To the Graduate Council:

I am submitting herewith a thesis written by Miriam S. Wohlfarth entitled "Diversity and Unity in Weaving Community." I have examined the final paper copy of this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Master in Architecture, with a major in Architecture.

Jon Coddington, Major Professor

We have read this thesis
and recommend its acceptance:

Accepted for the Council:

Vice Provost and
Dean of Graduate Studies

Diversity and Unity in Weaving Community

A Thesis Presented for the Master of Architecture Degree
The University of Tennessee, Knoxville

Miriam Suzanne Wohlfarth
August 2002

Thesis
2002
.U655

ACKNOWLEDGEMENTS

I would like to thank all of the professors who have helped me through my architectural education. A special thanks to my committee members: Jon Coddington, for his enthusiasm and guidance; Stroud Watson, for his wisdom, experience and knowledge of the city; Ron Foresta, for his unique viewpoint and positive reinforcement; and David Fox, for always keeping me grounded and challenging me to think in new ways. I would also like to thank Matthias Altwicker, for his long distance belief in me and in architecture's power to bring about change in the world.

I hope to never forget the camaraderie of my studiomates. There is a unique close-knit bond among the twelve of us, and I thank each of you. Without your help, encouragement, desk crits, and ability to make me laugh, I would not have made it through this experience.

I also could not have succeeded without the endless encouragement and love of all of my family, and without my faith in God.

ABSTRACT

This thesis asserts that architecture can play a role in weaving together the fibers of the urban fabric by encouraging the development of community in cities. In order to support the creation of viable communities, both diversity and unity can be expressed architecturally. This thesis investigates the architectural unity and diversity of space, form, and program in support of contemporary American communities.

unity, ***n.*** 1. harmony among the parts or elements of a work producing a single major effect. 2. a whole or totality as combining all its parts into one.

diversity, ***n.*** 1. variety; multiformity. 2. having various kinds or forms.

weave, ***v.*** 1. to interlace so as to form a fabric or material. 2. to form by such interlacing. 3. to weave by combining various elements or details into a connected whole. 4. to introduce as an element into a connected whole. 5. to combine (two or more things) so as to form a whole. 6. to form or construct something by interlacing materials or combining elements.

TABLE OF CONTENTS

I. BACKGROUND
.....1

II. ARCHITECTURAL ISSUES
.....5

III. VOCABULARY
.....7

IV. PROGRAM
.....9

V. SITE DESCRIPTION
.....13

VI. SITE RATIONALE
.....21

VIII. SITE ANALYSIS
.....23

VIII. PRECEDENTS
.....27

IX. DESIGN SUMMARY AND DRAWINGS
.....31

X. EPILOGUE
.....51

BIBLIOGRAPHY
.....53

VITA
.....55

LIST OF FIGURES

1. Live/work: weaving city fabric.....10
2. Cohousing: in support of diversity and unity.....11
3. City of Chattanooga with site indicated.....14
4. Aerial map of city with site indicated.....15
5. Choo-Choo.....16
6. Initial site sketch.....16
7. Corridor of space.....17
8. Program/site relation.....17
9. 17th Street development.....21
10. New school.....21
11. Site in city.....21
12. Existing spatial slot.....23
13. Spatial slot diagram.....23
14. Datum and rhythm diagram.....23
15. Datum of Main Street.....23
16. Rhythm of Main Street.....23
17. Materiality contrast: flatiron.....24
18. Materiality contrast: apartments.....24
19. Materiality contrast: mews.....24
20. Materiality contrast: Walnut Street bridge.....24
21. Market Street edge.....25
22. Main Street edge.....25
23. Williams Street edge.....25
24. Central Wonen Wageningen.....27
25. Thorshammer.....27
26. Site parti.....30
27. Block edge.....30
28. Layering.....30
29. Circulation.....30
30. Process sketch 1.....31
31. Process sketch 2.....31
32. Community house: early sketch.....33
33. Link through community house.....33
34. Process drawing with community house.....33
35. Community house.....34
36. Process drawing of community house section.....34
37. Main Street elevation: process sketch 1.....37
38. Main Street elevation: process sketch 2.....37
39. Williams Street elevation: process sketch.....37

I. BACKGROUND

Our cities are undoubtedly of great importance. However, their future is threatened by the many conditions and existing tendencies that are destroying the fabric of urban environments. Urban sprawl, inadequate housing, transportation and congestion, urban renewal, crime, unemployment, lack of conservation of the built and natural environment, segregation by race and income, and gentrification are some of the concerns of American cities. The intention of this thesis is to explore the idea that architecture can help mend the urban fabric by encouraging the development of community. Neighborhoods as communities can make our cities once again a desirable place to live, work, and play.

What defines a community and how can this be created in cities? Webster's defines community as "an interacting population of various kinds of individuals in a common location." This definition implies two concepts that this thesis advocates are necessary for the potential development of community: diversity and unity. Diversity is provided by variety in a community. It is necessary that varying elements be brought together to form a community. Unity deals with a sense of place and identity that is integral to community development. Both diversity and unity must be achieved in the architectural and the social realm.

"Why build if you don't truly believe you're building community?" (S.Watson, 2001)

Social diversity requires a population of mixed age, race, gender, and income. A mixed population also results in various skills, personalities, levels of education, and lifestyles. Social diversity is important for creation of community for several reasons. Diversity provides

individuals with experiences in a variety of social roles and opportunities to interact with a number of people (Anderson, 235). When individuals interact with those unlike themselves, conflict can result; however, there is also a great potential for an increased level of respect, empathy, awareness, and understanding. These values can certainly form the basis of a strong and viable community, and this thesis suggests that these values held in common will bind stronger than differing ones will divide. A second argument in support of social diversity deals with the ability to adapt to negative external circumstances. "Communities need all age groups and lifestyles to remain viable places...lack of diversity makes the community brittle and too easily harmed by a single trauma. A more diverse community can protect itself as each group assists the other" (Blakely & Snyder, 98).

"Architecture, more than any other art form, is a social art and must solidly rest upon the social and cultural base of its time and place." (S. Mockbee, 1999)

Clearly a diverse community is one that has a greater chance to handle change and adapt to it, allowing the community to survive. A third perspective on diversity's role in creating communities is based on the fundamental psychological need for security. It is difficult, if not impossible, for community to develop if the human need for security is not being satisfied. For streets and neighborhoods to be considered safe, people must be present at various hours of the day and night. This can be achieved when a socially diverse population exists, with a variety of schedules and needs.

"A community that gives people confidence and security is a powerful community. That is the challenge that community architecture is engaged to meet- building powerful communities that can handle change and adapt to it. It is a challenge which has to met if civilized life is to survive." (Lord Scarman, 1987)

The other fundamental component of community is unity. Unity provides a group of individuals with a sense of identity and belonging. It is the quality of coherence that binds a group together and sets it apart from other groups,

an individual strongly associates with an area, he or she is much more likely to defend and participate in its development. This lends itself to the creation of a stable community. Unity provides residents with the crucial development of a sense of place, which leads to a feeling of individual ownership. In a study on man's relation to his environment, Amos Rapoport concluded that the optimum environment for individuals is within a recognizable and stable system of rules. A unifying system is established, and then one departs from it to create moments of interest, or diversity (Anderson, 238).

What, then, is the role that architecture plays in the solution to this social problem? There is an important distinction between determining and enabling behavior. This thesis does not propose that architecture dictates the creation of communities, only that it can and should provide the potential for community to develop. This is a responsibility for all architects.

> If we are to shape our cities more effectively, we must recognize that the fragmented character of our places and our society stems from the fact that at every fork in the road, we have chosen the individual over the collective...if we want to revive the much-lauded practice of "community," then we must understand that it is obtained through shared political choices (Marshall, xxii).

The struggle of cities is not the responsibility of planners, government officials, and economists alone; it is the informed decisions of the architect working with this group that will help solve our urban problems. Architects do not set social policies, but it is our responsibility to respond to those policies and to give them physical form. No urban

social problem will be solved solely in the discipline of architecture, but neither will any problem be solved without architecture. Architects as professionals have the responsibility to better the world in which we live; let us use it wisely and for the good of many.

II. ARCHITECTURAL ISSUES

The issues that are associated with the thesis proposal include:

- What is meant by architectural diversity and unity?
- How do diversity and unity contribute to the development of viable communities?
- How will both of these be achieved through architecture?
- How can the two seemingly opposite ideas be woven together architecturally so that they are in the service of making community?

DIVERSITY

Architectural diversity refers to a mix of spatial conditions, programmatic functions, building ages, materials, and types within a coherent neighborhood context. Architectural diversity supports and encourages a variety of uses by a socially diverse population. The interaction that can occur within this socially diverse population is intended to help to build community. A varied program improves the quality of life because it meets more than just the basic human need for shelter. Diversity in housing typologies supports community development because residents have a greater chance to remain for a longer time in a specific community; thus permanence becomes a basis for community. Essentially, diversity in the architectural realm encourages diversity in the social realm. This social diversity and interaction, in conjunction with a diverse building program, helps to establish a viable community.

"For all our conformity, we are too adventurous, inquisitive, egoistic, and competitive to be a harmonious society of artists by consensus, and what is more, we place a high value upon the very traits that prevent us from being so." (J. Jacobs, 1961)

Architectural diversity can be designed at the level of the larger urban context as well as the smaller individual

architectural intervention. In this thesis project, one way diversity will be illustrated at the larger scale is by incorporating buildings of various ages, functions, materials, and exterior spatial conditions. The project will also illustrate diversity of spatial experiences, edge conditions, and public/ private layering on the site. Programmatic diversity is achieved by introducing a new housing type to the city.

UNITY

Unity is the other necessary component to establish community. The word community has roots in both common and unity; it is imperative that communities possess a common element(s) that establishes unity or coherence. Architectural unity refers to some key element or combination of elements that serves to unify the design, in the context of the city and in the building itself. This unity implies the sense of order that becomes the organizing element of the design. Without this order and logic, diversity quickly becomes chaos and disorder. This is detrimental to any hope of developing community.

It is in the careful combination and balance of the ideas of architectural diversity and unity that communities can become successful. While encouraging diversity, one must also recognize that there is a point where too many disparate elements (spatially, formally, and programmatically) become unrecognizable as a coherent whole. The design project will create a dynamic combination between diversity and unity. This will be done by methods explained by the architectonic tools in the proceeding vocabulary section.

III. VOCABULARY

The vocabulary terms are to be used as elements by which the issues of the thesis are explored. Architecture is the medium to explore these issues; the vocabulary outlines the specific architectural tools which will be used in the design.

A. Space

1. rhythm- rhythm can be used to create a reoccurring pattern of spaces that is pleasing and establishes unity and order
2. datum- a spatial datum could be a tool for gathering and unifying diverse architectural elements

B. Form

1. scale- using either existing or created guides, scale can unify a design, allowing diversity to occur with other methods
2. datum- a consistent form or geometry can act as an organizing datum

C. Materiality/ surface

1. datum- a change in materiality might serve as a datum to collect and unify diverse elements
2. repetition- by limiting the palette of materials to be used, essentially relying on a material kit of parts, a design can gain coherence and unity without resorting to visual monotony

D. Edge

1. entry- various conditions of entry such as stoops or front porches help to define public and private zones; these can serve in support of diversity or unity
2. layering- the spatial layering of public, semi-public, and private zones serve to clarify community boundaries; these layers can be in support of spatial diversity or as a spatial unifier

IV. PROGRAM

The program of this thesis project occurs at two different levels. At the urban design scale, this project will propose alterations to the existing urban condition. This will primarily involve infill of buildings along Market Street and reprogramming existing buildings to be used for housing and ground level retail or commercial spaces.

