NORTH STREET HOUSING DEVELOPMENT:
MUNCIE, INDIANA.
ROW HOUSING

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for:  bob kingsley
ABSTRACT

The American dream of owning a house is tied to the American heritage of the importance of owning land. Over the years this ideal has manifested itself in ownership of small but substantial plots of land outside the city's downtown that were inevitably incorporated into the city. Enough land was used to define the owner's territory while not so oversized as to be unmanageable beyond the owners' means.

The evolution of this ideal has been manifested in the creation and growth of the suburban tract developments. In today's society, this ideal is quickly becoming unmanageable when faced with the ever widening network of public services coupled with the diminishing availability of American resources as these developments continue to expand across the landscape. The need for relocating housing in the city centers is currently urgently needed.

But the cost of urban land and the resources it requires to build and maintain urban housing makes the cost prohibitive for most individuals who wish to own and manage their own urban property. What is needed is a transformation of this American ideal into a new form which can be accommodated by the urban fabric and affordable to the home buying public.

This project is an exploration into the urban housing building type, dealing with scale, circulation, space, and territory while addressing issues of introducing housing into the urban landscape. This project is by no means the solution, but an exercise in learning so the designer may be acquainted with the issues of housing. The perspective that this project is designed from is that the American ideal of owning your own home is still viable, only in other forms.

The organization of this copy is to show the linear evolution of the design in separate sequences. The design process is by no means linear and cannot be separated into different sections without the loss of some understanding. Never the less, this book is in three basic parts, the research, the site evolution, and the unit evolution. The evolution occurs within each section and includes only the most salient advancements, deleting all side tracks to the design.
ACKNOWLEDGMENTS

Through this long and arduous process, which some people euphemistically call Thesis, I had the opportunity to work with some personalities who I will not soon forget (even though my nights would be much more restful if I could). These last three quarters have been a time of learning that through the aid of some faculty members showed me how I may teach myself about the subjects I am interested in.

From these faculty members, I wish to single out a few personalities who I feel made the difference to me and the progress of my project. These individuals gave me their simplistic insights that when you are looking for them are so difficult to perceive but after they are exposed are so easily to comprehend.

I would first like to thank Barry Russell who was the visiting professor from the Polytechnic Institute of Portsmouth England in the Fall of 1980. Barry's insights, tempered with his humor and patience, were greatly appreciated. He let me design my own project as opposed to designing the project for me. All comments were directed at the direction I was headed and not at the direction he thought I should take.

I would also like to thank Bob Kingsley for his patience with me while I muddled through my final quarter. His level headed suggestions were a boon to the last quarter panic that seems to set in after the third week.

Thank-You
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PRELIMINARY RESEARCH

The singular point of view which this project was designed from was the realization that the units would be occupied by people. Creating useful and ammeniable spaces overrode all other considerations. Research was directed at the issues that make a good human space and dwelling place. Seven major goals were established as necessities of any housing projects. These seven goals were:

1) Develop a sense of Community
   - private social interaction
   - semi private social interaction
2) Child Supervision
   - visual and aural connection
   - access between play and dwelling units
3) Security
   - avoid unseen inactive areas
   - promote recognition of neighbors
   - overlook common exterior spaces
   - promote actual and psychological security
4) Maintainance
   - undesigned interior space at minimum
5) Livability
   - individual privacy
   - simple repetitive domestic functions
   - alternate views
   - cross ventilation

6) Context
   - existing scale
   - light
   - view
   - history
   - circulation etc.
7) Flexibility
   - varied use of spaces
   - range of sites
   - articulate outdoor space
   - provide a varying degree of inside/outside space: terraces, balconies, patios, arcades, windows

Definition of various spaces is important in developing meaningful transitions from one space to space. Three overall space types were defined as public, semi-public, and private. Each category has definable issues that must be addressed. These issues are:

