

ABSTRACT

Title of Thesis: A TOUCH OF RURAL IN THE CITY: ENVIRONMENTAL
EDUCATION FOR DC YOUTH

Cecily C. Channell, Master of Architecture, 2003

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This thesis project will design a small environmental education facility that provides alternative educational opportunities for students of D.C. Public Schools through a program that teaches the history of agricultural life in this country, and the farm as a model of sustainability and environmental stewardship, this unique experience will offer these children rewarding hands-on lessons in personal and societal responsibility.

I have chosen a site in Near Southeast Washington. This 3-acre site (now a parking lot) allows ample space for the program, which will include a series of vernacular buildings situated around a courtyard, that are clothed in an urban industrial/commercial hybrid façade.

A TOUCH OF RURAL IN THE CITY:

GREEN EDUCATION FOR D.C. YOUTH

by

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Introduction

This thesis project offers children who are raised in urban communities an immersion experience at an environmental learning facility. As urban children rarely connect with a natural landscape outside of the city, this project seeks to make that setting available, in a fun, hands-on, and metro-accessible program that can be incorporated into the public school science and social studies curriculum. The facility will educate children in personal and community responsibility, and will promote environmentally conscious and sustainable living, strengthening each child's mental and physical skills in the process.

At the urban scale, this thesis project deals with the image of a city. Washington, DC is a home, a business and educational center, and a cultural destination. These are the elements that define it as a city, before its role as the Nation's Capital. Using the Anacostia Waterfront Initiative, a public/private revitalization partnership, as a point of departure, this thesis project will propose incentives for building

sustainably. The final product at the urban scale will be an office community for small businesses.

Finally, this project will demonstrate that a rural environment can occur within an urban grid. By setting up an internal arrangement of single- program buildings modeled after the layout of a traditional Mid-Atlantic farmyard, an interior system distinct in massing and character from the urban fabric can exist. This architectural distinction offers visitors to the site a full immersion into an experience very different from the one left behind at the front door.

Chapter One introduces the main tenets of the project - an exploration of the image of Washington, the challenge of place-making through revitalization, as well as the creation of an environmental business ethos and educational model.

Chapter Two addresses the proposed program for the site, including a case for environmental education for urban youth. Mentor facilities in the greater Washington area will be listed, and a daily schedule for the facility will be suggested, followed by an in-depth program tabulation and analysis.

Chapter Three introduces the chosen site within the framework of the city, the neighborhood, and its immediate surroundings. The site will be placed in the context of the Anacostia Waterfront Initiative, as well as the Near Southeast neighborhood. Design considerations that have a crucial role in site layout such as microclimate, edge conditions and hierarchy of exterior spaces will be highlighted in an in-depth site analysis.

Chapter Four explores a formal analysis of precedents. The precedent examples are organized in by building typology.

Chapter Five outlines the preliminary intervention studies conducted at three scales: urban, neighborhood, and site. For each scale, several distinct interventions will be proposed and will include conceptual sketches, plans, and sections.

A conclusion will present the findings of the thesis project after the graphic exploration has been completed. The Appendix includes all images presented during the thesis defense on December 14th, 2003. Images include diagrammatic exploration of the region and site, an urban plan for the neighborhood, and a complete architectonic exploration of the program.

Chapter One: Washington, DC – A Home, A Destination

This thesis project seeks to establish a new sustainably-focused community in Washington, DC. Recognizing the recent interest in promoting Washington as a competitive destination for businessesⁱ, this project aims to use the good efforts of the AWI to create place at both the urban and site scales in one of the city's existing industrial areas. A business and educational community dedicated to the application and teaching of earth-friendly practices and green architecture will be the end product.

Define a City:

A center of population, commerce, and culture; a town of significant size and importanceⁱⁱ

As a city, Washington, DC is home to over 500,000 residents, is the 21st largest city in the nation, and is the seat of the federal government. As a place, Washington is a major destination, with over 20 million tourists visiting the city each year; this fact is embedded in

Washington's identity, making it a cultural destination first and foremost in the eyes of the world.ⁱⁱⁱ

Yet to its residents, Washington is a home, a business center, and a diverse cultural hub. A unique aspect of Washington's identity is its expansive character. Compared to the tightly packed, hi-rise centers of cities like New York, Philadelphia and Chicago, Washington is slow paced, mid-rise, and often suburban in feel. It contains more than 700 parks, two rivers, and covers over 68 square miles.^{iv} Design guidelines first introduced in Pierre L'Enfant's 1791 city plan, and again in the 1901 McMillan Plan, reinforce Washington's distinct type of urbanity, including a height limit, diagonal circulation, and wide tree-lined avenues.

All of these factors make Washington a unique place, yet it struggles to maintain an identity outside of the federal center. Recent partnerships such as the Anacostia Waterfront Initiative (AWI) seek to revitalize long-forgotten areas of Washington as new destinations, aiming to attract residents with mixed-use, walkable neighborhoods, business incentives and reclaimed waterfront and parklands.