The program also considers edge-defining and layering elements such as sidewalks, streetlights, trees, and entry conditions as well as pedestrian and vehicular movement patterns at the level of the block. The four streets will illustrate at least two different spatial conditions, based on whether the street is a mixed-use city street or an internal residential neighborhood street.

This project will include the design of two components of the new urban proposal. The program is to design two types of housing on the block, live/work units and cohousing. Live/work units were chosen as a solution to the problem that arose from large-scale site analysis. The site is located in an area that is between downtown and Southside neighborhoods (Rustville, Fort Negely and Jefferson Heights). Live/work units are clearly a logical combination of the business and residential districts of a city, as illustrated in Figure 1.

"Without common land no social system can survive." (C. Alexander, 1977)

The second component of the program is cohousing. This thesis is based on the combination and balance of diversity and unity. Cohousing strongly supports this combination because it is arranged so that residents have their own individual living spaces (diversity) as well as a shared common space (unity). The reason that co-

housing is ideal in this particular location is also illustrated diagrammatically in Figure 2. Cohousing essentially introduces a new housing type to the city (thereby increasing the range of housing diversity) while creating a unified community.

PRELIMINARY PROGRAM COMPONENTS

LIVE/ WORK UNITS:

MAIN STREET TYPOLOGY 7-10 units

1. ground floor commercial 1000-2500 sf
   double height studio space above

2. ground floor commercial 1500-3500 sf
   2 story apartment above

3. ground floor commercial/ work room 1500-3500 sf
   2 story apartment above

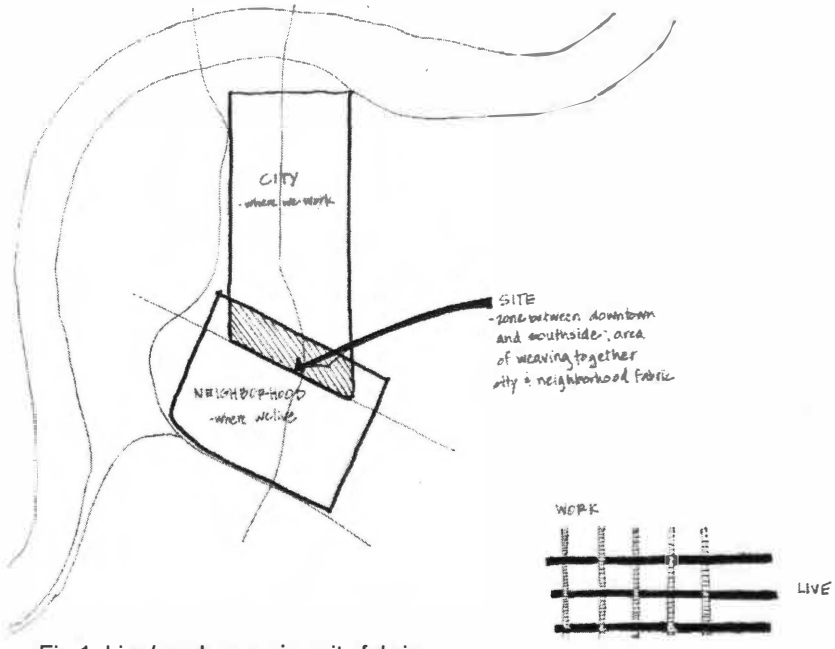


Fig 1: Live/ work: weaving city fabric
Source: Author

WILLIAMS STREET TYPOLOGY		2-5 units
4. ground floor commercial 1 story apartment above		1000-2000 sf
5. ground floor work/ public space 1 story apartment above		1000-2000 sf
		9-15 units

COHOUSING:

UNIT TYPLOGY (all include bathroom, kitchen, living)

1. 1 BR unit	600-800 sf	1-4 units
2. 2 BR unit	800-1000 sf	5-7 units
3. 3 BR unit	900-1200 sf	4-6 units
		10-17 units

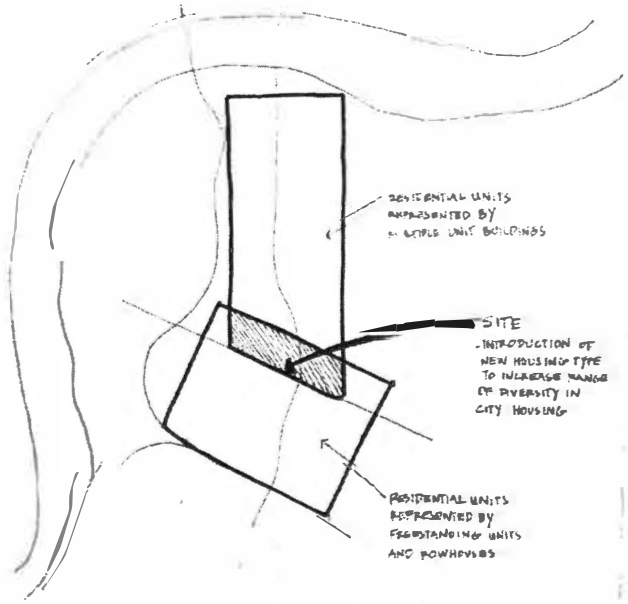


Fig 2: Cohousing: in support of diversity and unity
Source: Author

PRIVATE EXTERIOR SPACE

option a. 300-450 sf

each unit with private yard, balcony, or patio

option b.

shared semi-exterior corridor linking units

SHARED EXTERIOR SPACE

1. garden or greenhouse
2. playground (sandbox, swings)
3. sitting area (benches, eating tables)

COMMON AREA 1500-5000 sf

1. kitchen 300-500 sf
2. dining room 700-900 sf
3. sitting area/ lounge
4. interior play area
5. laundry
6. entry (mailroom, announcements)

additional common area options:

7. craft room/ music room
8. game room
9. library
10. storage
11. gym
12. garage/ work room

V. SITE DESCRIPTION



View from Signal Mountain
Source: Author

The thesis site is located in Chattanooga, Tennessee. Chattanooga is located in Hamilton County, in southeast Tennessee near the Georgia border. It is approximately halfway between Knoxville, TN and Atlanta, GA and is situated at the junction of three major interstates. The topography is rather rugged and varied. The county boasts of five mountains, seven valleys, and fourteen primary streams (Armstrong, 95). The city is tucked in on three sides by mountains and there are many places for a scenic view of the city down in the Tennessee River Valley.

The site is located on a block bounded by Market Street, East Main Street, Williams Street, and West 14th Street (Figures 3 and 4). The latter two streets are fairly local neighborhood streets, but Main Street and Market Street are streets that serve the entire city.

When the city was divided into lots in 1838, a grid of nine by nine streets was laid out. The east and west streets were numbered beginning at the Tennessee River and counted south; the north and south streets were given names of trees (Armstrong, 133). The only exception to this was Market Street, which was planned to be the main street of the city. It was laid out wider than the other north/south streets, which were 100 feet. However, the original street widths were reduced ten years later, east/west streets from 66 to 46 feet; north/south streets from 100 to 60 feet; Market to 100 feet and Cherry to 40

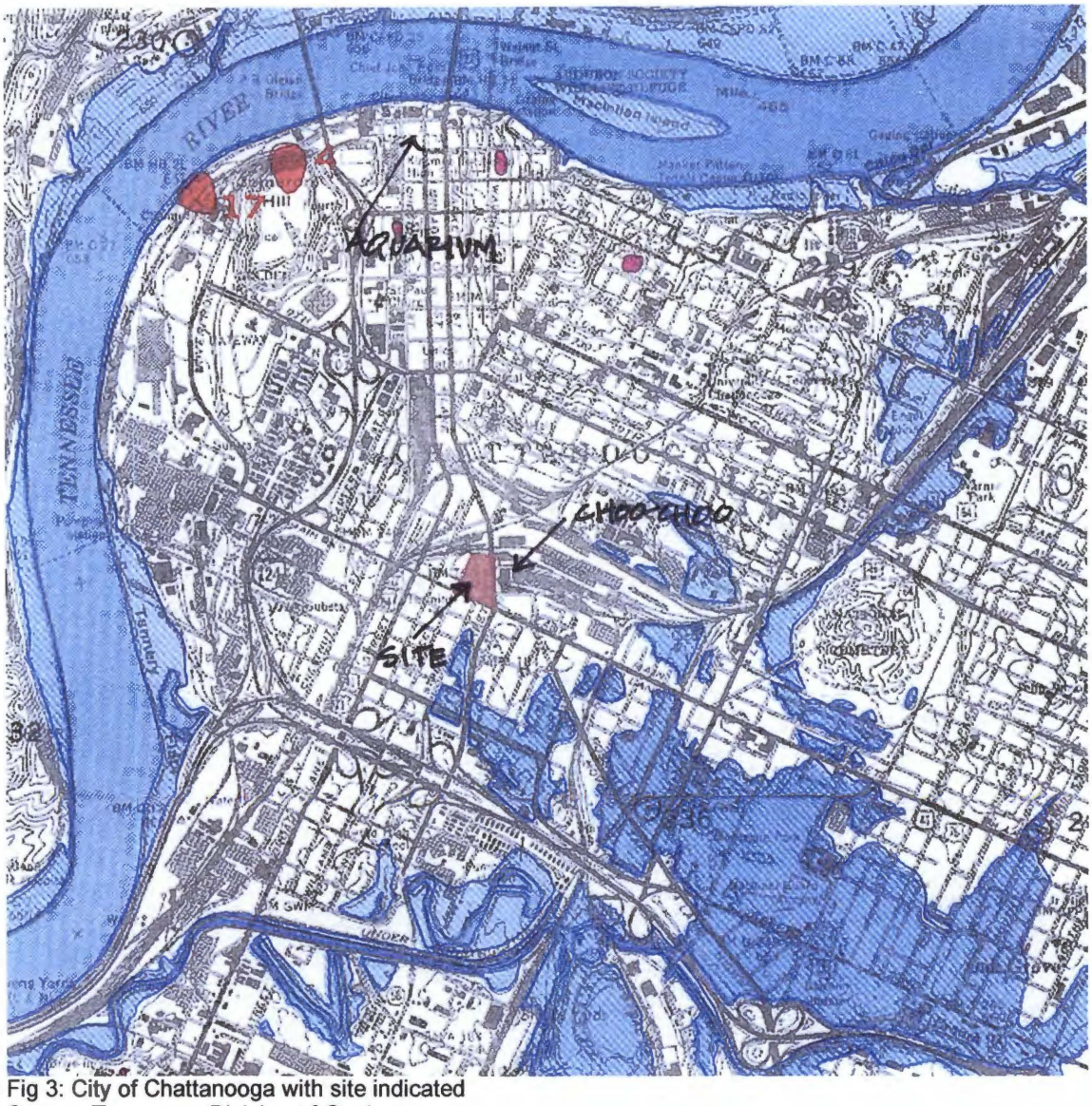


Fig 3: City of Chattanooga with site indicated
Source: Tennessee Division of Geology

