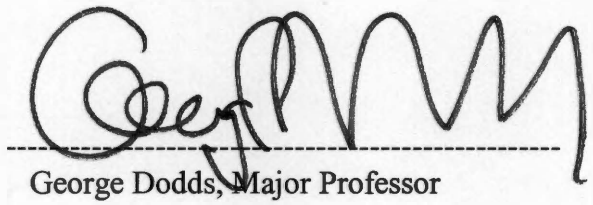
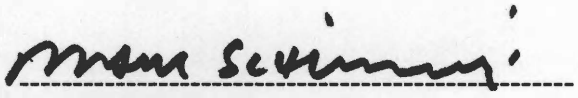
To the Graduate Council:

I am submitting herewith a thesis written by Seaneen Lucretia Murphy entitled "city, interrupted : a study of infrastructure and the urban condition." 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 of Architecture, with a major in Architecture.

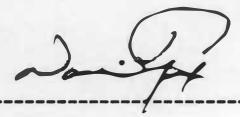


George Dodds, Major Professor

We have read this thesis and
recommended its acceptance:

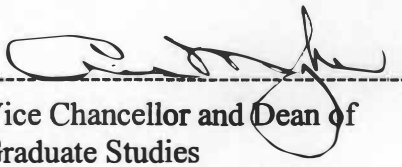


Mark Schimmenti



L. David Fox

Accepted for the Council:



Vice Chancellor and Dean of
Graduate Studies

Thesis
2007
.M87

city, interrupted

a study of infrastructure and the urban condition

a thesis presented for
the masters of architecture degree
the university of tennessee, knoxville

seaneen lucretia murphy
may 2007

dedication

This thesis is dedicated to my family, Phil and Lucretia Murphy, Philip, Todd, Brendan and Sheila Murphy. Without your constant help and endless support through my frustration and despair this would not have been possible. I love you all.

acknowledgments

Many thanks of all of the professors who have aided in my journey for the past three years. Each professor has provided me with sincere earnesty and patience as well as unparalleled guidance in my growth not only as an architecture student but as a human being. Their task at times was quite daunting and my appreciation and gratitude is beyond words.

I would also like to thank my fellow classmates and friends that persevered through the program to the end. I definitely could not have done it without your helpfulness, direction and above all your wit.

Finally, thank you to my family for your love, support and encouragement. Without your help, this voyage would never have been possible.

abstract

Urban renewal and revitalization, considered an essential component to the rebuilding and reshaping of most promising communities, customarily attaches with its definition a "for the common good" connotation. The efforts of city and regional planners with local governments concerning renewal projects is one of offering great change and providing potential to a sector of a city that had not previously been successful; one where every member of the community seemingly would benefit from such projects. The strategies, when executed, most specifically concerning the Eisenhower Interstate System, sought to create affirmative change within the infrastructure of metropolitan areas and provide a large-scale system of connectivity with the city center and its boroughs. Unfortunately, the privilege of high-speed, high-traffic connection came at a cost to many urban neighborhoods. The result was a widespread disjunction and dislocation of an urban fabric that had existed for decades.

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i. proposal for thesis

This thesis explores such spaces that have been disordered and veritably cut in half by the institution of interstate infrastructure. I wish to explore the relationship of the Eisenhower Interstate System to communities that have been interrupted and displaced by large-scale infrastructural implantation within the urban fabric (figure 1)[1]. I will also investigate the social and architectural impact that these disjointed sectors have careened the continuity of the urban condition. The obvious divide that such infrastructure implies is the physical division with which the interstate highway system severs neighborhoods. The contiguity and intransience are dispelled and the neighborhoods themselves lose their interaction creating an area that is fragmented in character and unable to reconnect or reassimilate into its original framework because of the physical presence of such an imposing infrastructural system. The spaces results in a "heterotopia", a space that is essentially other, devoid of public or private realm, a visual scar in the networking of a metropolitan environment (Foucault 22)[2]. Areas are established that have no clear definition or spatially significant characteristics yet they exist in every city. The infrastructure and design of major interstate networks have created a by-product of unorganized and an undelineated area within the fabric of a city.

These areas remain unprogrammed and typically form a region that is a hodgepodge of activity, one where the framework of the community is lost. The site is considered a residual city, in which the infrastructural damage is "pre-enlightenment in conception yet post-industrial in situation, which seems to exist outside the normative

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[1] All figures are located in the appendix
[2] Michel Foucault, "Of Other Spaces," *Diacritics,* Spring 1986. 22-27.

typological discourse on urbanism (Dodds 84)[3]." The objective, when confronted with such sites, should propose architectural ideas that can produce an infrastructure that relates and provides a necessary linkage amongst the site and its inhabitants; an area that creates a relationship with area and built form. As J.B. Jackson wrote in *Discovering the Vernacular Landscape*, "the most magnificent of city complexes recognized the need to integrate infrastructure, or civil engineering with landscape, or architecture (Jackson 48)[4]."

This thesis proposes a relationship with the extensive history of a pre-interstate highway community and it post-interstate highway condition. The relationship of connectivity in community and space in architecture will be explored. Although the original framework has been disrupted by major transportation networking, the community itself is still extant and can be reorganized to establish a cohesive relationship with its history and its present condition (figures 2, 3, 4, 5,6,7).

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[3] George Dodds, "Theatre of the Residual City: Six Sites in a Metascape," University of Waterloo (1992): 84-96.

[4] J.B. Jackson, *Discovering the Vernacular Landscape,* Cambridge: MIT Press (1978)

ii. architectural issues

Architectural issues to pursue:

Spatial definition – Spatial definition is one of the most important ideas associated with my project. The overt definition of space contributed by an interstate overpass is a complex dilemma that needs to be addressed. The program of the building engages this space through overlap or the use of transparency to successfully reconnect this site within its context.

Boundaries are imparted on a site by a natural element, i.e. mountains, rivers, valleys, etc. However, this is an exceptional circumstance where the boundary is manmade and the spatial divider was constructed *after* the initial site was inhabited. In relation to the subject of public versus private creates an additional definition of boundary that needs to be addressed. The literal and figurative relationship of boundary to spatial definition must be addressed to effectively organize this thesis.

Context is essential to provide a complete solution to this thesis. The Richmond Avenue site is a 300 year old site that has undergone a multitude of iterations. The question that must be asked to properly define this thesis project is; in what context does this site belong? The most successful projects are those that clearly understand the context of a site and transform this understanding into the eloquence of a building.

A space of work versus a space of pleasure will be understood. Since the proposed design for this site is a live/work art center, the role of the private realm and public realm must be attended to. The design techniques and solutions must take into account that this building is a both/and condition.

iii. site analysis

In Michel Foucault's essay "Of Other Spaces", the philosopher describes a heterotopia as a spatial condition that is ostensibly present in Philadelphia, PA. According to Foucault, "there are real places – places that do exist and that are formed in the very founding of society – which are something like counter sites, a kind of effectively enacted utopia in which real sites, all other real sites within the culture are simultaneously represented, contested, and inverted (Foucault 24)[5]." These are heterotopias; areas that function in a different manner than other normative spaces within a culture. The sites provide a "counter arrangement" to a culture where all relations are "represented, challenged, and overturned (Foucault 24)[6]." They are "absolutely other (Foucault 25)[7]." Heterotopias assume a system of opening and closing that isolate their liminal spaces from the remainder of the community. The American interstate highway system functions in a relative symbiosis to this theory by its visual and experiential presence creating a space that is an "institutionalized demarcation of the structures of power (Foucault 27)[8]."

I-95, an interstate that connects Florida to Maine runs a route that in effect fragments many of the major metropolitan areas on the eastern seaboard of the United States. The result of implementing such a drastic and severe system of transportation across a 2500 mile expanse asserted an immeasurable impression on cities from

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[5] Michel Foucault, "Of Other Spaces," *Diacritics*, Spring 1986. 22-27.
[6] Ibid.
[7] Ibid.
[8] Ibid.

Washington D.C. northward to Boston. Nowhere were the effects more apparent than in Philadelphia, PA. Interstate 95 runs parallel to the Delaware River on the east side of Philadelphia. The original planning of the interstate was to mirror the infrastructure of the railway that had been completed centuries earlier, resulting in the disruption and dislocation of many neighborhoods that had existed for centuries (figures 8, 9, 10, 11). One of these neighborhoods was Fishtown. Fishtown is a Philadelphia neighborhood that was settled in 1730 and is located in close proximity to its city center. The neighborhood is actually situated in lower Kensington, a town which at one time was considered a suburb of Philadelphia whose northern boundary ends at what is now Vine Street. Best known for Penn Treaty Park, the site where William Penn is believed to have made his treaty with local Native Americans, Fishtown is enriched with historical context (figure 12). The area was originally inhabited by Swedes and English Quaker but is currently occupied by Irish Catholics who have been a presence in this neighborhood since the turn of the 20th century. The designation Fishtown comes from the businesses that ran along Girard Avenue in the 1600s. Refrigeration in the 1830s was obtainable solely by the affluent; therefore, ships transported their goods to docks along the Delaware River. The cargo was unloaded at the smokehouses that lined Girard Avenue. This fish would then be pickled, salted, and smoked for preserving. The odor that permeated this area resulted in its name (Rerner, 1-4)[9].

Fast forward 200 years and this same region bursting with historical significance and culture fell victim very quickly to the infrastructural changes. The consequence of

[9] Rerner, Rich, "Fishtown and the Shad Fisheries," Historical Society of Pennsylvania, www.hsp.org. 1-4.

government initiative produced an interstate network that sliced the Fishtown neighborhood in half. The section of Fishtown that I will explore runs from Richmond Avenue to Delaware Avenue; a site that falls directly across the street from Penn Treaty Park. Penn Treaty Park is site of the legendary peace treaty between William Penn and the Pennsylvania native Lenni Lenape Indians (Rerner, 1-4). Richmond Avenue fronts interstate 95 to the west as it encompasses the entire western side of the street. On the eastern side of Richmond Avenue, there is Kensington Methodist Church built in 1805. Also on the eastern section of Richmond are two row homes that were built in 1751 (figures 13, 14, 15, 16). These row homes are located on the eastern side of Kensington Methodist Church. In addition to Richmond Avenue, there is an additional street that runs parallel to Richmond Avenue and Delaware Avenue (figures 17,18). The street is called Allen Street and its function is unclear. On Allen Street there appears to be prefabricated row homes that are in ill repair and are in need of some attention. It is clear that the infrastructural change that occurred with the implementation of the interstate highway system dramatically impacted this site. The Richmond site is also affected on the eastern side by Delaware Avenue. Delaware Avenue separates the Richmond site from Penn Treaty Park in a dramatic fashion. It is comprised of an active four lane road that is less than pedestrian friendly. The site is an archetypical example of a heterotopia. The "counter arrangement" that occurs in this neighborhood is noticeable; as just beyond the interstate overpass on Richmond Avenue, the urban fabric recommits itself to the connectivity that is an exclusive demarcation of districts in metropolitan areas. The

Richmond site is isolated and remains in a weakened state trapped amid the massive power of interstate infrastructure and its historical context.

iv. program/vehicle

The biological definition for the term heterotopia is one where individuals of a species inhabit different biotopes at different stages and generations of their life cycle (Granovitch 1)[10]. Heterotopias signify "other space" – a place that is unusual, on the periphery or displaced. They are "different" or "incorrect" sites, yet they can act as predictors of transformation and initiations; they can provide the necessary jolt to normalcy.