Public:
   - street development
   - old and new housing
   - high rise vs. low rise
   - ground floor use
   - building entry to street

Semi-public:
   - lobby
   - open space
   - mail box location
   - laundry location
   - game rooms
   - corridors
Private:
- kitchen
- storage
- apartment furnishings
- apartment size
- apartment shape

As well as the necessities that were outlined above, some amenities must also be provided for the occupants. These extras are given with the idea of allowing each occupant to shape and form his own space in either a major or minor way or to be used by the occupant as a yard stick of social standing. It is far easier to program these yardsticks into a project than to try to give ample flexibility to each individual unit. Some of the social yardsticks are as follows.

1) Provide a "modern" building
   - cleaner
   - prestigious
   - more technological amenities

2) Building entries close to street
3) Mail boxes placed in protected areas
4) Individual balconies
   - views
   - sunlight
   - easily accessible
   - sitting
   - viewing
   - growing plants
5) Wall to wall carpeting
6) Entry doors easy opening
7) - sitting
   - gardening

Flexibility involves many intangible variables which can only be outlined in general terms. These variables include:
1) Family growth and reduction patterns (turn over rate)
2) Life style adjustments and changes (25 to 50 years)
3) Changing technology equipment and appliances
4) Change in desirable activities

CHECKLIST OF USER CONSIDERATIONS

1) Adaptive use of spaces
2) Identity of living units & building (I live there)
3) Architecture and occupants mix agreeably (lifestyle, furnishings etc.)
4) Means of construction equals living standard envisioned
5) Determined use of space defines space form (not technology)
6) Opened aired space accessible from living room
7) Does inside and outside spaces mesh agreeably so both may be appreciated
8) Can the good weather be enjoyed from the inside
9) Where do the children play
10) Is there storage for large and small items
11) Is unit easy to maintain
14) Does the project fit the neighborhood it is placed in
15) Does it fit the site
16) Is there a place for older children to play
17) What are the good and bad views off the site

SOURCES OF ANXIETY FOR OCCUPANTS

1) Can the unit belong to the tenant
2) Is the maintenance responsibility ambiguous
3) Is there sound insulation against the neighbors
4) Are there equal amenities in each unit (not necessarily identical, only equal)
5) Is there storage for ground bound amenities
6) If highrise, is there a reason for being lifted off the ground

Although there can be many final design solutions, there are relatively few schematic organizations of a housing project and individual units which make up the entirety of a housing project. Since the incorporation of public services into the home, relatively few categories exist for a variant of the unit organization of its interior spaces. Each of the units have two major similarities on which they are compared. These similarities are a core for delivery of public services and the units orientation to the exterior. Separation of individual spaces within the units follow the logic of matching the use of each space with one of the two categories. These unit types are as follows:

1) Single orientation with transverse core
2) Single orientation with core along corridor
3) Double orientation with double core
4) Double orientation opened at opposite ends with transverse core
5) Double orientation opened at opposite ends with interior core

The units also fit in the general categories based exclusively on the units configuration and how it's neighbors units address themselves to the middle unit. Again, these unit types are simplified and deal only with the exterior appearance, totally divorced from the interior treatment of the unit. These unit types are:

1) L-shaped
2) T-shaped
3) 2-story flat
4) row housing
5) cross
6) tower
7) single loaded corridor
8) double loaded corridor
The appearance and placement of all the units in an overall logic also primarily fall into four categories. These categories give a description of various schemes in metaphors so the projects are compared to the name given.

