ARCHITECTURAL THESIS

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BALL STATE UNIVERSITY
COLLEGE OF ARCHITECTURE
SEPTEMBER '78 - MAY '79

MULTI-FAMILY HOUSING
700 ALABAMA STREET
INDIANAPOLIS, INDIANA

STUDIO CRITICS:
PROF. ROBERT KOESTER
PROF. ROBERT FISHER
PROF. JACK WELLS

BRICKYARD PARK
FOREWORD

Urban housing has for many years challenged architects, planners and city government. As far back as the ancient cities of Greece and Rome, housing had to deal with such issues as over-crowding, poor environmental conditions and sanitary problems.

Present revitalization of the city, especially the downtown area, has brought a new vitality that had for years been lost. Many old office buildings are selling at competitive real estate prices and investors are restoring and remodeling them to accommodate their needs. With the resurgence of offices, stores, shops, and restaurants; vehicular traffic and parking have become a major problem. People are having to drive from their suburban homes into the city to work each day. There is an immense shortage of housing in the downtown area. The few exis-
ting housing accommodations are in poor condition. Urban apartment units are still maintaining record high occupancy levels.

Indianapolis is a city that has these problems. This shortage of urban housing is a critical and difficult issue. To provide a large number of dwelling units within a dense environment, and still be able to provide an environment with the amenities people have grown to expect; this is the major priority.

In this thesis project, I have tried to deal with some of these issues and analyze possible solutions. My site was chosen within the one mile radius of "the circle" and located in an existing community zoned as high-density urban housing. The city government owns the land and is willing to sell the one block site to someone who would develop an urban housing community.

Some of the critical issues are high, low, or mid-rise building types; flexibility within apartment unit; density; transitional
spaces; community and privacy; security; parking; garbage; and environmental impact.
ACKNOWLEDGEMENTS
Acting owner/developer_____ Jack Wells
Design critics_________ Robert Koester
Robert Fisher
Consulting architects_____ Schmidt/Claffey
and Associates
Maps and data___________ Indianapolis
Department of Metropolitan
Planning and Zoning
ABSTRACT

This book is written to make record of a thesis project at the College of Architecture and Planning at Ball State University which took place from September, 1978 to May, 1979.

The project, Brickyard Park Apartments, is hypothetical; although the site and design considerations are to fit a potentially real project. The multi-family housing complex is located on a 4.3 acre site in downtown Indianapolis, Indiana. It includes 172 units ranging from studio thru four bedroom, a community center, a day care facility, and recreation facilities. The complex is designed for the middle-income economic level and the high-density configuration is set at 40 dwelling units/acre. The total project costs are estimated at 11.8 million dollars.
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INTRODUCTION

The scope of the thesis project is broken down into three phases. Phase one lasted from September to November and included four major topics: detailed program analysis, three building types research, extensive site analysis, and three schematic design proposals. Phase two lasted from December to February and included three major topics: design process, design development, and final presentation. Phase three lasted from March to May and included two major topics: special, in-depth study, and final thesis book.

The concept behind this design developed from a response to the context and the environment. The pedestrian walkway physically extends the complex to the north by a proposed park, to the east by an elementary school and to the southwest by the
plaza of a high-rise apartment complex. These three pedestrian walkways are brought together at a central location on the site where the community center acts as a focal point. Off these walkways are also located the low and high-rise apartment units. The form of the high-rise developed from setting the units back from the noisy street to the west. This setback also provides the opportunity to let the high-rise units act as a transitional element and flow down into the complex. At the same time, the high-rise unit needs to hold to the rectilinear grid pattern of the urban plan. The low-rise units also hold to the rectilinear grid pattern on the exterior of the site, but are angled within the complex to introduce a unique and individual apartment complex. This form also helps to provide a sense of entry into the park setting or urban plaza.

The apartment units are situated in and around the existing trees on the site. Trees within an urban setting are a real commodity. Parking is located underground
with the exception of visitor parking at the apartment entry. Parking is also available at the site perimeter. (parallel parking on street) Parking is located away from the immediate ground plane to provide as much available open land for the use of the apartment dweller.

Each apartment unit is designed to allow for cross-ventilation, public and private access, individuality and a variety of floor plans. Every apartment unit has an exterior open space and an exterior storage unit. The design for the individual unit is similar to that of the entire complex. The design began with a specific module developed from apartment size. Within this given, a variety of forms develop to create living units with an individual character. The entire site can also be seen as one module within the city. The complex must respond to the grid on the exterior, but is free to change within the boundaries of the site.
The community center was much less rigid in the program format. The community center ties into the apartment units through the pedestrian walkways and also by elevated walkways. The community swimming pool is immediately to the south off the pedestrian walkway. A clock tower is located in the community center to act as a focal point for the apartment complex as well as the community center itself.