Art can provide a similar function. Art manifests itself in everyday life; its role is certainly engrained in every culture as a means of expressing the human condition. Yet, art has a much more complex role. A role that enables humanity to distinguish itself; to differentiate between what is real and what is imagined.

It is certain, therefore, that this site must address its condition. The isolation of this condition from its respective urban fabric has shaped a heterotypic space. This space alone is the necessary jolt to normalcy as it has been stripped from its symbiotic circumstance; no longer identifiable within its original context. This site stands alone. Therefore, the building program must stand alone; it must deviate from the everyday.

A live/work arts center would accomplish the goals presented in this thesis very concisely. The purpose of the live/work arts center would be to create a heterotopia within a heterotopia. The center would produce a space where individuals would construct an "other" condition; a space where the boundaries of public and private are blurred, where art and infrastructural engineering are confronted. A live/work arts center will provide the opportunity for Richmond Avenue to reconnect with its neighborhood by

[10] Andrey I. Granovitch, *Parasitic Systems and the Structure of Parasite Populations,* 1992. 1-7

affording occasions for social engagement through art exhibits and classes. An arts center will also impart a language with it contextual history and that of Penn Treaty Park located opposite the site by providing opportunities for sculptural displays within the park setting.

v. performance program

The existing townhouses within the setting as well as the Kensington United Methodist Church will be renovated to fulfill the requirements for an artist's residence. Flanking the sides of two of the townhouses are vacant lots that will be constructed artists residences. On the opposing side of the street facing interstate 95 will be a continuation of the artist's workshop and residences. The interstate system will be reinterpreted as a site of linkage and interconnectivity with the site as the buildings will be configured around and through the infrastructure. The artist's residences and workshops will encompass the entire block up to Wildey Ave. Towering over interstate 95 will be a pedestrian bridge that will further connect the entire project within its present context. I envisage that the pedestrian bridge will serve not only as a transportation hub of the project, but also to serve as gallery space for some of the artist's work. The artist's studios will be located on the Wildey Ave. side of interstate 95, where, according to Philadelphia zoning, limited industrial businesses can be located there. On the Delaware Avenue side of the site, there will be an extensive gallery space that will provide access to the public as well as a referential language with Penn Treaty Park located on the opposing side of Delaware Avenue. Classrooms and administrative offices will also be located on this site to provide for an amicable relationship with the history of the site as well as learning.

Quantitative Program:

15 studio workshops at 1000 square feet = 15,000 square feet

10 residences at 1200 square feet = 12,000 square feet

10 residences at 2000 square feet = 20,000 square feet

5 residences at 800 square feet = 4,000 square feet

5 Classrooms for art classes at 300 square feet = 1500 square feet

1 Gallery space for exhibits at 3500 square feet = 3500 square feet

3 Administrative Offices at 50 square feet = 150 square feet

Pedestrian Bridge at 500 square feet = 500 square feet

Bathrooms and closets total = 500 square feet

Total square footage of proposed live/work arts center = approximately 60,000 square feet

vi. technical data

The Philadelphia building code states that multiple single-family dwellings must be no more than three stories above grade and have a separate means of egress and comply with the residential code set forth by the city of Philadelphia. Commercial use situated in this area must be situated within the residential dwelling of the practitioner and must be considered incidental to the main purpose of the dwelling. For an art gallery and artists residence to be located on this site a permit from the Board of Adjustments must be obtained and located at a detached building from the residences located on the site. The art gallery shall not permit any signage as to the location of the site and may only operate between the hours of 10:00 am to 8:00 pm. The art spaces will be limited to only 25% of the total floor area and the business may only be conducted by members of the family residing in the dwellings themselves. My proposed thesis will fall outside the realm of many of these statutes put forth by the city of Philadelphia, therefore, a permit from the Board of Adjustments will need to be obtained to successfully complete this project.

vii. precedent analysis

- Artspace, Salt Lake City, Utah (figures 19,20,21,22)

  Artspace Utah is a non-profit community development organization that was founded in 1980 as a means to revitalize the industrial west side of Salt Lake City. The intention in this project was to create a mixed-use project that provided affordable housing, cultural opportunities and commercial retail spaces. This space was the first of three highly successful live/work strategies that have now been completed in Salt Lake City and allows for the successful synergy between artists, their residences and the community. Comprising 81,000 square feet of living and gallery space this development enabled me to look at a project at almost twice the size of my project to see the design issues that the architects overcame to maintain continuity and the urban grain of these buildings.

- Artscape Studios, Toronto, Ontario, Canada (figures 23,24,25,26)

Artscape, similar to Artspace in Salt Lake City took a dilapitated industrial section of Toronto and revitalized it into a lively arts community. This 50,000 square foot renovation of a distillery in downtown Toronto was quite interesting to focus on as the building was located in the historic district of Toronto. My particular project is also located amidst 18th century housing, therefore studying the renovation techniques used by Ziedler Partners Architects was very useful. Currently Toronto has 6 such projects headed by Billie Bridgeman and Sandra

Cowan and the goal in this region is to provide sustained affordable housing and studio spaces for artists.

- Elfreth's Alley, Philadelphia, PA (figure 27)

  Elfreth's Alley, a permanent fixture in the wonderful history of Philadelphia has existed successfully since the 18th century. With the establishment of the interstate system in the 1950's Elfreth's Alley was confronted with a major interstate bypass as a bookend to its street. I am looking at this as a precedent as the neighborhood has remained intact and thriving despite the highway project.

- Peter Cardew, Odlum Drive Live/Work Studio, Vancouver BC (figures 28,29)

  Peter Cardew, an award winning architect in British Columbia designed a much acclaimed artist's gallery entitled Odlum Drive Live/Work Studios in Vancouver. This small 4 unit development situated on a 33' x 100' lot created a perfect case study for developing a project with restricted space. Cardew utilized the verticality in his design techniques by creating double height work studio spaces as well as multi-level residences. The first floor of each unit is raised one story above ground to allow for cars to drive in underneath to park or supply drop off or pick up. The units have exterior access to roof gardens via staircases cascading down the sides of the industrial facades. This allows

the inhabitant of the unit to enjoy a suburban amenity in an urban setting. Similar to the artist's communities mentioned previously, Odlum Drive Live/Work Studios have provided artists with an array of resources and the opportunity to live and work in a multi-cultural context.

bibliography

bibliography

Boyer, Christine. *The City of Collective Memory*. Cambridge: MIT Press. 1994

Collins, Peter. *Changing Ideals in Modern Architecture.* Montreal: McGill-Queens University Press. 1965.

Dodds, George. "Theatre of the Residual City: Six Sites in a Metascape." *Sight Work / Site Work Doucments.* University of Waterloo Press. 1992

Easterling, Keller. *Organization Space: Landscapes, Highways and Houses in America.* Cambridge: The MIT Press. 1999.

Jackson, J.B. *Discovering the Vernacular Landscape.* Cambridge: The MIT Press. 1978.

Lynch, Kevin and David Appleyard. *The View from the Road.* 1964.

Rerner, Rich. "Fishtown and Shad Fisheries", Historical Society of Pennsylvania. www.hsp.org

Rossi, Aldo. *The Architecture of the City.* Cambridge: The MIT Press. 1982.

Rowe, Colin and Fred Koetter. *Collage City.* Cambridge: The MIT Press. 1978.

Tschumi, Bernard. *Architecture and Disjunction.* Cambridge: The MIT Press. 1994.

appendix

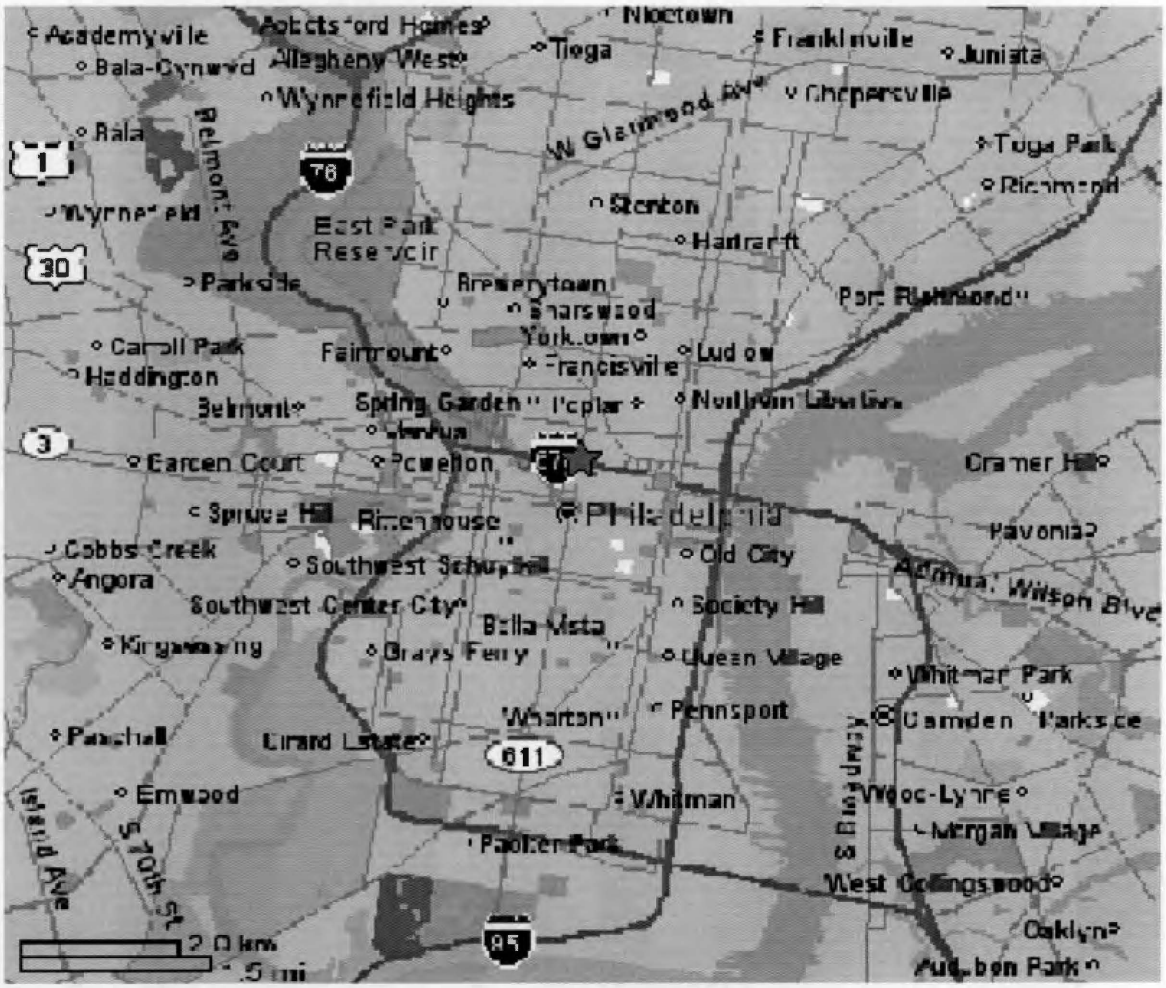


figure 1 – map of city showing downtown relative to richmond
source: www.yahoo.com