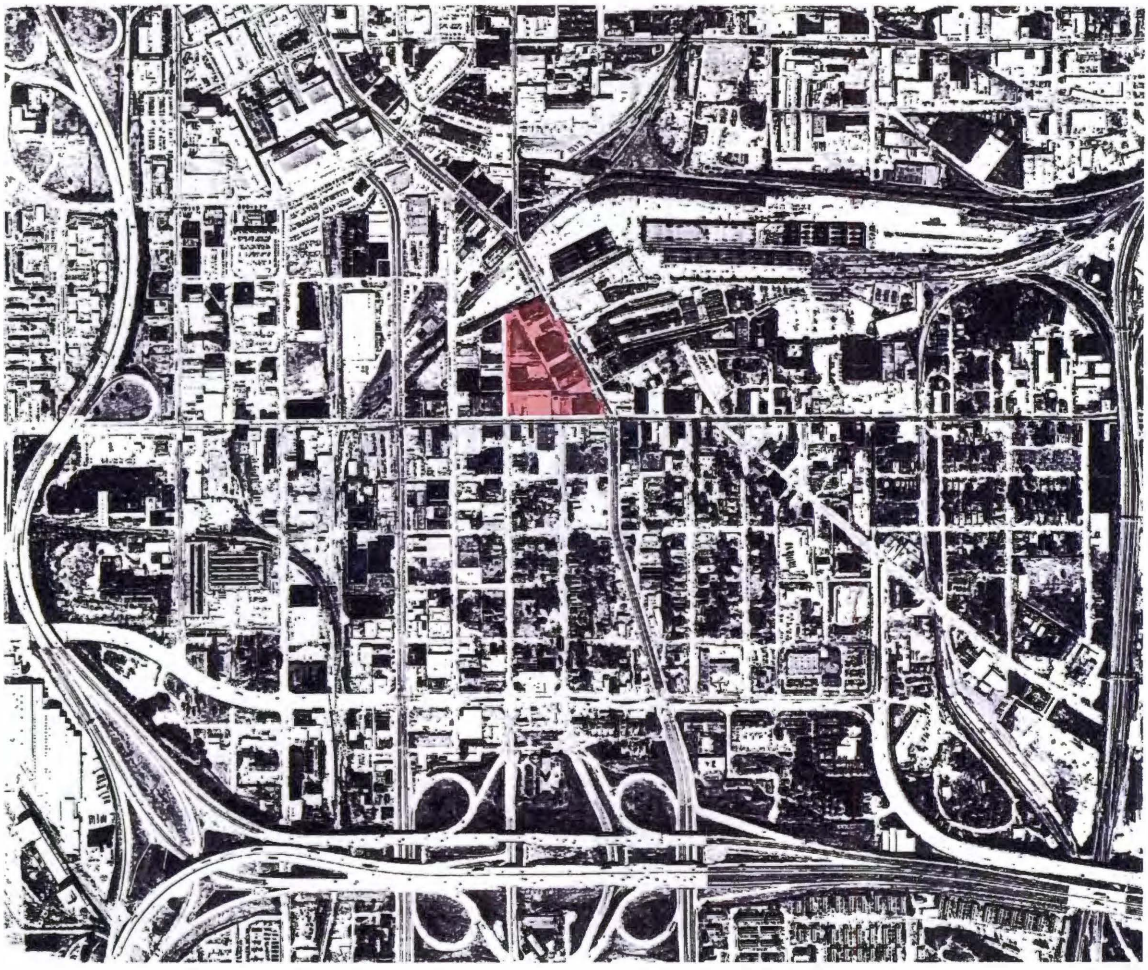


Fig 4: Aerial map of city with site indicated
Source: Chattanooga Design Center

feet.[1] Today Market Street and Broad Street are the two primary north/south routes through the city. Market Street connects the downtown to the city north of the Tennessee River.



Fig 5: Choo-Choo
Source: Author

The west side of Market Street contains the Chattanooga Choo Choo (Figure 5) and shuttle building. It is an historic building built in 1909 and was once the railroad terminal station. In 1973, it was named the Choo Choo and restored as a hotel and restaurant facility (Livingood, 61). It is now operated under Holiday Inn as a hotel and convention center with shops, restaurants, and even an ice skating rink. It is a significant city landmark and a tourist attraction. It anchors one end of Chattanooga's electric shuttle system; this free public transportation runs from the Choo Choo to the Aquarium. On the east side of Market, there is mix of smaller buildings. The Grand Hotel is located on the north corner (tearoom at ground level and apartments above), and on the south corner is a restored bank building (now a furniture store). There are also a number of boarded up buildings, parking lots, and two empty lots (Figure 6).

> "When you hear the whistle blowin' eight to the bar,
> Then you know that Tennessee is not very far,
> Shovel all the coal in, gotta keep it rolling,
> Woo, woo,
> Chattanooga, there you are."
> (G. Miller, "Chattanooga Choo Choo," 1941)

The Main Street portion of the block is only occupied by the corner furniture store; the remainder is parking and empty buildings. Williams Street is comprised of apartment condos, a small place of business (massage therapy) with an apartment above, and a large parking lot. At the corner of Williams and W. 14th Streets is a new commercial building, Evergreen money management. The buildings across Williams Street to the west are primarily

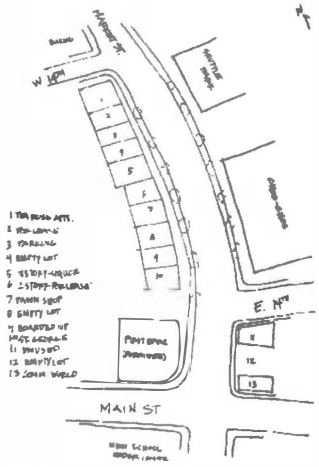
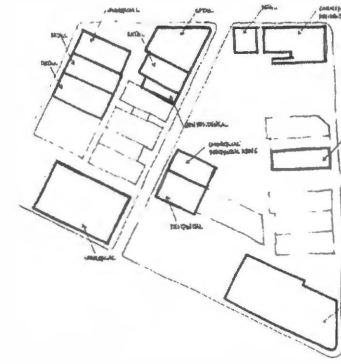


Fig 6: Initial site sketch
Source: Author

[1] When the railway was built in 1849, Mulberry Street became Railroad Avenue and was increased to 126 feet. In 1880, this street was again renamed to Broad Street when the tracks were removed (Armstrong, 134).

old warehouses that are now used as antiques shop; an upscale restaurant (Southside Grill) is also located on this adjacent block. There is a building currently under construction on this block; it will be a studio apartment.



Analysis of existing conditions
Source: Author

A north/ south alley pierces the block. This alley intersects an interesting corridor of space that runs parallel to Main Street and north of the furniture store. This is the passage that designates the former railroad tracks running to the Choo-Choo. There are a few spots where the railroad ties are still present, but in most cases this corridor is overgrown with grass and lined with trees (Figure 7).



Fig 7: Corridor of space
Source: Author

The cohousing site is located along Williams Street, south of the Evergreen building and north of the apartment buildings. This has an area of approximately 32, 396 square feet. The live/work units will be located at the northeast corner of Main Street and Williams Street. This site is 29, 750 square feet. These site decisions are explained diagrammatically in Figure 8.

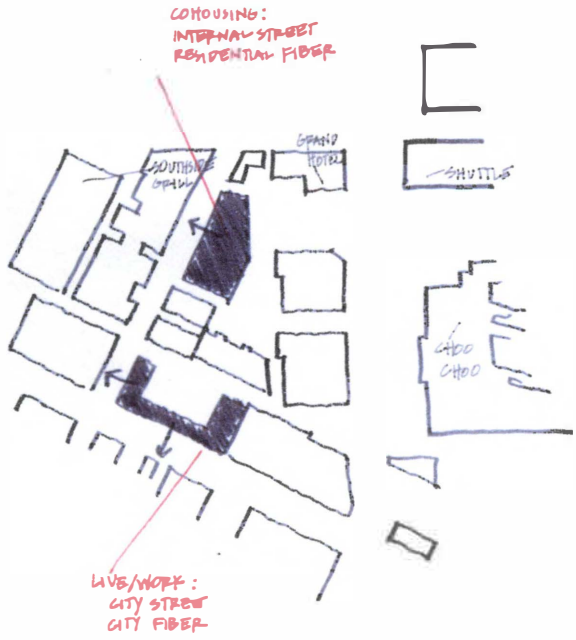


Fig 8: Program/ site relation
Source: Author



Internal block alley: future cohousing common green
Source: Author



Williams and Main: future live/work units
Source: Author



Williams Street: future live/work units
Source: Author



Market Street
Source: Author



Williams Street
Source: Author



Williams Street apartment
Source: Author



Grand Hotel
Source: Author



Existing figure ground
Source: Author



Proposed figure ground
Source: Author

VI. SITE RATIONALE

The selected site supports the ideas of the thesis for several reasons. A majority of the city's recent redevelopment has occurred closer to the river, in the heart of downtown. In the past 10-12 years, this revitalization has included the Aquarium, BellSouth minor league stadium, IMAX theater, Children's Museum and a major transformation of the riverfront with parks and greenways. With the success of this northern region, the city is now turning its attention to the south. The Chattanooga Design Center is focusing on Southside development, and currently improvements are being made along 17th and Cowart Street (Figure 9) (Hundt). Two major interventions have already been completed in the area, the Chattanoogan Hotel and Convention Center and the Max Finley Stadium. The future downtown plan includes two new elementary schools, one of which is under construction at Market and Main Street, bordering the thesis site (Figure 10). Thus the site is located in an area that is caught between a newly revitalized downtown and Southside (Figure 11). It is an area with no defined identity, and so it offers a challenge for the thesis project to not only solidify the literal and social boundaries of the neighborhood but also to connect the city with Southside.



Fig 9: 17th Street development
Source: Author



Fig 10: New school
Source: Author

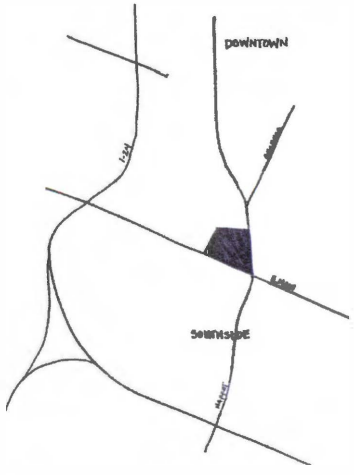


Fig 11: Site in city
Source: Author

The block includes older buildings that are still very conducive to use, some of which have already been assigned new uses, some of which this project will propose. There are also several empty lots and buildings likely to be demolished that will allow for the design of new architecture. Thus a street that is diverse in its age of buildings can be established here.

The site also is ideal for a mixed-use neighborhood. Market Street is able to support retail activity. However, this area (as well as the rest of downtown) has a great need for new mixed income housing (Hundt). Market Street is a major city thoroughfare, but it is also connected to residential areas that could potentially develop into a larger neighborhood community.

The proposed site is full of exciting design possibilities for encouraging diversity and establishing unity. It is a street block that has positive as well as negative architectonic qualities. These positive spatial and formal qualities may be springboards to serve as design guidelines. The site has the potential to support architecture that is spatially, formally, and programmatically diverse; it is also clearly in need of an architectural unity that is presently absent on the site. The site offers many possibilities for the design challenge of combining architectural diversity and unity.

"It is impossible to design the street in such a way that people suddenly take to having their meals out of doors together. Yet it would be a good idea to keep this kind of image at the back of your mind as a sort of standard that your design must in principle be capable of meeting."
(H. Hertzberger, 1991)



VII. SITE ANALYSIS

The analysis presented is a synopsis of my investigation. It is arranged in categories of space, form, materiality, and edge, according to the vocabulary.