The formal idea behind the community center was to bring together two rectangular forms, representing the high and low-rise units. This connection is strengthened further by introducing the major circulation system at the intersection of these forms. This expression is shown on the exterior as well as the interior. The window fenestrations are a direct response to specific and controlled views. Many open deck areas are provided to provide visual activity, drawing more people to the center.
Following this introduction is located the presentation of photographs and drawings to provide additional insight into the design. The conclusions and summary are then introduced to discuss the design process and evaluate the project as a whole.
CONCLUSION
CONCLUSIONS

Going back to analyze the design process can be most helpful in self-evaluation. Sifting through the mass of sketches and study models, I began to realize that these design tools were major factors in coming to many design decisions. Organization and reference to these tools was also helpful.

To get into the specifics of the design process, I must go back to the end of the program design and building types analysis, along with the site analysis. In developing three schematic alternatives, I began by studying site massing with wood block modules that represented apartment units. A wide range of configurations were studied through the considerations of site, environmental factors (sun, wind, orientation, precipitation, etc.), contextual relation-
ships, vehicular circulation systems, existing vegetation, parking solutions, security, and community center orientation.

The realization of high-rise and low-rise apartment units developed partly in response to maintaining a higher dwelling unit/acre ratio and also partly because of a contextual response to the surrounding building heights. Buildings ranged in height from the two story elementary school to the east, the four story office building to the south, and the sixteen story apartment complex to the west. A vacant lot is located to the north. This is proposed to be a public park. These outside influences also led to the location of specific units. Two, three, and four bedroom units were located to the east side of the site because of the direct connection to the elementary schools, but also because the streets were less busy and low-rise apartment units better related to existing building heights in the immediate surroundings.
The studio, one and two bedroom units are located in the high-rise units to the west of the site. This responds to the existing high-rise immediately across the street. Views of the downtown to the southwest provide the opportunity to use the vantage point of these high-rise units.

A design problem arose in trying to join these two building types together into a unifying scheme. A transition between the high and low-rise units was needed. The problem arose from the fact that the high and low-rise units were designed to respond to different criteria and the physical connection never occurred. Being in a position where a time factor kept me from going back to re-design the entire complex, I went ahead and tried to respond to the problem through the design of the community center and the pedestrian walkway systems. Introducing elevated walkways from the high-rise, vegetation and fenestration changes enabled this transition to be
strengthened. The problem was widely analyzed in the design of the community center on a more conceptual level. The program was less rigid and allowed for more freedom to explore some of these conceptual ideas. These ideas developed from two intersecting forms. The two forms were in response to the context of the high and low-rise forms. The intersection of these two forms was expressed by the circulation systems through the building. All circulation systems had curvilinear forms. The point of intersection of the three circulation paths is the focal point and location of main vertical circulation, an open staircase, skylit from a curved glass wall that also represents formal concepts about connection; that of the high and low-rise apartment units.

Looking back at the design process, functionalism and contextualism seem to be the major design inputs and controlling factors in the design-making process. The
building of study models was critical and necessary in working out details in the form and visualizing spaces within the forms. This was especially true with the design of the community center. The critics and reviews along with the stringent schedule to produce all helped to keep a tight control on the design process.
5.0

SUMMARY

After analysis of the goals developed in the early stages of the program, I feel confident in their relationship to the final design. The strength of the contextual relationship is seen through the scale of the buildings in their surroundings and the extensions of the pedestrian walkway to off-site conditions. The location of the family units vs. the single's units respect this same relationship to the surrounding context. The development of the community environment within the complex was resolved by the placing of units around a park/plaza setting. The central location of the community center with access by the pedestrian walkways also strengthens the community environment. The strength of the community environment is also the key to solving many issues of
security. The resolution of the parking problem; locating it underground, and using the community center as a control point for vehicular entry and exit also responds to many issues of security. The high-density and low-rise issues were somewhat conflicting and both changed to provide a more viable solution. The density was lowered from 45 to 40 dwelling units/acre and the low-rise units were to be expanded to include some mid-rise units. The spatial sequence of private, semi-private, semi-public, and public spaces were issues in the development of transitional spaces from the street to the apartment. The introduction of the garden entry, the semi-public entry, the park/plaza courtyard, the secondary entry all help to develop ideas about transitional spaces and the spatial sequence of public-private. Flexibility within the apartment unit is resolved by the introduction of two separate living spaces, both being multi-
functional. Two separate activities can function simultaneously, which is more conducive to the family environment. Flexibility to accommodate growth and change within the apartment unit was not as fully resolved. Economic factors seem to limit the introduction of movable partitions. A full range of studies was not done to research this topic.