These classifications are:

1) wine bin
2) seed
3) bookcase
4) umbrella
SPECIFIC HOUSING RESEARCH

UNITÉ DE HABITATION

Correlation of spaces:
- Streets in the Sky
- Roof Garden/Playground/Penthouse
- Building Lifted Off Ground Plane
- Split Level Apartments
- Core in Center of Project
- Emergency Stairs at Either End
- Club Areas for Recreation

Graphic Composition:
- Plan: overall rectangular
- balconies applied
- Elevation: cantilevered sections
- divided into two sections
- receding and two sections
- projecting
- simple grid pattern of intersecting lines vs. missing
- lines of the grid
- variety of spaces
- building raised off ground
- but firmly attached to the ground visually

Zoning and Circulation:
- major axis is along the sky street
- apartment axis is opposite of sky street
- most zoning done in section or three dimensions
- variances occur in individual apartments with 1, 2, or 3 bedrooms, the larger the apartment the more modules are afforded in width

Entry and Enclosure
- Entry to building is defined by the opened ground plan with only the core and columns dropping through to the grade. Entry is accessible from this point. Entry to the individual apartment are flush with the sky street. Only delineated by different apartments is the number assigned to the apartment, or so it seems.

Structure:
- Basically a concrete frame construction with each column (or plane) on center with dimension of unit module size.
- These planes are broken in only 2 places for access thru apt. or sky street. The floors are broken discriminantly with every other floor broken for overlook in the apartment. The structure of the floor on a unit module on a unit basis.
- Columns are made into a grid of balconies.
- Each apartment has a single module on the sky street level while in most cases the apartment has a two module width on the next level, either above or below. Every other apartment is raised above or below the sky street level (unless it is a single bedroom apartment).
Three Dimensional Patterns & Rhythms:

Three basic levels of the three-dimensional structure: 1) the ground level (piloti), 2) grid network of balcony and overhangs with variations within the facade, 3) disintegration of formal grid above the roof & penthouse with wider variety of undulation and shape.

Varying shape and angles used to express a dynamism of shape and feeling which is added to by varying balconies within the grid. Penthouse gives more dynamism, visual action in a playful facade.

Scale & Proportion

Appearance of wood texture in concrete on ground floor, not discernable when seen from a distance. Imprints of the Modular Man, trees, sun, are in the concrete wall as well. Scale shown by size of the balconies, penthouse scale is formed by the use of design elements like ramps, parapits, exhaust ducts, and textural facade treatments.

Images:

An overused image for today and difficult to execute correctly. Looking at Le Corbusier's model and what has come after, the image looks the same, but is missing the excitement in the later copies.
DAAL HOUSING PROJECT

1) Livibility:
   - ease of circulation
   - minimum changeability
   - good light & air access
   - much privacy
2) Outside Space:
   - Ample amount of tenant use
   - children's play areas close to unit
3) Outside in:
   - balconies, windows, doors
   - no real patio spaces
   - no private outdoor spaces
4) No Sense of Community:
   - semi-public becomes semi-private
5) Sense of Entry:
   - identity good
   - sequence good
   - security good
6) Maintenance:
   - Outside spaces are questionable
   - depends on activity and use by tenants
   - mechanical systems a mess
7) Family growth patterns have minimal flexibility
8) Unit Type:
   - double orientation
   - transverse core
   - two-story flat
9) Zoning:
   - activity spaces downstairs
   - quiet spaces upstairs
10) Structure:
    - Bearing wall
    - Modular grid
11) Massing:
    - PLW massing
    - core and living divided but not unit
    - building is read as one house

Schematic Organization

Axonometric
PARK HILL VILLAGE PROJECT

1) Orientation
   - double outdoor exposure
   - single window orientation on lower levels
2) Ample Green Space
3) Storage
   - contained with in zones in unit
   - adequate for ground bound vehicles outside
4) Zoning
   - appropriate for the different levels
   - active on top by main entry
   - quiet spaces as one descends
5) Exterior Enters inside on every level
6) Circulation
   - horizontal:
     - simple
     - somewhat extended
   - vertical
     - many level changes
     - long distances
     - confined transverse movement
7) Flexibility
   - minimal change ability
   - interior spaces only
8) Spaces
   - good variety of volumes
   - universal space difficult to manipulate
9) Identity
   - individual identity by cosmetics only
   - no built in community interaction
10) Maintenance
    - clearly defined responsibility
    - all spaces enclosed within unit territory
11) Structure
    - bearing wall - brick
    - timber flat roof & floors
    - traditional
12) Systems
    - services not well worked out
      - in location to each other
      - in location to spaces they support
DIVISION OF INDIVIDUAL UNITS SPACES