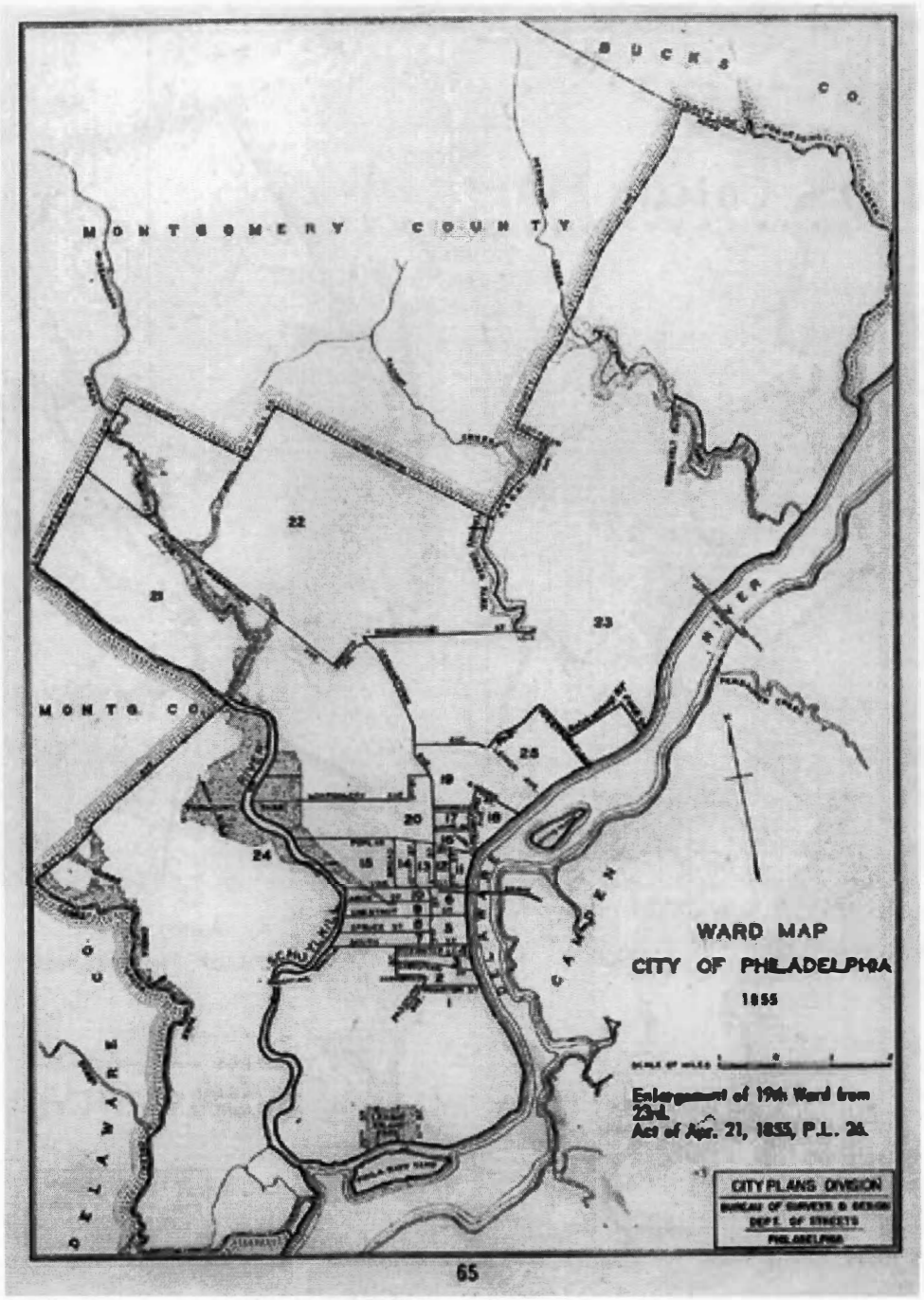


figure 2 – map of philadelphia 1855
source: upenn library

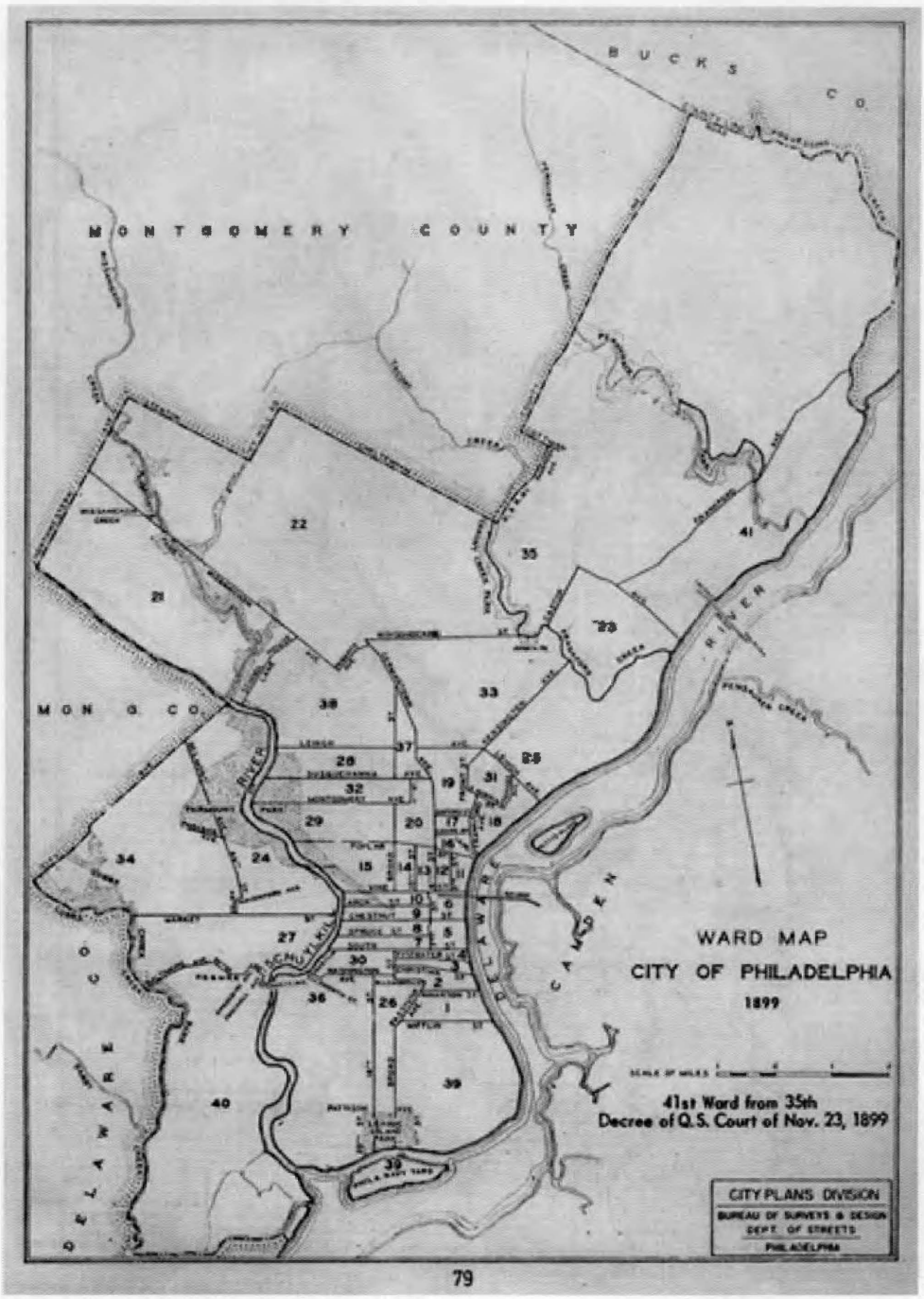


figure 3 – map of philadelphia 1899
source: upenn library



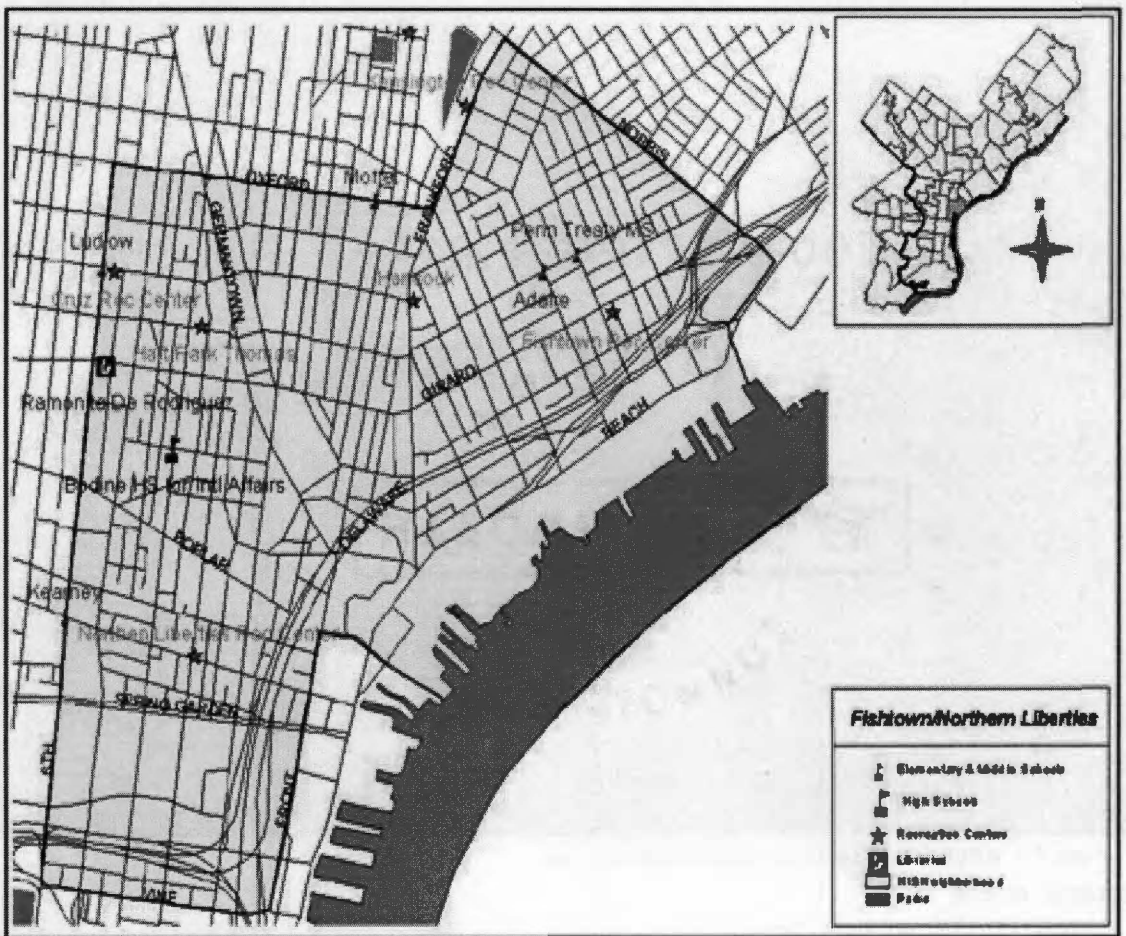
figure 4 – map of philadelphia current zoning
source: upenn library



