

Reintegrating Living and Working Spaces: A Hybrid Development for Roxbury Crossing

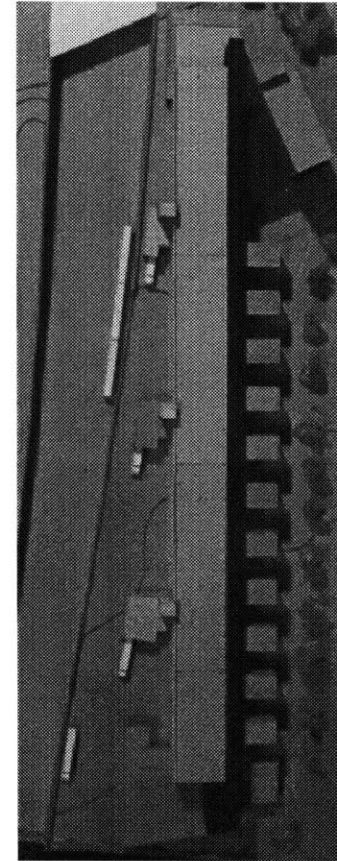
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Submitted to the Department of Architecture in Partial Fulfillment of
the Requirements for the Degree of Master of Architecture at
the Massachusetts Institute of Technology

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Figure 1 (Cover): Top view of final model

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Figure 2: Faded #8 identifies this building as the stables for the Burkhardt Brewery. The label was required by federal law.

Reintegrating Living and Working Spaces: A Hybrid Development for Roxbury Crossing

by

Christian MacQuarrie Klein

Submitted to the Department of Architecture on January 10, 1997 in Partial Fulfillment of the Requirements for the Degree of Master of Architecture.

Abstract:

Viable communities are those which are in balance -- residential, commercial, institutional, and industrial interests work together to provide for each other. In an urban neighborhood, these elements can be brought closer together. This was the traditional pattern at the turn of the century. In many cities today, however, the opposite is often true. Commutes from home to work and home to shopping are commonplace. As a result, areas become mostly daytime or nighttime as businesses and industry are condensed away from residential neighborhoods. I propose to reintegrate these disparate sectors into an urban community which re-establishes a balance among those interests and provides opportunities for the local citizens.

A hybrid industrial facility can be the community focus and benefactor in a symbiotic relationship. The community of Roxbury Crossing / Mission Hill is investigated to analyze opportunities, access needs, and develop an urban scheme to encourage the mixing of homes with workplaces to provide a sustainable infrastructure for the community. At the architectural scale, the building addresses concerns for creating a sustainable building. Issues of transportation, adaptability, durability, and climate are investigated and explored in the form. A brewery, the traditional industry from this neighborhood's history, is proposed as a model for the prototype client.

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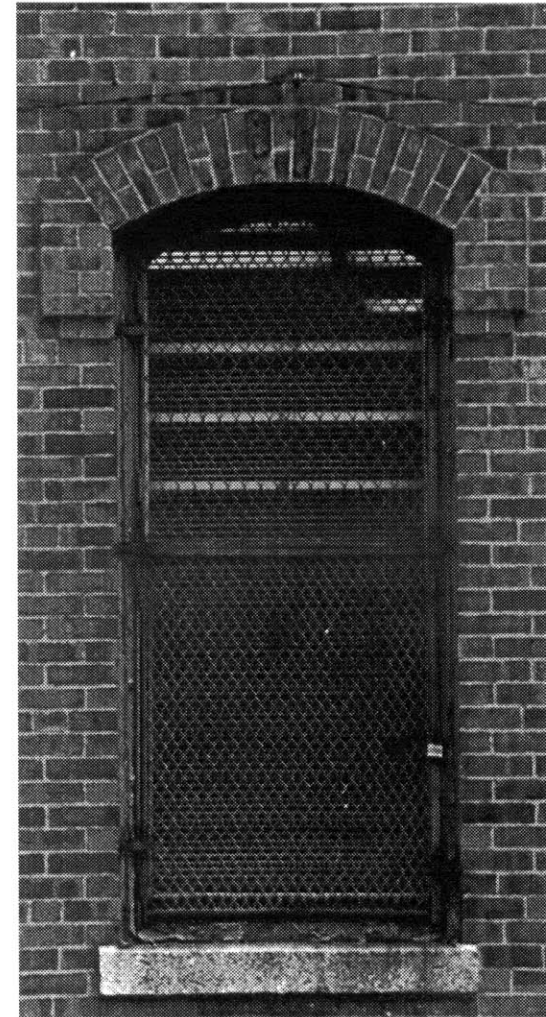


Figure 3: Ground floor window at Houghton Brewery

This thesis book was created using AutoCAD, Adobe Photoshop, Agfa FotoLook, Aldus PageMaker, HiJaak Pro, Microsoft Excel, Microsoft Word, Ofoto, PS2EPS+, and xv on the Macintosh, Windows PC, and MIT's Project Athena. It was printed on a Hewlett-Packard LaserJet 4si. The font is New Century Schoolbook.

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Many thanks to the brewers at John Harvard's Brew House, the Cambridge Brewing Company, the Ould Newbury Brewing Company, Boston Beer Works, the Massachusetts Bay Brewing Company, and Middlesex Brewing Company for their assistance in helping me understand the modern micro-brewery. Thanks to David Mickelson at Redhook Brewing Company and Skip Satterwhite at Triangle Works for their information regarding large brewing facilities.

A special thanks to Sam, Kiyoshi, Arlene, Deirdre, Liz, and all my other friends and colleagues in this thesis class and the entire School of Architecture and Planning. You have made this the enjoyable experience that it has been. My best wishes for all your futures.

The greatest thanks to my wife, Kristin, for her continued love, support, and understanding through these long years. I can now honestly say that my hours will be better and I'll be home more often next semester.

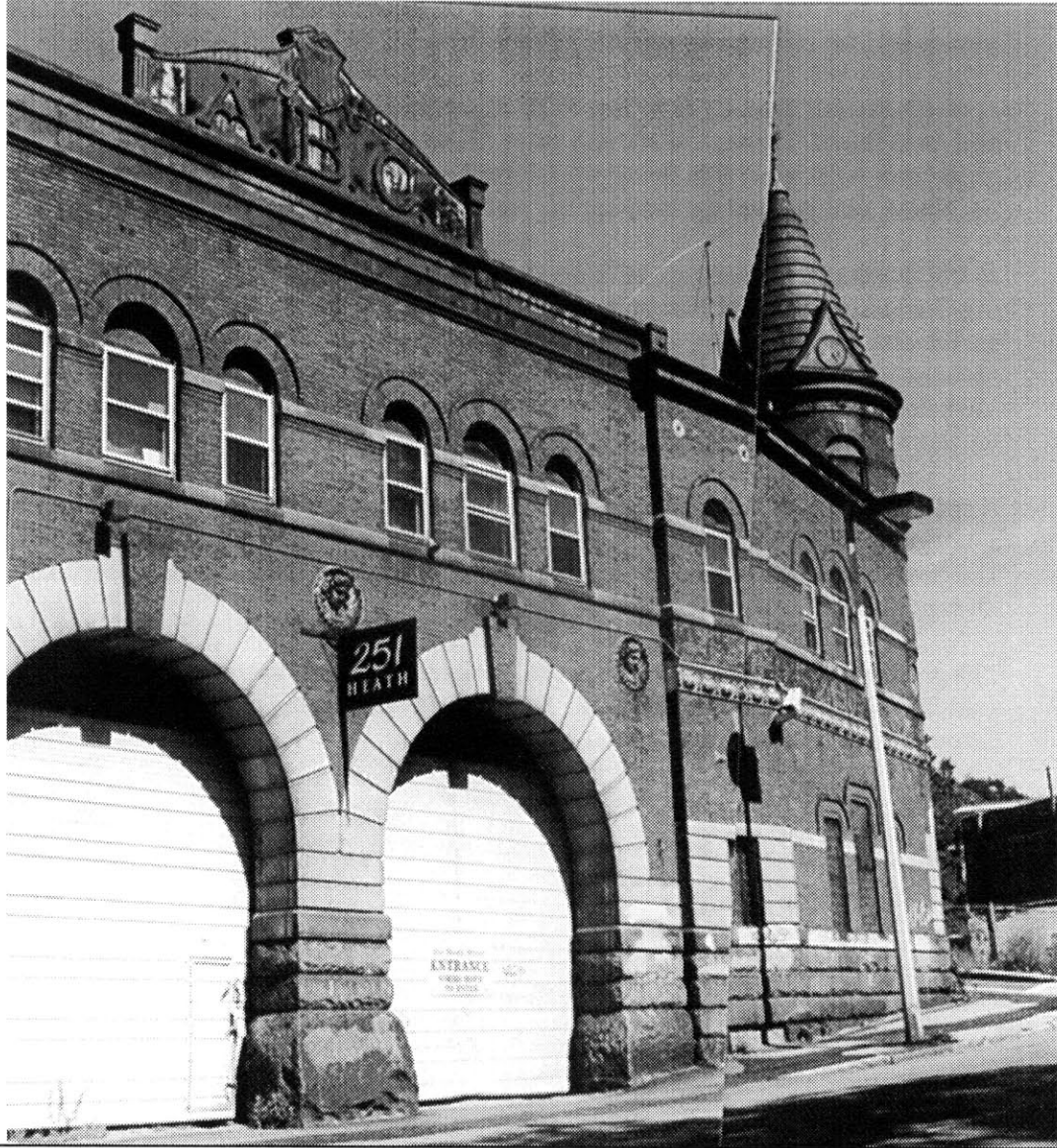


Figure 4: The American Brewing Company, now used as a museum storage facility

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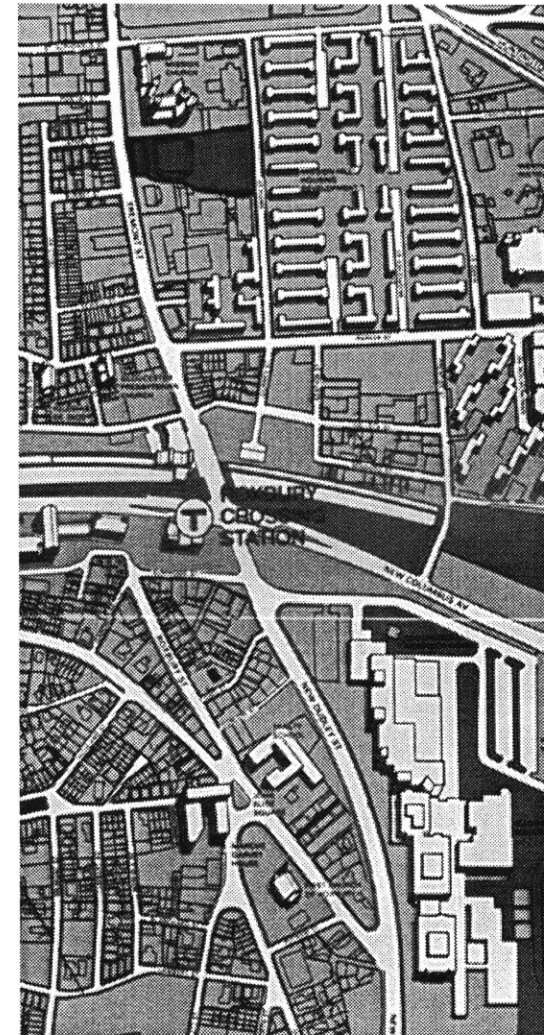


Figure 5: Map of Roxbury Crossing from MBTA Orange Line Station

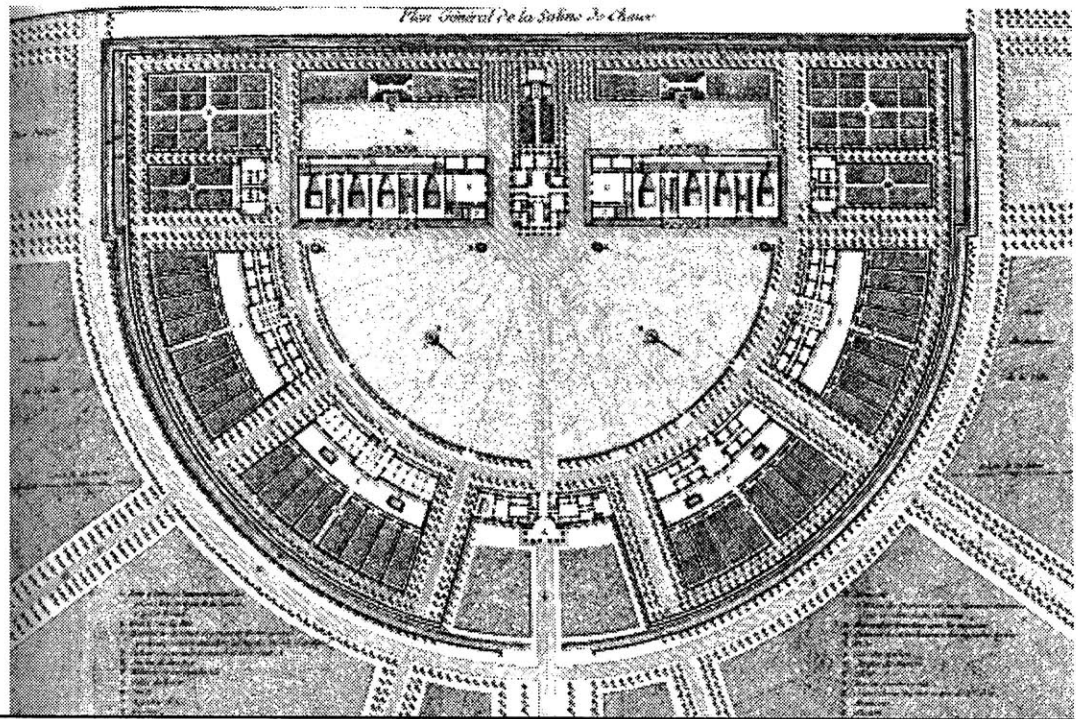


Figure 6: Diagram of Chaux Royal Salt Works, a planned industrial town, dedicated to the production of salt, operated by the monarchy.

Introduction:

This thesis explores how industrial places can be reintegrated into a residential urban community to create a working and living community. The neighborhood of Roxbury Crossing is located at the foot of the Mission Hill Housing Projects, along the Southwest Corridor. The area was a thriving industrial and residential neighborhood at the turn of the century. Today, it is almost exclusively residential and suffers from low investment and neglect.

Industry can be reintegrated into an existing urban residential neighborhood to provide a more sustaining environment. This thesis proposes is a new hybrid development which provides residential, commercial, and industrial spaces in a single, coherent, and sustainable building that will be the center of an active working and living community. The development will respect the needs of the existing neighborhood and improve its position in the city.

The reintegration of urban uses, including light industry is the focus of this thesis. The designation, "light industry," is limited to those industries which do not require smokestacks nor large warehouse facilities. It is assumed that use of toxic materials will be closely monitored. Anticipated light industries include brewing, millwork, biomedical research, small-scale fabrication, final assembly, electronics, and set construction. For the purposes of this thesis, general office is also consid-

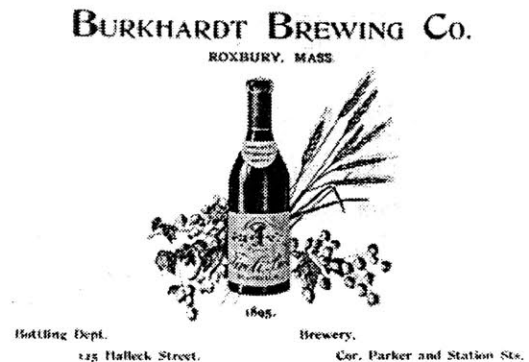


Figure 7: 1895 advertisement for the Burkhardt Brewing Company

"If people live closer to where they work, they will have a bigger stake and will work to improve their neighborhood."
-Talk of the Nation

ered within the realm of light industrial space. Unless otherwise indicated, the term “industry” refers to light industry.

This thesis began as a reintroduction of industry to the Stoney Brook Valley, exploring the relationship between industrial process and built form. Can the nature of the enclosed process be expressed in the form of the building and made legible to the surrounding community? A modern micro-brewery, on a historical brewing site, was to serve as a vehicle for exploring the relationship between process and form.

While analyzing the site, it became necessary to broaden the scope of the initial thesis. The chosen site covered 2 acres, but the realistic site boundary enclosed 13 acres. A single, small-scale building would be ineffectual and not make an impact on the area. A larger scale development was required, one which would address the needs of small industries and the larger community.

I. Industrial Communities

Industry has always been a part of towns and cities. Villages included craftspeople who provided those items which were not easily made at home. As demand for these goods grew and increased power became available, craft work gave way to factory work. Towns grew alongside the factories. Often the result was similar to the city of "Coketown" as envisioned by Charles Dickens in *Hard Times*. The factories dumped soot over the town, turning everything black. The workers were paid the lowest possible wages and lived in the poorest conditions.

While this was not always the case, it was more-so with large-scale industry. The factories required an abundant supply of workers, which could only be satisfied in towns and cities. The power required to drive the steam engines was provided by coal. All the houses were heated by wood or coal. The environment was filthy, and no quick solution was in sight.

Finding a better solution to the relationship of housing to industry has been investigated many times. At the turn of the century, for the first time, the life-span of a town was becoming shorter than a human lifetime. It was possible to consider designing a town, because things were beginning to change at a perceivable pace. Most of the early schemes took a decidedly utopian view. They relied heavily on the



Figure 8: Birmingham, England during the Industrial Revolution -- model for Coketown.

"The workers are lodged healthily, the employees comfortably; all possess vegetable gardens that attach them to the soil; all can occupy their leisure time in that cultivation which ensures each day the first needs of life. Each one could be thankful for his individual comforts."

-C. N. Ledoux, on Chaux

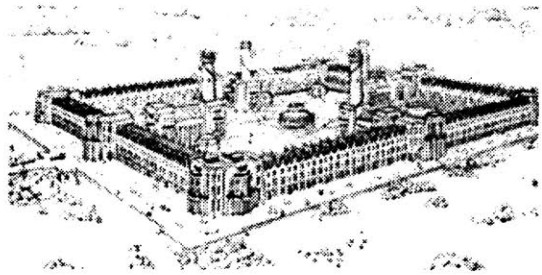


Figure 9: Sketch of Owen's "Living and Working Community"



Figure 10: Fourier's "Phalanstere"

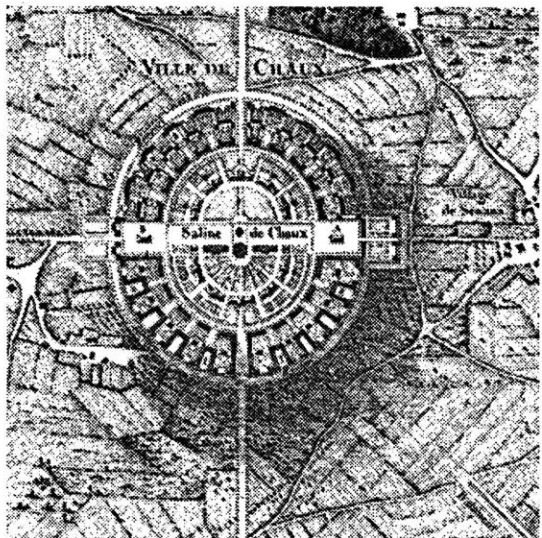


Figure 11: Site plan of Chaux, including Ledoux's unrealized upper semicircle

good will of the individual. Later schemes sought to physically separate the functions of living and working.

The first attempt at a planned industrial town was made by Robert Owen (1771-1858). He drew upon his experience as both a worker and an employer in creating a new utopian model for New Lanark, Scotland, in 1799. He provided "modern machinery, reasonable working hours, good wages and good living accommodation, ... an elementary school and a crèche." [Benevolo, p. 149] The factory was still very profitable.

Owen also believed agriculture was an important element of everyday life, ahead of industry. He proposed a new town which allowed the residents to work the fields and work in the factory. Such a community would be entirely self-sufficient. This was tested in 1825, when the town of Harmony, Indiana, was purchased and reorganized along this principle. His followers abandoned the self-sufficiency plan, and the town became a trading center. The scheme was over-reliant on the good will of the citizens.

Charles Fourier (1772-1837) believed in an even more utopian future. He envisioned a time when all work, property, and living would be communal. Families would be dissolved and everyone would live together in a large, formal building called a *phalanstere*. Despite several attempts to start a town, none were ever successful. The plans never addressed the issue of industry.

His ideas were adapted by J. B. Godin (1817-1889) in a plan for Guise, France. His *Familistère* respected the autonomy of families. It was also part of a distinct factory complex. This living-working community was successful at the scale of a single industry. It did not test the viability of a multi-industry, community.

A different philosophy and perspective were presented by Claude Nicolas Ledoux (1736-1806). His primary focus was not on the workers or the industry but on the representation of the essential order underlying all things. In the *Chaux Salt Works*, he created an industrial town employing a "geometry of surveillance" and authority. The semicircular plan had the chapel at the center of the manager's house at the center of the town. The workers' housing was arranged around the perimeter. All of the necessary trades were included in the town. Each worker was provided with his own garden plot. The town was intended to operate autonomously.

Chaux imported food, but had a large export in salt. Its form worked more as an "aesthetic of expression rather than ...a machine for repression." [Vidler, p. 114] The town operated from 1778 until 1895. It was essentially another single-industry town, never changing its purpose.

The concept of a “Garden City” was developed by Ebenezer Howard (1850-1928). As he put forth in his 1898 book, *Garden Cities of Tomorrow*, the best elements of town and country can be combined in a new type of environment called a “Garden-City”. Functions were separated and arranged to allow a generous amount of open space. This vision, though hampered by the desire to be self-sufficient and maintain a balance between industry and agriculture, was realized in towns like Letchworth and Welwyn. Their relative success led to the establishment of zoning guidelines worldwide with separate areas for industry, commerce, and residence.

The fourth CIAM conference in 1933 discussed the “relationship between the home, work, recreation and, most importantly, traffic — a problem which Ebenezer Howard did not have to consider.” (Ackermann, p. 241). The *Charter of Athens* did not call for the separation of functions, but did suggest using green areas as buffers where possible and appropriate. It was a small move towards a new live-work relationship. However, the message of separation seems to be the one put into practice to this day.

“Edge Cities” are the result of this thinking today. Rather than rehabilitate existing downtowns, new cities are being constructed at the edges of old ones. These cities have no residences, only businesses. They rely exclusively on an automobile commute. This is possible, because it is easier to allocate government funds to build new highways than it is to enact urban renewal. What is really needed is a way to bring people and work closer together and develop a new pattern for living and working in the same neighborhood.

This pattern existed before the attempts to reform the industrial town. Technology and materials have advanced in the intervening years and created the opportunity to build a community which has its residential and light industrial uses concentrated in the same area. Coal is no longer burned in the city. Most small industries do not produce excessive noise. “Coketown” happened because industrial pollution was assumed to be a necessary evil of progress. Now that it is no longer the case, we should reinvestigate the live-work community.