To summarize the thesis year in a few short sentences is not easy. It was a very intense and thorough process whereby a great deal of exposure was obtained in most all facets of the design sequence. At times, it was a very trying and frustrating experience, but reflecting back, it was an extremely helpful learning process.
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1.1

HISTORY AND BACKGROUND

Urban housing has for many years challenged architects, planners, and city government. As far back as the ancient cities of Greece and Rome, housing had to deal with such issues as overcrowding, poor environmental conditions, and sanitary problems.

A revitalization of the city, especially the downtown area, has brought a new vitality that had for years been lost. Many old office buildings are selling at competitive real estate prices and investors are restoring and remodeling them to accommodate their needs. With the resurgence of offices, stores, shops, and restaurants; vehicular traffic and parking have become a major problem. People are driving from their suburban homes into the city to work. There has become an immense shortage of housing. Much of the existing housing is
now in poor condition and these urban apartment units are at record high occupancy.

Indianapolis is a city that has these problems. This shortage of urban housing is a critical and difficult issue. To provide a large number of dwelling units in a dense environment, where land is increasingly expensive, and still be able to provide an environment with the amenities people have grown to expect is a major priority.

A site was chosen with-in the one mile radius of "the circle" and located in an existing community zoned as high-density urban housing. The city government owns the land and is willing to sell the one block site to someone who could develop an urban housing community.

Some of the critical issues will be: high, low, or mid-rise building type; flexibility within apartment unit; density; transitional spaces; community(within and surrounding); security; parking; garbage; and environmental impact.
1.2

SCOPE OF PROGRAM

After studying a number of housing projects and surveying the neighborhood surrounding the one block site, it was decided that a high-density, low-rise apartment complex would provide for the best use of the land. The apartment density was determined at 40-50 dwelling units per acre after studying much design criteria for this building type. The one block site contains 4.3 acres. The number of apartments will range from 190-215 units (2-4 levels). The complex will be designed to accommodate a middle-income economic level. The apartment types will include studios, one, two, three, and four bedroom layouts. The mix ratio will be as listed below:

<table>
<thead>
<tr>
<th>Type</th>
<th>Percentage</th>
<th>Number of Units</th>
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<tr>
<td>Studio</td>
<td>5%</td>
<td>9-12 units</td>
</tr>
<tr>
<td>1 bedroom</td>
<td>20%</td>
<td>38-43 units</td>
</tr>
<tr>
<td>2 bedroom</td>
<td>50%</td>
<td>97-107 units</td>
</tr>
<tr>
<td>3 bedroom</td>
<td>15%</td>
<td>28-32 units</td>
</tr>
<tr>
<td>4 bedroom</td>
<td>10%</td>
<td>18-21 units</td>
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190-215 units
The additional space will be used to develop the community center, day-care facilities, recreation area, and parking. In view of the present energy situation, a special emphasis will be placed on energy-conscious design. Solar systems, building orientation, and building materials will be analyzed for possible application.

1.3

PARTICIPANTS AND CREDITS
Acting owner/developer—Jack Wells
Design critics—Robert Koester
Robert Fisher
Consulting architects—Schmidt/Claffey and associates
Maps and data—Indianapolis Department of Metropolitan Planning and Zoning
2.1
GOALS
*flexibility within an apartment unit to accommodate family growth and change
*high density complex to tie into urban context, economic, and financial stipulations (land values, zoning)
*low-rise building type (2-4 levels) to accept apartment dwellers in an environment that is compatible with sociological living conditions; stronger relationship to natural environment; security reasons
*spacial sequence: private, semi-private, semi-public, public (transitional spaces)
*acceptance into surrounding community as an asset to strengthen communal living
*community environment within complex idea of neighborhood (Building orientation, recreation areas, community space)
*security for the apartment dweller and his possessions
*parking for renters and their guests,
employees and maintenance personnel
*garbage: storage, collection, disposal
*environmental impact