figure 5 – photograph of philadelphia skyline
source: www.arrakeen.com



figure 6 – aerial photograph of site
source: www.philly.gov



Cartographic Modeling Lab, University of Pennsylvania

figure 7 – map of site
source: upenn library

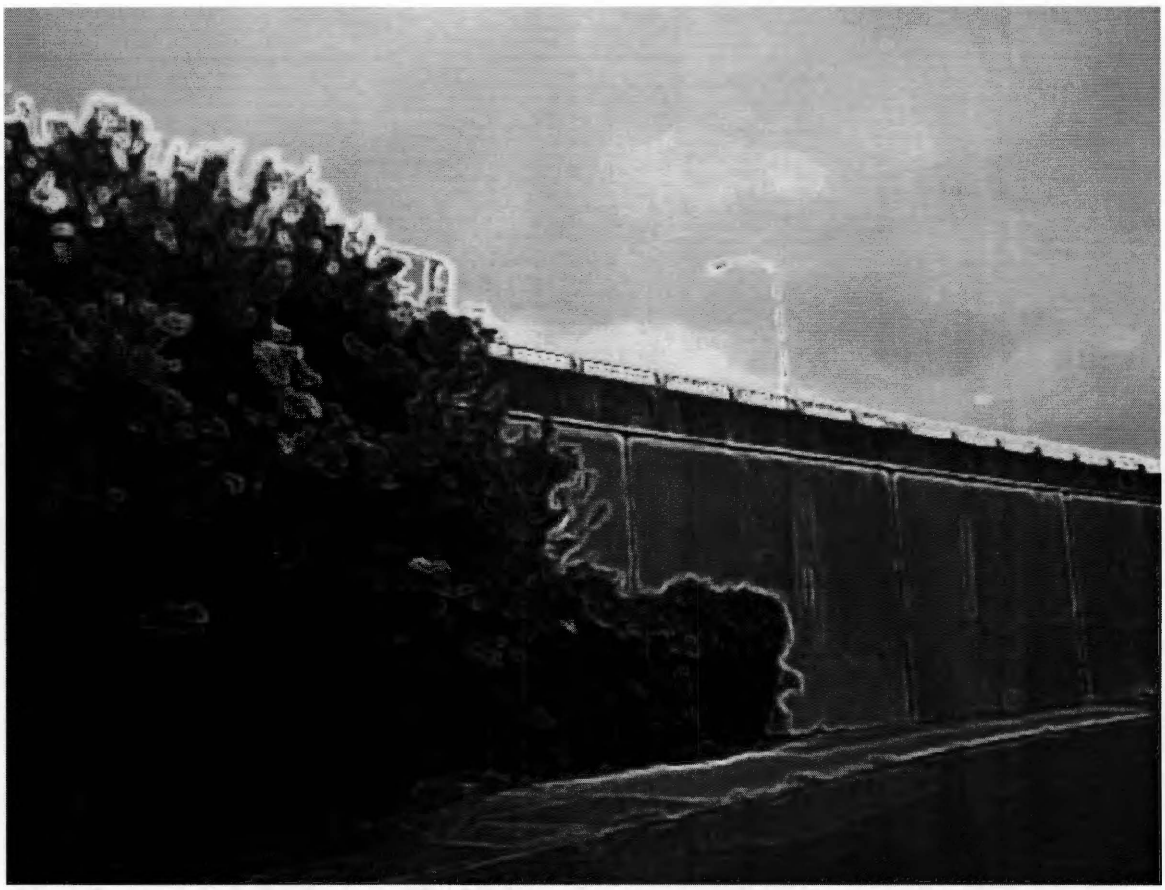


figure 8 – interstate highway, philadelphia, pa
source: author



figure 9 – fishtown as I-95 lingers in background
source: author



figure 10- fishtown neighborhood against backdrop of I-95
source: author



figure 11 – photograph of site i.
source: author



figure 12- penn treaty park, philadelphia, pa
source; author

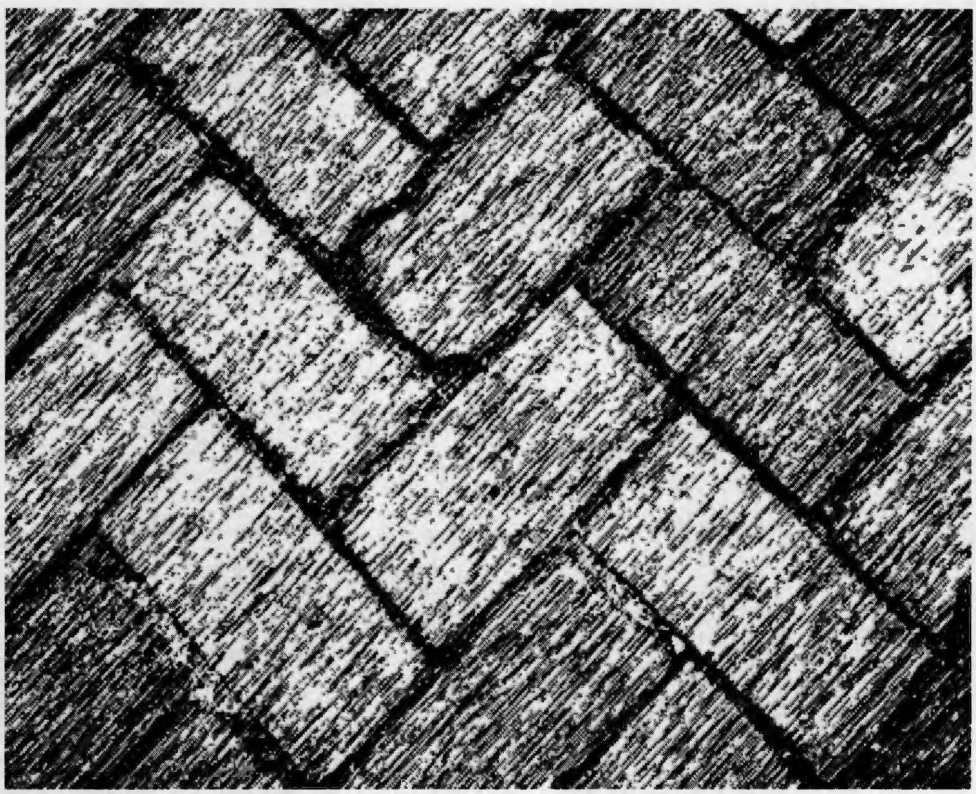


figure 13 – photograph of site ii.
source: author



figure 14 – fishtown, philadelphia, pa i.
source: author



figure 15- fishtown, philadelphia, pa ii.
source: author



figure 16- fishtown, philadelphia, pa iii.
source: author



figure 17 – fishtown rowhomes, philadelphia, pa
source: author



figure 18- fishtown, philadelphia, pa iv.
source: author



figure 19- artspace, utah, salt lake city, utah
source: www.artresourcenetwork.org



figure 20 – artspace utah i.
source: www.artspaceutah.com



figure 21 – artspace utah ii.
source: www.artspaceutah.com



figure 22 – artspace utah iii.
source: www.artspaceutah.com



figure 23 – artscape studios, toronto, ontario, canada
source: www.artresourcenetwork.org



