%
OPEN SPACE & CIRCULATION: 40,266 SQ. FT.
61.5%

UNIT STATISTICS
TOTAL NUMBER OF DWELLING UNITS: 73
ONE BEDROOM UNITS: 19
TWO BEDROOM UNITS: 33
THREE BEDROOM UNITS: 21
33 BLOCKS OF PAIRED UNITS
7 SINGLE UNITS
FOOTNOTES


BIBLIOGRAPHY


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