SPACE (Figures 12-13)

- Unity that collects diversity
- Spatial slot serves as datum
- Creates spatial connection between blocks; links part to a larger whole



Fig 12: Existing spatial slot
Source: Author

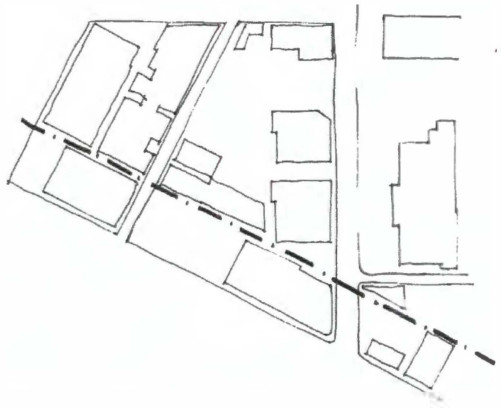


Fig 13: Spatial slot diagram
Source: Author

FORM (Figures 14-16)

SCALE
- Consistent scale unifies street; design should respond to this guide

DATUM
- Primary and secondary datum implied or explicit

RHYTHYM
- Large and medium bay rhythm established
- Lack of small bay rhythm

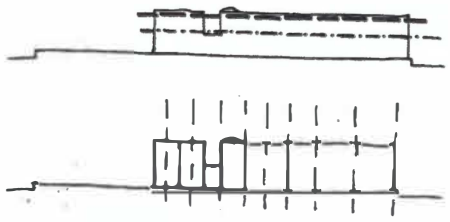


Fig 14: Datum and rhythm diagram
Source: Author



Fig 15: Datum of Main Street
Source: Author



Fig 16: Rhythm of Main Street
Source: Author

MATERIALITY (Figures 17-20)

- Reoccurring motif of materiality contrast; heavy vs. light
- Contrast to serve as design guideline to unify
- Masonry vs. iron
- Possible precedent/ analogy to Walnut Street Bridge



Fig 17: Materiality contrast: flatiron
Source: Author



Fig 18: Materiality contrast: apartments
Source: Author



Fig 19: Materiality contrast: mews
Source: Author



Fig 20: Materiality contrast: Walnut Street bridge
Source: Author

EDGE (Figures 21-23)

MARKET STREET

- Multiple layers to demarcate public/private zones
- Buffer established between vehicular and pedestrian
- Layering system provides unity to city street
- Layering system consistent with street type

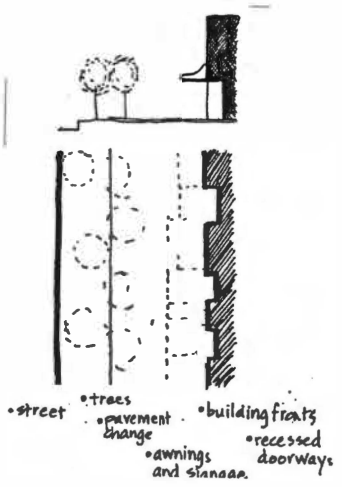


Fig 21: Market Street edge
Source: Author

MAIN STREET

- Lack of buffer between vehicular and pedestrian
- Layering system inconsistent with street type

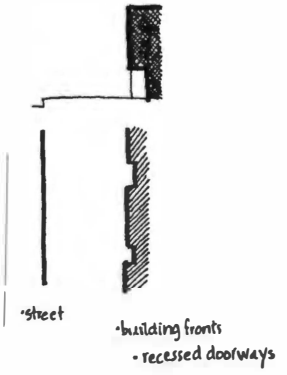


Fig 22: Main Street edge
Source: Author

WILLIAMS STREET

- Layering system with potential to unify entire street
- Shallow layers consistent with street type
- Introduces a diverse type of system (contrast to city street layering)

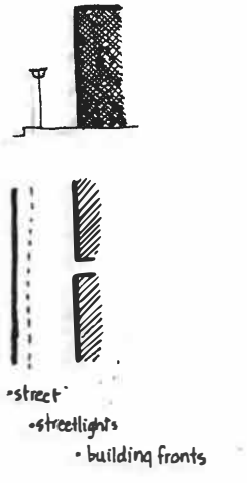


Fig 23: Williams Street edge
Source: Author

VIII. PRECEDENTS

Once the final program requirements were established and after in-depth site analysis, it became logical to study typological precedents, especially for cohousing. Much reading and research was done in this area. The majority of cohousing to date has occurred outside of the United States, primarily in Scandinavian countries. Two of these communities served as design precedents throughout the process.

CENTRAL WONEN WAGENINGEN

This particular precedent was chosen because of the importance of the exterior public space. The units are arranged around this shared garden, similar to the common green of the thesis design. The residents are able to survey the space; to watch children and strangers. This community is not gated, but it does face the internal condition of the block.

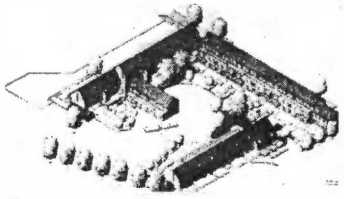


Fig 24: Central Wonen Wageningen
Source: Marcus

THORSHAMMER

The basic plan of this community is a square doughnut. Each house has a small patio or garden on the exterior of the square and access to the unit is on the interior side through a shared corridor space. This relates to the thesis greenhouse corridor, and is based on the idea that community depends on informal life and casual encounters. The size of this community is only 20 families, which is in the range of the thesis project.

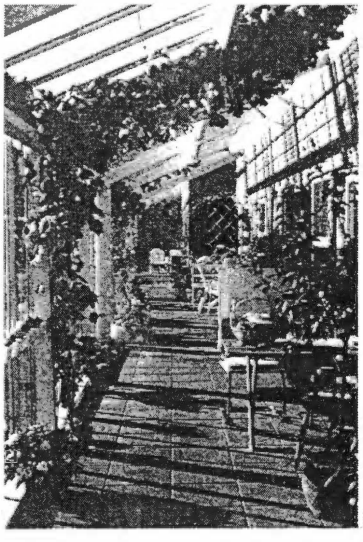


Fig 25: Thorshammer
Source: Marcus

AMERICAN COHOUSING

Instead of focusing on one American precedent, research was broader across many more communities.

Some characteristics of the communities are the centralized location of the common house, parking peripheral to the site, and the importance of sustainable design issues. Of the 24 American cohousing precedents studied, the communities average 24 units, with a range from 8 to 42 units. The average common house is 3500 sf (range 1000-7000); kitchens average 370sf; dining areas 800 sf. Units average 730 sf (1bedroom) to 1860 sf (4 bedroom). This is still much higher than the Danish average of 650-1150 sf.

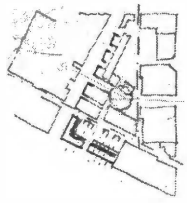
Table 1: American cohousing precedents
Source: Marcus

community	location	date	no.of units	size of units	exterior private space
Pioneer Valley	Amherst, MA	1994	32	620 sf	120-400 sf
Puget Ridge	Seattle, WA	1995	23	600 sf	300 sf
Winslow	Bainbridge Island, WA	1992	30	580-930 sf	440 sf
thesis project	Chattanooga, TN	2002	13	650-1000 sf	375 sf

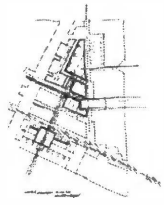
VIX. DESIGN SUMMARY AND DRAWINGS



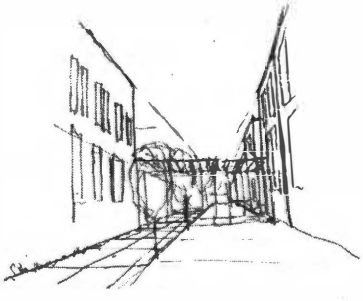
It is important to note here the cyclical nature of the design process. Though the vocabulary, site analysis, precedents, and program analysis were complete before design began, these were constantly being revisited to keep the thesis project a coherent whole.



The design strategy was to work initially at the urban scale. This involved determining the site parti and large urban moves, based on information learned during the site analysis phase. Both the vocabulary and site analysis summary were extremely important throughout the entire process. The parti development can be traced through the process sketches. Though only some of this is apparent in what becomes the final site parti, the development is quite important as well. The parti (Figure 13) shows how space was used as a tool in support of both diversity and unity. The unique existing corridor of space is further developed to unify a variety of spaces across several blocks. The other unifier is the spatial datum that connects the live/work units to the shared exterior space of the cohousing. This axis goes directly through the community house, which serves as the cohesive joint of the entire site. The experience of walking along this axis is a diverse one, defined by varying edges and spatial conditions of compression and expansion. Throughout the entire site, there was the intention to create a diverse range of spatial experiences. These are the spaces that people share and gather in; these are the spaces where community occurs.







The other diagrams (Figures 14-16) illustrate some other important ideas throughout the process. Figure 14

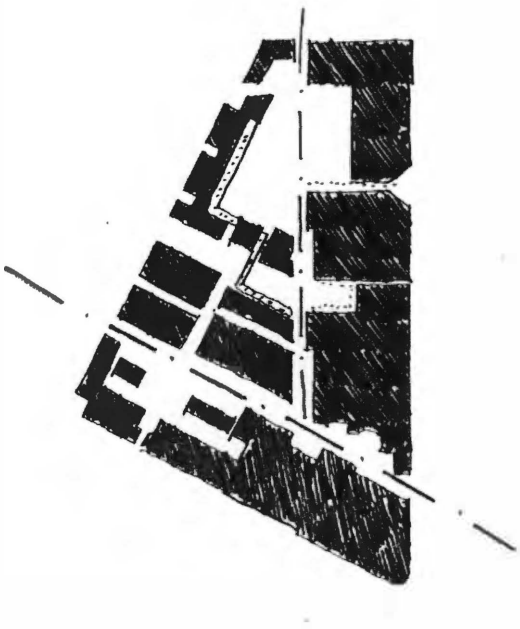


Fig 26: Site parti
Source: Author

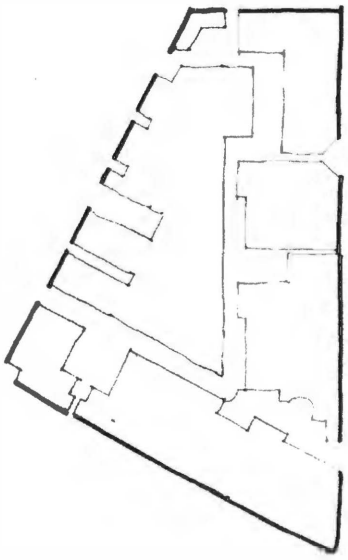


Fig 27: Block edge
Source: Author

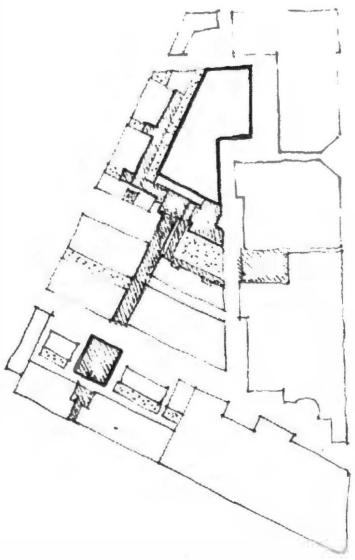


Fig 28: Layering
Source: Author

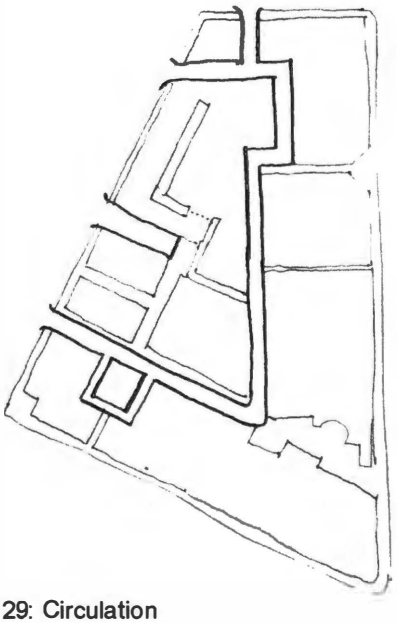


Fig 29: Circulation
Source: Author

deals with the edge definition of a block and penetrations. The other important diagram (Fig 28) illustrates the diverse layering of public, semi-public, and private zones of the project. This issue became much more crucial than ever anticipated and was explored in depth during the design process. The design includes many different spaces, both interior and exterior, that fall somewhere in the range of these zones. This was important at the urban scale all the way down to the individual housing unit. For example, a typical three bedroom cohousing unit has private balconies overlooking the street and the common green, a private yard, a courtyard shared with one other unit, a "front porch nook" near the unit entry, as well as access to the shared greenhouse corridor, public green, community house, and all other communal amenities on the site.