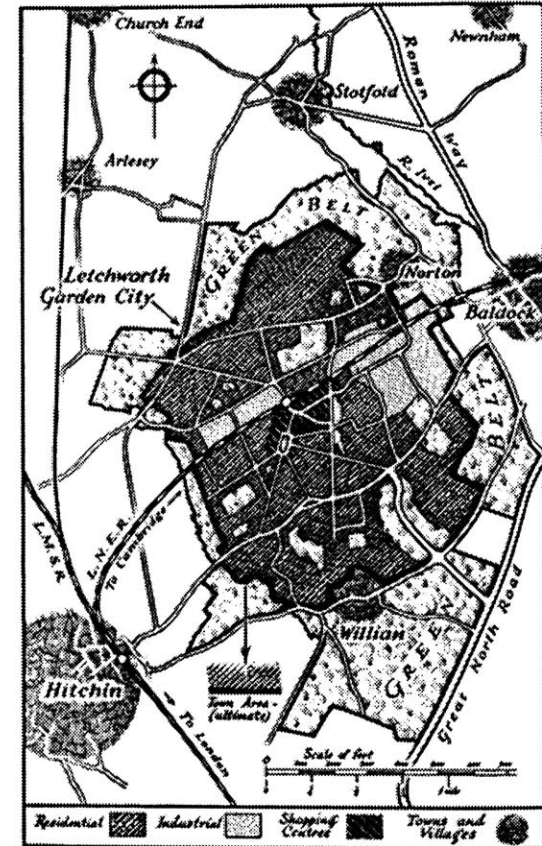
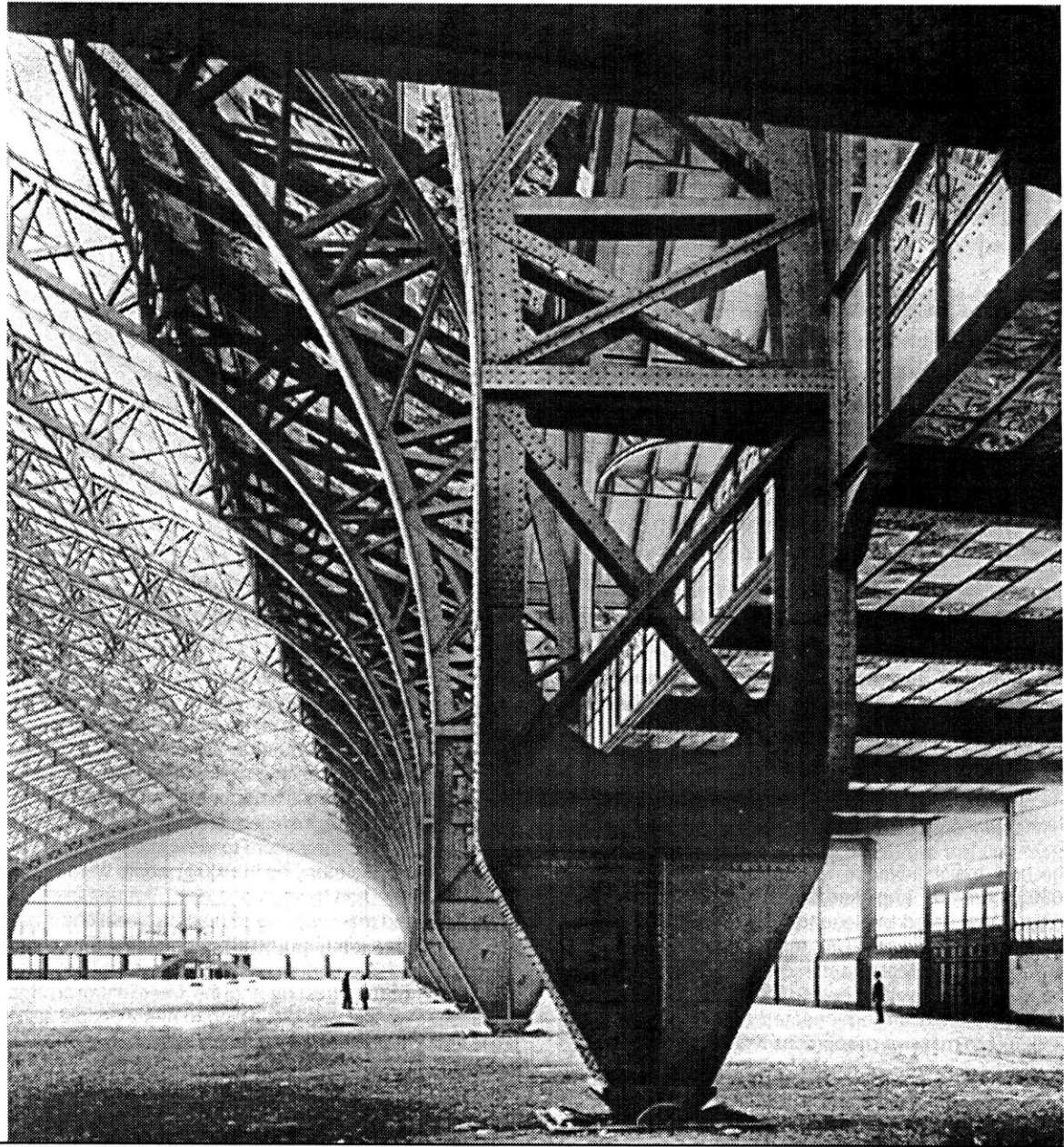


Figure 12: Letchworth Garden-City

“[I]n post-war development, [the] idea of separation has too often been seen as the solution to almost every problem. In terms of heavy industry, with its noise and pollution, this is clearly sensible. But in its indiscriminate application, the benefits of integrating smaller, craft-based industries into the living fabric of a town — as proposed by the Modernists — have been ignored.”
 -K. Ackermann



*Figure 13: Galerie des Machines; built for
the 1889 Paris World's Fair.*

II. Paradigms for Industrial Architecture

Once an urban scheme has been resolved, it is necessary to develop the buildings of industry. Whether it is a single, green-field solution or an entire industrial park, an architectural attitude must be taken which reflects the intentions of the designer towards industry. I have identified four paradigms for designing industrial architecture. The building is viewed as either a product of an industrial process, a container of a process, a statement about a process, or a description of a process.

A building which is designed for assembly from a kit of parts is a product of an industrial process. It is bordering on being a manufactured good. The expression of the process of design, fabrication, and assembly in the building elements and building itself, is the architect's intention. The system is modular, made from mass-produced, repeated elements. This is not a "spec" office building — it is a designed building system.

The first building to express this paradigm clearly was the *Crystal Palace* by Joseph Paxton. To facilitate a rapid construction, a simple system of repetitive parts was employed. It expressed the technological prowess of Britain at the 1851 World's Fair. Norman Foster's *Renault Distribution Center* (Swindon, England, 1983)

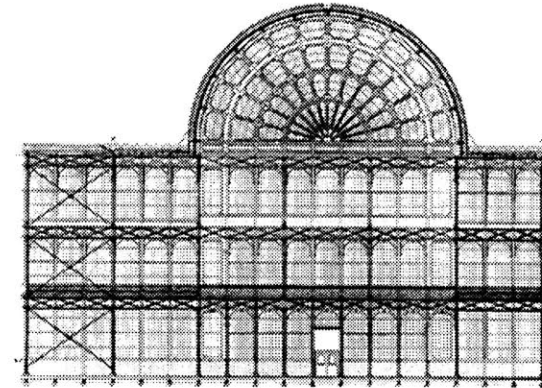


Figure 14: *The Crystal Palace*

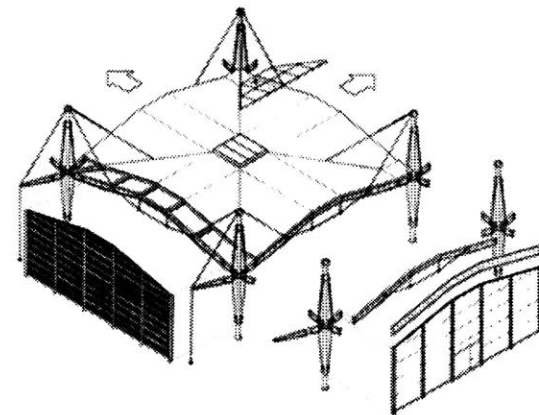


Figure 15: *Renault Center Construction System*

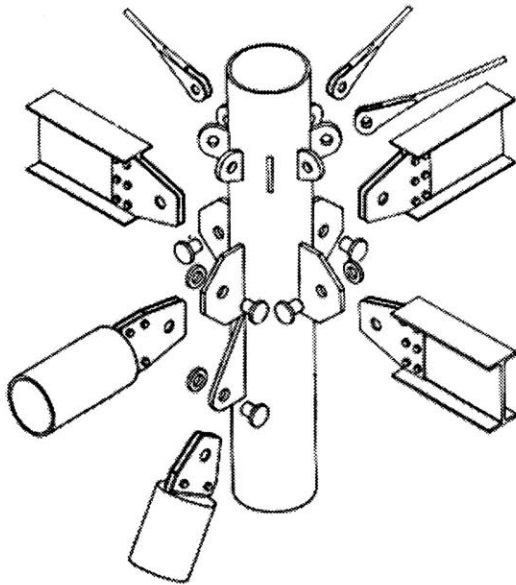


Figure 16: Fleetguard Center Mast Detail

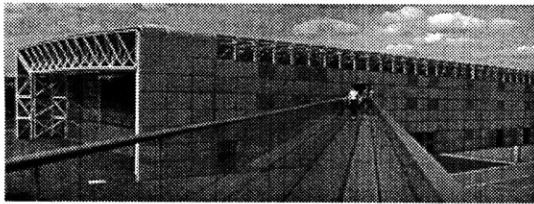


Figure 17: Sainsbury Center for Visual Arts

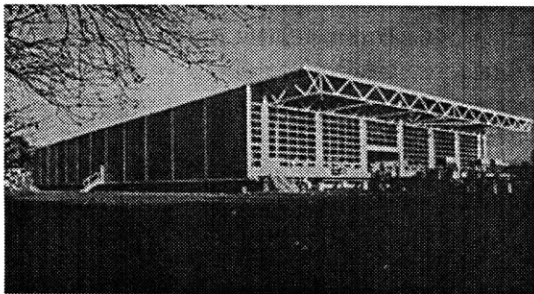


Figure 18: Hopkins' Racking Plant

uses a repeated system of prestressed masts to support an undulating roof. This allows for future changes and expansion. The building displays a precision of design and assembly which helps promote Renault's automobiles.

The *Fleetguard Manufacturing Center* by Richard Rogers (Quimper, France, 1981) is a similar project. It uses a repeated 18m square bay to allow change and extension to the building. In this case, the roof is suspended from the towers, but the underlying design principle is the same. The building is a manufactured item — an industrial product itself.

The second paradigm presents a building as a container for an industrial process. This is the traditional big shed. It may be intelligent, highly engineered or otherwise, but it is, first, a container. It makes a statement about enclosure.

An early example from the 1889 Paris World's Exhibition was the *Galerie des Machines* by Charles Dutert. It contained a single 114m wide by 420m long by 46m tall volume. The building was a monument to the ability to enclose space, the ultimate jewelry box. It's span was not exceeded until 1960. Albert Kahn's *Packard Factory Number 10* of 1905 expressed its concrete frame on the exterior. A simple steel glazing filled the openings. The building functioned as a supporting and enclosing structure for the enclosed assembly activities.

The *Sainsbury Center for Visual Arts* by Norman Foster, (Sainsbury, England, 1978) while not an industrial building, is an example of an intelligent shed. The membrane is 2.4m thick, containing the structural, mechanical, and lighting systems. It even contains access-ways for maintenance and servicing. The outer skin can be adjusted to control its transparency. Michael Hopkins' *Racking Plant* in Bury St. Edmunds is the opposite — a very simple shed to provide a low-maintenance enclosure for the process of beer packaging.

In the third paradigm, the building exists as a statement about industrial processes. It presents an ideal or new idea about industry in society. The building is used to symbolize industry, either a single industry or industry as a whole.

One primary example was discussed earlier, the *Chaux Saltworks* by Claude Nicolas Ledoux. He used the semicircular form of the town as a metaphor for surveillance and authority; not only from the master of the works, but also from God. The building conveyed that message about direction and authority in our lives in its form.

Peter Behrens' *AEG Turbine Factory* presents a different vision of industry. It takes the form of a temple to industry. The heavy base and corners, distinct from the light steel glazing at the sides and ends, references the Gothic cathedrals of the fifteenth century. In this case, progress is being celebrated.

The *Faguswerk* by Walter Gropius presents industry as a precise and calculated endeavor. The expansive use of glazing and the crisp detailing of the open corners shows industry as being able to perform tasks not previously assumed possible. It used state-of-the-art technology to foreshadow the future of architecture.

The fourth paradigm shows the building as a description of the industrial process. The process enclosed by the building is legible in the building's form. This mode is less romantic and more literal than the last paradigm. In some regards, it is the modern interpretation of a statement about industrial architecture.

Two early examples of this notion are from Claude Nicolas Ledoux. The *House for Charcoal Maker* and *House for Cooper* border on being caricatures of what the workers do. The first is shaped like the furnaces used to produce charcoal. The second is in the form of an enormous barrel. It would be very hard to confuse the two dwellings. They describe the work of the owners.

The *Canary Wharf Eastern Access Lifting Bridge Control Building* by William Alsop is even more of a caricature by its anthropomorphic nature. It greatly resembles an animal peering up over the bridge, hand above brow, to see what is happening beyond. This is, of course, exactly the purpose of the tower.

Günther Domenig's *Hydropower Station* is more subtle. It takes the form of the raw energy of falling water. Through the expression of hard surfaces and sharp angles, the station is able to capture some of the excitement of a torrent and present it in the form of the building. It is entirely about power.

The third and fourth paradigms are appropriate for single-use buildings. If the paradigm is implemented fully, it would preclude the building's reuse for a different purpose and maintain the integrity of the architectural statement. If the processes of multiple industries were simultaneously expressed in a single building, the result could be a very muddled project with no comprehensible expression.

The first and second paradigms are appropriate for both single and multi-use buildings. Because the meaning of the building is an expression of the construction or function of that building, it is somewhat detached from the exact industry

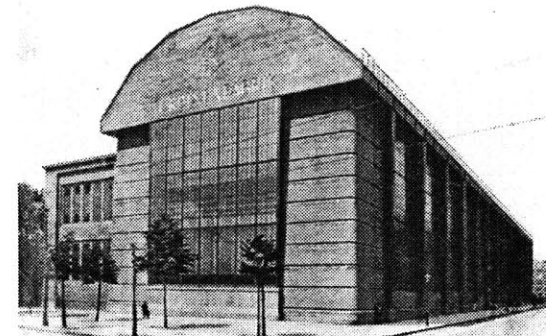


Figure 19: AEG Factory or AEG Temple?

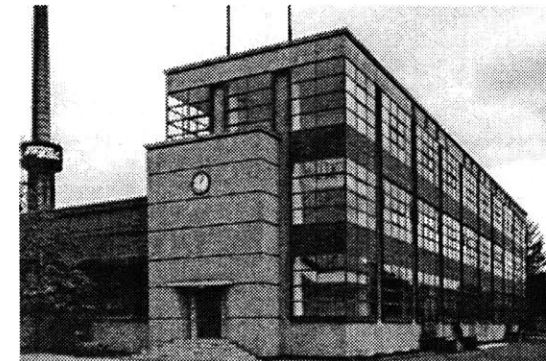


Figure 20: Faguswerk

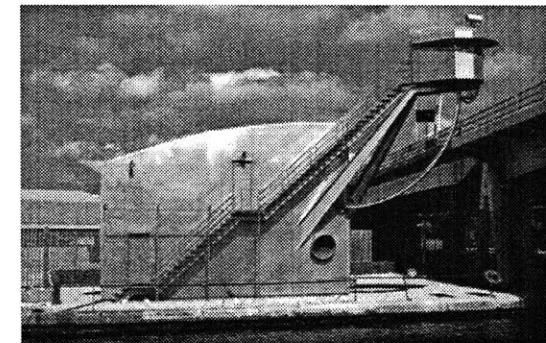


Figure 21: Bridge Control Building

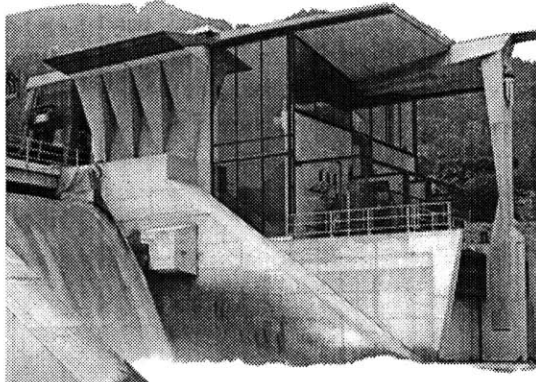


Figure 22: Hydropower Station

being housed therein. This permits the reuse of the building by a separate client without compromising the integrity of the architectural statement.

The development of an architectural vocabulary based on the "product" paradigm is beyond the scope of this thesis. The intention is to focus on the redevelopment of a neighborhood, using a single building as the vehicle. The best paradigm to represent these issues is "container". A series of explorations into the enclosing of the various project parts, within the context of the whole, will develop a vocabulary about containing the functions of the hybrid building.

III. Sustainable Architecture

The term “sustainable” has been thrown around so often recently, that it almost rings hollow. The issue has too many facets and approaches to be used by itself. For this reason, I will endeavor to stay away from the term, but not from the issues raised by its use.

This thesis explores only three distinct aspects of “sustainable” design. Durability is the quality of being able to endure the elements and physical abuse of the users of the building. Adaptability allows the building to provide a variety of environments both concurrently and sequentially. Comfort encompasses both the desire to temper the exterior climate and to address the needs of the users. The final design will address these issues directly in the context of the neighborhood and region.

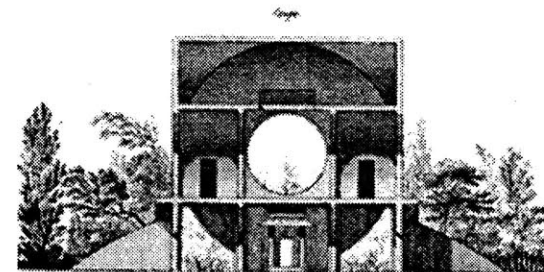
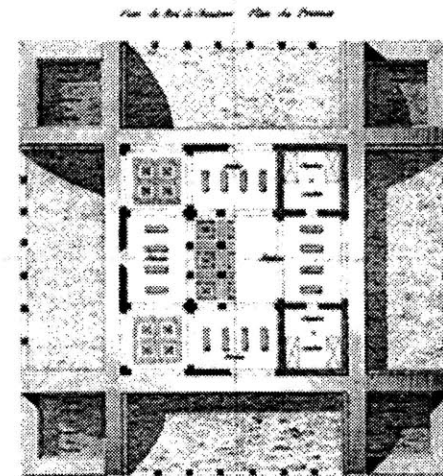
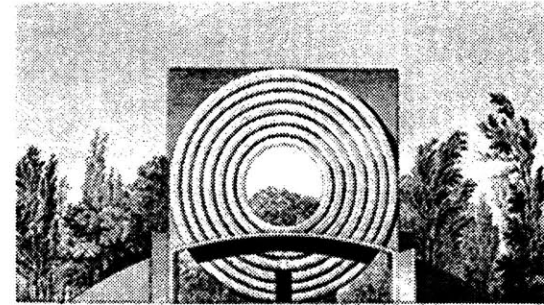


Figure 23: C. N. Ledoux's House for the Coopers, expressing the form of a barrel

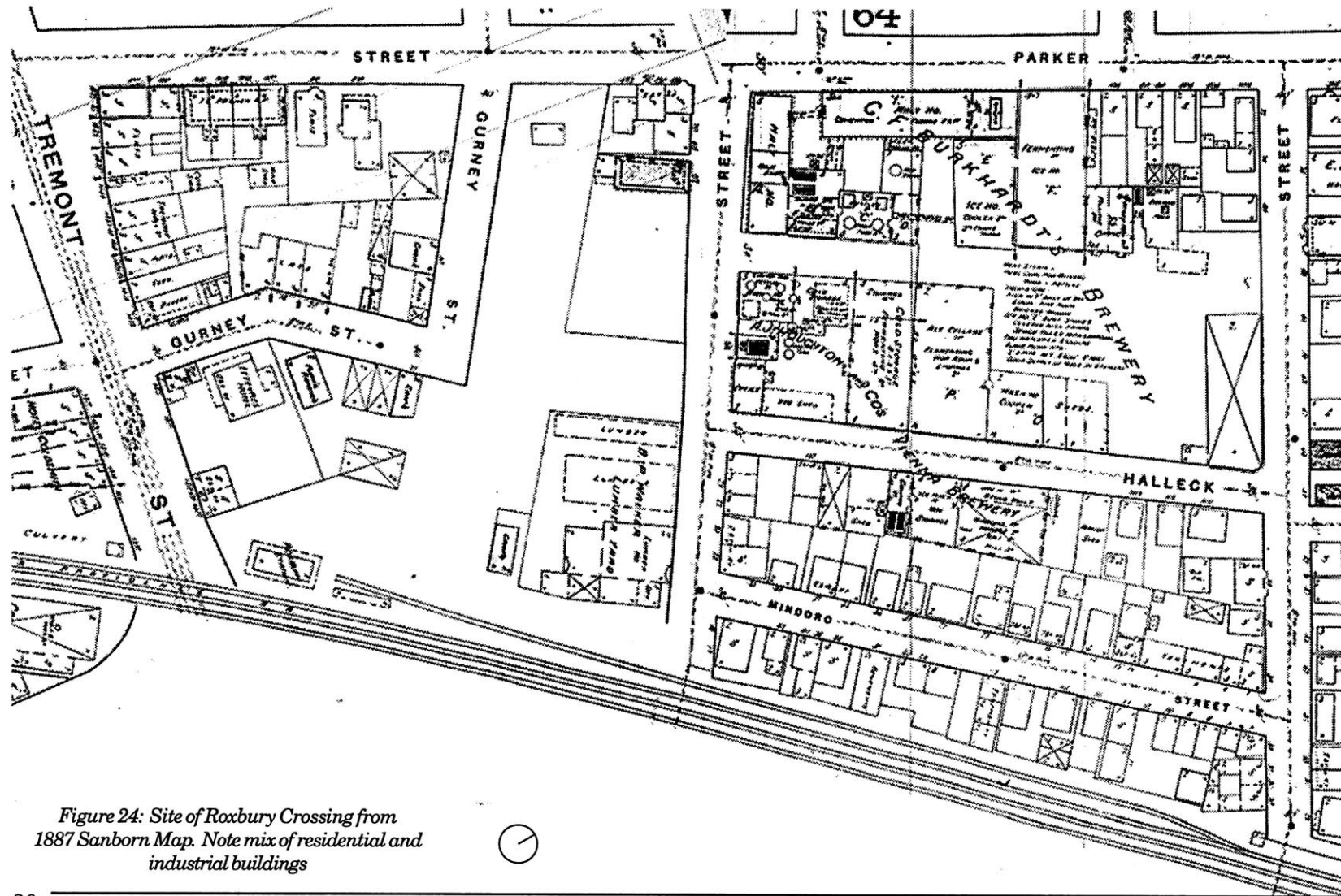


Figure 24: Site of Roxbury Crossing from 1887 Sanborn Map. Note mix of residential and industrial buildings

IV. Evolution of the Site and Program

The analysis of the site and the development of the program are closely associated in this thesis. The scale and scope of the project increased dramatically as the needs and concerns of the site and community became more clear. The final project addresses these larger issues in a comprehensive presentation.