The AWI, created in 2000 as a partnership development initiative between the Federal and the District governments and the private sector, seeks to employ the ideals and methods of smart growth and New Urbanism to reclaim valuable waterfront land and revitalize communities along the waterfront. The initiative also maintains goals of sustainability in method and material, including low-impact, environmentally friendly development, and a creation of “new technology” business markets. For the purposes of this thesis project, “new technology” (New Tech) businesses will be defined as those that utilize, produce or advocate sustainable technologies in a manner that promotes earth-friendly living and environmental impact awareness.

Using these guidelines of AWI, this project proposes a master plan for a portion of the Near Southeast Neighborhood, a phase one area of AWI. The master plan reinforces the ideals of AWI, revitalizing Near Southeast through the creation of a commercial center that offers incentives for New Tech businesses. The master plan will carefully adhere to guidelines set up by the Green Building Council, and as practiced by city and county governments nationwide. In siting, design and construction, the master plan will also seek to provide developers with a jump-start in achieving a high LEED rating.

In addition to the proposed master plan, this project will explore place-making in Washington through the exploration of program and design of a particular site within Near Southeast. The site will act as a model for green architecture and environmental impact awareness, and will house an educational facility that offers an immersion experience into sustainable technologies and environmental stewardship for children, as well as tenant office space for like-minded organizations.

A good city incorporates a dynamic interplay of urban form and open space, people and animals, walls and trees. However a healthy city is one that promotes ample green space within the urban fabric, sustainable building practices, and the education and implementation of environmental responsibility by all residents. Washington is not just a tourist destination, a home, and a thriving business center. It can also be a model city for the nation, of how to live sustainably, of how to properly educate children, and of how to think alternatively in meeting both global and local needs.

Chapter Two: Program – Lessons in a Farm Yard

A CASE FOR ENVIRONMENTAL EDUCATION

As failing public school programs are one of the top reasons residents leave cities, an exciting alternative learning program can be a differentiator both for Washington, and the Near Southeast neighborhood. There is an entire outdoor environment where children can expand their horizons beyond the classroom, and this facility will promote such education as a complementary program to the DC Public School system – one that is low budget and Metro-accessible. The facility will offer hands-on lessons of hard work and responsibility, through an immersion into a world built with and operating from the latest sustainable technologies, a world that promotes environmental impact awareness at a young age.

DESIGN PRIORITIES

The following list of design priorities will have a significant effect on the overall organization of program:

1. Sustainable Design – The US Green Building Council’s Leadership in Energy Environmental Design (LEED) Green Building Rating System will be used as a guide in design. Acting as a model in the

city for sustainable design, the building will attempt to mimic a high LEED rated facility, but incorporation such design features as active and passive solar features, natural ventilation and high indoor air quality, and the use of certified wood and recycled materials. The Philip Merrill Environmental Center of the Chesapeake Bay Foundation will serve as a role model for LEED rating (discussed below).

2. Outdoor Spaces Optimized – Environmental education calls for classrooms that are open and informal. Outdoor spaces will thus be optimized to allow for movement of large groups, informal breakout spaces, and ample vegetation. In tabulating the program, built spaces will be minimized to allow for a maximum of outdoor space, and classrooms will be designed as open-air structures, with potential for pulling back walls to open directly to the outdoors.
3. Dual Identities - The program needs of this facility are introverted in character; once the children arrive at the site, the architecture must help to create the immersion experience, shielding them from the surrounding city. Yet the facility must also maintain a strong public image as a role model of sustainability, formally addressing the nearby residential, business and industrial communities.

4. Universal Design - Defined as “the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design,”^v principles of universal design will be adhered to when possible, to allow for a singular experience by all visitors.

PROGRAMMATIC PRECEDENTS

This thesis project looks to three sites as role models in program design, and will thus explore basic aspects of their individual missions for further elucidation of programmatic possibilities:

1. Living Classroom Foundation, Baltimore, MD



Living Classroom Teaching Facility.
Source: Project Website, www.livingclassrooms.org

This educational facility in Baltimore serves the Mid-Atlantic as an alternative education program to the standard school curriculum. Using a maritime theme, the Foundation seeks to challenge at-risk school children, by

teaching them basic skills in a unique environment.^{vi} An excerpt from their website reveals the similarities with this project’s focus on

immersion experiences and the gratification of hands-on work and personal responsibility:

“Living Classrooms programs range in length from one day youth group expeditions aboard the Foundation's seven ships, to extended land/sea expeditions that explore the environmental science and socio-economic history of the Chesapeake Bay region, to yearlong job training programs with high school credit at the Living Classrooms Maritime Institute and Weinberg Education Center. Hundreds of schools seeking innovative, alternative educational programs utilize comprehensive Living Classrooms curriculum to supplement their existing classroom lessons. Students are motivated and empowered to "learn by doing" as they apply fundamental knowledge and skills in science, mathematics and the social sciences.” vii

2. Chesapeake Bay Foundation Headquarters, Annapolis, MD



CBF Headquarters. Sun shading on the southern exposure, using certified wood.
Source: CBF Website, www.savethebay.org

Completed in 2001, this building has been called “the greenest building in America,” being the only building in the country to receive a platinum rating on the LEED System.^{viii} The building serves as an office facility for 100 of the Foundation’s 200 employees, as well as an educational and visitor center.