figure 24 – artscape studios i.
source: www.torontoartscape.com



figure 25 – artscape studios ii.
source: www.torontoartscape.com

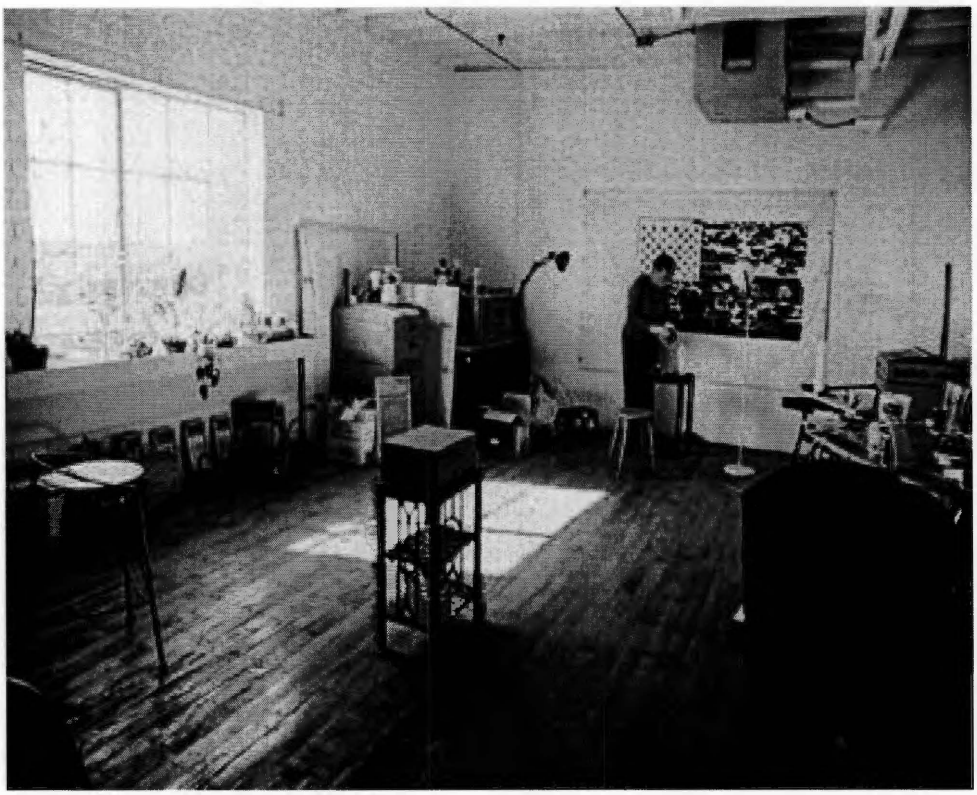


figure 26 – artscape studios iii.
source: www.torontoartscape.com

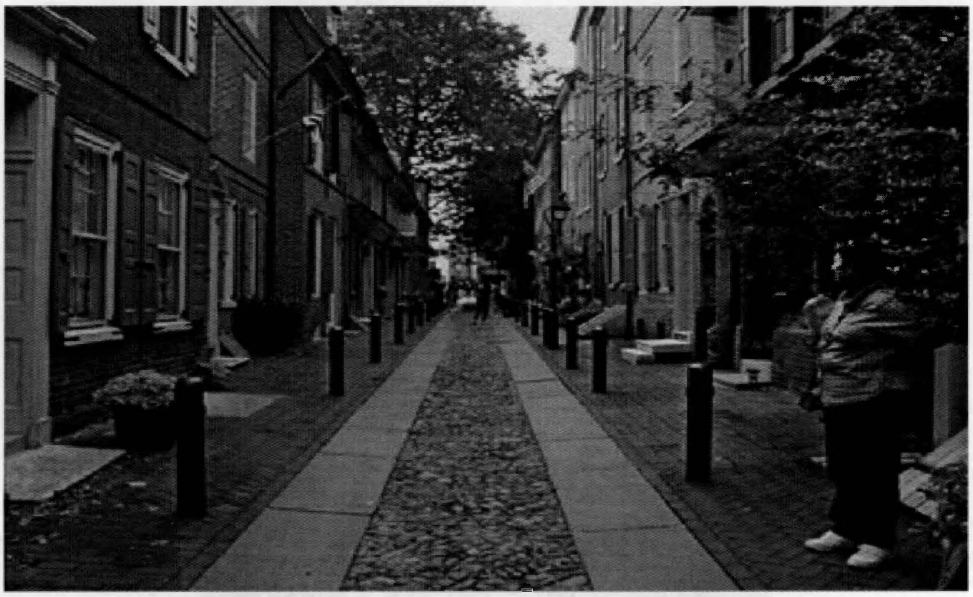


figure 27 – elfreth's alley, philadelphia, pa
source: www.cha-pa.org



figure 28 – odlum drive live/work studios i.
source: www.aibc.bc.ca

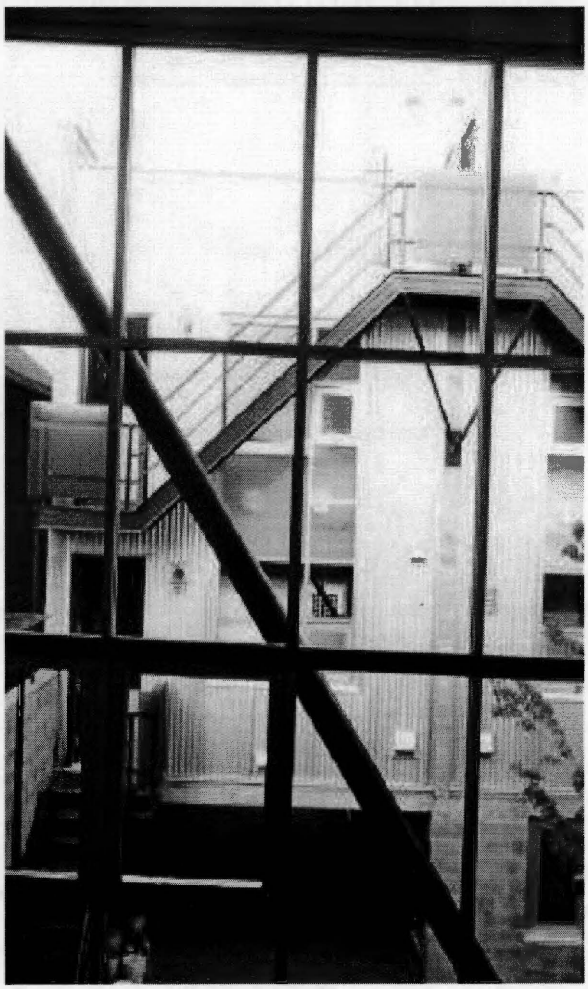


figure 29 – odlum drive live/work studios ii.
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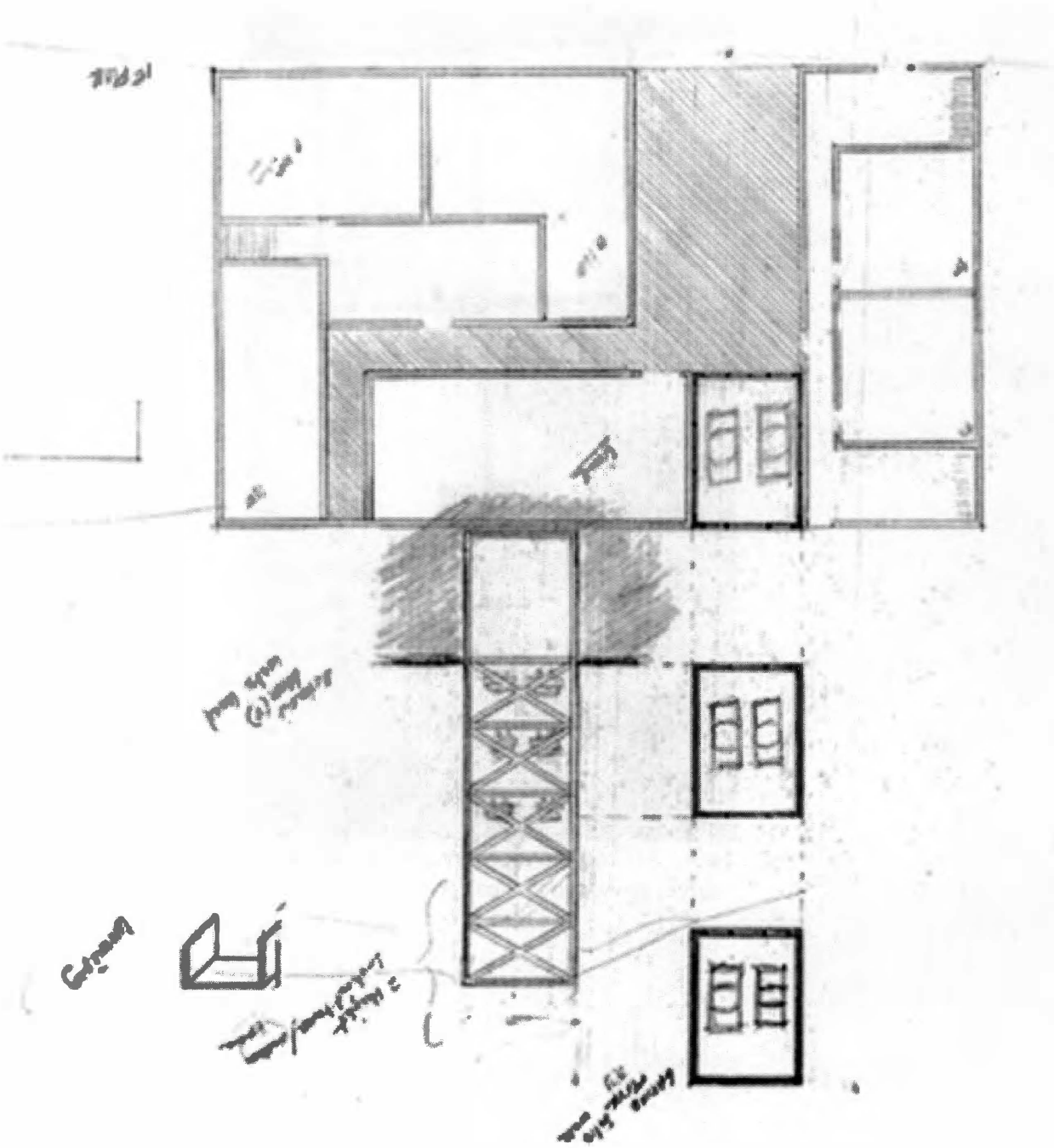