The development process occurs in four stages. The first, the initial site analysis, reveals a series of needs and issues within the existing community. The second stage is an analysis of the Hope VI Redevelopment plan and associated land redistribution scheme. The results of these first two stages are documented in this chapter. In the third stage, the program is developed, and preliminary site design is presented. The last stage, the execution of the final design, is presented in the final chapter.

The Development of Roxbury Crossing

When Boston was first settled, the area of Roxbury Crossing was at the edge of a marsh where the Stoney Brook entered the Back Bay. The marsh was filled during the mid-1800s as a part of Boston's general outward expansion. To facilitate the addition of landfill, an elevated railroad causeway was constructed to carry fill into the Back Bay. It formed a continuous wall along the length of Stoney

THREE TOWNS AND BOSTON, 1870

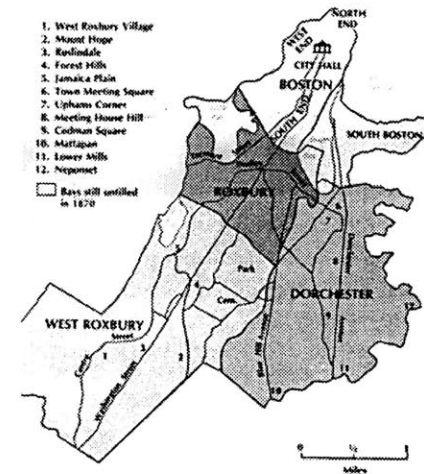


Figure 25: 1870 map of Boston, Roxbury, and Dorchester

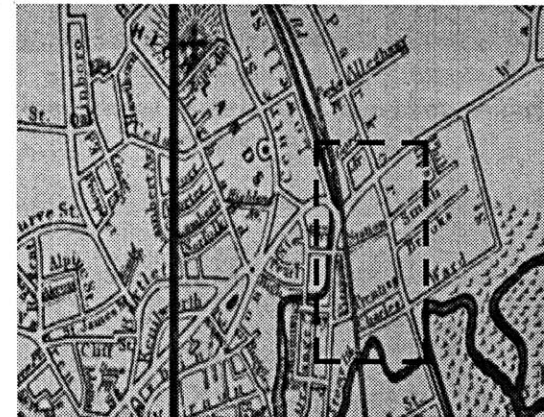


Figure 26: Detail from 1852 map posted at Roxbury Crossing Station. Location of thesis site is indicated.



Figure 27: Existing Mission Main housing. Parking lot is for Wentworth commuting students. The steeple of Mission Church is in the background.



Figure 28: Roxbury Brewery behind former railway causeway. Sentiments oppose the Inner Beltway highway project.



Figure 29: The new Roxbury Crossing MBTA Station

Brook Valley. Some streets tunneled through, but for the most part, the embankment was continuous. The rail line was later used for passenger service in to Park Square and South Station.

The area was settled by recent immigrants to the city. The first large immigrant group was the Irish, who settled first in South Boston, then farther out towards Roxbury Crossing. The second immigrant group was from Germany, and they settled from Roxbury out through Jamaica Plain. This pattern existed because cheap land and housing were available. Immigrant groups also tended to settle together because of language problems and fear of antagonism from other groups. These neighborhoods developed a distinctive, local character.

Local factories sprang up in the community. They were mostly light industries, employing the local people. The factories and houses were not arranged in a segregated fashion, but rather interspersed among each other. In this particular area, beer breweries were prevalent, relying on the knowledge of the new Irish and German immigrants. By the end of the Nineteenth Century, approximately 24 breweries were in operation along the Stoney Brook. Despite some closings, fires, and mergers, these local breweries were steady employers until Prohibition was enacted in 1919.

The Breweries also provided a base for the community surrounding them. They built housing and social clubs. They aided in the building of churches. They employed families, sometimes for generations. They also provided the beer for the pubs where the workers would gather after a long days' labor. This is still apparent in the Germania Street neighborhood of Jamaica Plain. Houses back up against the former Haffenreffer Brewery. Churches and social clubs are on the surrounding streets. This whole neighborhood existed because of the interdependence between the Haffenreffer brewery and the working community.

The first Mission Hill Housing Project (now called Mission Main) was built in the late 1940s to house returning veterans. It replaced a mixture of single and two-family houses with a regular array of 39 three-story, internal-corridor apartments. They were occupied predominantly by Irish families. A later expansion (now called the Grace Taylor Homes) added similar apartment buildings to the area.

In the 1960s and 70s, the city proposed bringing I-95 into Boston through Roxbury Crossing. Community opposition was finally able to halt the Inner Beltway, but by that time, the land had already been cleared. A mass-transit solution, accepted as an alternative, was built, rerouting the MBTA Orange Line from Washington Street to a new open culvert dug from the Back Bay to Forest Hills along the path of the earlier rail causeway. The culvert, called the Southwest Corridor, also contains those lowered rail lines to the south of the city. The new Roxbury Crossing Station was constructed at the intersection of Tremont Street and Columbus Avenue.

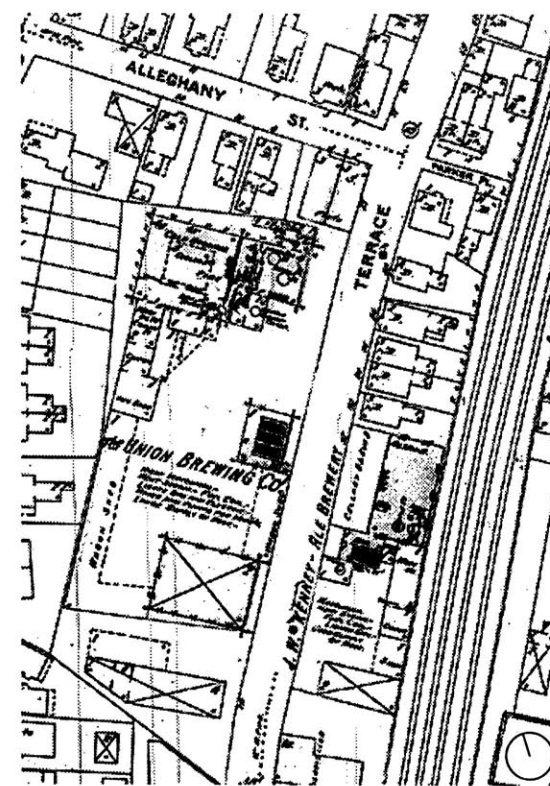
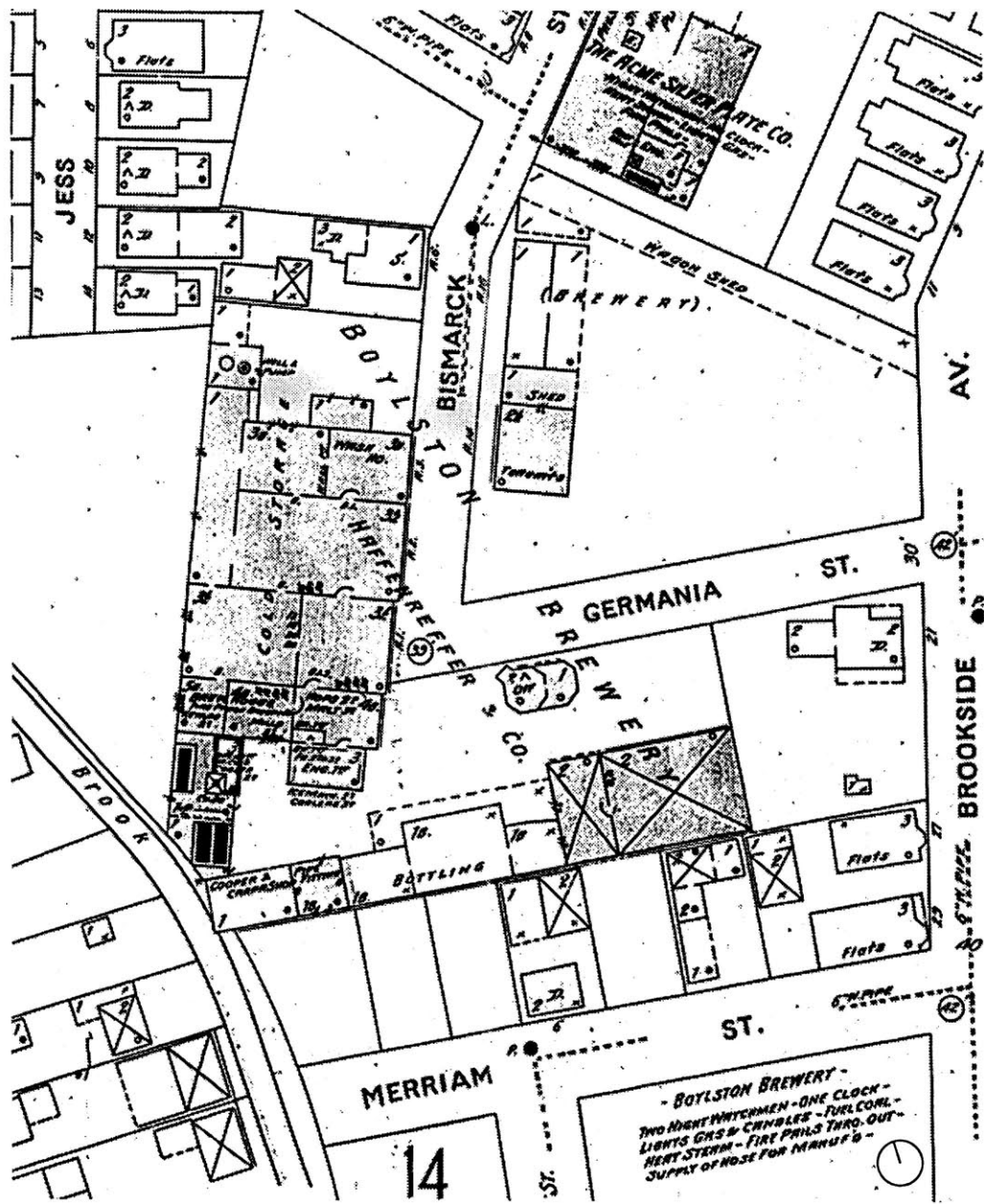


Figure 31: Detail of 1897 Sanborn Map of Roxbury showing Union Brewery, southwest of site. Note homes surrounding brewery. Railway embankment is on the right.

Figure 30: (at left) Detail of 1898 Sanborn Map of Roxbury showing Haffenreffer's Boylston Brewery. Similar pattern of mixed residence and industry.

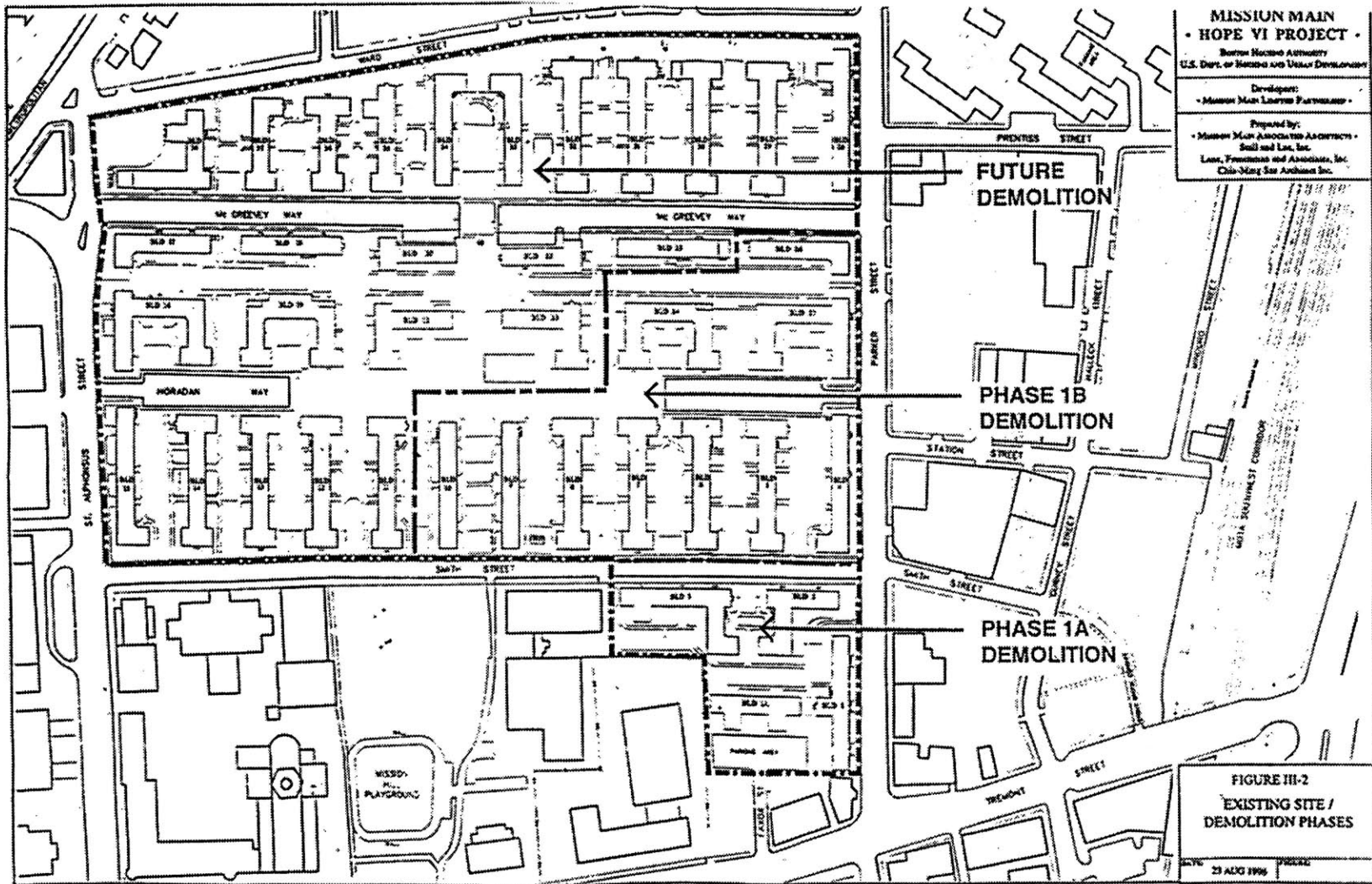
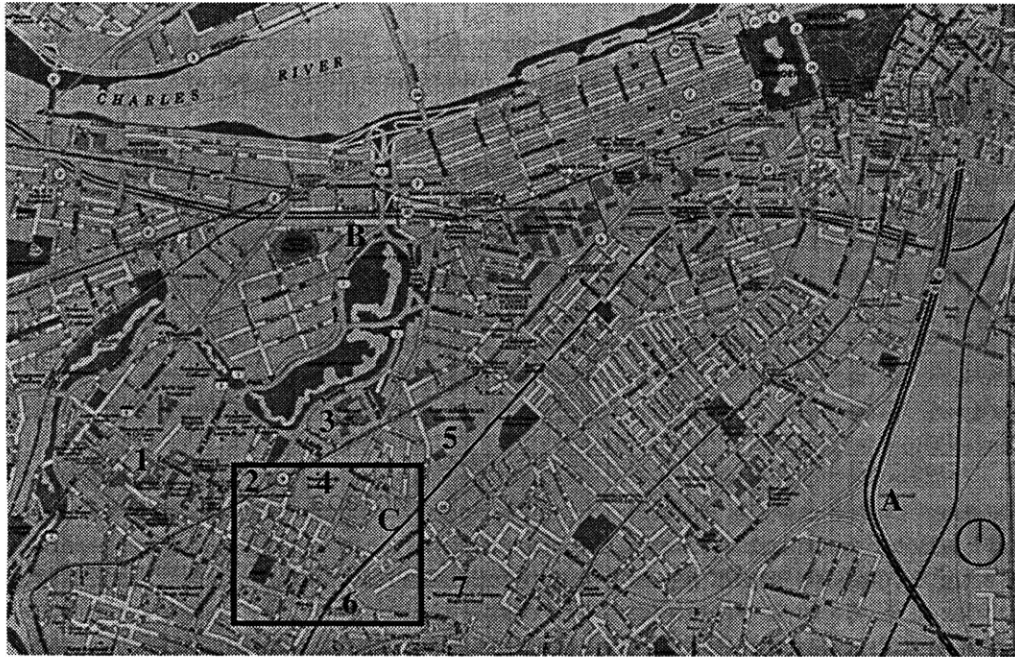


Figure 32: Boston Housing Authority Plan of Existing Mission Hill / Roxbury Crossing Site. Shows current conditions and demolition phasing for Hope VI redevelopment. Existing brewery buildings are under the "Future Demolition" and "Phase 1B Demolition" tags.



Key to Boston Map

- 1. Longwood Medical Area
- 2. Massachusetts College of Art
- 3. Museum of Fine Arts
- 4. Wentworth Institute
- 5. Northeastern University
- 6. Roxbury Community College
- 7. Madison Park High School

- A. Southeast Expressway
- B. Massachusetts Turnpike
- C. Southwest Corridor

Figure 33: (at left) Map of Boston, MA, showing location of site. Note locations of institutions surrounding site and proximity of major transportation routes.

The Current Condition of Roxbury Crossing and Mission Hill

There are two distinct neighborhoods which comprise the thesis site. Mission Hill, the public housing project, is a 19 acre site bordered by Smith Street, Parker Street, Ward Street, and St. Alphonsus Street. Roxbury Crossing is a 13 acre site bordered by Tremont Street, Parker Street, Prentiss Street, and the Southwest Corridor.

The surrounding neighborhoods are home to many of Boston's important institutions. Roxbury Community College and the Madison Park Technical High School are across the Southwest Corridor from the site. Northeastern University, the Wentworth Institute, and the Massachusetts College of Art form the northern border of Mission Hill. The Longwood Medical Area stands to the west. The Museum of Fine Arts and the Fenway are both within walking distance. To the south is the neighborhood of Parker Hill, which retains the character of old Mission Hill.

The site is rich with transportation routes. Columbus Avenue and Tremont Street are very important thoroughfares in Boston. They provide access to both the Southeast Expressway and the Massachusetts Turnpike. Huntington and Longwood Avenues are important cultural and institutional corridors. Both the MBTA Green

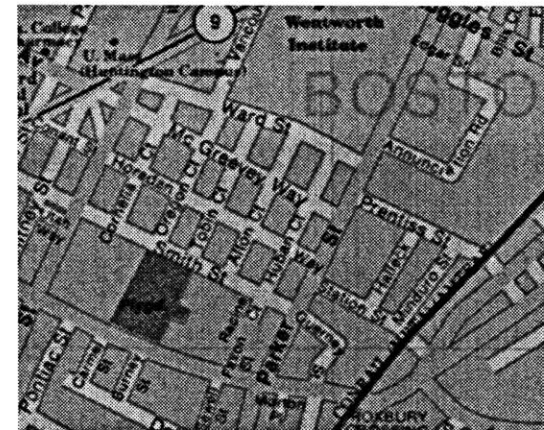


Figure 34: Detail of map showing the Mission Hill and Roxbury Crossing sites

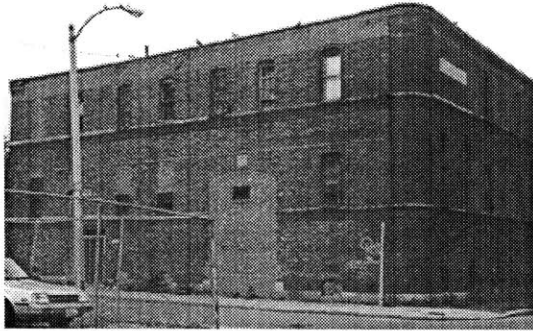


Figure 35: Burkhardt Brewery Stables

"The problem is not that people don't want [housing for the poor] in their town... people don't want "Stalinist" buildings in their town."

-Talk of the Nation



Figure 36: Roxbury Crossing Site -- note Prudential Tower in background.

and Orange lines have stops in the neighborhood. The nearby Ruggles Station provides access to commuter rail. Regular bus routes connect the area to Dudley Square, Coolidge Corner, and Boston's downtown.

Commercial areas are segregated to the fringes of the neighborhood. Tremont Street is developed as a commercial street, as are parts of Huntington Avenue. The nearest supermarket, at Coolidge Corner, is several blocks from the site. There are no banks, convenience stores, video rental outlets, or movie houses. The most convenient, large shopping area is Downtown Crossing, accessed via the Orange Line from the Roxbury Crossing Station.

There are no industrial employers in the immediate neighborhood. A few auto-body shops do exist. The nearby institutions provide jobs for some people in the area. There is not, however, the density of employment which existed at the turn of the century.

The Roxbury Crossing site contains buildings from two former breweries. The main building of the A. J. Houghton Company, on the corner of Halleck Street and Station Street, operated from 1870 to 1918. After prohibition, it was operated as a milk company and a paper company, and it is now the home of the Boston chapter of *Habitat for Humanity*. The stable building on the corner of Halleck Street and Prentiss Street is all that remains of the Burkhardt Brewing Company.

The remaining parcels in Roxbury Crossing are similarly under-utilized. One-third of the site serves as parking lots for Wentworth Institute and The Longwood Medical Area. The MBTA owns a vacant lot along the Corridor and an active power substation. Five buildings have been burned, abandoned, or condemned. The corner of Tremont Street and Parker Street is the only area currently inhabited. It contains dining, check cashing, and residential uses along the pedestrian route to the MBTA station.