2.2
STRATEGY
*maximize living spaces
*multi-functional community spaces
*variation of dwelling unit types (sense of identity)
*operational efficiency (functional)
*repetition of unit-symmetry, rhythm, scale (vertical and horizontal)

2.3
PRIORITIES
*people functioning in high-density living environment
*spacial relationships
*community and neighborhood inter-relationships
*sociological environment
2.4
UNFAVORABLE APARTMENT CONDITIONS
* public hallways
* large parking lots (long distance)
* dark parking garages and lots
* exposed entry stairs and corridors (snow, rain, etc.)
* no storage (or not enough)
* no individual or private entrance
* inadequate trash removal
* building repetition
* no facilities for handicapped
* urban high crime areas (security, lighting, prevention)
* high-rise dwellings for families
* unattended lobbies
* long corridors
* no flexibility within unit
* single furniture layout for spaces
3.2

USES AND USER ACTIVITIES (corporation)-accounting,

owner-developer (corporation)-accounting,

manager (coordinator) all employee and

apartment renters report to, up keep of land-

to apartment (windows, doors, h.v.a.c.,

clean community center and daycare facili-

ty)

also employed to assist

incoming and outgoing renters; secretaries

of buildings and grounds, take care of

*community center supervisor (could also

be manager) act as overseer of space,

check-out equipment, reserve facilities

(sports, banquet room), supervision
Community Center

- Supervisor
- Staff
- Maintenance
- Multi-Purpose Space
- Banquet Rooms
- Bar
- Recreation Areas

Day Care Facility

- Office
- Restrooms
- Lounge
- Classrooms
- Library
- Playrooms
- Recreation Areas
- Kitchen
- Cafeteria
- Service

*Day care facility* - teacher/baby-sitter service for children of various ages (2-5 years), supervision, teaching/learning environment

*Renters* - average age group 20-35 years

- Studio - 1 person
- 1 bedroom - 1-2 persons
- 2 bedroom - 2-3 persons (1 child)
- 3 bedroom - 3-5 persons (2-3 children)
- 4 bedroom - 5-6 persons (3-4 children)

Day to day functional activities within the living environment; special attention to parking, circulation, transitional spaces, garbage disposal, moving, recreation, and security
4.1

STUDIO APARTMENT

function efficiency, temporary occupancy for one person, flexibility, multi-functional, mix ratio-5% (9-12 units)
equipment and information
*entry foyer with closet
*living/sleeping with closet
*dining/kitchen with storage
*bath/linen
*mechanical equipment
*outdoor living
*outdoor storage- 100c.f.
*parking for 1 car per unit (9-12 cars)
total square footage 500-550 s.f.

4.2

ONE BEDROOM APARTMENT

function occupied by 1-2 people, mix ratio-20% (38-43 units)
**equipment and information**

* entry foyer with storage
* living
* dining
* kitchen
* bath/linen
* mechanical equipment
* bedroom
* outdoor living
* outdoor storage - 120 c.f.
* parking for 1 car per unit (38-43 cars)

**total square footage** 700-800 s.f.

### 4.3

**TWO BEDROOM APARTMENT**

function occupied by 2-3 people (possibly 1 child), mix ratio-50% (97-107 units)

**equipment and information**

* entry foyer with storage: 80 s.f.
* living - 260-300 s.f.
* dining - 100-140 s.f.
* kitchen - 100 s.f.
THREE BEDROOM APARTMENT

- Master bedroom with closet - 200 s.f.
- Second bedroom - 100 s.f.
- Outdoor storage - 140 s.f.
- Parking for 1-1/2 cars per unit

Total square footage: 1100-1200 s.f.

- Bath/linen - 60 s.f.
- Kitchen (15 baths)
- Dining
- Living
- Entry foyer with storage
- Mechanical equipment

Function occupied by 3-5 people (poss. 2-3 children), mix ratio 15%
*master bedroom with closet
*second bedroom with closet
*third bedroom with closet
*outdoor living
*outdoor storage - 180 c.f.
*parking for 2 cars per unit (56-64 cars)
*total square footage ___ 1350-1450 s.f.

4.5

FOUR BEDROOM APARTMENT

*function occupied by 5-6 people (possibly 3-4 children), mix ratio - 10% (18-21 units)

equipment and information
*entry foyer with storage
*living
*dining
*kitchen
*bath/linen (2 baths)
*mechanical equipment
*master bedroom with closet
*second bedroom with closet
*third bedroom with closet