figure 30 – schematic design i.
source: author

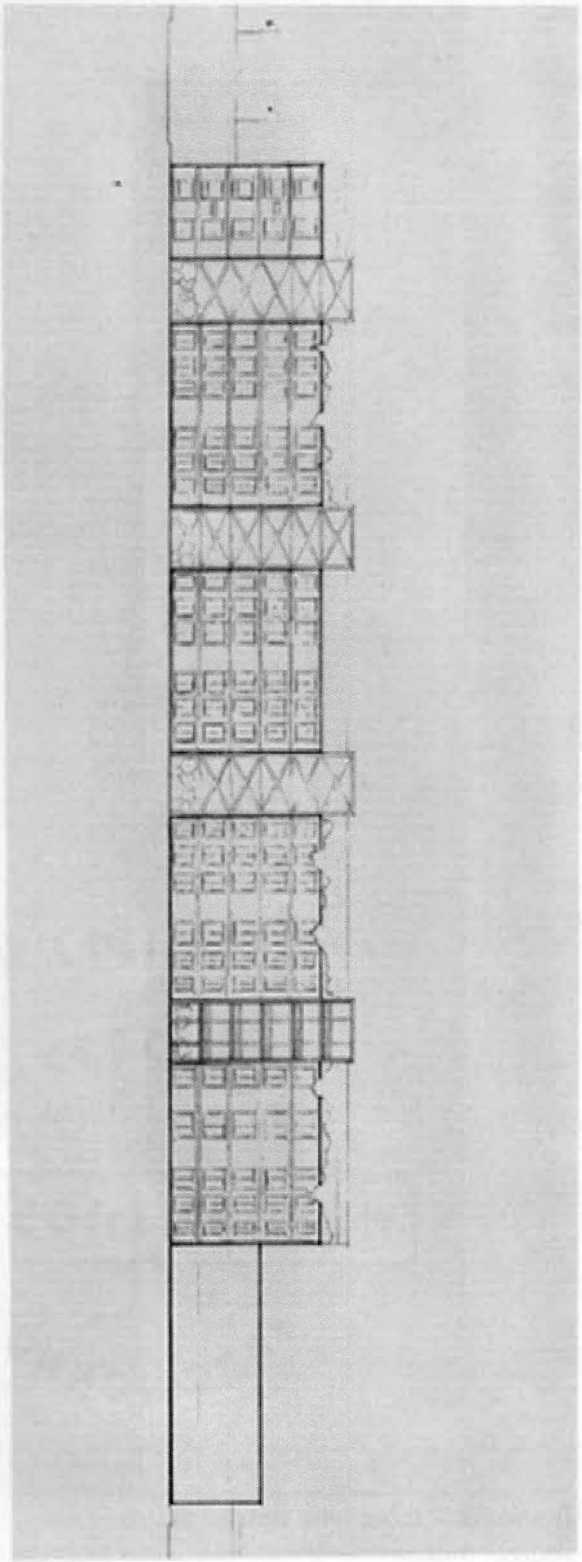

figure 31 – schematic design ii.
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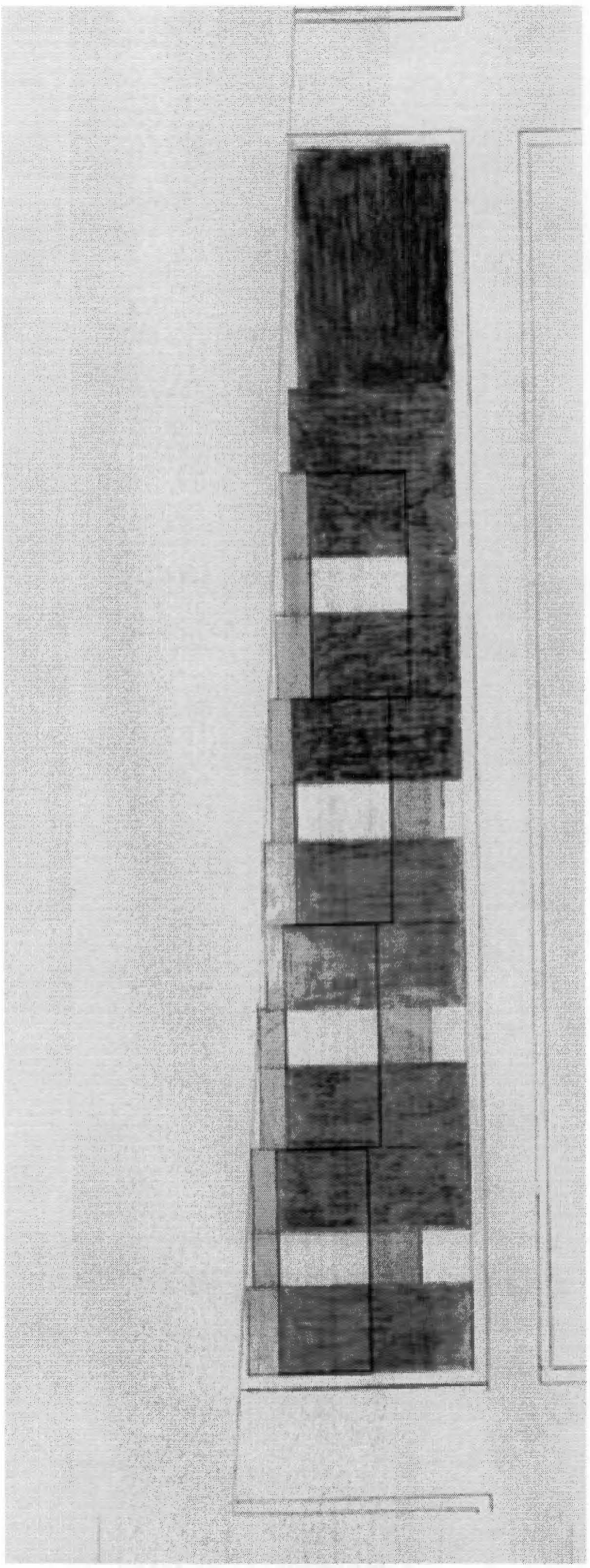