The Mission Main Housing Projects are in very bad condition. Ninety-seven percent of the masonry is in need of repair. Only 8% of the apartments are in good condition. Repairs are not made in an efficient fashion. The buildings are unsafe. The interior corridors have led to an elevated crime rate. The street runs from building to building without curbs or sidewalks. The buildings stand out and stand apart from the surrounding neighborhoods. The inhabitants are predominantly single-parents, mostly unemployed and on high levels of public assistance. The units are under-occupied. A 17% vacancy rate, the highest in the city, exists because of these terrible living conditions. It is the "housing of last resort" in Boston. [Hope VI Baseline Case Study, pp. 7-10]



Needs Analysis

Mission Hill has severe physical and social problems. Many are related to the relationship between the Boston Housing Authority and its housing projects. Others arise from the unfortunate relationship between generic block-design public housing apartments and the adjacent private residential neighborhoods. Roxbury Crossing has vacant sites which gather garbage, provide hiding places, and make the area unsafe. These issues can best be addressed by approaching the problems of Mission Hill and Roxbury Crossing together, allowing the solution to create a larger, single community rather than a series of small-scale solutions.

The housing project needs to be integrated into the surrounding communities. This does not mean it should lose its ability to identify itself as a neighborhood, but it must not be seen as something alien to local housing stock. Housing upgrades need to address the current problems of crime and maintenance. Connections need



Figure 38: Existing mixed-use buildings along Parker Street



Figure 39: Existing commercial buildings along Tremont Street

Figure 37: (above left) Figure-ground diagram of existing site conditions



Figure 40: The Houghton Brewery Today

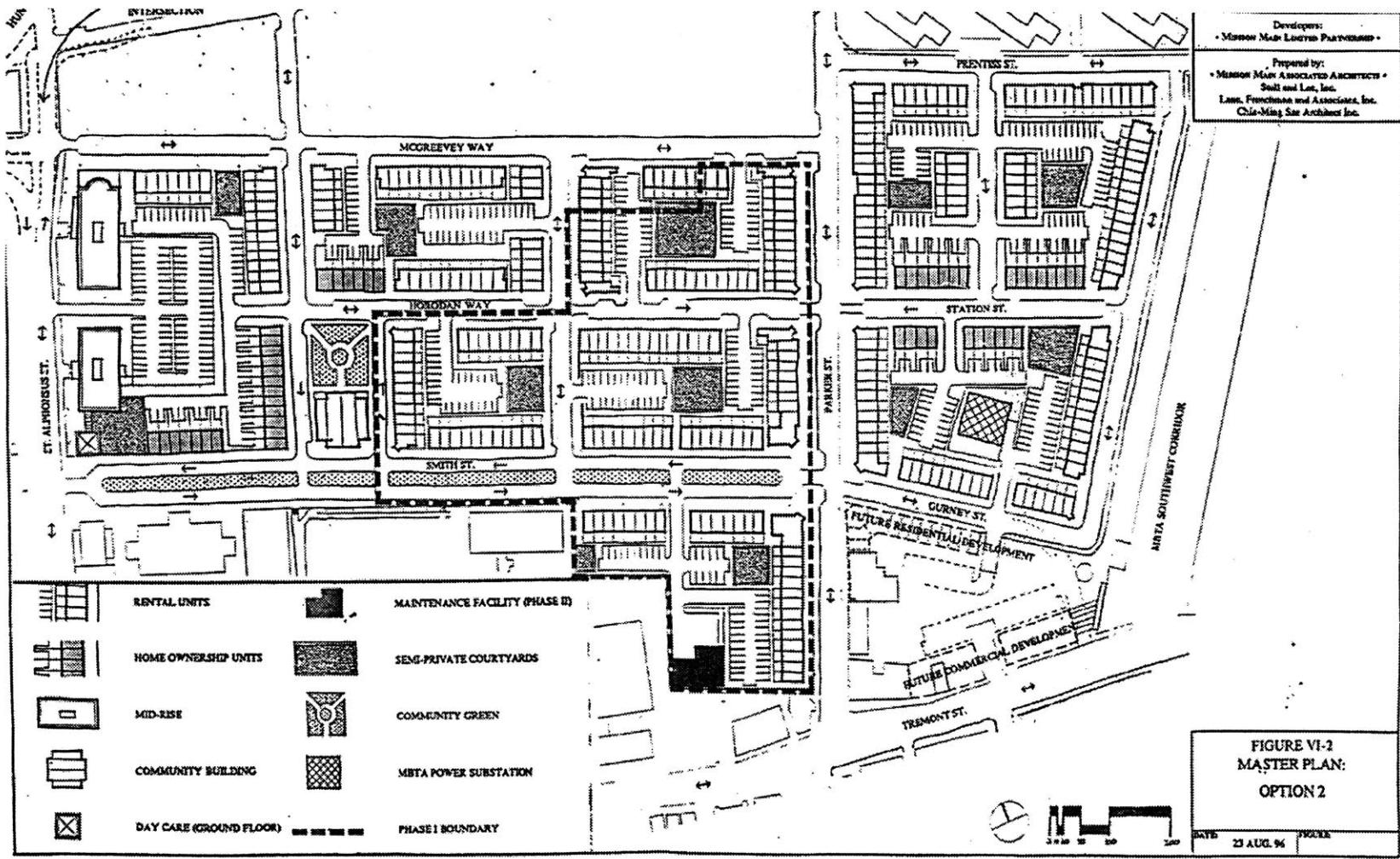


Figure 41: Boston Housing Authority Proposed Plan for Mission Hill / Roxbury Crossing Site. Plan includes Wentworth Institute land swap. Existing buildings on site to be razed, with exception of MBTA power substation.

to be made with the rest of the city. The income levels need to be diversified to generate a multifaceted community, capable of providing its own support mechanisms. A new identity needs to be forged, one linked to jobs and progress and away from crime and neglect.

The Roxbury Crossing site must be densified and assimilated into a community. It is a remnant from an earlier time, before the Inner-Beltway clearing. It should not be cleared and forgotten. The significant structures can be kept and refurbished. The remainder of the site can be given over to addressing the needs already identified in Mission Hill.

The Mission Main Hope VI Redevelopment Project

The existing Mission Main housing units are currently being upgraded and replaced by the Boston Housing Authority (BHA). It is the result of a \$51 million Hope VI redevelopment grant from the Department of Housing and Urban Development (HUD) and other sources. The goals of the redevelopment are "to make Mission Main safe, make the housing sound and attractive, improve BHA responsiveness, reward personal responsibility, integrate the development into the neighborhood, and reinforce community." The changes will be organizational as well as physical. [Ibid., p. 15]

The BHA compared the costs of renovating and replacing the existing housing units. On the basis of the poor condition of the buildings, the type of construction, and the social problems inherent in the design, the BHA decided to demolish all of the existing buildings and begin from scratch. The area was divided into smaller, better-defined blocks with outward-facing townhouses. The interior courts would contain parking spaces and a private park for the residences. All of the units would be accessible from both the street and rear yard. This would be accomplished in phases, allowing the current residents to remain in the neighborhood throughout the project.

After planning began, Wentworth Institute approached the BHA with a plan to swap land parcels in the area. Wentworth, which owns a majority of the Roxbury Crossing site, wanted to swap their land for the strip of the original Mission Main site between Ward Street and McGreevey Way. This would allow Wentworth to consolidate their land holdings to contiguous blocks. If the BHA acquires the MBTA sites and the private parcels, the new housing development would extend all the way to the Southwest Corridor. This would integrate Roxbury Crossing into Mission Hill.

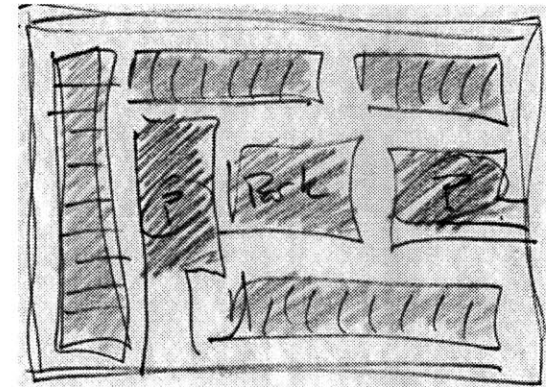


Figure 42: Analysis of proposed Hope VI blocks: Townhouses face streets with garden in rear. Interior parking lots and a semi-public park are at the center.



Figure 43: Phase 1A demolition has already begun at corner of Parker and Smith Streets.

This plan would eventually remove all the existing buildings on the Roxbury Crossing site. The expanded area will be completed in the same style as the rest of the development. It will extend to the Corridor, completing the site without transitions at the edges.

Needs Analysis

The Hope VI plan does a good job of addressing many of the needs of the existing community. It replaces the decaying infrastructure with new buildings and a new philosophy. The arrangement of homes and parks provides a range of spaces, from public to private, which were lacking in the old plan. The townhouses are of a similar design to houses in surrounding neighborhoods, identifying them only as a subdivision, not as projects. Systemic management problems within the BRA are acknowledged, and solutions are proposed. By combining private and public dwellings, a variety of incomes will be welcomed and encouraged in the community.

The needs which are still left unaddressed are those which are not directly related to housing. Neither HUD nor the BHA have an incentive or a mandate to create a varied community. There will be no attempt to introduce commercial sites in the neighborhood. There are no provisions for job creation. What is required on this site is a more consolidated approach.

All connections to the past will be obliterated when the remaining structures in Roxbury Crossing are removed. The focus of the project ought to be on creating the most viable and dynamic community possible. This requires knitting isolated elements together, creating a rich fabric, rather than one with a singular focus on housing.

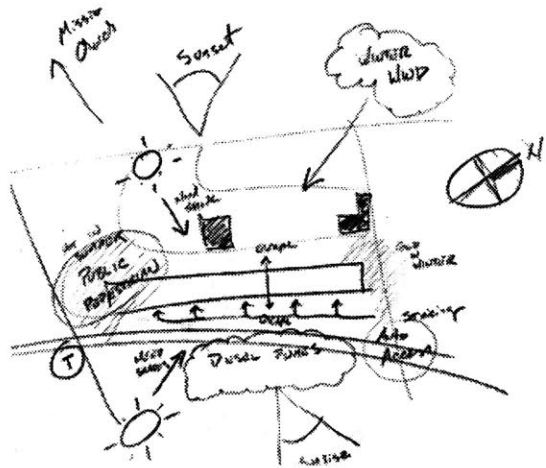


Figure 44: Analysis of conditions effecting Roxbury Crossing site

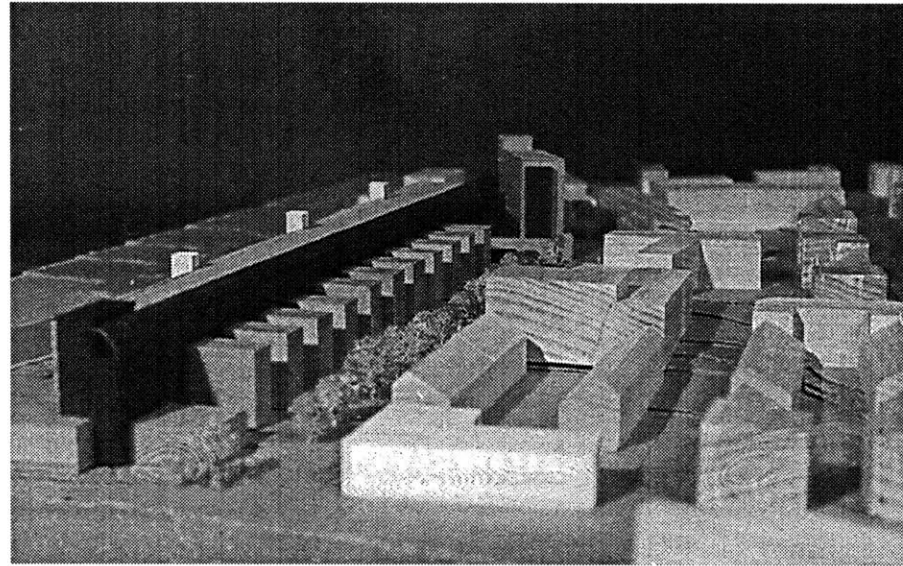


Figure 45: Photograph of final site model, view from north

V. Thesis Program: A Counterproposal to Hope VI

The redevelopment of Roxbury Crossing needs to address all the issues of the neighborhood, not only those which relate to housing. Providing locations in the community for working, shopping, and recreating are just as important. While it might not be practical to include every type of facility in every community, where opportunities exist, they must be explored. Using this philosophy, a program is developed for Roxbury Crossing and Mission Hill.

The Urban Program

The new community at Roxbury Crossing will embody seven principles to guide the design. The principles address the issues raised in the evaluation of the existing site and the Hope VI proposal made by the Boston Housing Authority.

1. Combine neighborhoods: The two existing neighborhoods will be combined to create a larger Mission Hill / Roxbury Crossing. This completes the land swap proposed by Wentworth, benefiting both communities. The larger site can support a larger population and, thereby, a greater variety of living and working options.
2. Define edge: The new neighborhood needs to be distinct from the surrounding communities if it is to address its own needs and have its own identity.

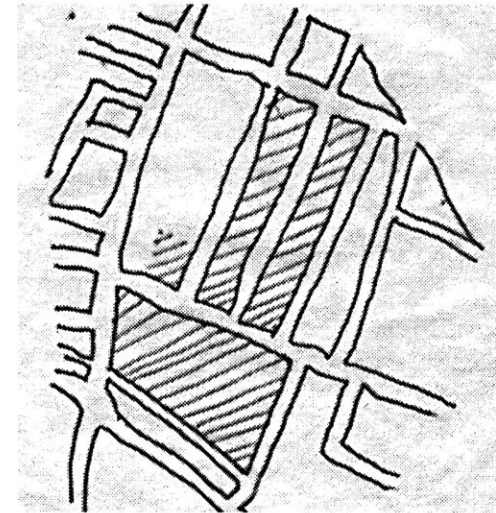


Figure 46: Combined sites of Mission Hill and Roxbury Crossing

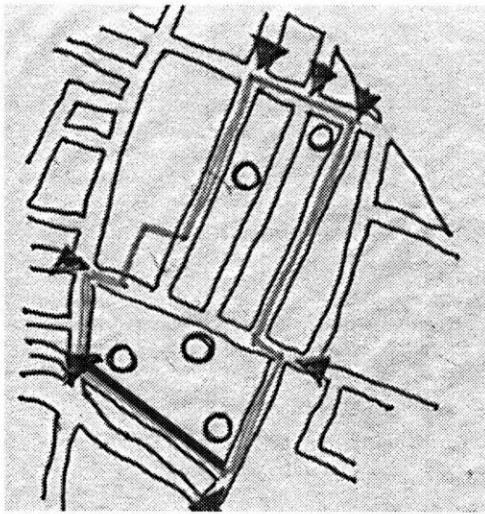


Figure 47: Edges, entrances, and gathering points in community

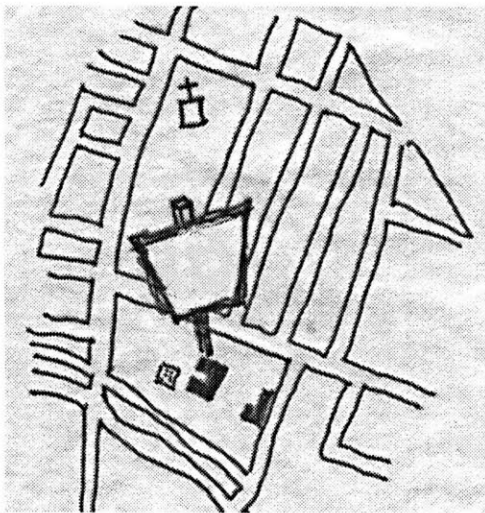


Figure 48: Historic buildings and community identity

Perceiving the edges allows the whole to be recognized. At the same time, the community cannot afford to isolate itself from the city. This balance must be established in a careful fashion.

The edge condition against the Southwest Corridor must be carefully considered. It provides important public transportation via the Roxbury Crossing station, but it creates a noise and safety problem. The development of the community's southeast edge must address both issues.

3. Create identity: Mission Hill needs to have its identity overhauled. It is now noted by the generic project buildings and legendary crime incidents. Roxbury Crossing is identified by being a hole in the fabric. Not only will the new community need a positive image, but it will need to be seen as a real community. It must be seen not as a housing project, but a part of Boston's network of neighborhoods.

4. Provide entrances and gathering points: The entrances to the community need to work in conjunction with the edges to encourage and welcome visitors to the community. Reducing the need for automobile use allows the entrance points to be something other than streets. The access points to the MBTA will be important in the new neighborhood. The permeability through the edges to the surrounding institutions also defines the points of entry to the community.

Public and private open space needs to be programmed to encourage positive use of the space. The Hope VI model of a semi-public park at the center of a residential block and private backyards should be encouraged. Public plazas should be created where a variety of uses come together. Generous tree-lined sidewalks integrate the community and define the paths of movement.

5. Maintain existing historic buildings: A community is enriched by its connection to its past. In this area, the only remaining symbols of that past are the Mission Church at the top of the hill and the two aging brewery buildings on the Roxbury Crossing site. These older buildings should be rehabilitated for use by the community. In this way, different spaces will exist for different uses while ensuring a single-design neighborhood is not recreated.

6. Develop an industrial infrastructure: The residents need employers who can be an active part of the community. Endemic unemployment must be countered by encouraging industries to set themselves up in the city. A situation where the needs of the employer are linked to the benefits of the community will promote the long-term viability of the neighborhood.

7. Create vibrant mix of uses: A community needs to be more than just a place to live. Access to jobs, education, shopping, and recreation are equally impor-

tant to the residents. A community which is able to accommodate all of these uses will be able to maintain an internal viability with potential for long-term sustainability. It will also discourage the use of automobiles which is contrary to the density of the city.

Housing stock which encourages mixed-income integration will create a community base of residents and consumers. Flexible living space for artists, students, and crafts-people will encourage a variety of people to consider living here. Adding private housing to the public rental stock will improve the quality of the neighborhood because the owners will be community members. The managers of the public housing must be on site to promote the upkeep of the environment.

Both large and small commercial opportunities need to be created within the community. In this way, shopping can be maintained on site, encouraging local investment. Light industrial space must be created to provide a means for creating a job base in the neighborhood. Schools and libraries are nearby, but a community historical society and museum would enable the community to understand their past and encourage the improvement of the neighborhood.

The Building Program

The industrial buildings will reflect the issues explored in the earlier chapters about industrial paradigms and sustainable architecture. The buildings will be containers for generic industrial processes, able to accommodate many different uses with a minimum of modification. An economical structural system which provides access to ventilation, power, and water is required. The building will symbolize the new development and community, and therefore, must present an image of progress.

The industrial buildings will need to be durable, to out-last the abuses of industry and climate. As stated before, it must be able to adapt to changing clients and uses. As important as the rest, is the comfort of the inhabitants. The tenants must enjoy being in the buildings or they cannot succeed. Attention to these concerns for continued occupancy will enable the project to be successful.

Industries will need to be convinced Roxbury Crossing is a viable location. One early tenant can establish a toehold in the community, encouraging others to move into the new buildings. This client will be a micro-brewery, the traditional builder of communities in the Stoney Brook Valley. This facility, whose requirements are outlined in the Appendix, will become identified with the community, and increase the image of the development.

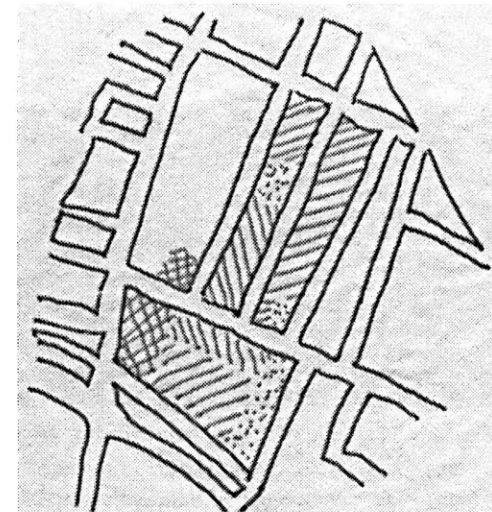


Figure 49: Variety of uses in community

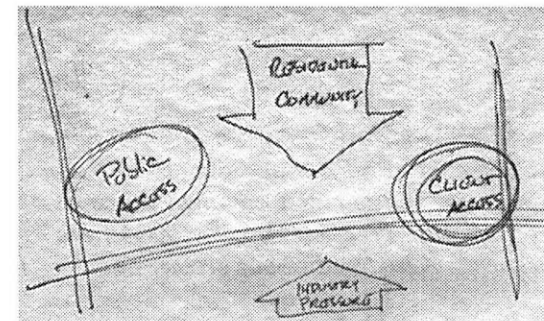


Figure 50: Evaluating and prioritizing design pressures

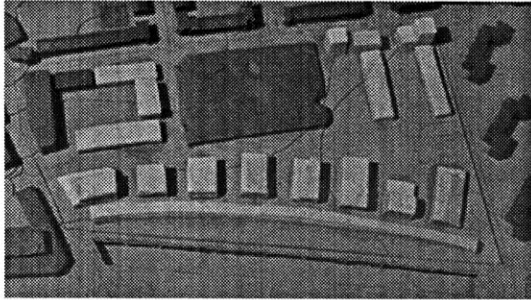


Figure 51: Preliminary site model, first pass, first plan. Industrial zone is at bottom -- independent pavilions connected by service spine. Athletic field at center. Mix of housing types along Parker Street.

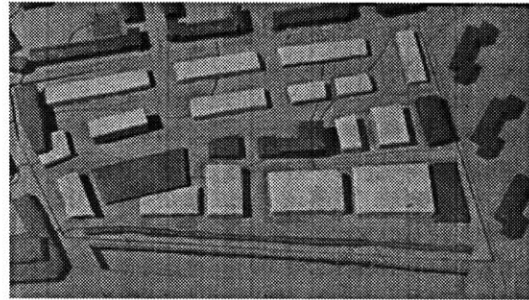


Figure 52: Preliminary site model, first pass, second plan. Several large industrial buildings along Southwest Corridor. Terrace Street crosses site, divides residential from industrial.

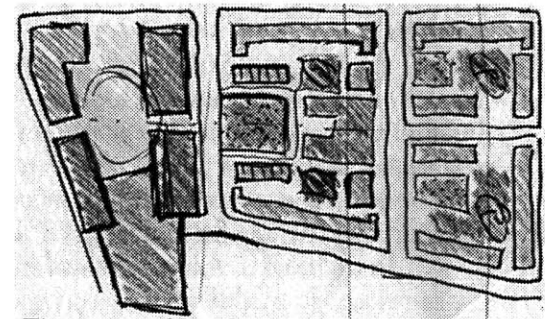


Figure 53: Sketch site plan. Uses Hope VI block plan to organize site. Preparation for second site model pass. Proposes parking structure over Corridor.

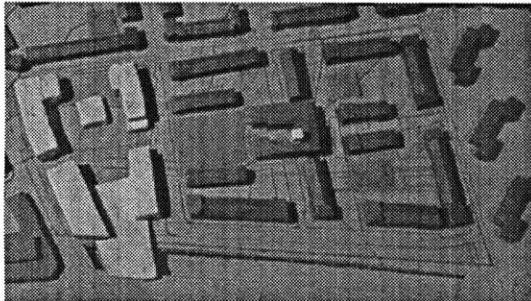


Figure 54: Preliminary site model, second pass. Industrial / commercial court against Tremont Street. Residences clustered about brewery.