Special Purpose Spaces:
  Kitchen
  Master bedroom
  Bedroom

Service Spaces:
  Utility Room
  Bathroom
  Entry

General Purpose Spaces:
  Living Room
  Dining Room

DIVISION OF SPACES PER PROJECT

Special Purpose Spaces:
  Individual Units

General Purpose Spaces:
  Pedestrian walk
  Common Unit Entries
  Common Porches
  Common Green Spaces

Service Spaces:
  Garages
  Driveways
  Ground Bound Storage
  Garbage Containers
### Space Requirements for Individual Units

**Special Spaces:**

<table>
<thead>
<tr>
<th>Kitchen</th>
<th>特</th>
<th>尺寸</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stove with Cabinets</td>
<td>1200x600x900</td>
<td></td>
</tr>
<tr>
<td>Refrigerator</td>
<td>900x600x1200</td>
<td></td>
</tr>
<tr>
<td>Sink with Counter</td>
<td>2100x600x900</td>
<td></td>
</tr>
<tr>
<td>Cabinets</td>
<td>600xvarx600</td>
<td></td>
</tr>
<tr>
<td>Storage</td>
<td>600x600x1800</td>
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</table>

<table>
<thead>
<tr>
<th>Master Bedroom</th>
<th>特</th>
<th>尺寸</th>
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</thead>
<tbody>
<tr>
<td>Double Bed</td>
<td>1500x2000x750</td>
<td></td>
</tr>
<tr>
<td>Chair</td>
<td>650x650x750</td>
<td></td>
</tr>
<tr>
<td>2 Dressers</td>
<td>2x 950x450x950</td>
<td></td>
</tr>
<tr>
<td>2 End Tables</td>
<td>2x 650x650x750</td>
<td></td>
</tr>
<tr>
<td>Closet</td>
<td>2x 1400x600x1360</td>
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<table>
<thead>
<tr>
<th>Bedroom</th>
<th>特</th>
<th>尺寸</th>
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<tbody>
<tr>
<td>Single Bed</td>
<td>900x2000x750</td>
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<tr>
<td>Chair</td>
<td>650x650x750</td>
<td></td>
</tr>
<tr>
<td>Dresser</td>
<td>550x950x1500</td>
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<td>End Table</td>
<td>550x550x750</td>
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</tr>
<tr>
<td>Closet</td>
<td>1100x600x1350</td>
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**Service Spaces:**

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<tr>
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<tr>
<td>Washer</td>
<td>600x600x900</td>
<td></td>
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<tr>
<td>Dryer</td>
<td>750x600x900</td>
<td></td>
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<tr>
<td>Water Heater</td>
<td>550x550x1200</td>
<td></td>
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<tr>
<td>Sink</td>
<td>550x550x900</td>
<td></td>
</tr>
<tr>
<td>Freezer</td>
<td>1000x750x900</td>
<td></td>
</tr>
<tr>
<td>Storage</td>
<td>available</td>
<td></td>
</tr>
<tr>
<td>Work Area (counter space)</td>
<td>available</td>
<td></td>
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</tbody>
</table>

Bathroom

<table>
<thead>
<tr>
<th>特</th>
<th>尺寸</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bath Tub</td>
<td>1700x250</td>
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<tr>
<td>Sink with Counter Space</td>
<td>800x600</td>
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<tr>
<td>Water Closet</td>
<td>800x800</td>
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<tr>
<td>Cabinets</td>
<td>available</td>
</tr>
<tr>
<td>Counter Space</td>
<td>available</td>
</tr>
<tr>
<td>Bath Storage</td>
<td>available</td>
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Entry

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<th>特</th>
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<tbody>
<tr>
<td>Closet</td>
<td>available</td>
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<tr>
<td>Circulation</td>
<td>available</td>
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</table>

All measurements are in centimeters
SERVICE SPACES: UTILITY ROOM
BATHROOM

Entries always on top.
Windows always on bottom (if included in space)

12'-0" and over allows for extensive window area.
Limited window space on 10'-0", 8'-0" 6'-0" outside wall dimension.