figure 32 – schematic design iii.
source: author

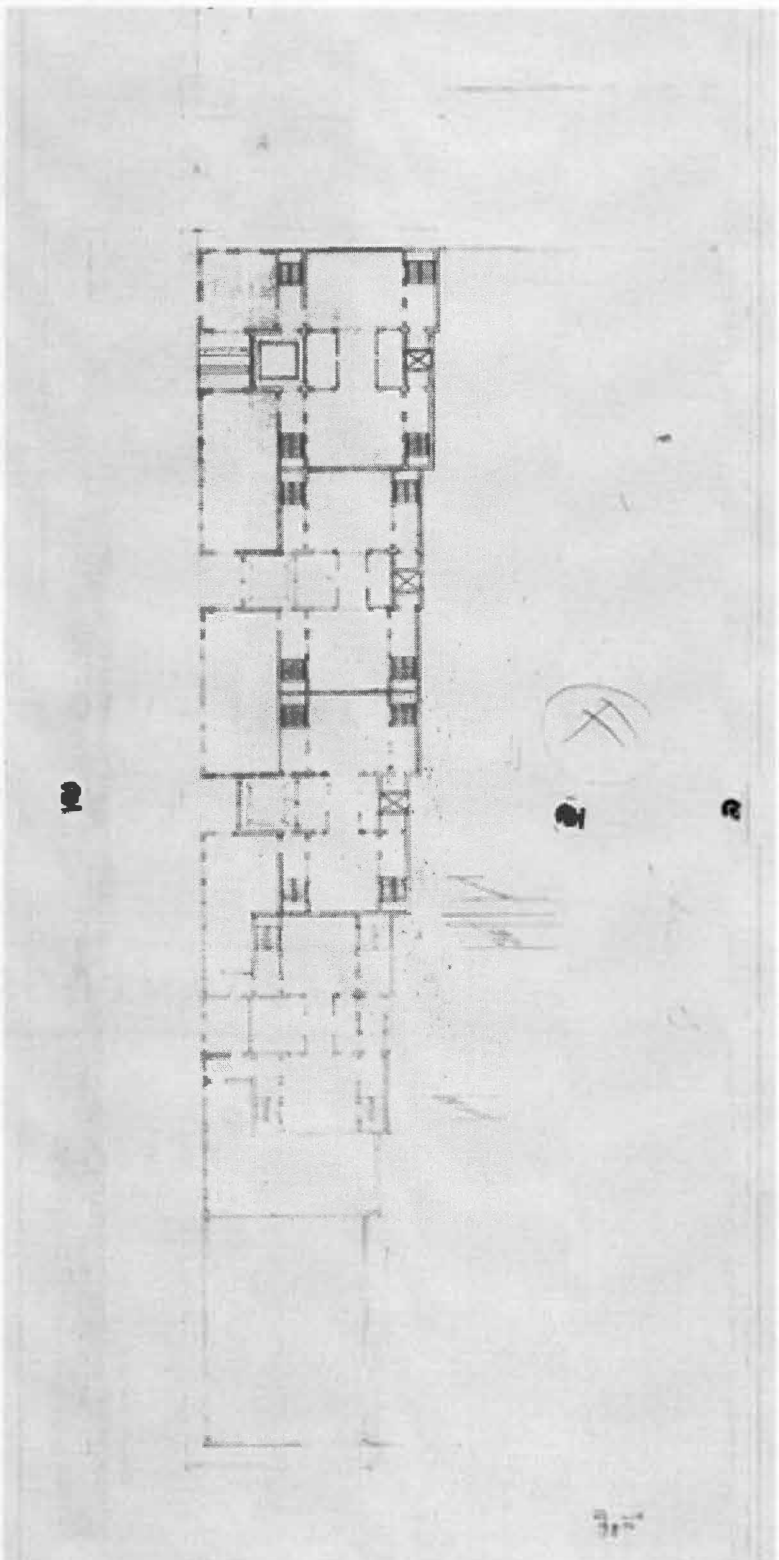

figure 33 – schematic design iv.
source: author

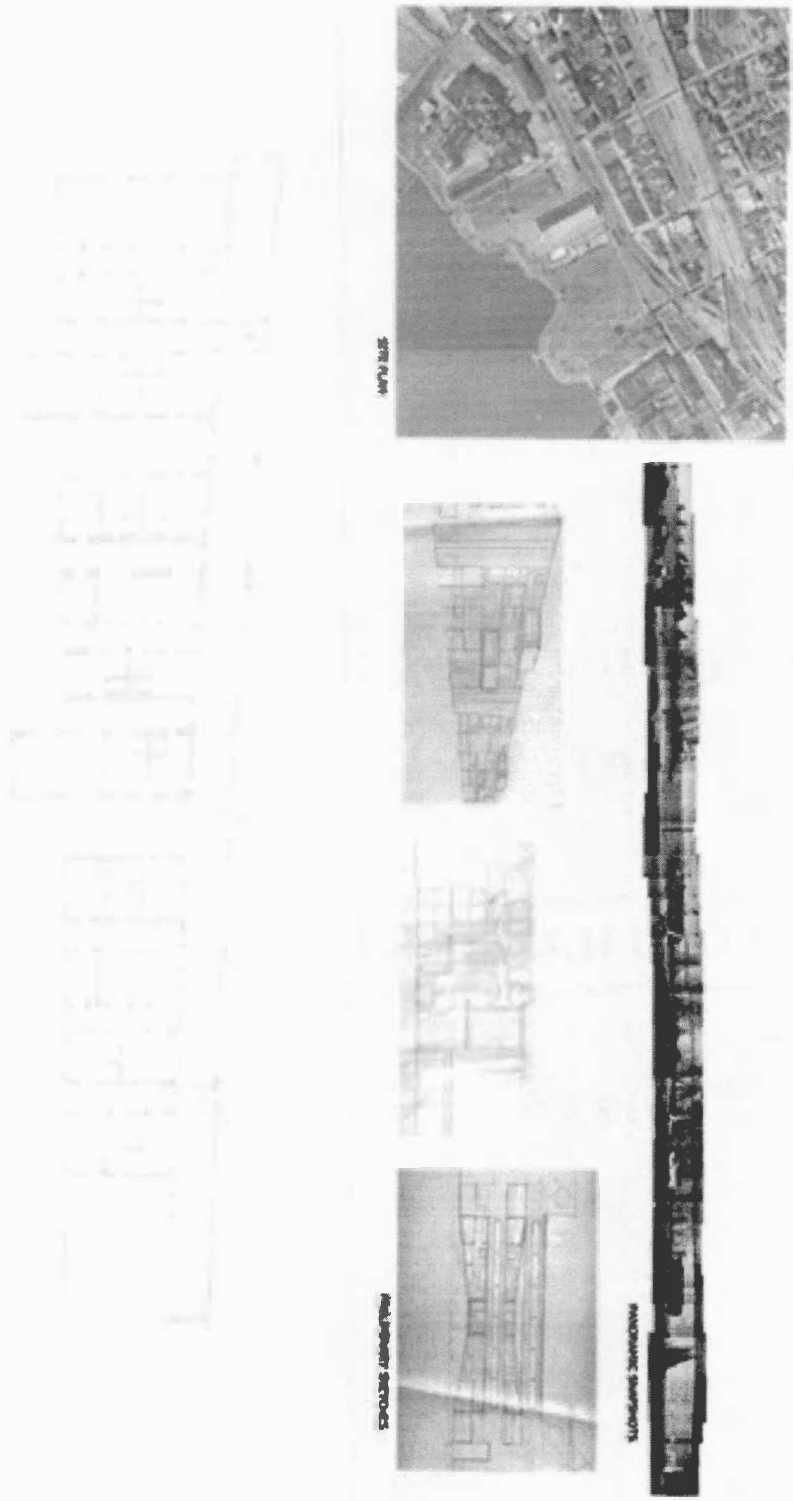

figure 34 – final design i.
source: author

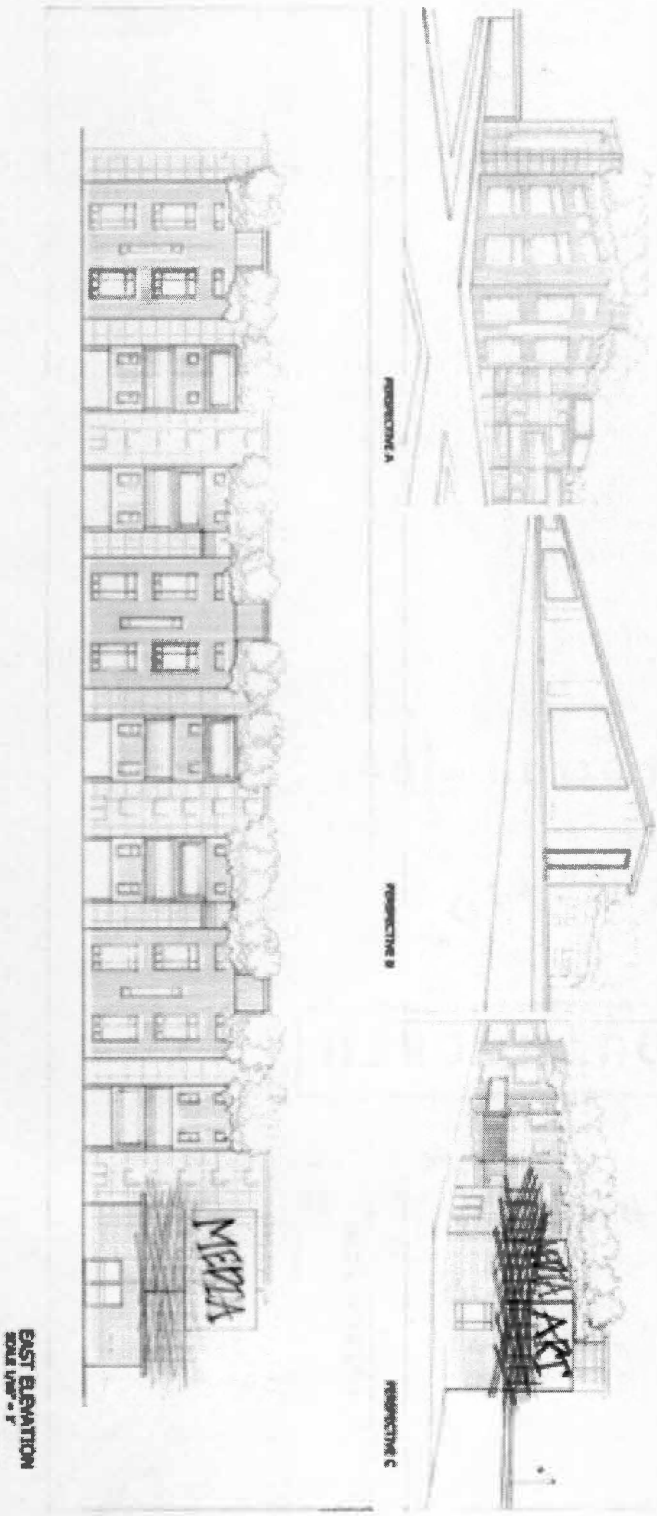

figure 35 – final design ii.
source: author

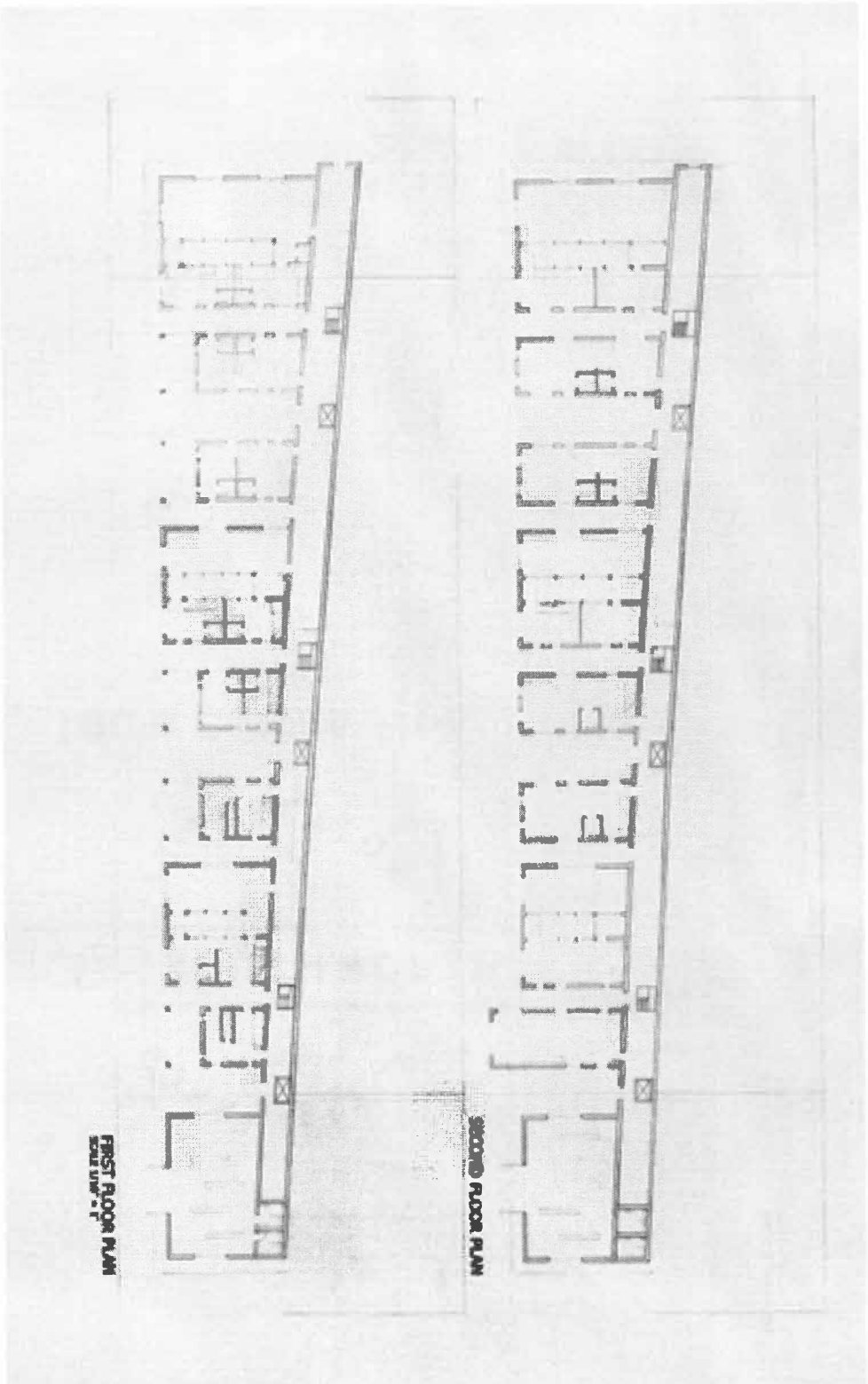

figure 36 – final design iii.
source: author

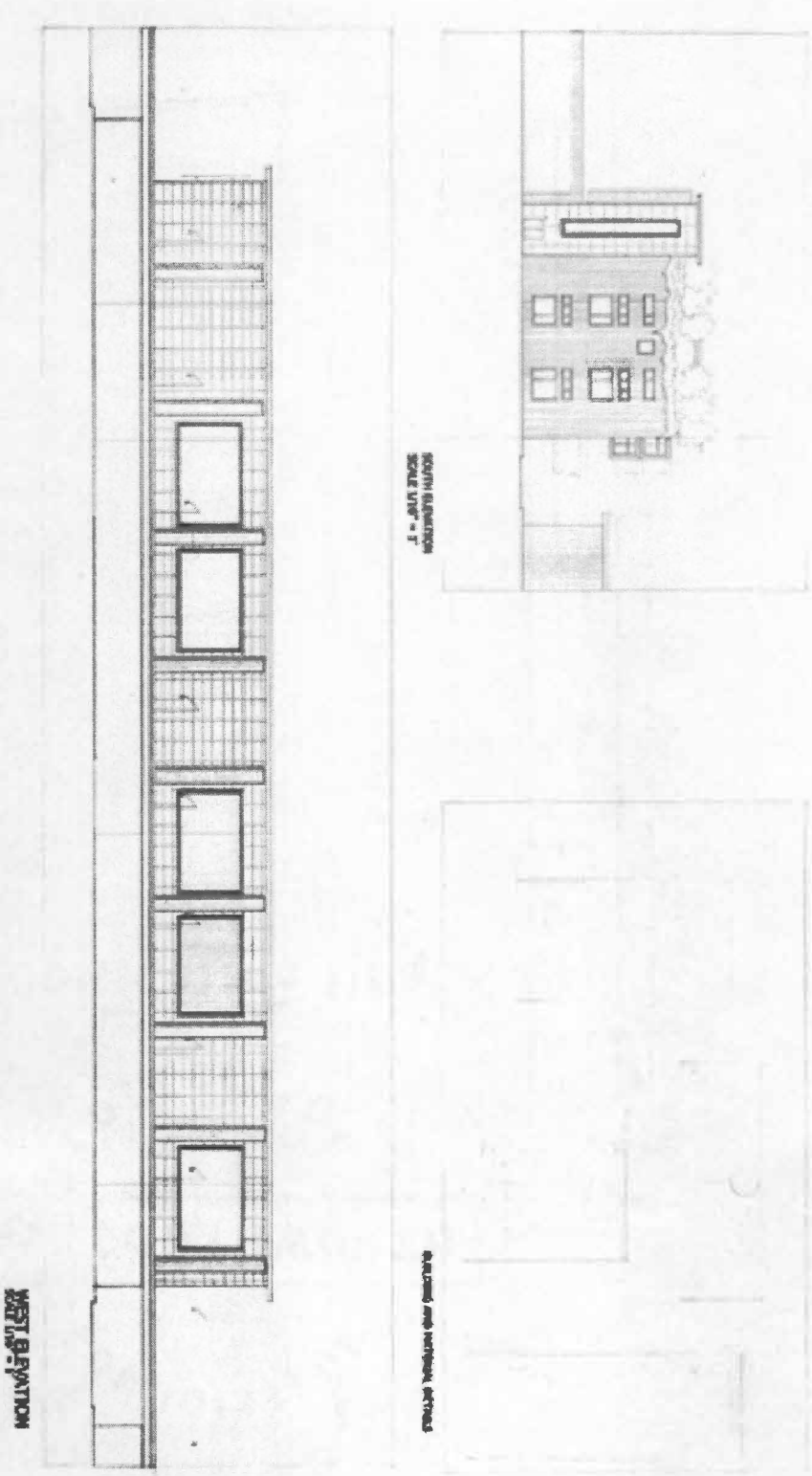

figure 37 – final design iv.
source: author

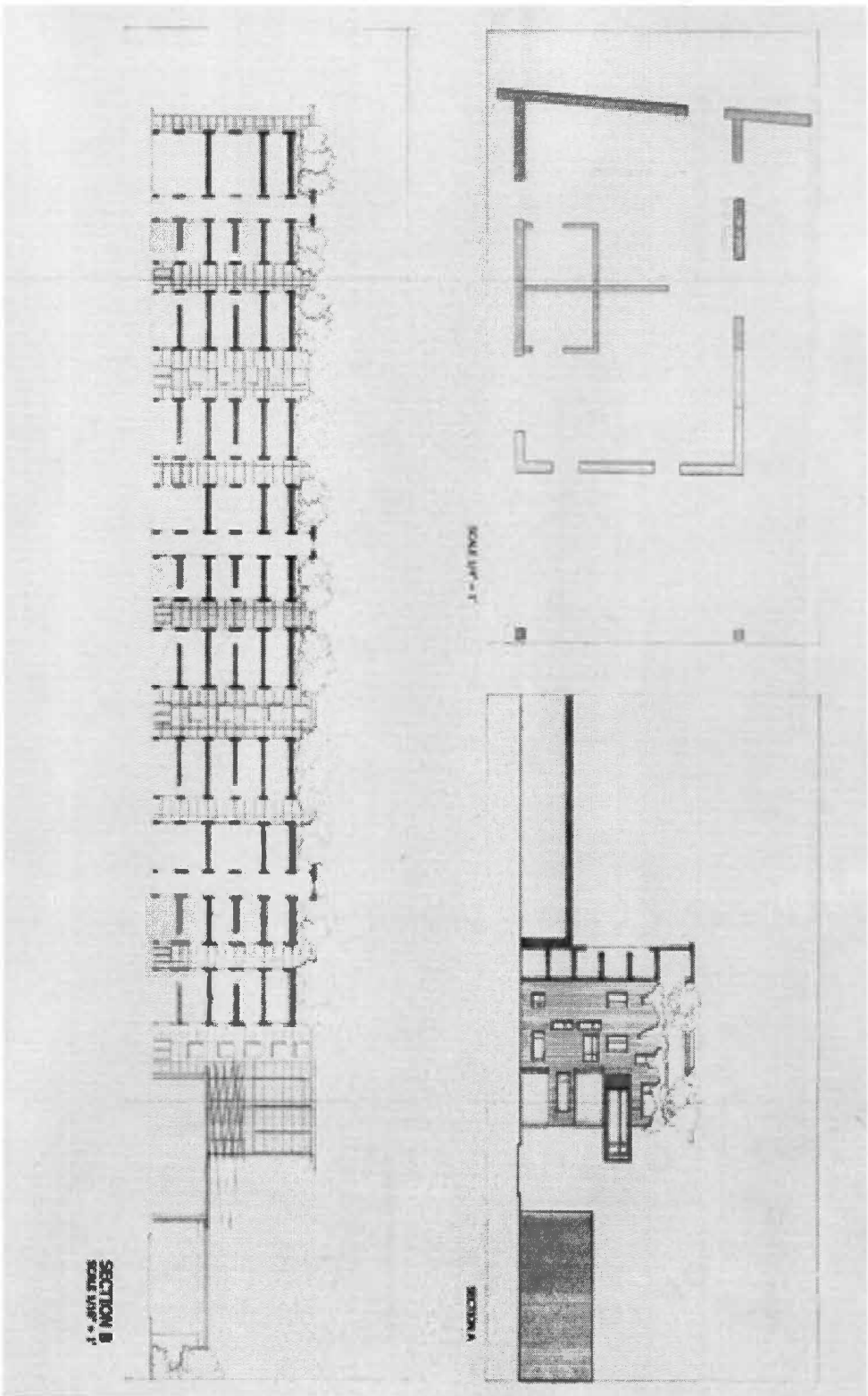

figure 38 – final design v.
source: author

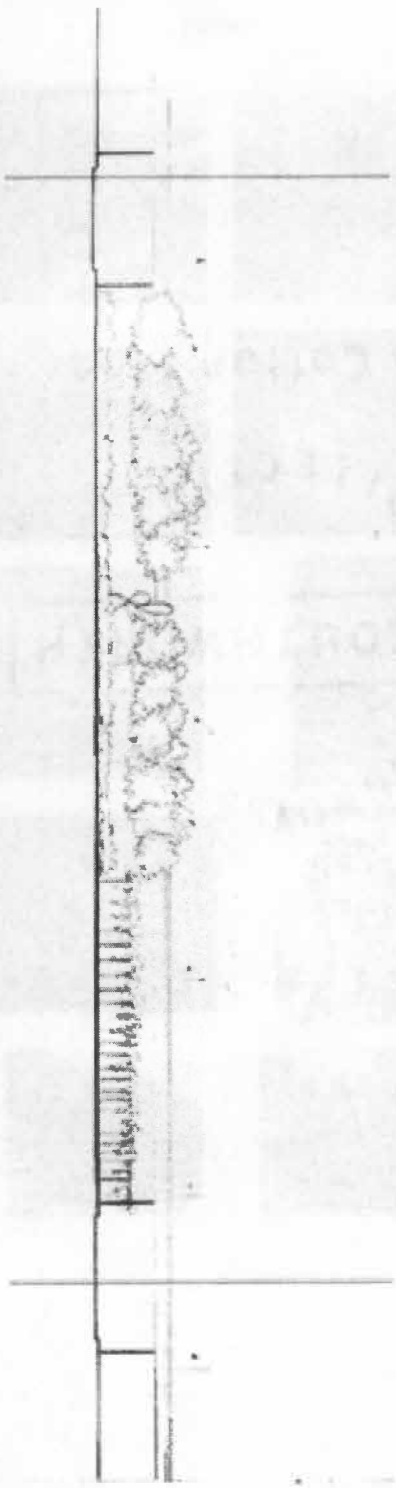

figure 39 – final design vi.
source: author