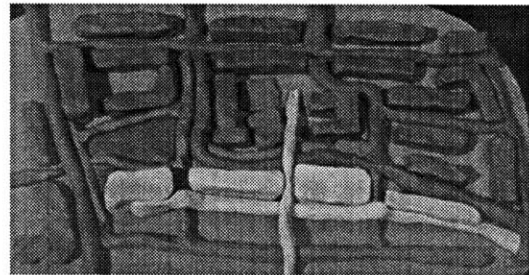


Figure 55: Sketch site model. Explores paths of movement through site to inform street layout scheme.

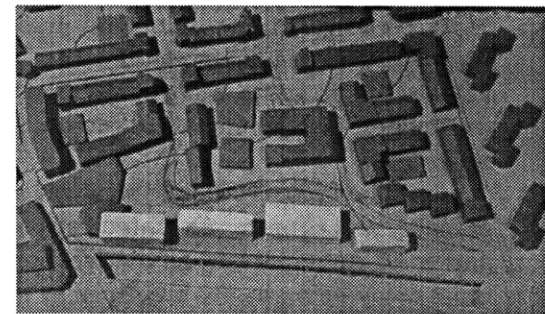


Figure 56: Preliminary site model, third pass. Smith Street is dominant path through site. Cluster of buildings at bottom represent beginnings of combined live-work zone.

Preliminary Design Directions

The first passes at site design removes most of the existing buildings from the site, and it is developed from scratch. The solutions are very ordinary in appearance (Figures 50 and 51). The industrial and residential opportunities are separated. The Roxbury Crossing site is an independent, self-contained unit. The designs do little to create a sense of community.

The addition of the Hope VI urban pattern changes the focus of the development. The site expands to include the Mission Main site without modifying the design for that area across Parker Street developed by the BRA. The pattern of townhouses with special corner conditions is extended to the Southwest Corridor (Figure 52). The Houghton Brewery is integrated into the new plan. It exists in the middle of an extension to Horodan Way, so that street does not continue. In this scheme, the industrial buildings are organized along Tremont Street so as to enclose a courtyard. It is to serve as a public square for the businesses and the larger community.

At this stage, the whole program is reconsidered from the perspective of the movement of residents and services. The sketch model in figure 54 represents those flows around the site buildings. This informs the last model where the industry is between an extended Smith Street and the Southwest Corridor, with all the commercial use on Tremont Street.

The places of residences and industries may be integrated in a single building, much as residences and stores coexist along Tremont Street. The single hybrid proposal is a new model for development, combining residences with industries, through private and public investment. A management agency will provide access to shared resources for all tenants. It will identify Roxbury Crossing.

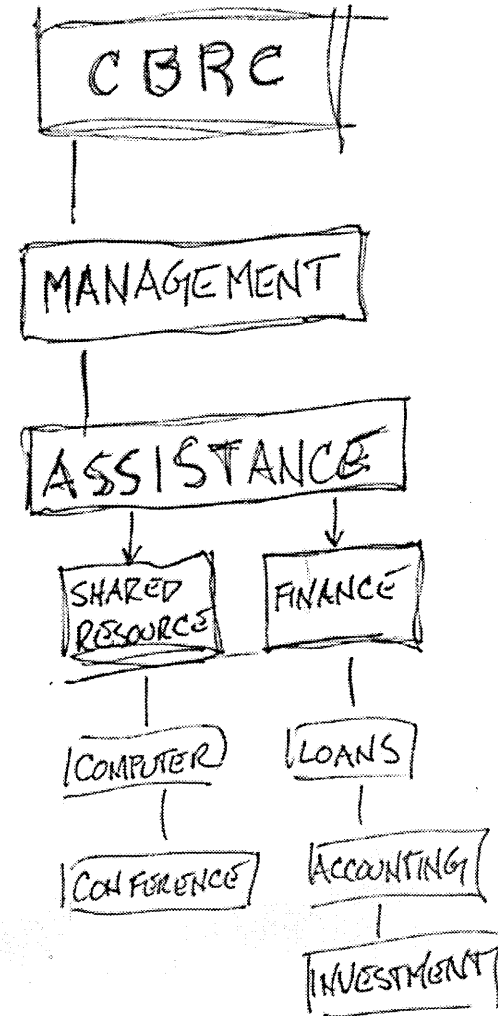


Figure 57: Proposed Organization chart for Community Business Resource Center, providing resource and financial assistance

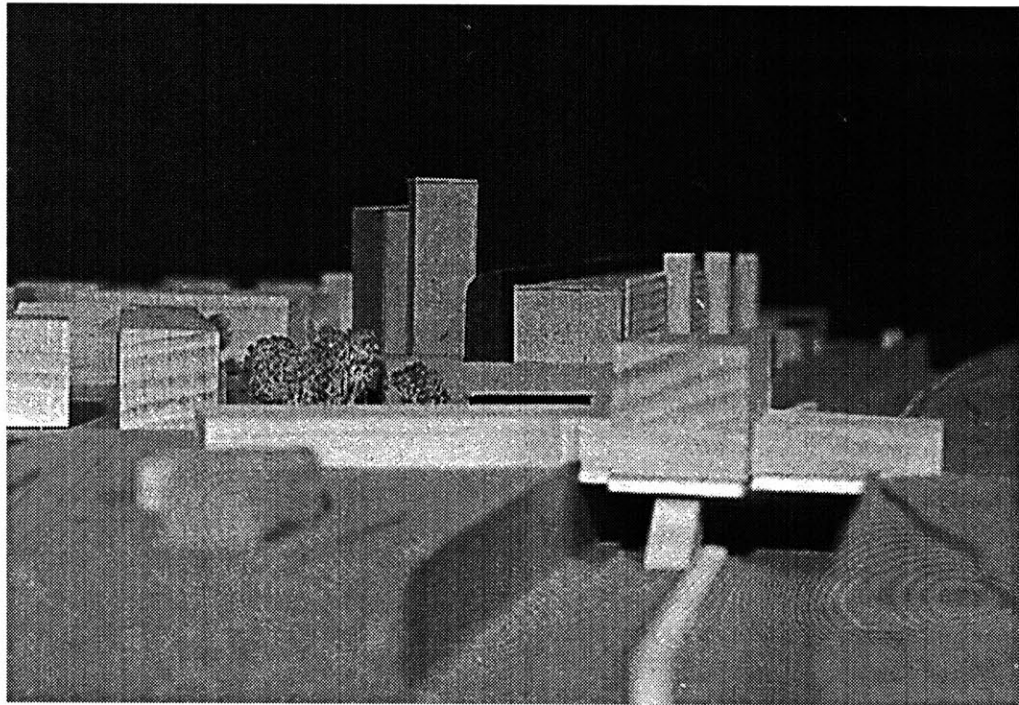


Figure 58: View of Hybrid Building from the south along the Southwest Corridor

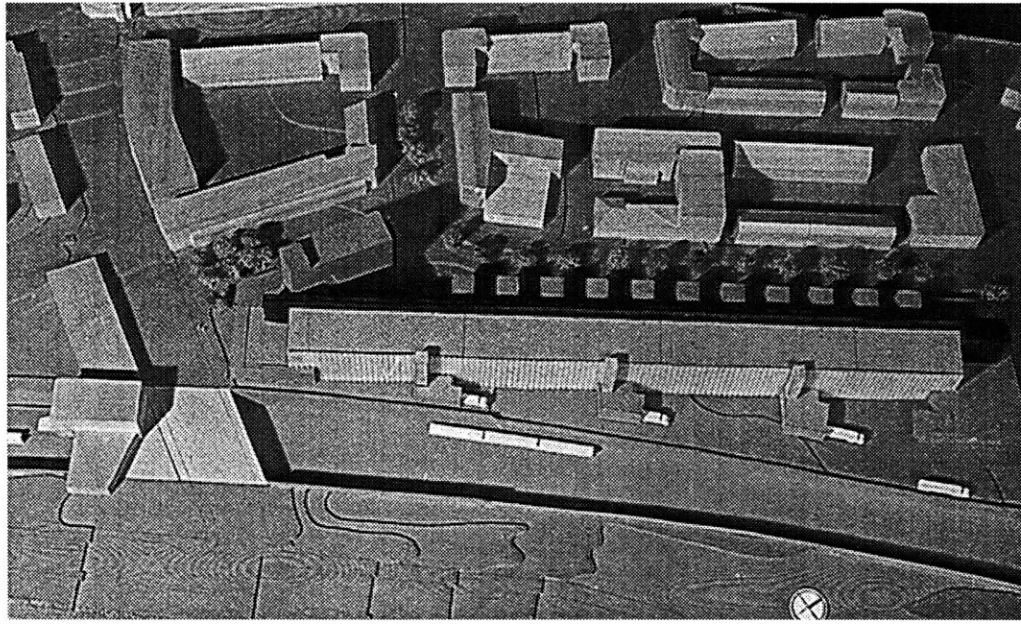


Figure 59: Photograph of model showing overall plan for Roxbury Crossing

VI. The Final Design:

The final design addresses the seven programming principles at both an urban and an architectural scale. The greater Mission Hill / Roxbury Crossing site becomes a mixed-use community, containing facilities for both day and night activities. Against the Southwest Corridor, a hybrid development, combining several uses, forms the southeastern boundary to the neighborhood. This joint proposal is presented as the counterproposal to the Hope VI redevelopment plan.

While addressing the needs of both neighborhoods, this thesis will focus on the development of the Roxbury Crossing site. The Mission Hill site will be developed using the existing Hope VI design proposal, including the proposed townhouse block pattern. The land swap with Wentworth will be enacted, with the MBTA and private parcels acquired for new development. This opens 13 acres for the thesis project site.

The Urban Plan

The urban plan addresses the seven points raised in the program by creating an extended neighborhood combining the two existing sites. The two sections are connected in two ways. The housing block housing pattern will be applied to all residential blocks. This pattern will be legible at street level, allowing visitors to

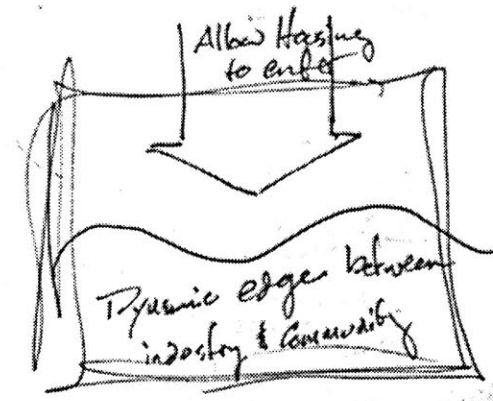


Figure 60: Sketch of line between residential and industrial interests -- compressed into the dimension of the Gallery in final design.

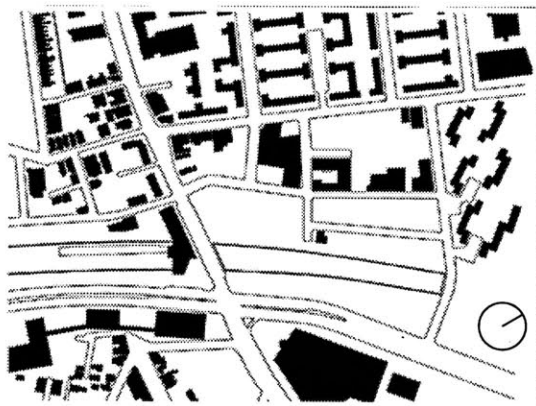


Figure 61: Existing Figure-Ground. Vacant land on the Roxbury Crossing site is clearly visible.

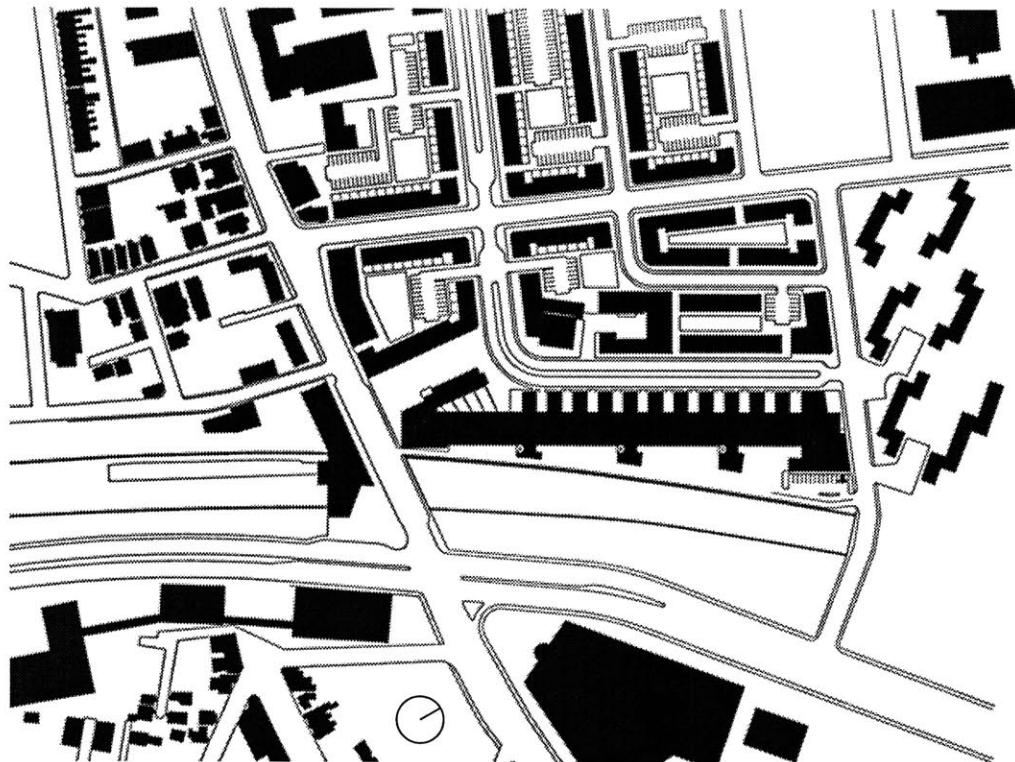


Figure 62: (at right) Proposed Figure-Ground. Pattern is continuous and dense. Promotes mix of scales on site. Continuation of paths is clear across Parker Street to Prentiss Street.

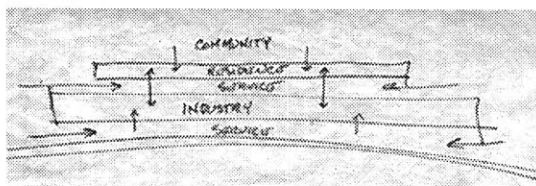
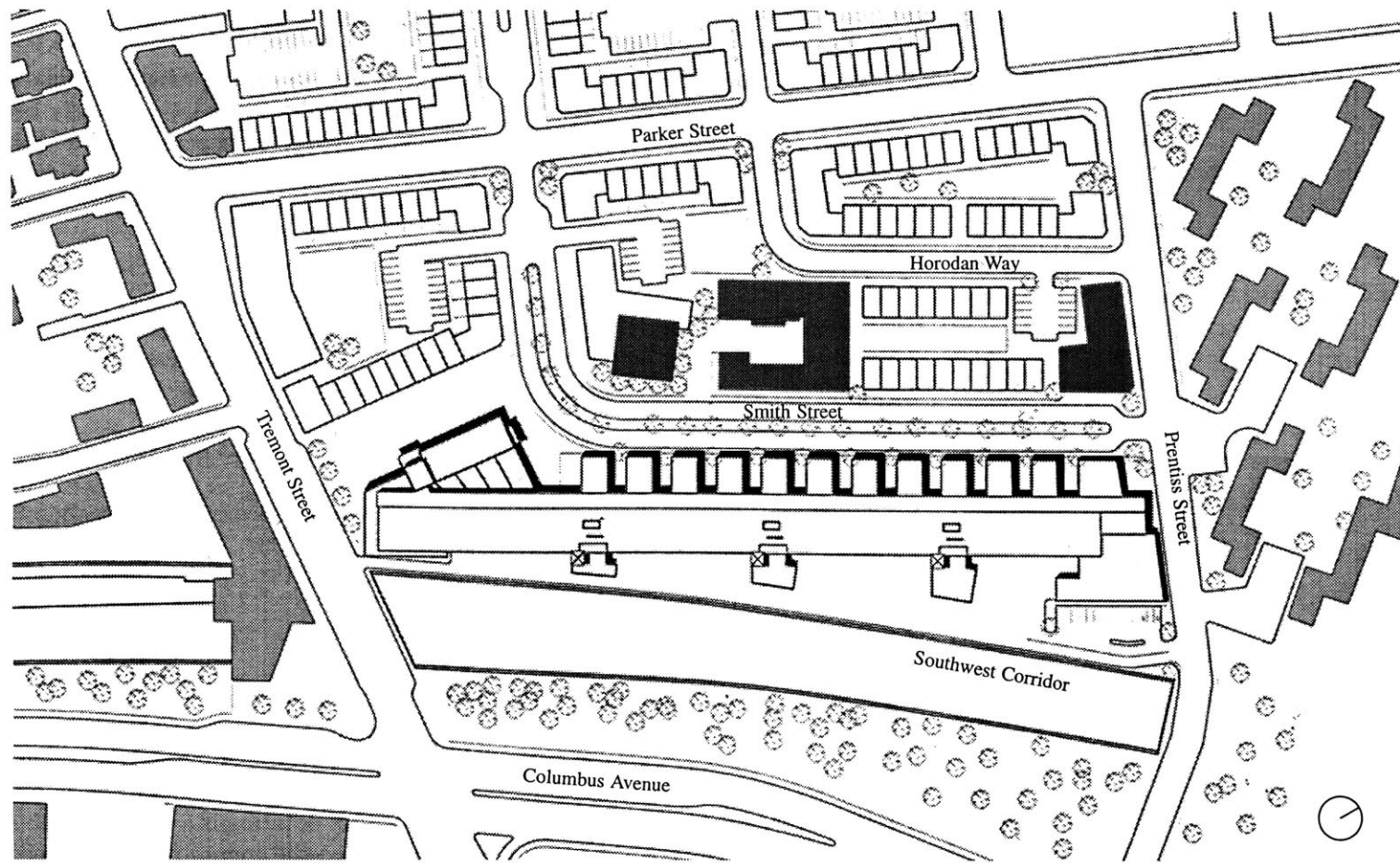


Figure 63: Sketch showing a layered transition of uses against the Southwest Corridor.

perceive a continuous development. Unlike the current projects, however, the new building stock is at a unit scale, less likely to be seen as public housing.

Two of the main arteries through Mission Main, Smith Street and Horodan Way, will continue across Parker Street. The existing Station, Gurney, and Mindoro Streets will be removed. Smith Street will continue straight, then bend and join the existing Halleck Street. Horodan Way will extend across Parker, where it will bend to parallel the new Smith Street extension. Both streets will extend to Prentiss Street. This will provide a continuous network of sidewalks and streets through the entire neighborhood.

The existing MBTA power substation is in use and must remain. The building behind it will be replaced with a small loft building for apartments. It will serve to shield the community from the substation. The existing commercial building on the corner of Parker and Tremont is extended along Tremont to create a more com-



Existing Building, Unaffected By Project
 Existing Building, To Be Rehabilitated
 New Building

Figure 64: Proposed Site Plan
(1" = 200'-0")



Figure 65: Existing MBTA power substation



Figure 66: Houghton Brewery offices, to be converted to a community historical society

plete street edge. The pattern of apartments above ground-level shops is maintained.

The two existing brewery buildings are rehabilitated and converted for reuse. The Burkhardt stables have first-floor retail stores with artist lofts above. The Houghton Brewery contains several functions. The corner office building is a community historical society and museum. The rest of the building is converted into loft apartments and a small inn.

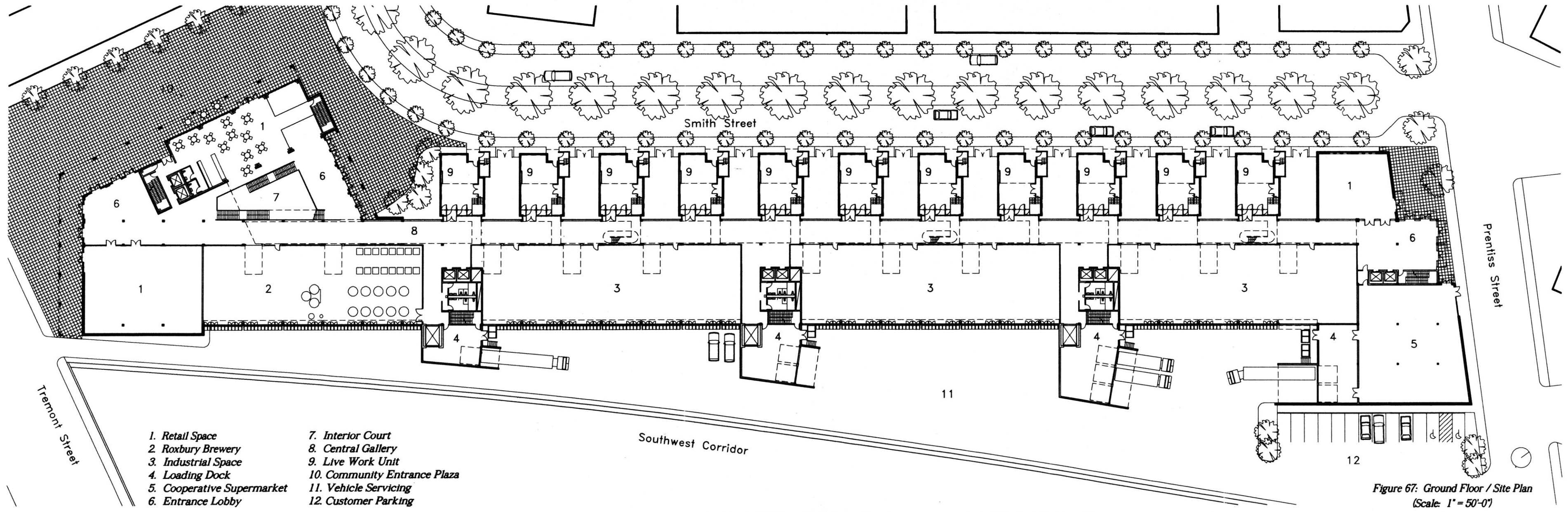
A further variety of housing options are created in the new development. Lofts in the old buildings and apartments on Tremont Street have already been presented. The pattern of housing and courts proposed for Hope VI will continue across Parker Street as far as Smith Street. This will provide low and middle income units for rent and sale. This variety of options will encourage a diverse community to be formed.