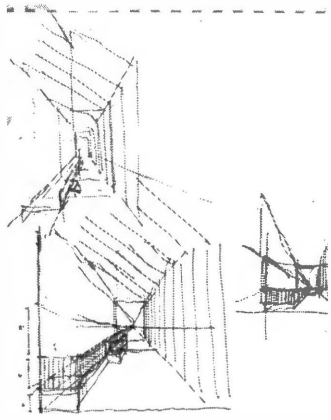


Fig 30: Process sketch 1
Source: Author

The greenhouse corridor is a very important element in the design. It serves to unify and physically connect the entire cohousing community. It is essentially a glass-enclosed lean-to that mediates between the private unit and the common space. Each housing unit gains access to their unit through this corridor and must pass through this space to get from their home to their private yard. So the corridor really becomes a collection of the residents' front porches. Early conceptual sketches of this space are shown in Figures 30 and 31. There is a rich layering of space here, as is hopefully evidenced by its architectural development. It is a space filled with light, color, and the life of each resident spilling out into the public circulation zone.

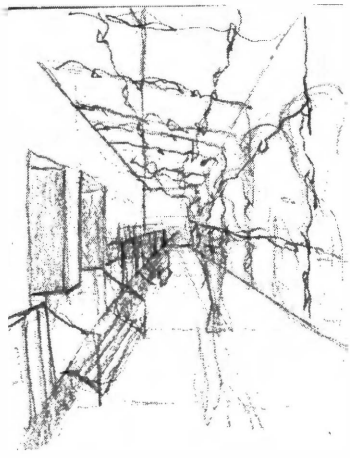


Fig 31: Process sketch 2
Source: Author

The greenhouse corridor passes directly through the community house, linking all the cohousing units to this



shared public amenity (Figures 32-35). This serves as the community living room, for informal and formal gathering activities. Programmatic spaces also include a communal kitchen, dining area, daycare, storage and laundry facilities. Exterior spaces that are located between this building and some of the cohousing units are sunken children's playground and a community vegetable garden. The kitchen also opens to the large common green, where one might imagine community picnics occurring. The main space of the community house is the living area. This building is separate from the other spaces; it is primarily glass enclosed and locked in at each corner with trees.

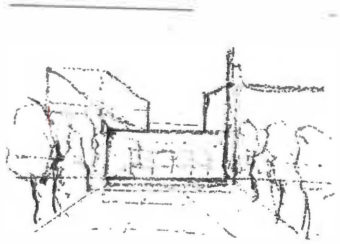


Fig 32: Community house: early sketch
Source: Author

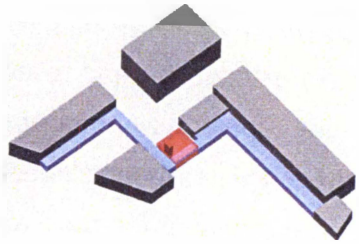


Fig 33: Link through community house
Source: Author

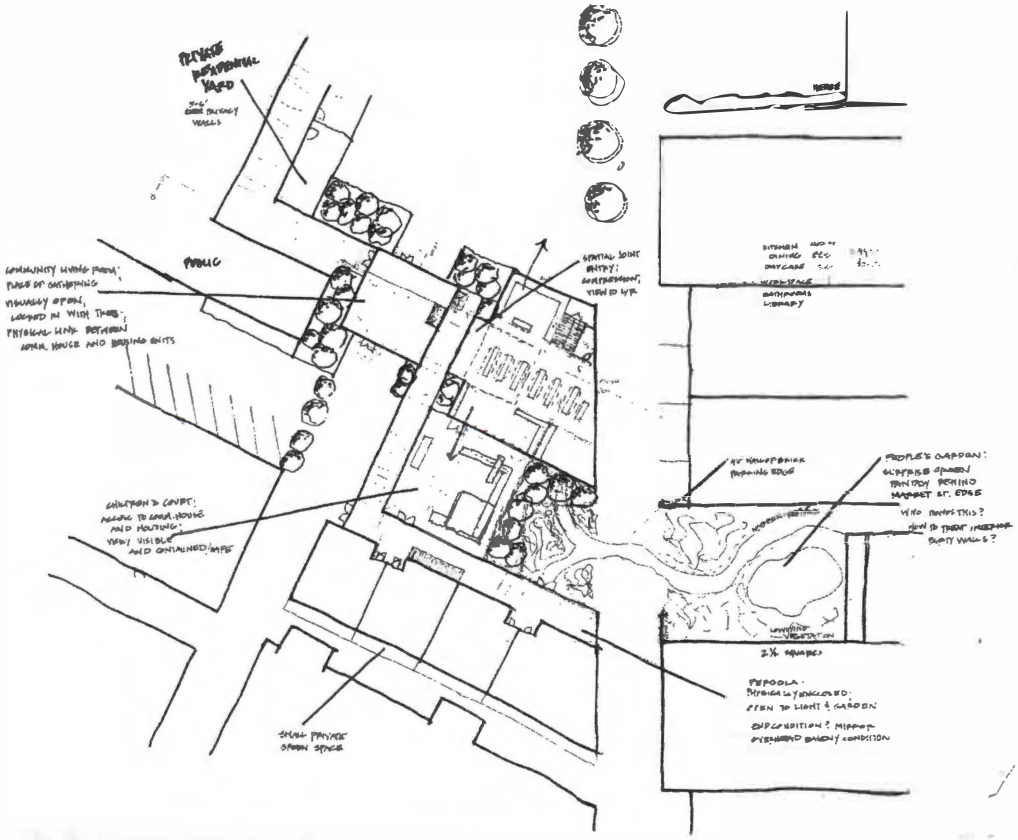


Fig 34: Process drawing with community house
Source: Author

The unique form of the roof (Figure 36) was designed for pragmatic and conceptual reasons. It functions to collect rainwater for the trees and to fill the small ponds at the southern entry. Conceptually, the roof opens up to the common green and back on axis to the live/work units and space. It also clearly demarcates the hierarchy of this building; this is the most important space on the site. A community house is the necessary element that establishes cohousing from any other type of housing. The roof form of this building is also consistent with a set of rules established and followed elsewhere in the design. Public spaces, whether at the scale of the entire community or the individual dweller, can be distinguished by treatment of the roof (among other ways). This can easily be seen with the public spaces of the cohousing units and the community living space and dining room.

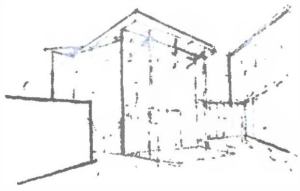


Fig 35: Community house
Source: Author

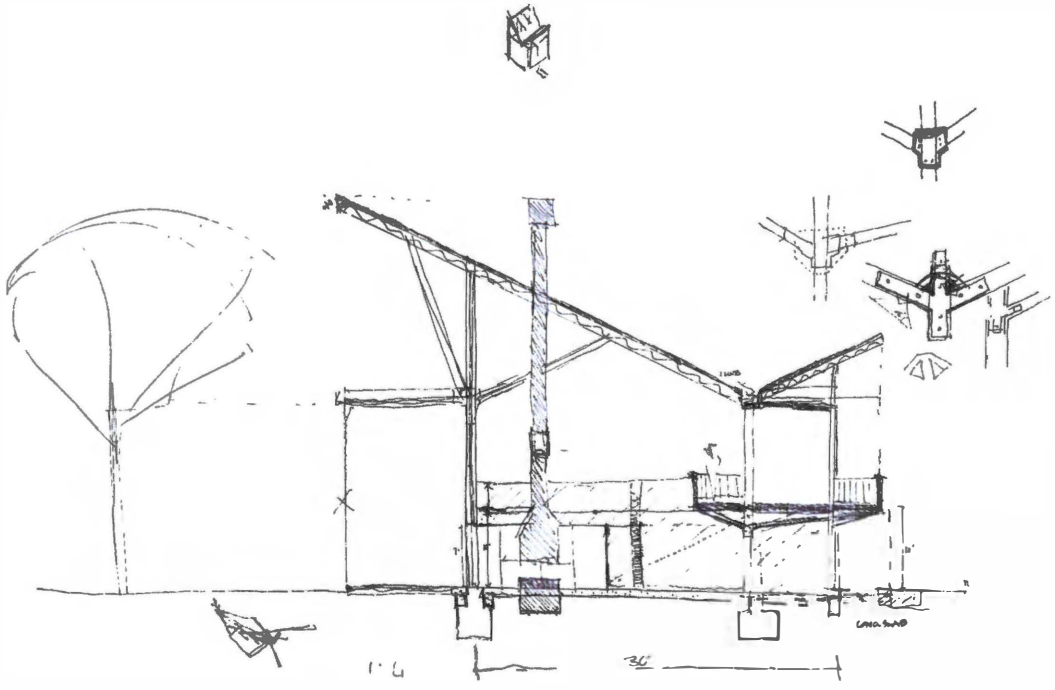
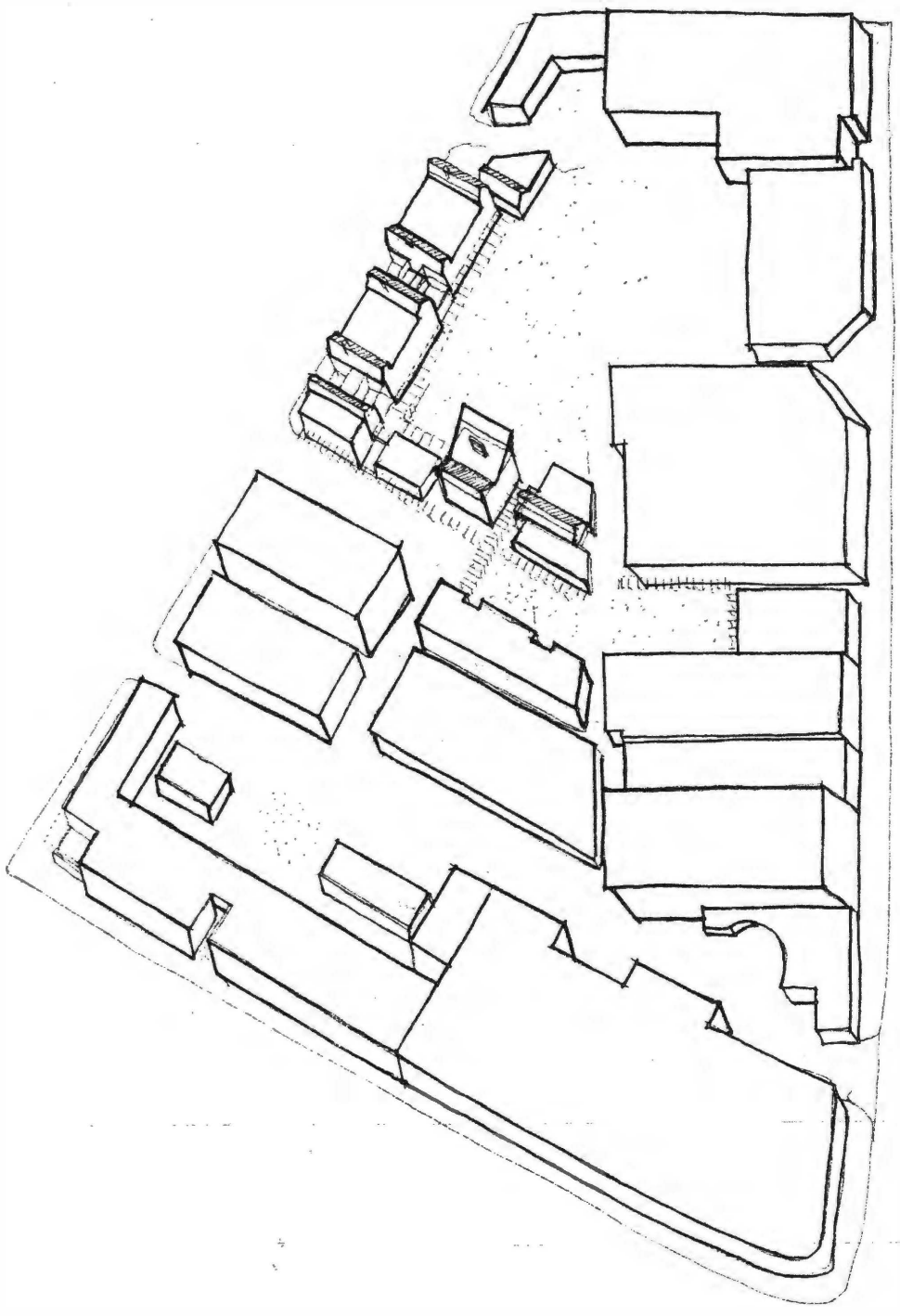