Storage space will increase with size of space
Counter space will increase with size of space
Washer and dryer may be under the counter models
Utility area is transformed into work area with larger spaces

Bathroom will have a minimum of 5'-0" X 7'-0" with expansion up to 8'-0" X 10'-0", depending on needs of tenant.
SPECIAL SPACES: MASTER BEDROOM
BEDROOM

Entries always on top.
Windows always on bottom.

Minimum optimal space for
Master Bedroom (without desk)
is: 10'-0" X 10'-0"

Minimal optimal space for
Bedroom (without desk)
is: 10'-0" X 8'-0"

All spaces include storage areas
SPECIAL SPACES: KITCHEN

- Entrance always on top windows, or exits always on bottom.

- Minimal optimal space is 8'-0" X 12'-0" or 10'-0" X 12'-0".

- The larger the space becomes, the more space for storage.

- No dining table included in spaces, but can be included into larger spaces.
The important points in the development of the site is the way in which the entry is defined onto the site itself. This entry marks the beginning of the entry sequence to the individual family units, which will be located on or just off the orientation courts that open the vistas to the unit entries.

The organization of the site was originally strictly adhered to in keeping with the conceptual ideas that were first developed in the site analysis. This was to keep all the one story units to the south facing North Street, while putting all the two story units to the north along the alley. The garages would then be located where they were needed. In the developmental stage, this was altered to help break up the facades along North Street and allow for a more organized placement of the garages that would accompany the units. This organization of the garages was changed from a random pattern to placing clusters of garages at the East and West ends of the site and along the alley in the center of the site. This placement helps the massing of the overall complex as well.
SITE ANALYSIS

Site Characteristics:
- Located on North Avenue across from Toughy Park
- Within walking distance of schools, shopping, and churches
- Alley and street vehicle and service access
- Bounded on the north by garages
- Geological dish of entire park area including site
- Long view is up and down North Avenue
- Series of walls or facades surround the site on three sides
- Four willows in northwest corner of site 40 feet tall
- Two maple trees on North Avenue, in center of site
- Garage and house interplay important in existing houses. Changes in volumes, textures, and scale
- Within walking distance from the downtown
- North Avenue has sparse traffic
- Greater pedestrian traffic cuts thru the area

Site Issues:
- Scale and height of existing structures rises from North avenue to beyond the alley
- Meandering site suggests meandering path
- Hard edges define all traffic
- Diversion of pedestrian path off of vehicular path
- Allow pedestrian to cut across site to other points beyond the site.
- Pedestrian path creates inner focused housing orientation
- Street becomes alley
- Mark east and west points of site to show a beginning and end to the pedestrian path
- Redevelopment of Toughy park
  Strengthen North avenue entrance to park

Design Issues:
Massing:
- Fit in neighborhood, shape, volume scale, and materials.
- Create pedestrian streetscape
- Let each unit read as a separate living unit
North Street

Meeks Avenue

TOUGHY PARK

White River Boulevard

WHITE RIVER

Views
Pedestrian Path
Willow Trees
Maple Trees
Upon inspection, the site conditions were seen as a series of existing facades stepping up the gently sloping hill to the north. The site being situated at the bottom of a natural bowl in the landscape, was seen to be the beginning of this facade stepping. The two dimensional walls could be used and strengthened.
1) Courtyard