A new building type, the Hybrid Building, is between Smith Street and the Southwest Corridor. It helps frame an entrance to Mission Hill from the Roxbury Crossing MBTA Station. Between daytime work and nighttime entertainment and living, it encourages 24 hour occupation of the site. This will increase the safety of the neighborhood by ensuring that there are no times when the site is unobserved by its own citizens.

The Hybrid Building

The development of the hybrid building was a process of finding the relationships which made the project coherent and manageable. The Business Center and Live-Work units were developed independently and modified to accommodate the hybrid scheme. The relationship of the service cores within the Industrial Zone was coordinated with the needs of the Live-Work units. The commercial spaces were developed to create a viable density at each end of the building to ensure that it would be inhabited and meet the needs of the community. Thus, a variety of needs are addressed in this project.

One recurring theme from the urban plan studies was that a simple, small solution was inappropriate. Here was an opportunity to present a large building to address the many issues simultaneously. The hybrid building is a statement about the relationship between the variety of needs within the community. The facility creates a strong edge against the Southwest Corridor and defines the dimension of the neighborhood. It is the community's billboard of redevelopment success.



- 1. Retail Space
- 2. Roxbury Brewery
- 3. Industrial Space
- 4. Loading Dock
- 5. Cooperative Supermarket
- 6. Entrance Lobby
- 7. Interior Court
- 8. Central Gallery
- 9. Live Work Unit
- 10. Community Entrance Plaza
- 11. Vehicle Servicing
- 12. Customer Parking

Figure 67: Ground Floor / Site Plan
 (Scale: 1" = 50'-0")

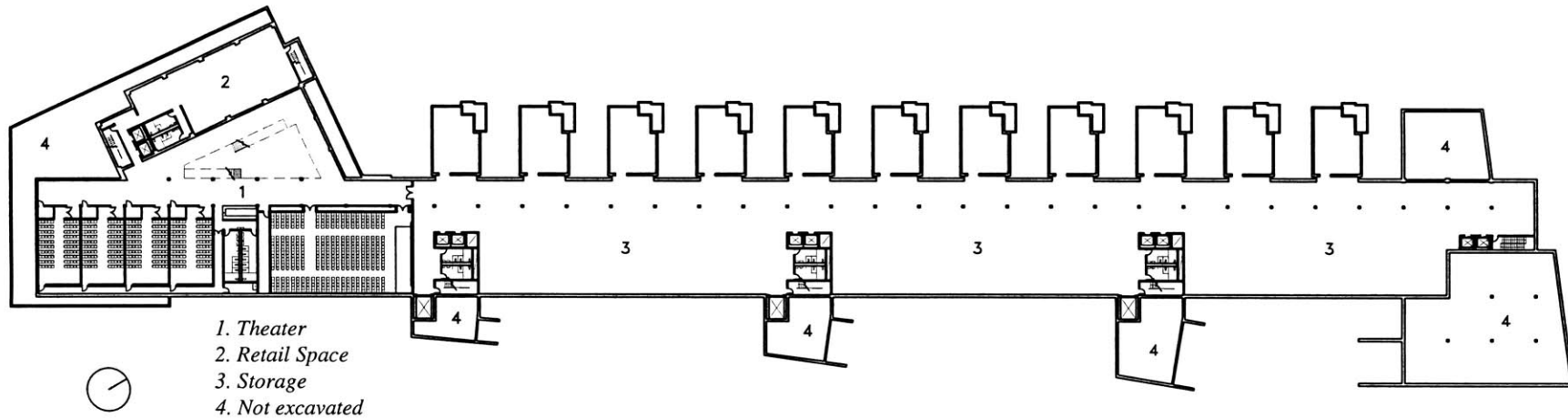


Figure 68: Basement Plan
Scale: 1" = 100'-0"

At the same time, the building is a symbol of and a sign for the combined neighborhood of Mission Hill / Roxbury Crossing. Columbus Avenue is a large road bordered by large masses. After the row-houses of the South End, the Ruggles MBTA station and the new Boston Police Headquarters announce the end of the dense urban section of Boston. Northeastern can be seen behind to the right, making a connection over to Huntington Avenue. The next large mass is at Roxbury Community College. It announces the arrival at Roxbury, but Mission Hill has already passed by unnoticed. The large, hybrid building will be the community marker, a symbol for the reintegrated community.

The Hybrid Building contains seven major design elements: a public Gallery, Live-Work modules, an industrial zone, an interior court, a community business center, marketplaces, and a theater complex. The Gallery is the connector between all the elements. It provides pedestrian and service access to all of the areas. It encompasses vertical circulation at intervals along its length. It uses natural daylighting and provides visible benchmarks for passage within and outside the building.

The community entrance is an exterior court directly across from the Roxbury Crossing MBTA Station. It provides access to both the community and the hybrid building. The exterior court is shaded by trees and is connected to the occupation of the building. It faces one of the two marketplaces, one at each end of the Gallery.



Figure 69: Photograph of model showing community entrance at exterior court

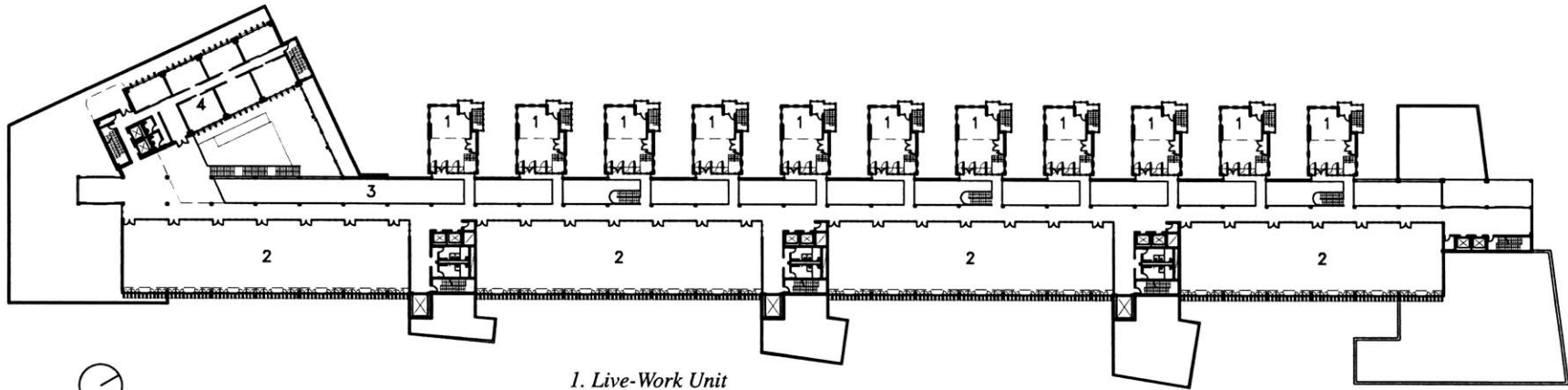


Figure 70: Third Floor / Second Mezzanine Plan
Scale: 1" = 100'-0"

- 1. Live-Work Unit
- 2. Industrial Space
- 3. Central Gallery
- 4. Community Business Resource Center

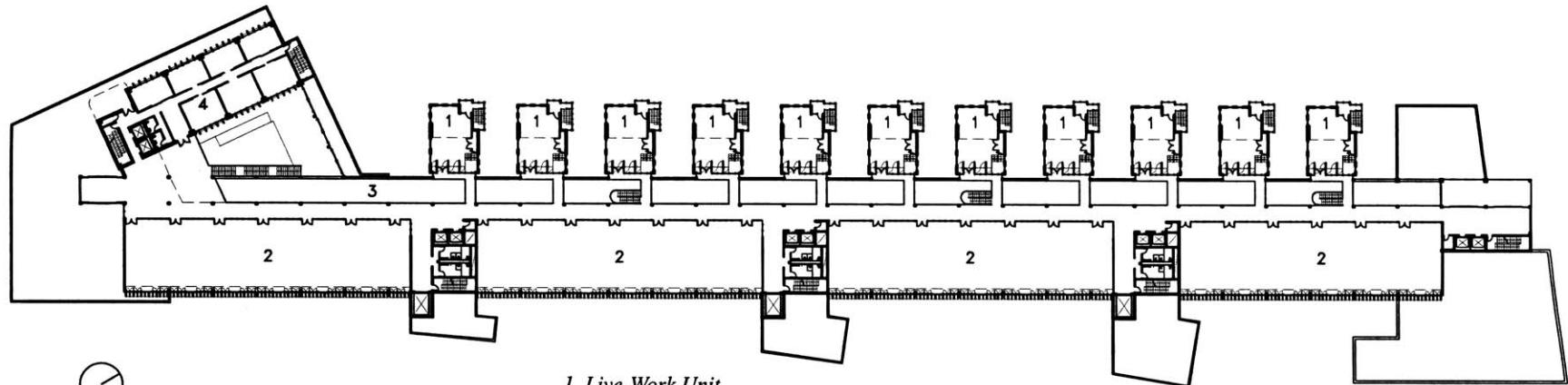


Figure 71: Second Floor Plan
Scale: 1" = 100'-0"

- 1. Live-Work Unit
- 2. Industrial Space
- 3. Central Gallery
- 4. Community Business Resource Center

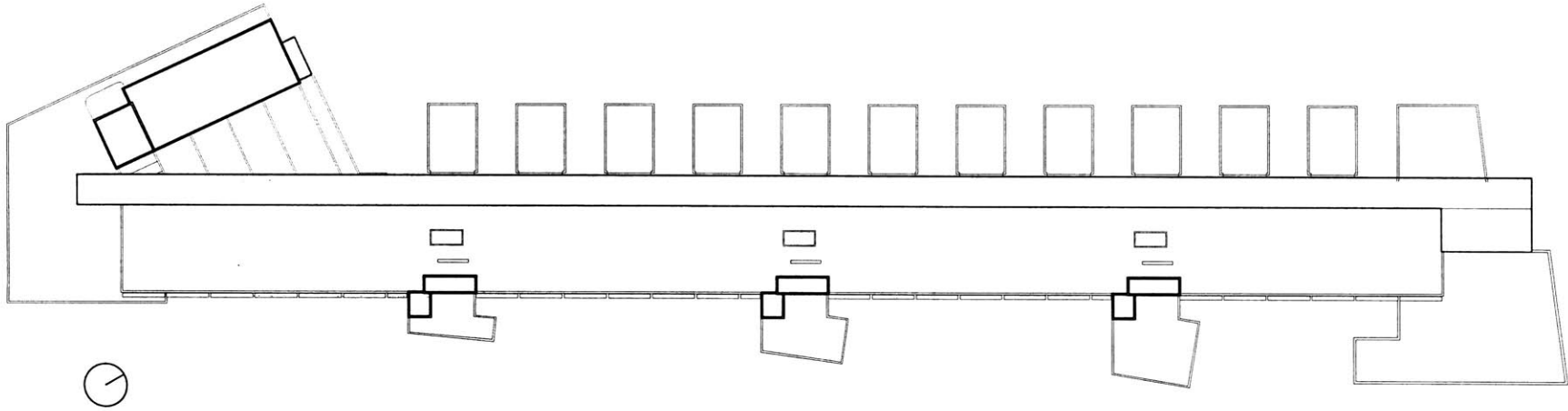


Figure 72: Roof Plan
Scale: 1" = 100'-0"

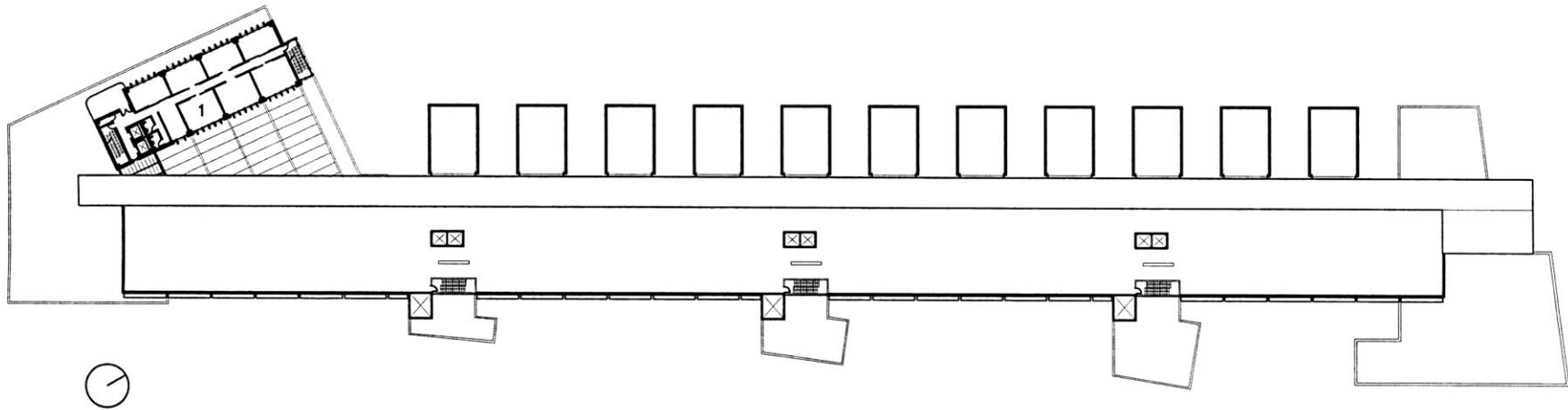
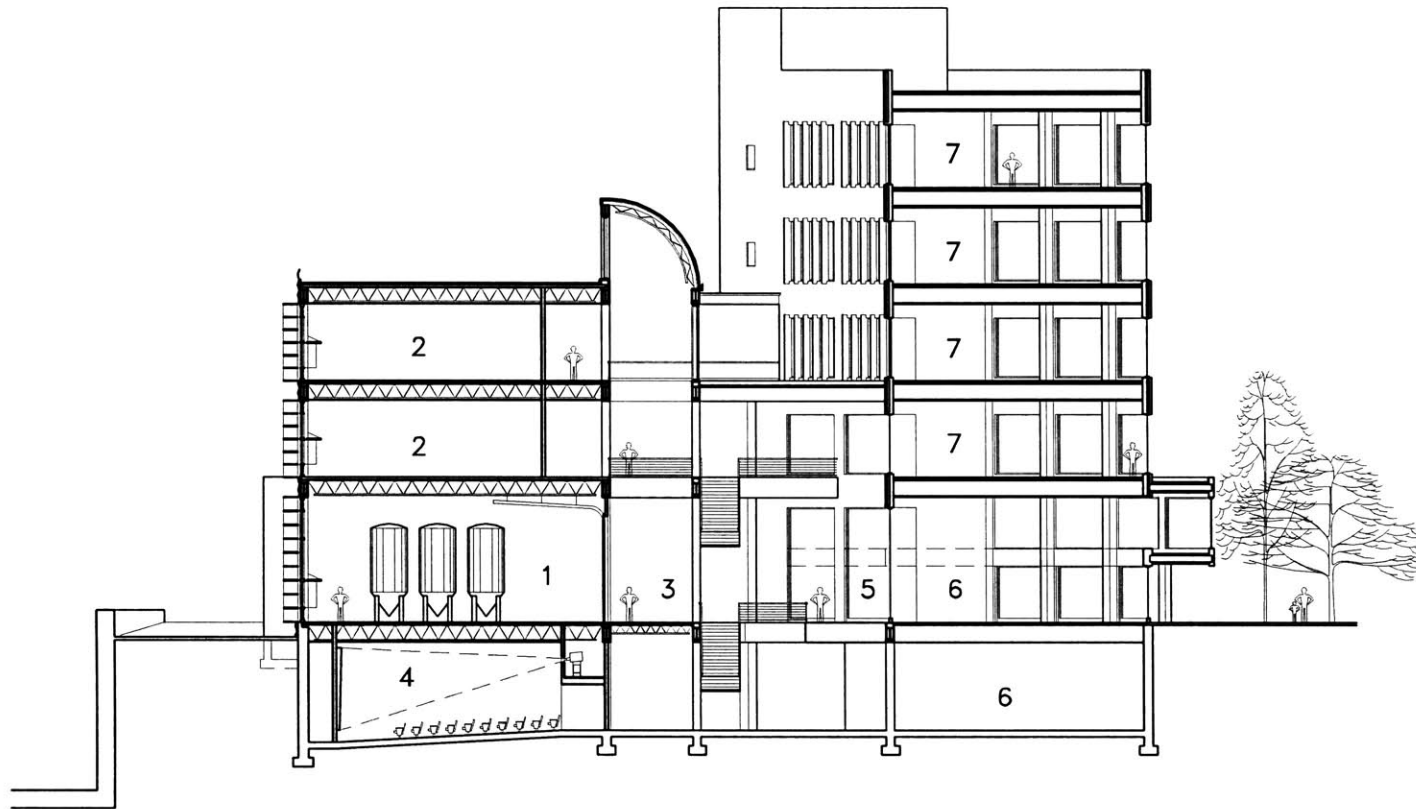


Figure 73: Fourth / Fifth Floor
Scale: 1" = 100'-0"

1. Community Business Resource Center



- 1. Roxbury Brewery
- 2. Industrial Space
- 3. Central Gallery
- 4. Theater
- 5. Interior Court
- 6. Retail Space
- 7. Community Business Resource Center

At the community entrance, the interior court will provide access to commercial space on two levels. At street level, a restaurant, coffee shop, news stand, or other small retail establishment would be practical. On the lower level, a movie theater and fitness center would be appropriate uses.

At Prentiss Street, space and services will be provided for a cooperative supermarket and a second commercial venture. This might be a video store or a bank.

Figure 74: Section Through Hybrid Building,
 showing brewery and CBRC Tower
 Scale: 1/32" = 1'-0"

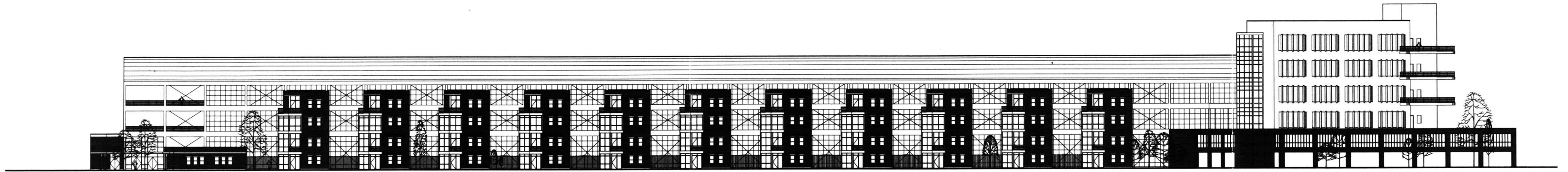


Figure 75: Northwest Elevation
(Scale: 1" = 50'-0")

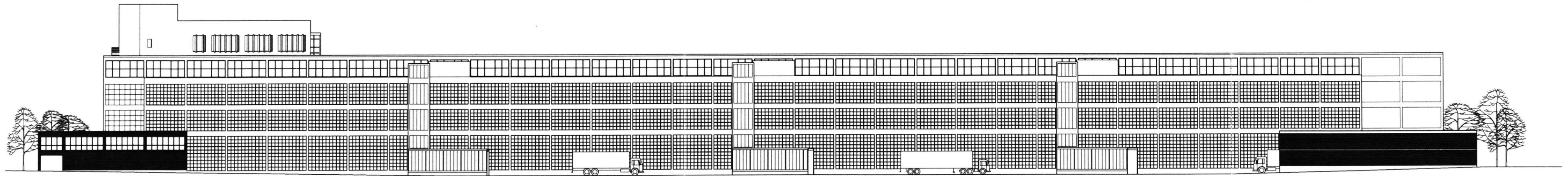
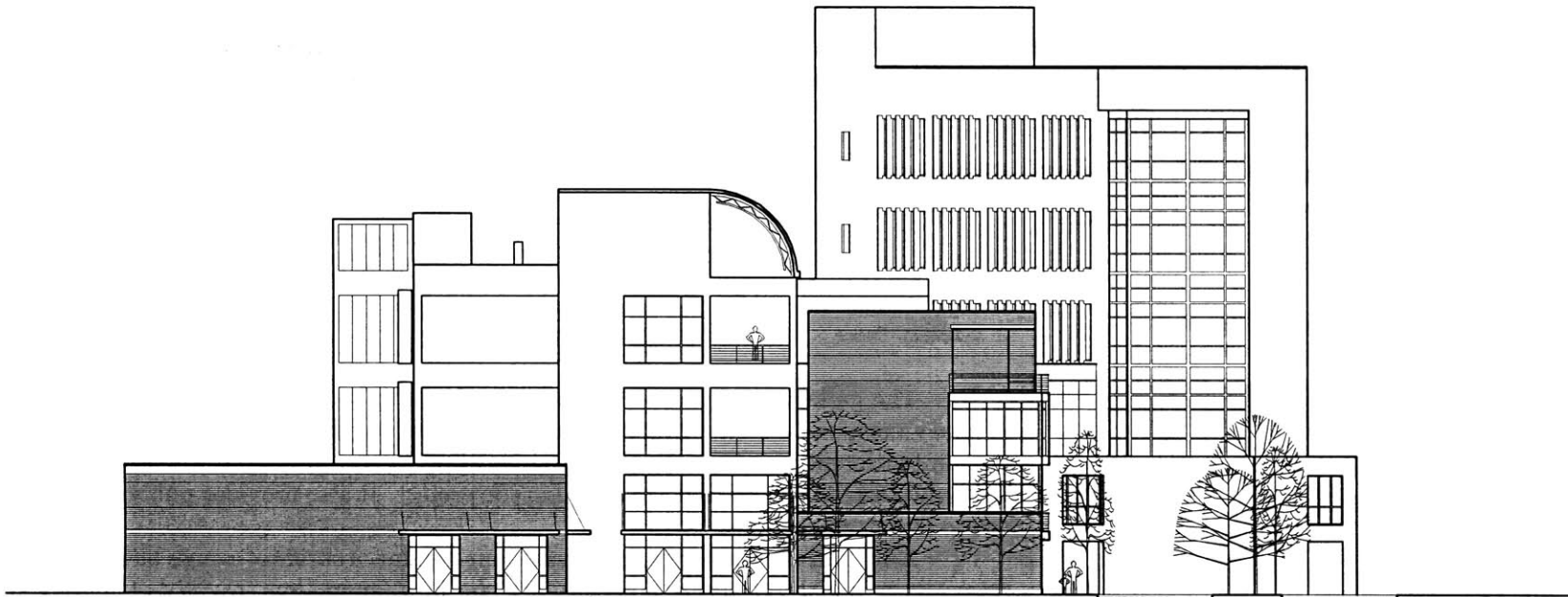


Figure 76: Southeast Elevation
(Scale: 1" = 50'-0")



The Central Gallery

The central Gallery is a glass and steel atrium which extends the entire length of the building. It is 15 feet wide, 70 feet high, and nearly 900 feet long. Above the ground floor, circulation is along a balcony on the industrial side. There are stairs and elevators connecting the ground floor to those above. Bridges connect the second level walkway to the upper live-work units. At the ends of the gallery, balconies provide vantage points to look up and down the Stoney Brook Valley and the Southwest Corridor. Vents along the roof ridge allow hot air to escape out the top, promoting ventilation through the building.