Fig 36: Community house section-process drawing
Source: Author



The development of the Main Street live/work and the Williams Street cohousing elevations can be seen in the process sketches and final drawings. It was especially important on Main Street to respond carefully to the existing context (Figures 37 and 38). There is a very clear sense of rhythm and datum present here, as discussed previously in the site analysis. Thus it was logical to continue these formal architectural ideas in the design. The twenty-five foot bay system of the live/work units is derived from the neighboring context, as well as the scale and datum established in the elevation. Similar ideas of datum and scale guided the Williams Street elevation (Figure 39). This elevation also illustrates ideas about depth and layering to activate the cohousing façade. A three-foot base separates the semi-private shared court from the street level. This stone base also is a material datum that unifies the elevation and also wraps around to the interior of the block as a knee wall to define the boundary between the public green and the vehicular alley. This stone base element also is found in the greenhouse corridor. It separates the public circulation layer from the semi-public front porch layer. This element is an example of architectural unity.

The design process that began at the level of the city block and its context eventually progressed to the design of an individual housing unit. The cohousing units underwent more design iterations than the live/work units, and so these better illustrate the ideas of the thesis proposal at this level. Though there are several cohousing unit types and variations within these types, the "standard" three bedroom cohousing unit is discussed here. The basic parti for this unit illustrates the primary division between public and private space within each unit. One important

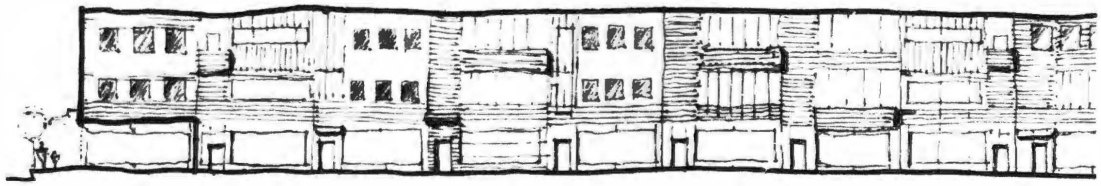


Fig 37: Main Street elevation: process sketch 1
Source: Author

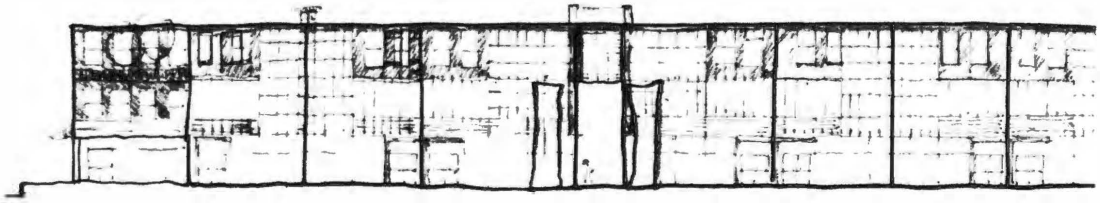


Fig 38: Main Street elevation: process sketch 2
Source: Author

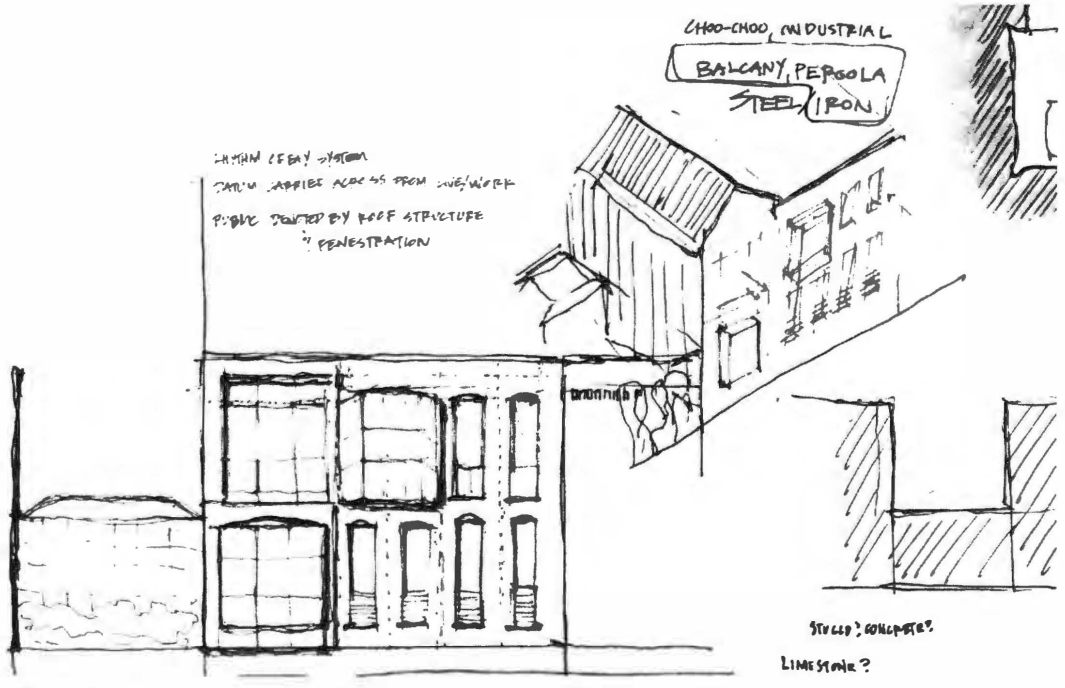
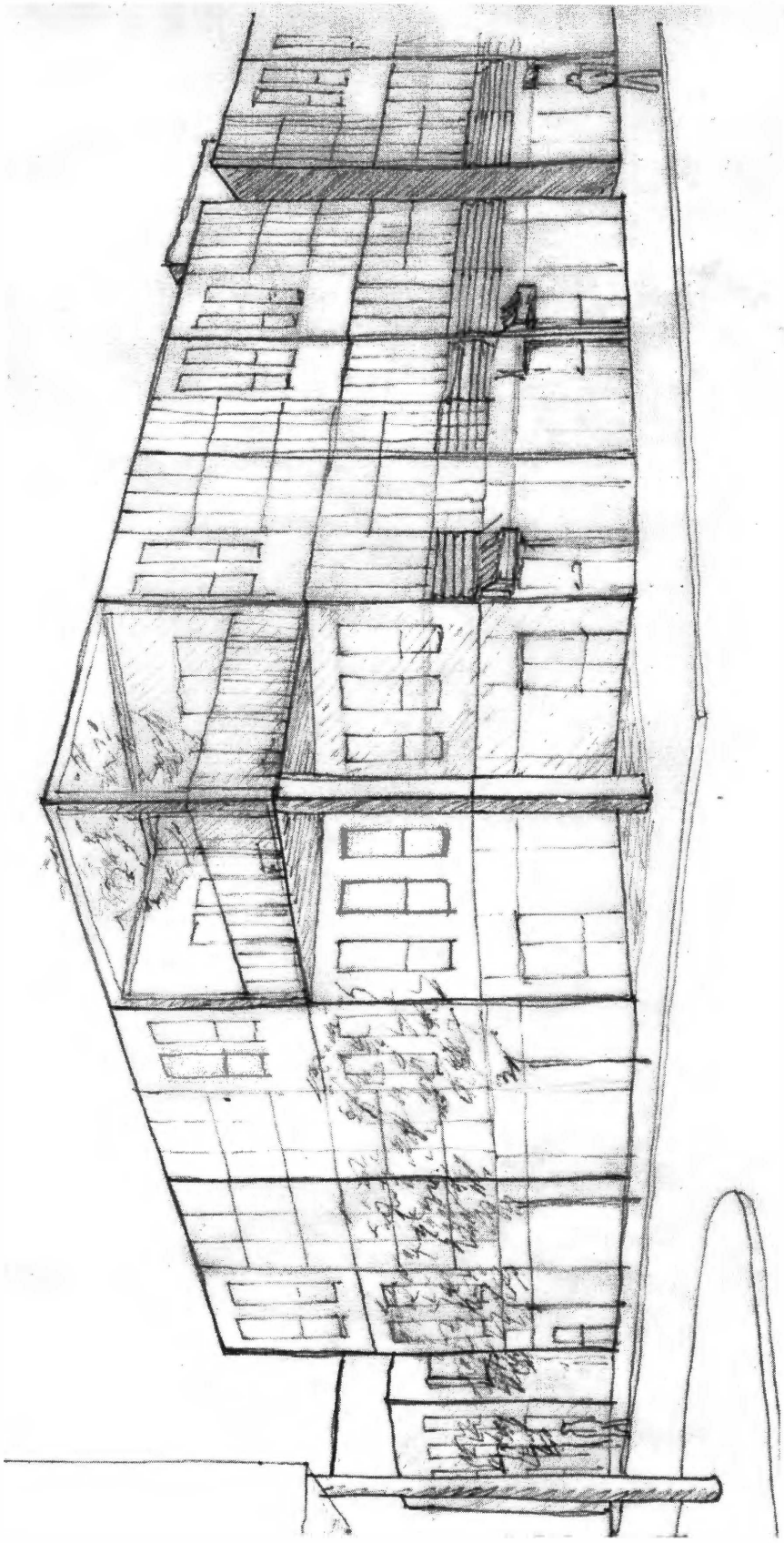
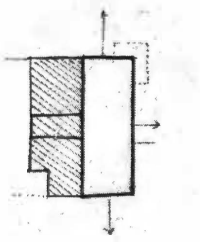