figure 40 – final design vii.
source: author

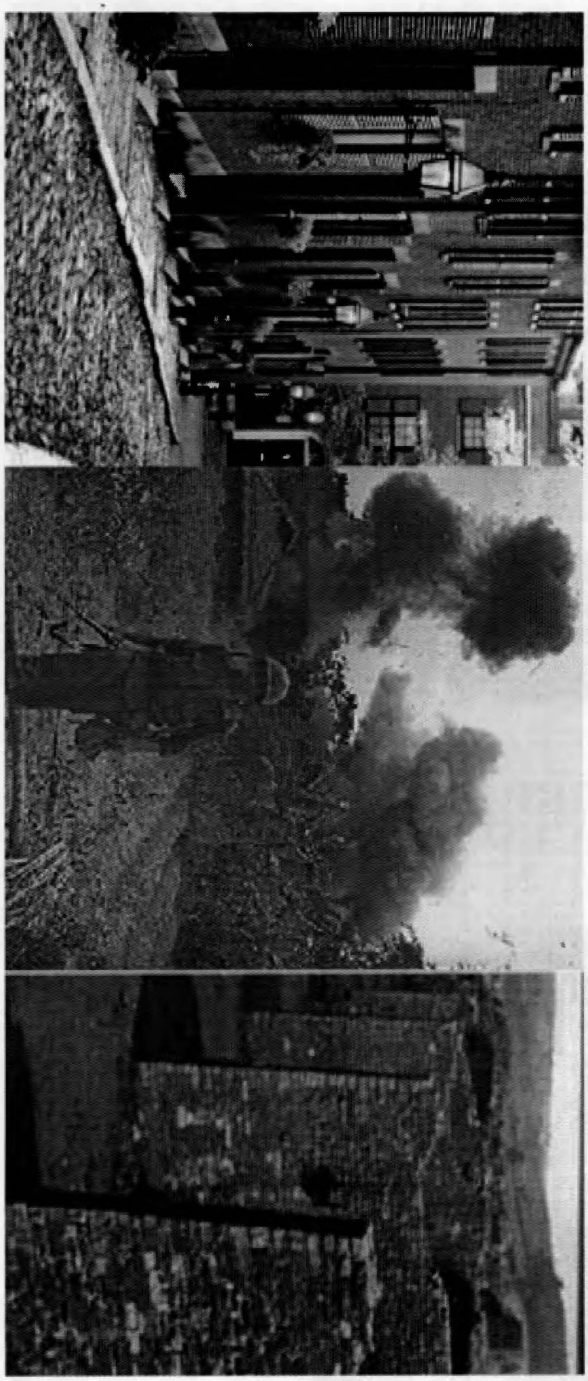

figure 41 – final design viii.
source: author

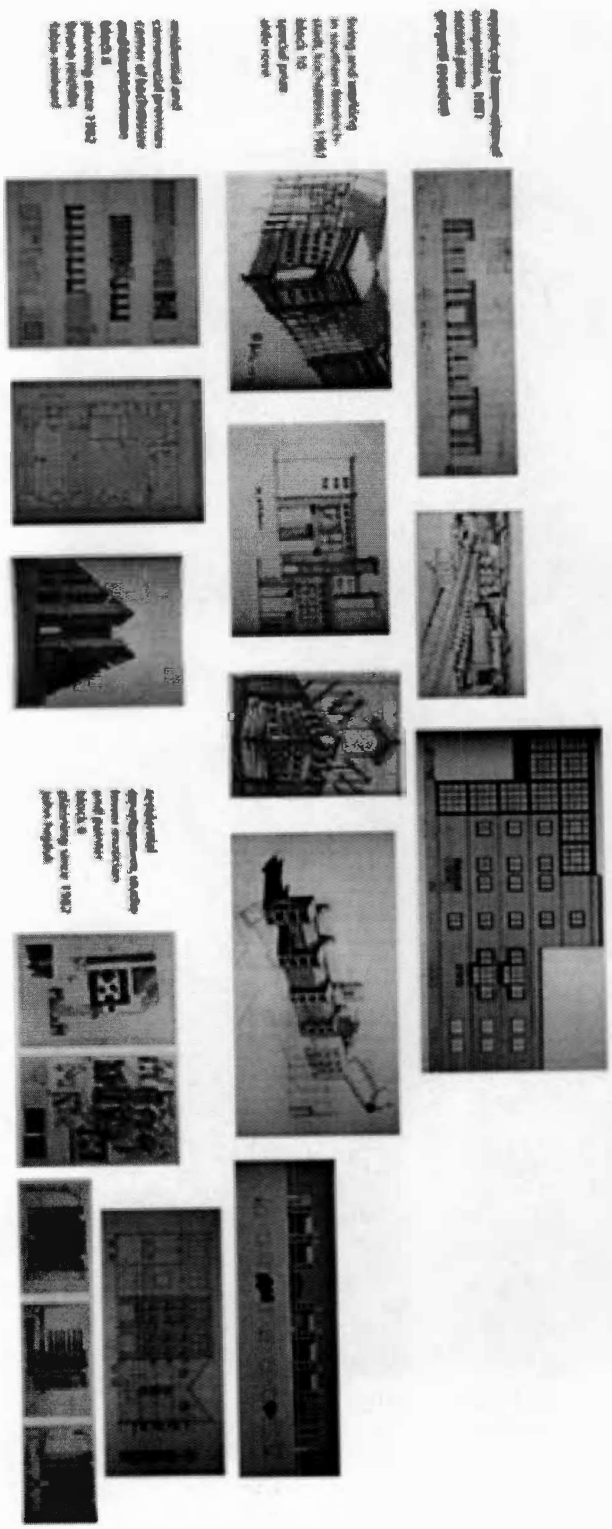

figure 42 – final design ix.
source: author

vita

Seaneen Murphy was born and raised in Asheville, North Carolina. She received a Bachelor of Science degree in Biology in 2000 from Villanova University. After working for two years as a financial consultant in Philadelphia, she decided to attend the University of Tennessee to pursue her Master's degree in Architecture. Upon graduation she plans to take a job in Sydney, Australia or Nashville, Tennessee.

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