*Figure 77: Northeast Elevation
Scale: 1/32" = 1'-0"*

The balcony of the Gallery is visible at the center.

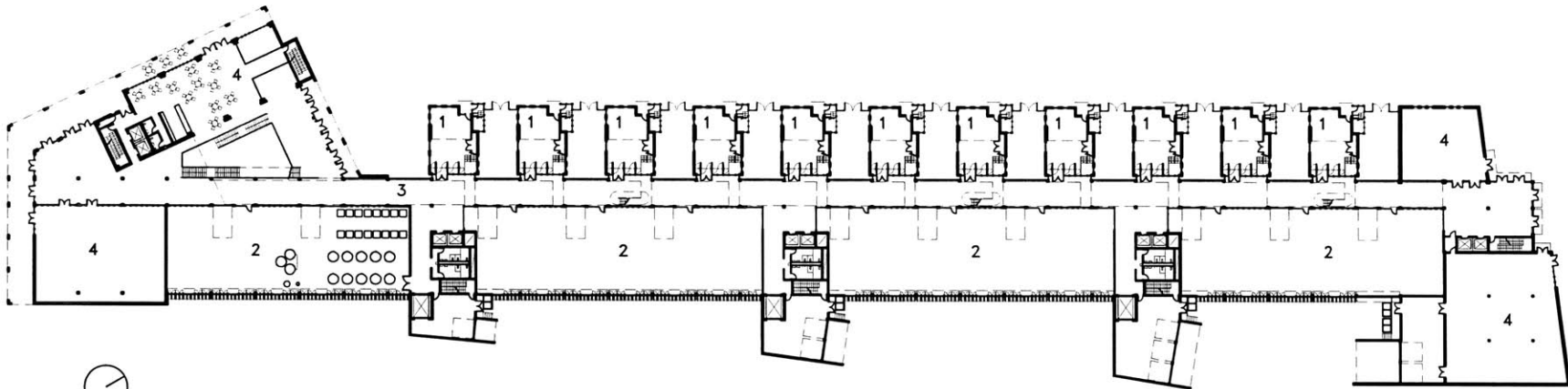


Figure 78: Ground Floor Plan
Scale: 1" = 100'-0"

- | | |
|---------------------|--------------------|
| 1. Live-Work Unit | 3. Central Gallery |
| 2. Industrial Space | 4. Retail Space |

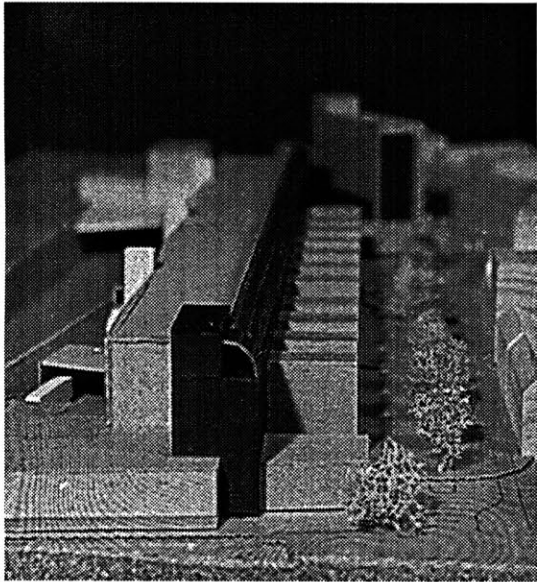


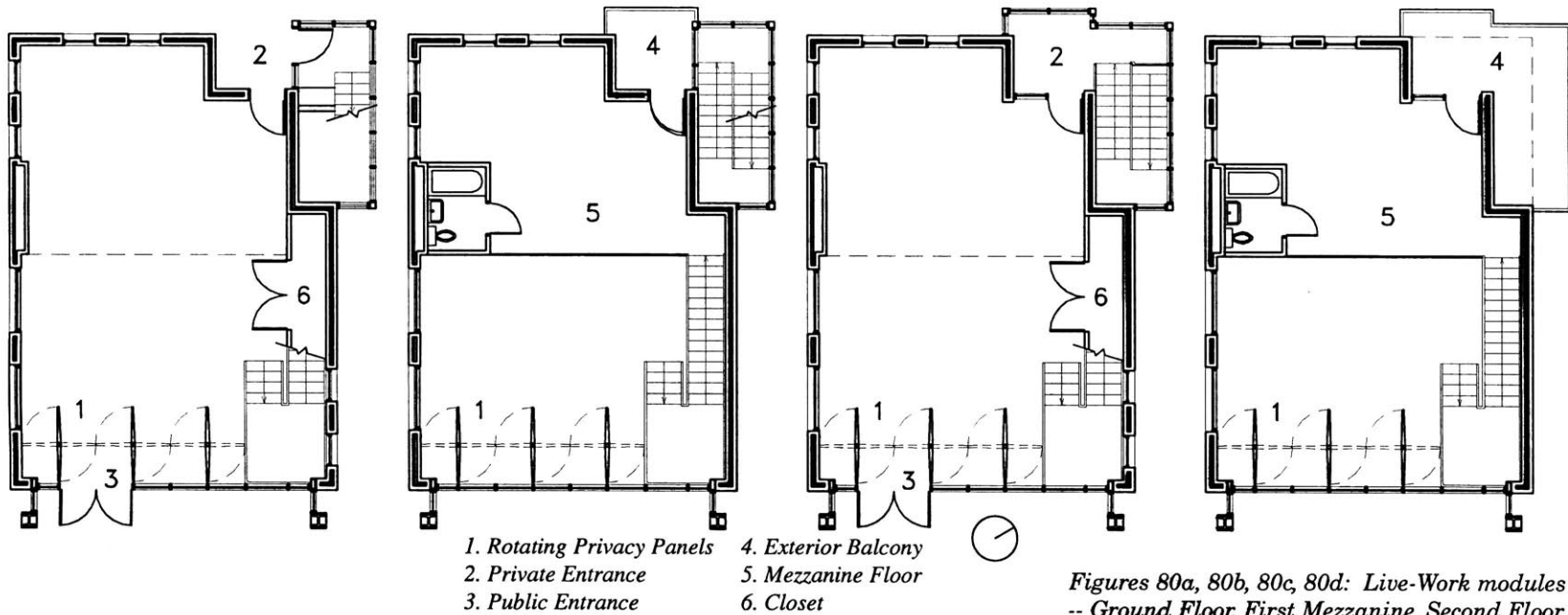
Figure 79: Photograph of model showing
Gallery extending length of project to tower

The gallery is a transportation space for both goods and people. It is the primary means of distributing materials along the length of the building. This is done intentionally to allow the public to see all that is occurring in the industrial areas, keeping the community involved in the project. It also provides public access to the live-work modules.

Although the Gallery is one continuous volume, a series of events at regular intervals establishes a series of benchmarks for how far one has traveled along the path. These marks occur at three different scales. At the first level is the rhythm of the live-work modules. The Gallery switches from light to dark every 50 ft. This is reinforced by the walkways traversing to the second floor live-work units.

At the 200 ft. scale, stairs rise through the Gallery, breaking the volume into several sections. Alternating with this pattern are the elevator lobbies. They double the dimension of the Gallery, changing to the industrial scale. A corridor leads off to the restrooms and fire stair.

Together, these three patterns, 50 ft., 100 ft., and 200 ft., mark a person's position in the gallery.



Figures 80a, 80b, 80c, 80d: Live-Work modules -- Ground Floor, First Mezzanine, Second Floor, Second Mezzanine (Scale: 1/16" = 1'-0")

The Live-Work Modules

The live-work spaces are between the Gallery and Smith Street. They are spaces for crafts-people to work and live. They are not intended to be family apartments or traditional lofts. Their close association with the industries across the Gallery will create opportunities for collaboration, at the expense of absolute privacy. These spaces are for individuals or couples who are seeking that type of environment. They have a private entrance from Smith Street and a public entrance from the Gallery. The units are stacked two high and each pair are separated from the next by a shared side yard. A total of 22 live-work units are constructed, each approximately 1,500 sq. ft.

The live-work modules are constructed of load-bearing masonry walls spanned by steel joist flooring. The private entrances for the two units are located together at Smith Street. The upper unit's entry opens into a staircase rising to the second floor level. The lower level opens directly into the unit. A public entrance and showcase forms the gallery edge.

Each unit's mezzanine floor extends only halfway across the space. This provides a separation between a scale of living and a scale of work. A staircase

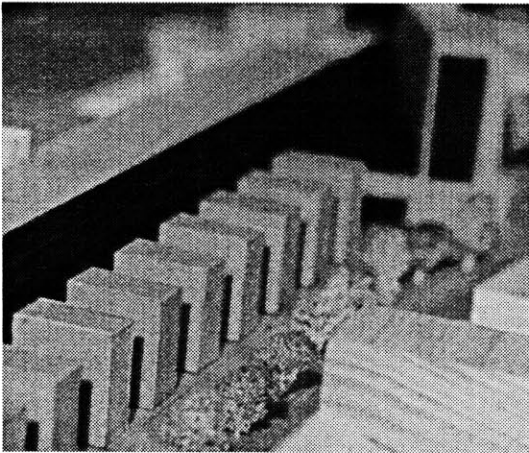
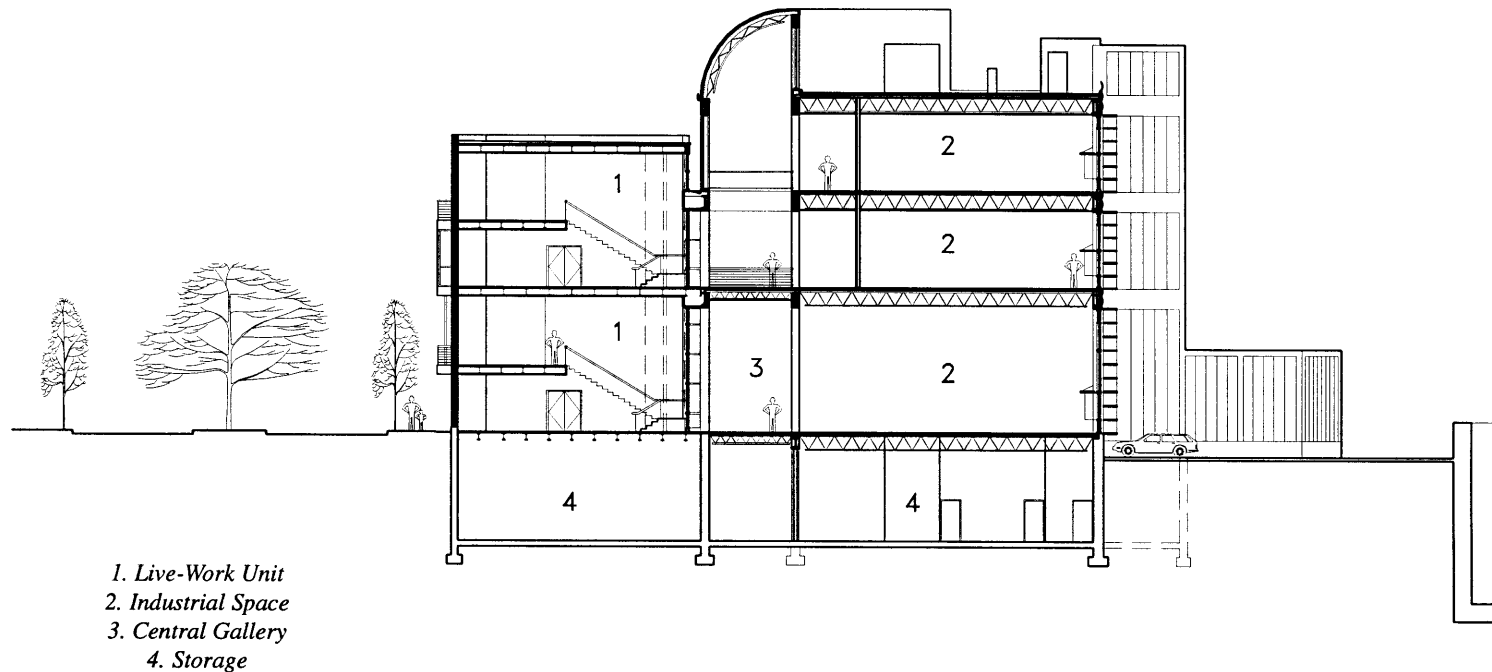


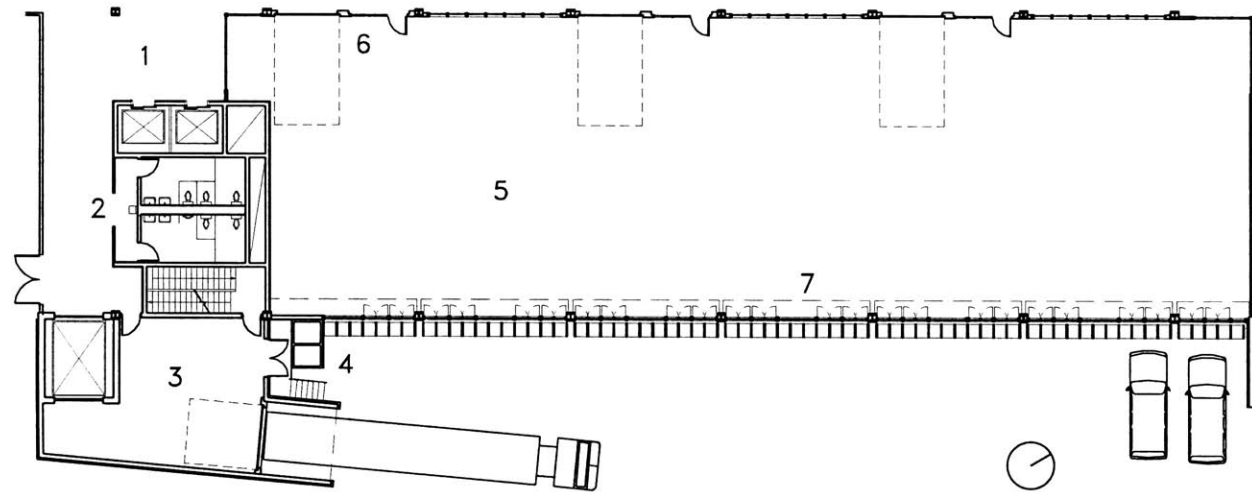
Figure 81: Photograph of model showing Live-Work Modules, CBRC Tower is beyond



*Figure 82: Section Through Hybrid Development
at Live-Work Unit
Scale: 1/32" = 1'-0"*

leads through the work space up to the mezzanine where a bathroom is located. A 22 ft. high work area rises against the gallery at the public edge. A steel and glass storefront system extends from the gallery into the masonry live-work unit to connect the two zones.

To provide privacy from the gallery, three lightweight, rotating partitions extend floor-to-ceiling in the live-work units. In the open position, they provide clear vision through the space. When closed, they isolate a three foot zone against the gallery, separate from the room. This provides a location for the crafts-person to maintain a storefront along the gallery. All other partitions are at the discretion of the tenant. The units are available for rent from the management office of the Community Business Resource Center.



- | | |
|-------------------|-----------------------------------|
| 1. Elevator Lobby | 5. Industrial Space |
| 2. Service Core | 6. Storefront with Overhead Doors |
| 3. Loading Dock | 7. Shaded Glazing System |
| 4. Dumpsters | |

Figure 83: Plan detail of Ground Floor showing typical industrial space and service core. (Scale: 1/32" = 1'-0")

The Industrial Zone

The industrial zone occupies the strip between the Gallery and the Southwest Corridor. The transportation servicing occurs against the Corridor. Community access is from the Gallery. Service cores, distributed along the length of the building, provide utility access, restrooms, emergency egress, and both passenger and freight elevators. At the ground level, they extend into a loading dock. The total usable area provides 12 spaces of 12,500 sq. ft.

The industrial zone is a steel-framed unit 750 feet in length spanning 50 feet. This size was determined by investigating the needs of several industries and finding a median dimension. It allows for the greatest flexibility in the distribution of space. The floors are open-web joists with a poured concrete top. The ends are closed by steel panels. The southeast face is glazed, but protected by an extruded aluminum grid. It blocks most of the direct light from entering while sending reflected light deep into the building. Operable windows behind the grid allow fresh air to be drawn into the building. The northwest side faces the Gallery.

Floor heights vary in the industrial zone. The first floor-to-floor distance is 24 feet. This provides the ability to insert a mezzanine level in the space. It also allows industries with special height requirements, like set shops, to operate within

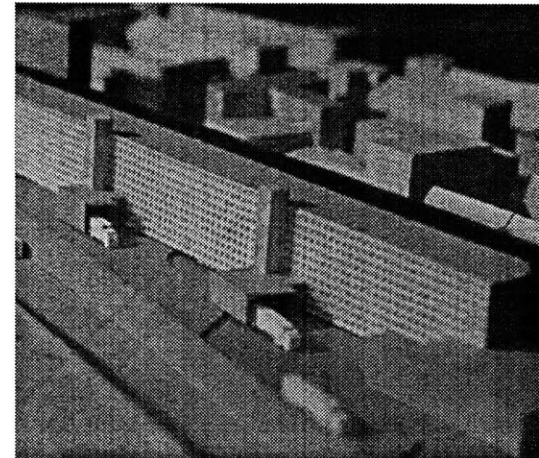


Figure 84: Model photograph showing industrial loading area adjacent to Corridor

1. Entrance Lobby
2. Interior Court
3. Tower Elevator Core
4. Retail Space (cafe)

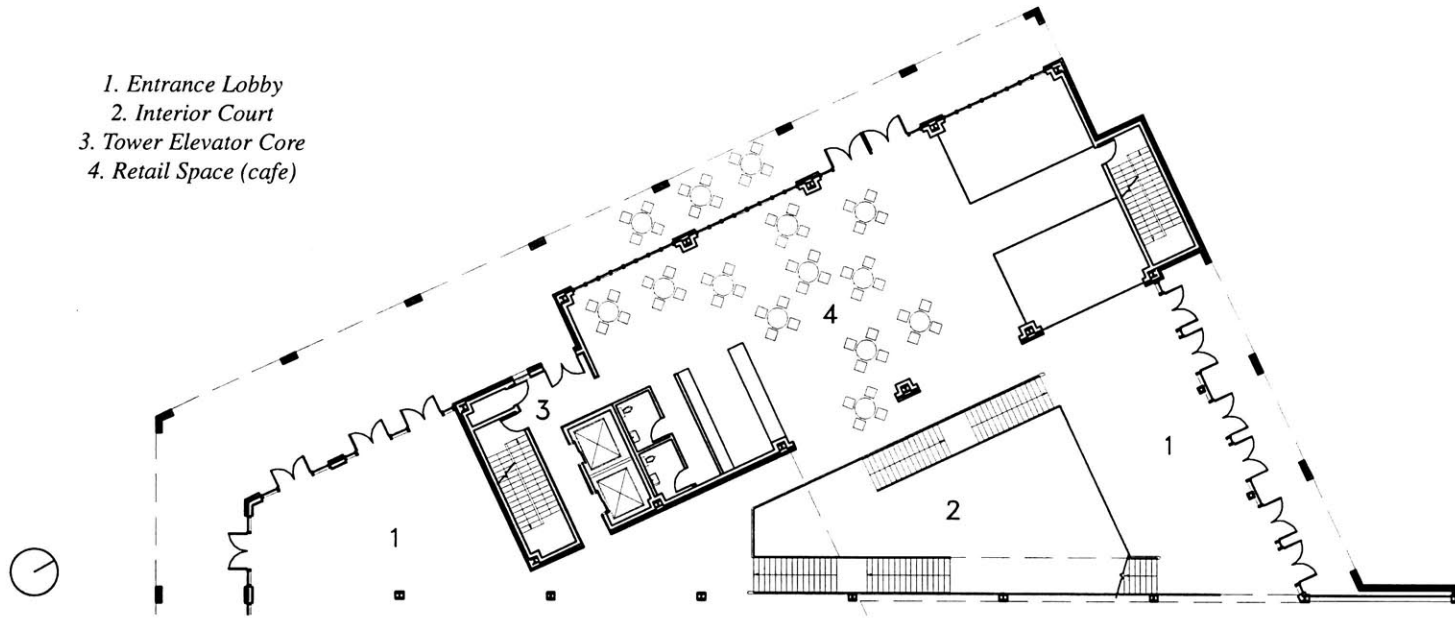


Figure 85: Plan detail of Ground Floor showing Community Business Resource Center tower and covered Interior Court (Scale: 1/32" = 1'-0")

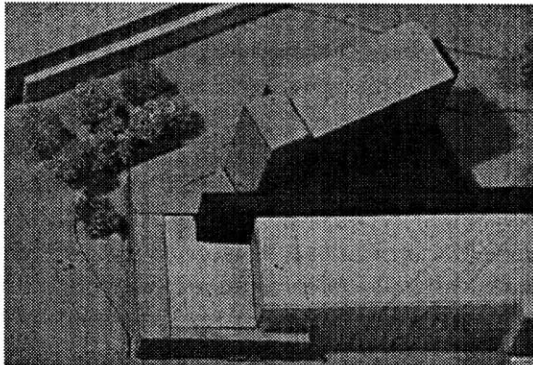


Figure 86: Photograph of model showing CBRC tower and interior court. Skirting Arcade is to the lower left.

the facility. Full height garage doors connect the ground level industrial spaces with the gallery.

Above the ground floor, the floor-to-floor height is reduced to 16 feet. This height helps light to penetrate across the space. It also allows either industry or offices to inhabit the upper two floors. The second floor level is continuous throughout the project. The third floor connects into the business center.

The Interior Court

The glass covered interior court is the entrance point to the live-work development. The glazed curtain wall to the north is the main entrance from the community. The large floor there can be used for art exhibitions. The entrance from outside the community is along Tremont Street. The floor of the court is open to the lower level. Here is the lobby of the cinema. Four 100 seat theaters and one 450 seat theater flank a restroom and concession core. Opposite, in the basement of the tower, retail space exists for either a health club or a restaurant. The remainder of the lower level is for storage.

The Community Business Resource Center

The Community Business Resource Center (CBRC), located in the tower, stands apart from the main volume of the development. While the Gallery runs parallel to the Smith Street extension, the CBRC tower is positioned perpendicular to Tremont Street. This defines the edge of the triangular Interior Court between the Gallery and the masonry-clad, steel-framed tower. The main floor plate of the tower is 3,700 sq. ft. with an elevator tower added to the south and an egress stair to the north. It is skirted by an arcade containing shopfronts.

The ground floor of the tower opens onto the interior court. This allows easy movement from the stores to the Gallery. The management offices of the CBRC are on the second floor. The conference and computer facilities are on the upper floors. All the above-ground floors have a balcony overlooking the public courtyard and community entrance.