- Common green for entry
- Entries are overlooked by other units
- Private green space is outside ring of scheme
- Service zone is off the back alley (vehicular)
- Pedestrian access off North Street and from Garages
- Circulation is north and south through site
- Give and take of green space for unit growth

Formally Rigorous
Courtyard in entry well - private as defined
Ground space spreads out on site
Steps up to houses in back - scaled to street
2) Progression
- Progression through site is east, west
- Structure is regulated by north/south site grid
- Semi-Public interior streetscape
- Service on alley and North Street
- Division of spaces into definite zones on horizontal grid
- Green spaces depend on orientation and location, ground level and above
- Entry off pedestrian and vehicular traffic

Medieval or Growth Progression
UNIT Growth
Ground space allocation
Public domain
3) Combination
- Definition of end points of site for pedestrian
- Continuation of plaza to alley and beyond
- Cleaner definition of pool entry and ball park/tennis area
- Green plaza vs. hard plaza
- Acceptance of good points of each
PRELIMINARY BASIC SITE PLAN
PRELIMINARY WALL AXONOMETRIC with SITE GRID
The massing of the units is important in terms of stepping the units back and up to meet the existing homes across the alley. The accentuation of the scale elements is important for the complex to read as one but also to fit into the neighborhood which it will be built in.
As well as stepping back and up off the site, the pedestrian path in the center of the site is scaled back down to a human level. This is done by introducing scale elements like planters and half roofs which define space in a horizontal, vertical and sequential way. The entries of each individual unit becomes clearly defined as one enters a court. The massing then begins to step up again and beyond the site.
This chapter deals with the development and evolution of each of the two types of units offered in this complex. These two types of units are the single level and double level unit. Both units were designed within the same parameters as these parameters applied to the individual type of unit.

Each unit was given a double orientation (north and south) with the service core being located in the center of the unit. In this way, all the living spaces would have access to natural light while the limited use spaces would be considered dark spaces (illuminated by artificial light). This also allows the living spaces to be connected visually or physically to the exterior spaces.

The structure of each of the units would be bearing wall with wood frame partitions used to define interior spaces. The bearing walls become the common wall linking one unit to another.

The circulation in each unit would transverse the interior of the unit from north to south. The living spaces would be accessible off this main artery. Each living space would be scaled down in order to accommodate the function of that space. The hierarchy will be delineated by the dropping of the scale from the circulation areas to the service spaces. The control of scale on the exterior elevations is important because this begins the circulation sequence into the unit.

The evolution of the units is shown as it actually developed. The units themselves were conceived as complicated organisms that were whittled away to the barest minimums. The major problems encountered in the process are trying to keep the scale of each living space to a minimum while providing maximum amount of storage space for the occupants.
FINAL
SINGLE LEVEL UNIT
FIRST FLOOR

SECOND FLOOR

DUAL LEVEL UNIT
prototype two
plans

front elevations
DOUBLE LEVEL UNIT
PROTOTYPE THREE
AXONOMETRIC
FIRST FLOOR

SECOND FLOOR

DOUBLE LEVEL UNIT
PHOTOTYPE FOUR
PLANS
Corner Two story plan

Corner Two story elevation

FINAL
END UNIT VARIATIONS
Partial Elevation - Prototypical  East

Partial Elevation - Prototypical  North

Prototypical Unit Groupings
The development of the interior spaces became a design issue as the scale of the circulation paths became an issue. Each space was originally conceived as a space where if sitting was the main human position, then the room would be designed to accommodate that human position.

Each space is defined by three dimensional wall spaces. Trim is used to accent the three dimensional aspects of these spaces as well as defining such things as seating height, room boundaries, and allows for the spaces to visually flow into one another.

2 STORY PROTOTYPE: LIVING ROOM INTERIOR

BEDROOM: INTERIOR SECTION (N.D.T.S.)

2 STORY PROTOTYPE: LIVING ROOM SECTION
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