Fig 39: Williams Street elevation: process sketch
Source: Author

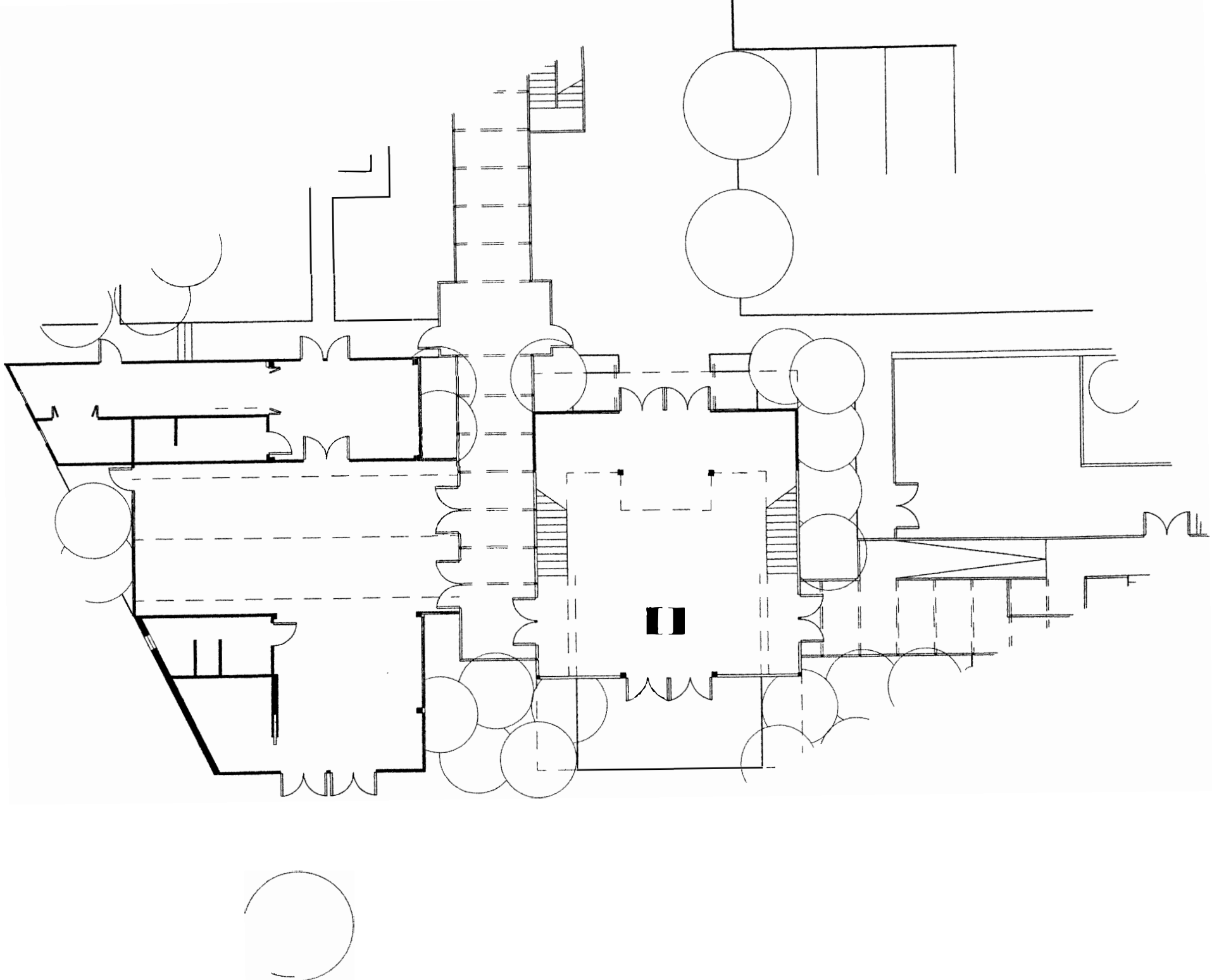


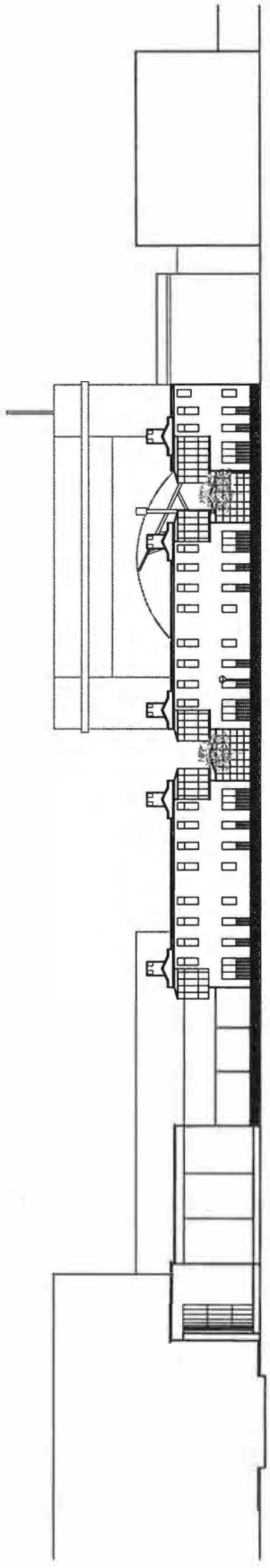
idea is the variety of public and private spaces that are created. Entry to each unit through the shared greenhouse corridor has already been described. There is also a small vestibule into the unit that is shared with one neighbor (note this is a different neighbor than the ones who share a courtyard). There are three private balconies in the unit. There are several moments in the project that illustrate the attention given to creating special places. The kitchen opens up to the living space. There is a cozy reading nook overlooking the shared corridor and a nook that pushes out from the upstairs bonus room above the shared court.



Unit parti
Source:Author

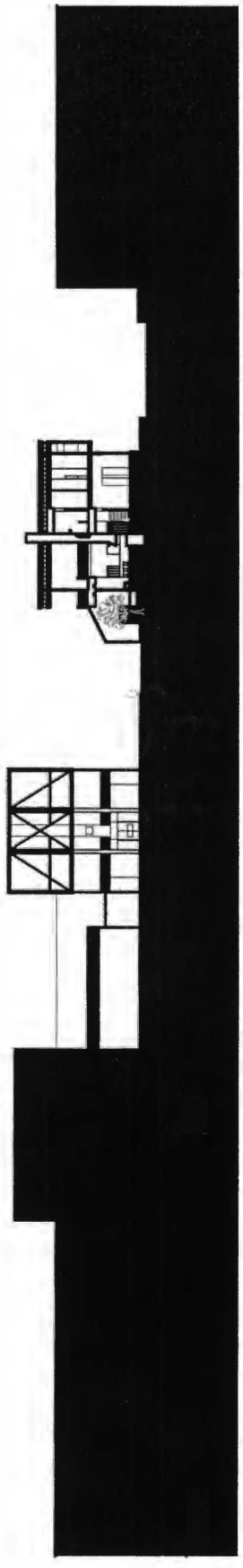
Another important characteristic of this unit is its flexibility of spaces. The public zone can function as two separate rooms divided by a pocket door or one large space that opens up from the street side to the corridor side of the unit. This space has a centrally located hearth, which serves to unify the space horizontally and vertically. On the second level of the unit, a similar condition occurs. There is a flexible space that overlooks the double height living room below and opens onto the Williams Street balcony. This space could easily be used as an office, library, playroom, additional living space, extra bedroom, or as one large master bedroom suite, depending on the needs of the resident. It is not an accident that this is much like the larger idea discussed in the background (p. 2), where a viable community is one that is able to handle change. This unit is able to adapt to the needs of a diverse and changing population of residents, thereby establishing permanence and unity within the cohousing community.