The Community Business Resource Center is designed to operate as both a building management agency and an amenity to local residents and industry. This compact facility encourages development and provides assistance to the neighborhood. It also symbolizes the new relationship being developed between living and working communities.

The center provides conference facilities for the building tenants. These facilities include video and teleconferencing equipment. Used in conjunction with the theater and an inn, the community can operate a small convention center. Central access to computer and internet resources enables businesses to invest their capital in other aspects of their work. Centralized investment in services will enable the CBRC to maintain its investment in cutting edge technology.

Equally important are daycare and health services. The center operates in conjunction with the existing health facility in the Roxbury Crossing station building to provide quality work-time care for the children of the community. This is especially important due to the high number of single-parent households in the community.

The business center provides a variety of financial services. A credit union is operated jointly for all the building tenants. Lending and investment programs are offered through the management office. The combined resources of the facility could be associated with a bank in the neighborhood. The center offers training in business practice to help entrepreneurs from the community get started. This program is operated in conjunction with one of the local colleges.

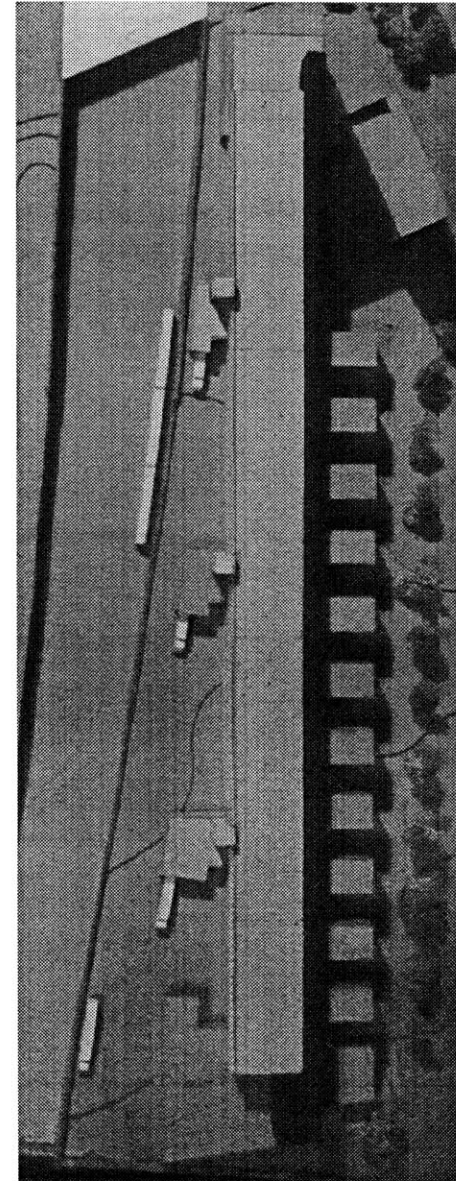


Figure 87: Plan view of project

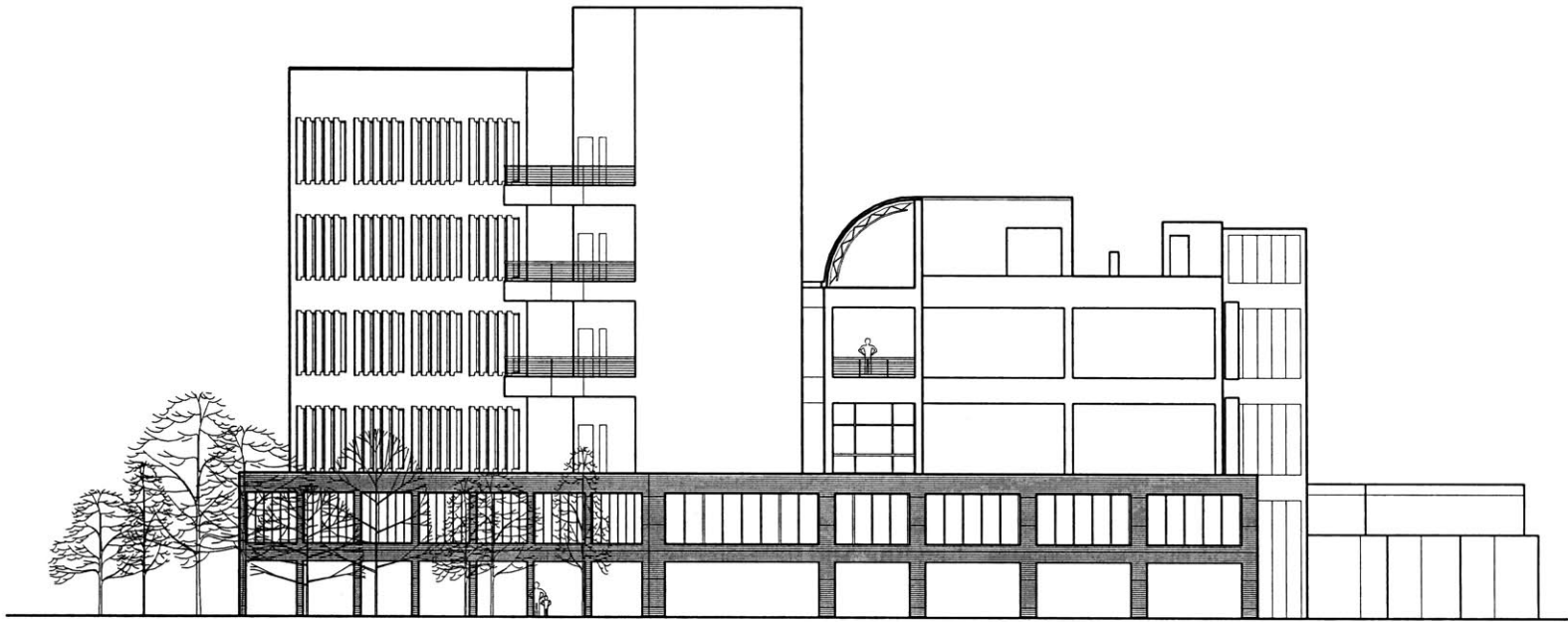


Figure 88: Southwest Elevation
Scale: 1/32" = 1'-0"

Conclusions:

The creation of a new urban community must address all the requirements of living in the city, not only those associated with housing. Residential, commercial, and industrial uses can be integrated in the same neighborhood, creating a responsive environment. The proper balance of these uses allows the community to provide for itself and be an integral part of the larger city.

One of the last open voids remaining from the Inner Beltway site razing is filled by the large, Hybrid Building. It enlivens the hub surrounding the Roxbury Crossing MBTA station. It creates a more complete and more dense concentration of uses close to transportation and expanded housing. The final result is a denser fabric, without holes, which provides for the needs of the whole community.

For the city at large, the hybrid building serves as a prototype for mixed-use development. It addresses many of the current concerns about government-sponsored housing: housing types are varied, income levels are varied, and jobs and services are incorporated into the community. As the city begins to address other large voids in the existing fabric, the creation of a community with all its own services is a viable proposition.

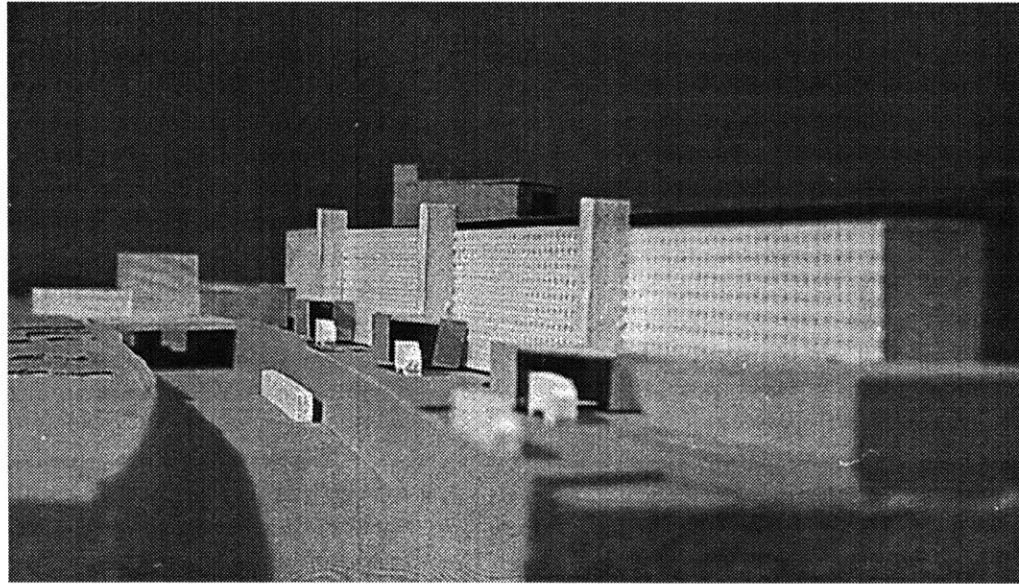


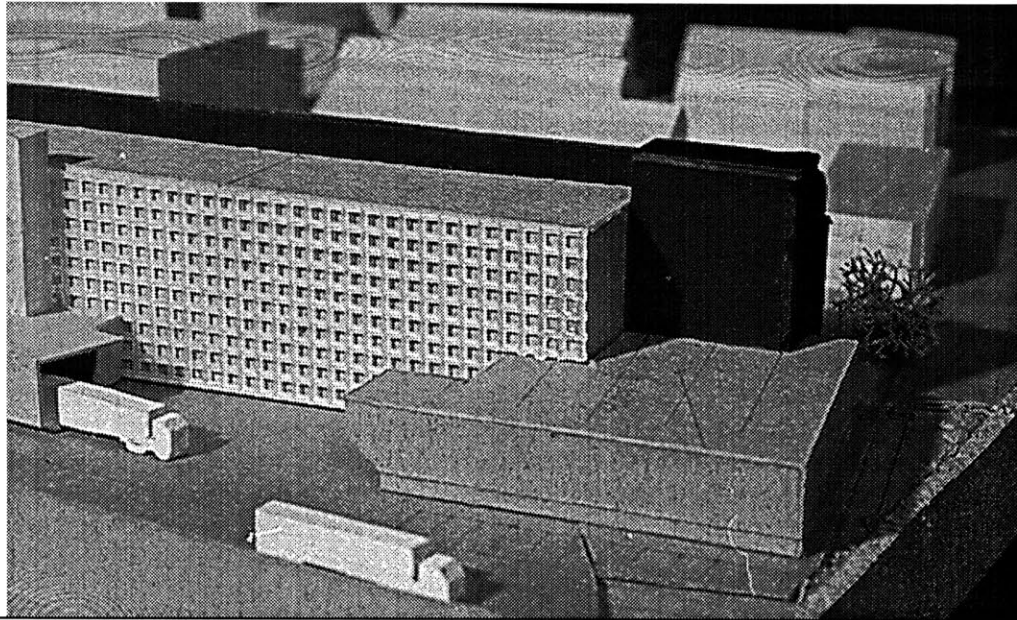
Figure 89: Photograph of model showing the industrial facade overlooking the Southwest Corridor

Directions for Future Inquiry

The relationship of a hybrid development project to the larger context of the city, and the way such sites might seed development regionally have not been considered in this thesis, but such an analysis would be important to determining the further application of this solution. An economic analysis exploring the desirability of the industrial space would determine what funding would be required, and how incentives might need to be enacted to encourage full investment.

Another direction for research would be investigating the phased implementation of a hybrid development. It could act as a "vehicle of regeneration", rebuilding a community incrementally. This thesis proposes building the entire building at one time to ensure all the amenities are in place when the first tenants arrive. An analysis of the level of services required to ensure participation would determine the possibility of an alternate development strategy.

There is still more to be investigated in creating hybrid environments. It is a worthwhile field of further inquiry. As for the future of Mission Hill and Roxbury Crossing, there are no plans to include any uses other than residential in the Hope VI redevelopment. The time for reevaluation is at hand.



*Figure 90: Photograph of model showing
Prentiss Street end of Hybrid Building*

Appendix: The Making of a Microbrewery

The Brewing Process

Beer brewing is a process which modifies barley to promote the production of alcohol by yeast, a living organism. Brewing produces not only a proper growth medium, but a flavor base for the finished beer. The process is actually quite simple and quite old. The ancient Summarians and Egyptians brewed beer possibly as long as 6000 years ago, the same time barley was first cultivated. Since that time, the greatest change was the discovery of the role of yeast in the late 1800's.

Beer is produced from malt, a modified form of barley. The grain is germinated, then kiln dried. This process, called malting, produces growth enzymes in the barley. The brewery buys the malt from a maltster (Samuel Adams was a maltster, not a brewer), and brews the beer.

The malt is crushed (1) and passed, via a silo (2), to the mash tun (4). Here, hot water is added from a reservoir (hot liquor back, 3) to make a mash. This soup promotes the activation of the malt's enzymes, converting the stored starches into sugars. This is essential, as yeast can only metabolize sugar. The liquid portion, now called wort, is filtered through the remaining malt and passed to the brew kettle (5). Here the wort is boiled, and hops are added to provide flavor and bitterness. At the end of the boil, the hops are removed and the wort is cooled (6).

The liquid is now ready for the pitching of the yeast. There are two main varieties of yeast: ale yeasts and lager yeasts. Ale yeasts grow at warm temperatures (68° F) and produces ales, porters, and stouts. Lager yeasts grow at cool temperatures (40° F) and produce lagers, pilsners, and bocks. The fermentation occurs in a fermenter (8).

This is the time when the alcohol is produced and the liquor becomes beer. It is then filtered (9) and placed in a serving tank (10). From there, it can be packaged for off-site sales (11) and enjoyed (12).

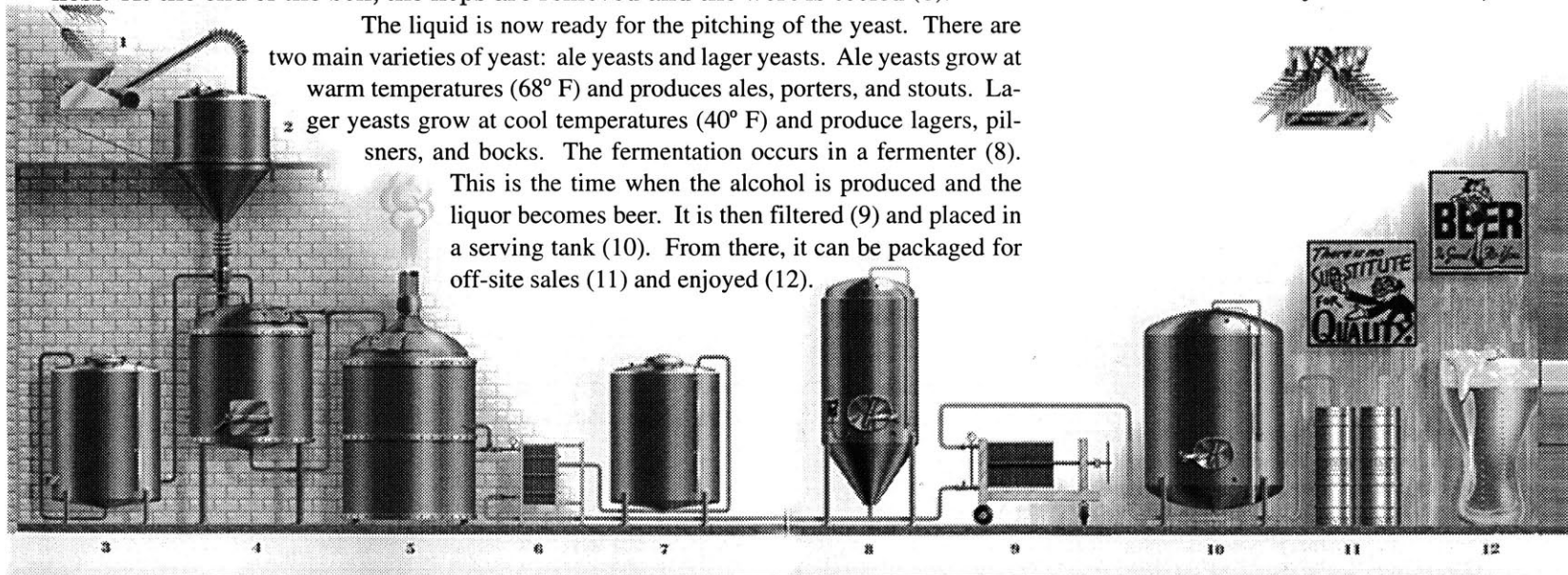


Figure 91: The elements of a micro-brewery -- from a brochure by JVNNorthwest, Inc.

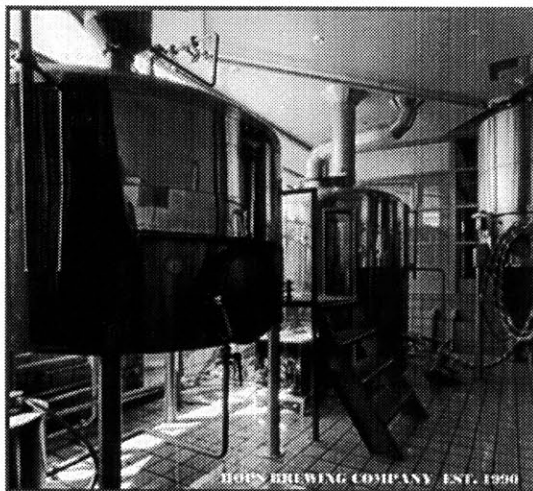


Figure 92: Photograph of brewhouse equipment in place at Hops Brewing Company, Florida. Installation is by JVNorthwest.

	Boston Beer Works	Cambridge Brewing Co.	Commonwealth Brewing Co.	John Harvard's Brewhouse	Atlantic Coast Brewing Co.	Mass. Bay Brewing Co.	Middlesex Brewing Co.	Ould Newbury Brewing Co.
Production: (Bbl)								
Batch Size	15	10	15	15	20	60	25	5
Annual	4,000	2,500	2,500	2,500	7,500	20,000	2,500	800
Brewery: (SF)								
Brewhouse	300	200	200	175	300	1,000	500	600
Fermentation	150	150	250	150	450	1,250	450	150
Conditioning	300	300	600	200	450	1,250	450	150
Racking	50	100	-	25	300	500	400	75
Bottling	-	-	-	-	-	-	1,000	300
Serving	200	-	300	200	-	-	-	-
Grain Storage	150	150	200	150	250	250	800	100
Milling	75	75	100	-	100	200	200	100
Package Storage	-	-	-	25	600	800	1,000	750
Product Storage	-	-	-	-	250	2,500	2,000	650
Shipping	-	-	-	-	600	1,000	750	250
Office	150	75	100	75	500	1,200	750	450
Laboratory	75	75	50	25	150	250	150	120
Reception	-	-	-	-	150	1,200	200	600
WC	-	-	-	-	50	300	50	50
Brewery Size:	1,450	1,125	1,800	1,025	4,150	11,700	8,700	4,345
Facility Size:	7,500	4,500	9,500	6,500	5,000	15,000	9,800	4,500

Table 1: Comparative analysis of utilized space in eight area breweries. The first four are brew-pubs, and the second four are micro-breweries. (Bbl is a British barrel, equivalent to 31 gallons.)

Program for the Roxbury Crossing Brewing Company

Several local micro-breweries were examined to determine an appropriate program for the hybrid building site. The results are outlined in Table 1. (I do not include an analysis of the restaurant portions of the brew-pubs because this facility will not operate its own restaurant.) The breweries which are exclusively micro-breweries are very similar. The area utilized is very much a function of the available area. They use as much space as is available or that they can afford.

The program for the Roxbury Crossing Brewing Co. (Table 2) draws from the comparison of existing micro-breweries. It includes several functions which are not found in the other breweries. The education area is to train apprentice brewers. This will enable local inhabitants to rise in the company and learn the skills required to operate a brewery. This program would operate in conjunction with one of the local colleges. The tours area is both a meeting place for tours and a gift shop. It works to increase the community's knowledge about the industry. It would also provide free spent-grains, the remainder from the mashing process, for use as fertilizer and mulch in community gardens.

	Quantity	Notes:
Production: (Bbl)		
Batch Size	20	Managable Size
Annual	4,000	200 Brewing Cycles / Year
Brewery: (SF)	3,350	
Milling	150	Ventilation
Brewhouse	500	Ventilation and Drainage
Fermentation	500	Moderate Temperatures and Drainage
Conditioning	500	Cold Temperatures and Drainage
Racking / Bottling	1,250	Access and Drainage
Brewer's Office	300	2 @ 150 sf, Access to Brewhouse
Laboratory	150	Access to Brewhouse
Storage: (SF)	2,250	
Grain Storage	250	Dry and Ventilated
Packaging Storage	1,000	Dry
Product Storage	1,000	Cool / Cold and Dry
Shipping: (SF)	1,250	
Loading Dock	1,250	Securable
Administration: (SF)	1,900	
Manager's Office	250	
Sales Office	400	2 @ 200 sf
Workroom	500	
Conference	250	
Lunch Room / Lounge	200	
Reception	200	For Business Only
Restrooms	100	2 @ 50 sf, Employee Only
Education: (SF)	500	
Classroom	250	For 8-12 Students
Workroom	250	
Tours: (SF)	250	
Reception	250	For 8-12 Visitors
Preliminary Total:	9,500	
Utility Sizing	2,375	25% of Preliminary Total
Brewery Total:	11,875	

Table 2: Proposed program for a new micro-brewery in Roxbury Crossing, noting special requirements for specific processes

Sources of Illustrations:

Figures 1-4, 27-29, 35-40, 42-90, 94: by Author

Figure 5, 26: Map by Massachusetts Bay Transportation Authority, photo by Author

Figure 6, 11, 23: Vidler, Anthony. *Claude-Nicolas Le Doux*. Cambridge: MIT Press, 1990.

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Figure 24, 30, 31: *Sanborn Fire Insurance Maps [microform]: Massachusetts [1867-1950]*. Teaneck, NJ: Chadwyck-Healey, 1983.

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Figure 32, 41: Boston Housing Authority and U.S. Department of Housing and Urban Development. *Mission Main Hope VI Project*. 1996.

Figure 33, 34: Esselte Map Service, Stockholm, 1994.

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Figure 93: by Kristin Newton

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Biographical Note:

Christian MacQuarrie Klein was born in Berkeley, California but has lived most of his life between Worcester and Boston. He has an S.B., Art and Design (1991) and an S.B., Civil Engineering (1992, Minor in Political Science) from the Massachusetts Institute of Technology. After graduation, he worked for a Boston architecture firm working on financial institutions. He is the treasurer of the Boston Brew-ins Beer Club and a contributing author to *Homebrew Favorites* (1994, Storey Publishing).



Figure 93: The author at the site where Pilsner was first brewed, Plzen, Czech Republic.



Figure 94: Label from Final Review Beer