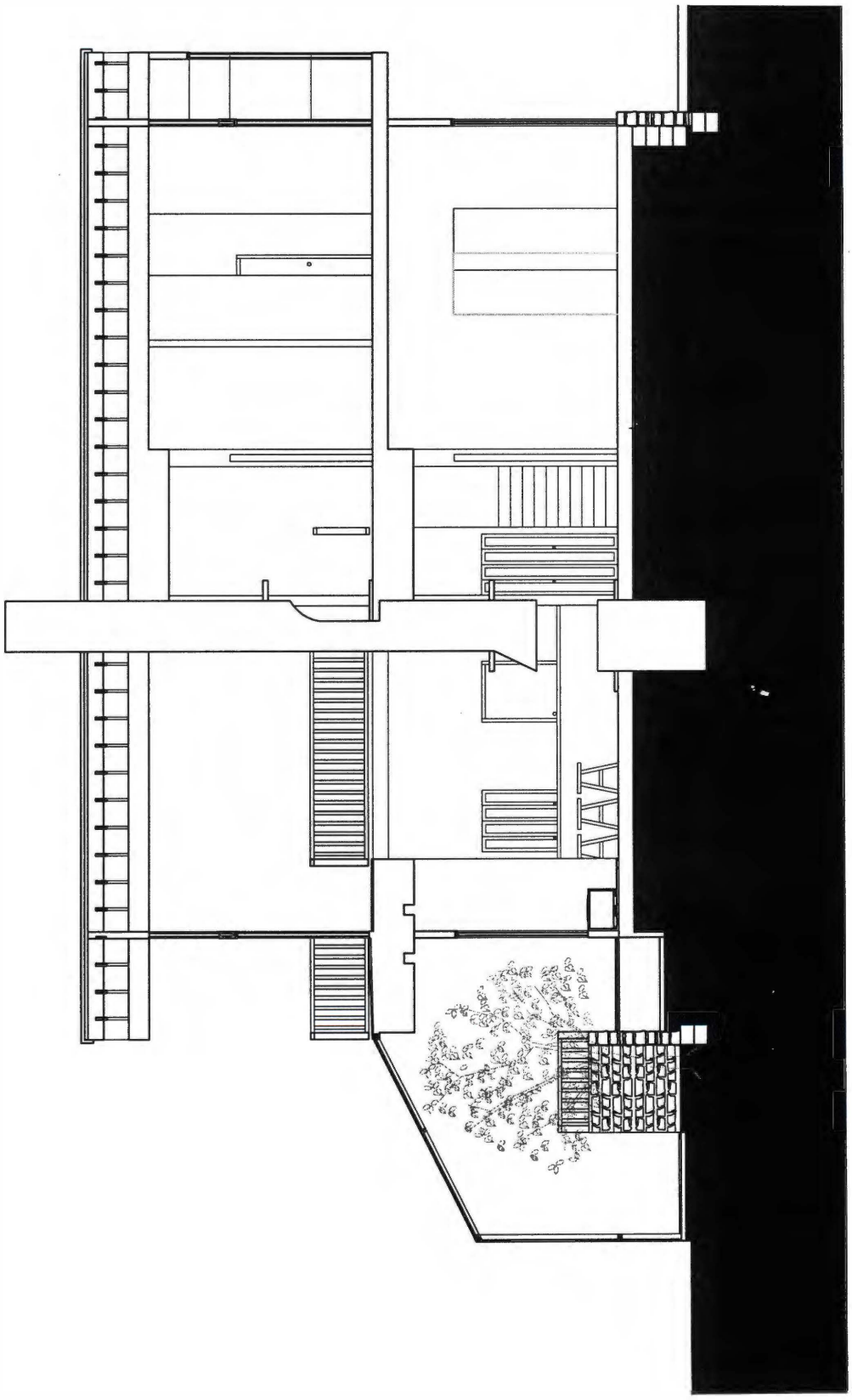


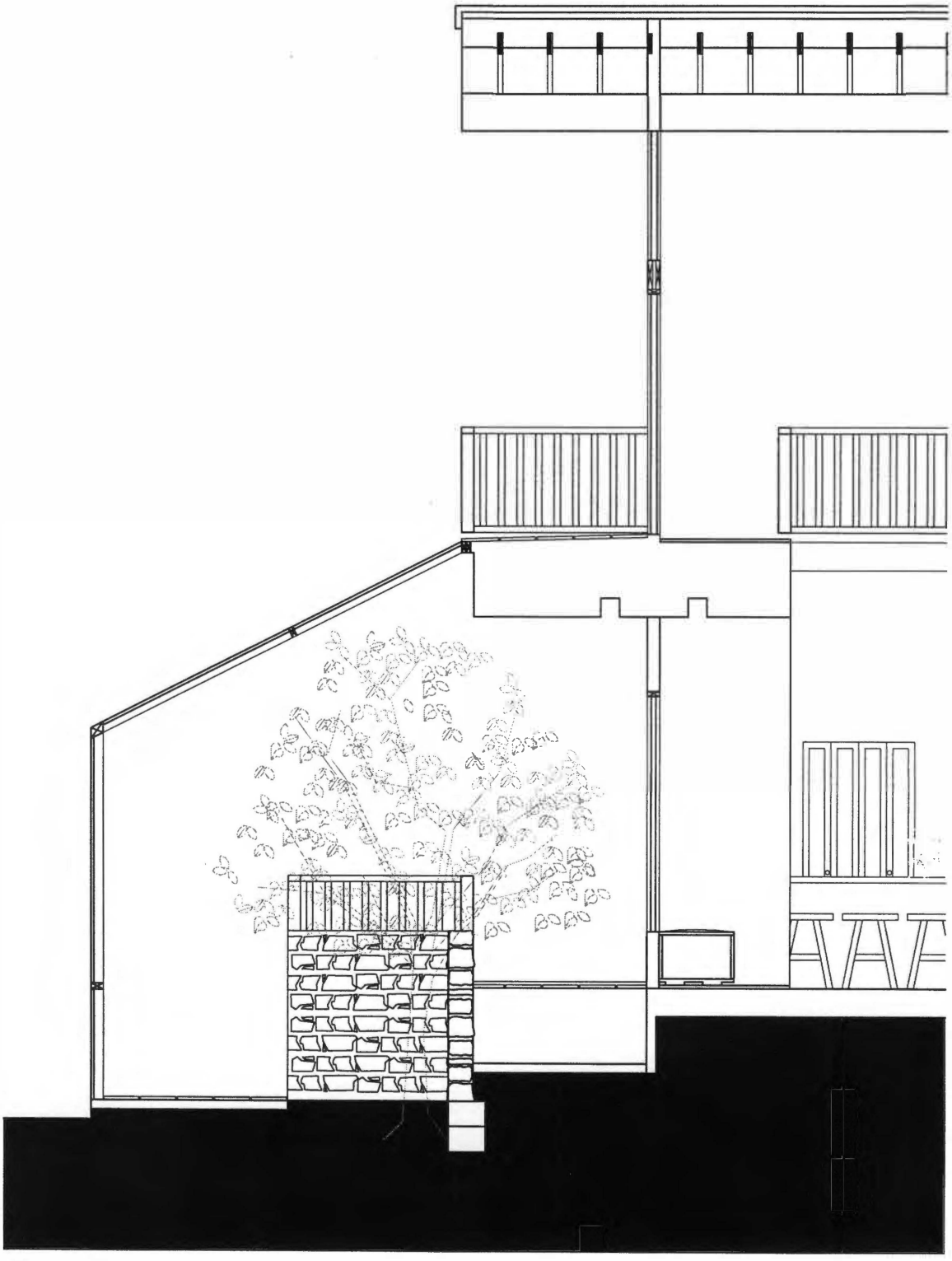


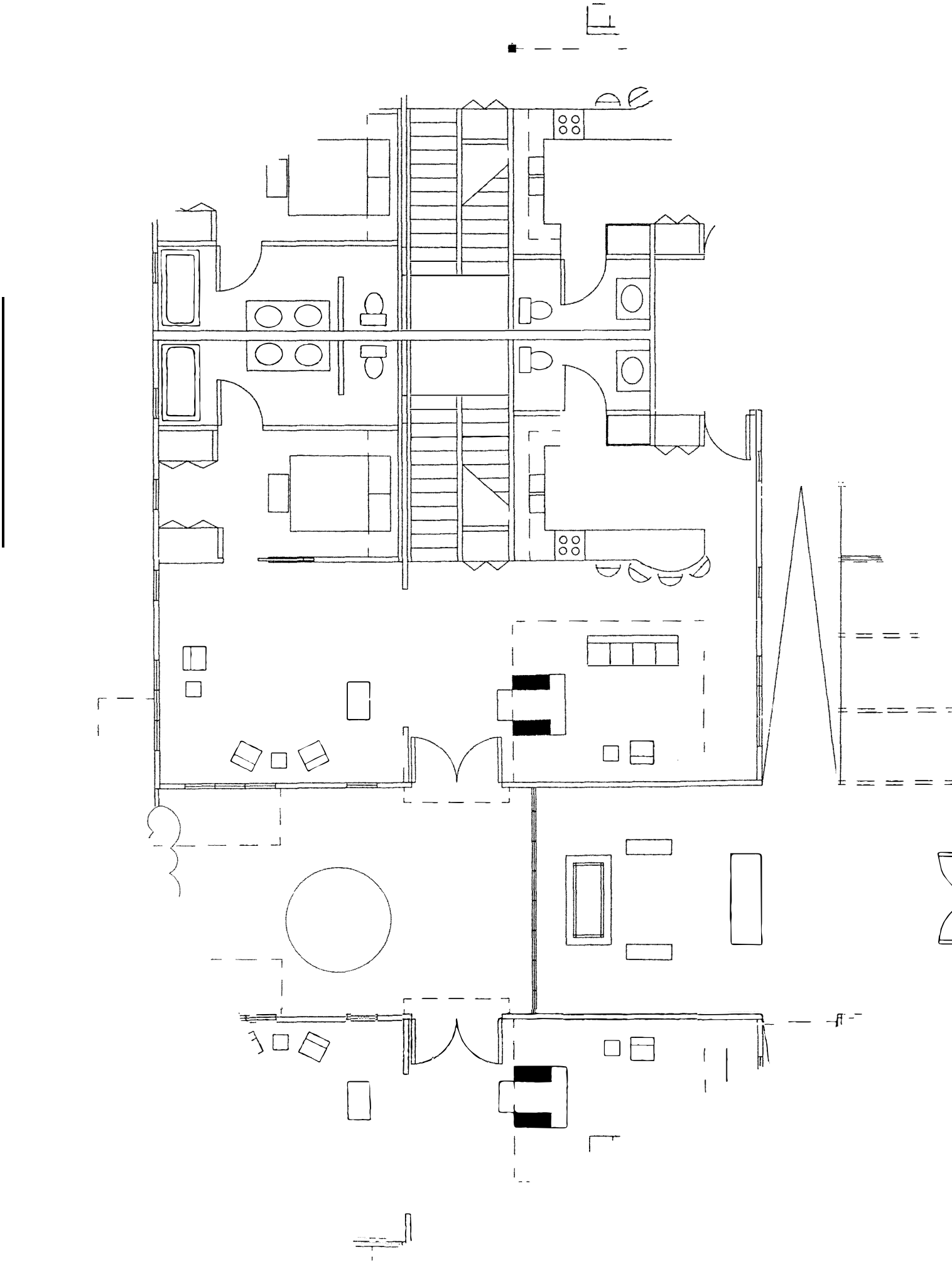


WILLIAMS STREET ELEVATION









X. EPILOGUE

The design project proved to be a well-defined vehicle for exploring the ideas of the thesis proposal. On a very basic level, the program offers its own kind of diversity and unity- two quite different specific programmatic needs, unified by the fact that both parts are indeed housing typologies. The design of public buildings and exterior spaces was a significant part of the design, perhaps even more so than the individual housing unit. Many issues arose during the design investigation that were not originally considered in the initial thesis proposal. This fact, I hope, is a testament to the provoking and challenging nature of the intellectual proposal.

In retrospect, I did find it difficult to develop all parts of the program to equal levels of completion. The project as defined may have been too large for one designer under the given time constraints, or perhaps I spent too much time in the early phase at the urban scale.

The thesis investigation was a challenging and educational experience. I am hopeful that this thesis might begin to form ideas for me to explore throughout my professional career.

BIBLIOGRAPHY

Alexander, C. *A Pattern Language*. New York: Oxford Univ. Press, 1977.

Anderson, S. *On Streets*. Cambridge, MA: MIT Press, 1978.

Armstrong, Z. *The History of Hamilton County and Chattanooga, Tennessee*. Chattanooga, TN: Lookout Publishing Company, 1931.

Blakely, E. and Snyder, M. "Divided We Fall: Gated and Walled Communities in the United States" in *Architecture of Fear*. Ellin, N. (ed.) New York: Princeton Architectural Press, 1997.

Celik, Z., Favro, D., and Ingersoll, R. (eds.) *Streets: Critical Perspectives on Public Space*. London: Univ. of California Press, 1994.

Chattanooga Area Information. 18 Oct. 2001. www.chattanooga-cyre-leike.com/area.html

Chattanooga, Tennessee. 18 Oct. 2001 www.ngeorgia.com/tenn/chattanooga.html

City of Chattanooga. 18 Oct. 2001 www.chattanooga.gov/about.htm

Cromley, E. and Hudgins, C. (eds.) *Shaping Communities: Perspectives in American Architecture*. Knoxville, TN: Univ. of Tennessee Press, 1997, p. 92-110.

Fromm, Dorit. "American Cohousing: The First Five Years." The Journal of Architectural and Planning Research. Summer 2000, p. 94-109.

Hertzberger, H. *Lessons for Students in Architecture*. Rotterdam: Uitgeverij 010 Publishers, 1991.

Hoyt, C. *Public, Municipal, and Community Buildings*. New York: McGraw-Hill, 1980.

Hundt, Karen. "The New Downtown Plan." Georgia Institute of Technology conference, Chattanooga. 4 Oct. 2001.

Jacobs, A. *Great Streets*. Cambridge, MA: MIT Press, 2001.

Jacobs, J. *The Death and Life of Great American Cities*. 1961; rpt. New York: Random House, 1989.

Lennard, S. and Lennard, H. *Livable Cities Observed*. Carmel, CA: Gondolier Press, 1995.

Livingood, J. *Hamilton County*. Memphis, TN: Memphis State University Press, 1981.

Marcus, Clare C. "Site Planning, Building Design and a Sense of Community: An Analysis of Six Cohousing Schemes in Denmark, Sweded, and the Netherlands." The Journal of Architectural and Planning Research. Summer 2000, p. 146-163.

Marshall, A. *How Cities Work*. Austin, TX: University of Texas Press, 2000.

Oldenburg, R. *The Great Good Place*. New York: Marlowe and Company, 1999.

Tennessee Division of Geology. *Geology of Hamilton County Tennessee*. Bulletin 79, 1979.

Watson, J. Stroud. "A Brief History of Central Area Redevelopment Planning in Chattanooga." Georgia Institute of Technology conference, Chattanooga. 4 Oct. 2001.

Webster's Tenth Collegiate Dictionary. Springfield, MA: Merriam Webster Inc, 1993.

VITA

Miriam Wohlfarth was born March 9,1977 in Dayton, Ohio. She earned a Bachelor of Science in Mathematics from Ashland University in 1999. Upon graduating from the University of Tennessee, she will pursue work as an architectural intern in Chattanooga, Tennessee and continue to explore the ideas borne of this thesis project.