This project looks at the method, materials and mechanical systems of the CBF Headquarters as a mentor for green design. While not all features of the building will be adapted to this thesis project, nor will the project necessarily obtain the same platinum rating on the LEED system, the building represents a successful coupling of good architecture and sustainable systems.

HIGH PERFORMANCE FEATURES - CHESAPEAKE BAY FOUNDATION PHILIP MERRILL ENVIRONMENTAL CENTER	
WATER	
RAINWATER CATCHMENT SYSTEM	Collects rainwater so as to reduce the need to draw from wells. Shed roof allows for a single rain gutter, which drains water through sand filters and into cisterns. Water is used for washing hands, mops sinks, laundry, irrigation and fire suppression.
BIORETENTION STORMWATER TREATMENT SYSTEM	Storm water passes through manmade wetlands and gravel parking lots to filter water and treat oils before water enters nearby water bodies.
COMPOSTING TOILETS	Flush-less toilets cut down on water use by 90%, and reduce load on local sewage treatment plants. Waste does not leave the site – compost is recycled as fertilizer for native landscaping.
NATIVE PLANTS	Drought tolerant native plants minimize irrigation. Mowing meadow and grasslands only once a year reduces fuel use and pollution on site.
ENERGY	
SOLAR HOT WATER HEATING	Provides all domestic hot water, saving 120 kWh of electricity per day. A 4 kWh photovoltaic system helps offset a portion of the building's electrical load.

GEOHERMAL HEAT PUMP SYSTEM	48 wells, each 300 feet deep, use the earth's constant temperature as a heat sink in the summer and a heat source in the winter, instead of heating/cooling extreme outdoor temperatures.
STRUCTURALLY INSULATED PANELS (SIPs)	Forming the building envelope, SIPs use less wood than conventional framing and result in a higher R-value.
DAYLIGHTING	Glazed southern wall contributes daylight and passive solar heating. View and natural light from every office. Louvers help to shade.
OPERABLE WINDOWS	Provide natural ventilation for occupants. Sensor system powers down HVAC system and allows windows to open at mild temperatures.
SENSORED POWER SYSTEMS	Lights turn on/off by sensors that detect occupancy. Conference center on separate
MATERIALS	
RENEWABLE	Cork, bamboo, and linoleum flooring, linseed tack boards.
RECYCLED	Plywood, Hardipanel, Galvalume siding, pickle lumber louvers, newsprint ceiling tiles, parallel strand lumber, MDF.

3. Earth Conservation Corps, Washington, DC



ECC headquarters is in a restored historic pump house along the Anacostia River. Source: ECC Website.

Located just blocks from the site, the headquarters for Earth Conservation Corps (ECC) is housed within a restored 1901 pump house along the Anacostia River. The ECC's mission is to reclaim two threatened resources: the environment and at-risk, inner city youth. ECC works with other community groups in the Anacostia area to

recruit new members, 80 percent of whom are on welfare when they enter the program.^{ix}

This project looks to ECC as an ally and partner in the neighborhood.

PROGRAM ANALYSIS

Daily Activities/ Work Stations

Before a thorough examination of program can occur, it is important to construct a typical activity day at this facility, and to understand the manner in which the children will interact with the various aspects of the facility.

The children arrive by Metro, three blocks from the site on M Street, or from the nearby Capitol Hill neighborhood, where several schools

are within walking distance. Entering the site along 2nd Street, the groups of children will first be given an orientation to the facility, as well as some basic education about the history of agricultural life, and agricultural life as a model of sustainability. This education will occur in classrooms. The students will then be broken into manageable groups (fewer than ten students per group) and taken to various work stations located around the site. When a lesson is completed, students move to the next workstation, until they have completed all lessons. Workstations can include, but are not limited to:

- Kitchen – food preparation, cooking and cleaning
- Garden – maintenance of native plants and vegetables throughout their lifecycle. Preparation for distribution.
- Stable – feeding and care in stabling of horses, including composting of manure for garden
- Cistern – water collection, filtration and dispersal
- Trash Shed – recycling, composting and removal

At the end of their visit to the facility (which might span several days, depending on the age group of the students), a ceremony similar to a graduation is held, and students are rewarded for their participation in the program.

Lesson Plans

The grade level of student groups will determine the length of the immersion experience. For example, a third grade class might only visit the site for one or two days, an eighth grade group for a week, while a junior or senior working on an independent project might make multiple visits over the course of the school year.

User Groups

There are five main user groups for this facility – administrative staff, teaching staff, youth groups, tenant staff and visitors. Each of these groups uses the facility in different manners, and this determines how different aspects of the program relate to one another. The administrative and teaching staff, youth groups and visitors will all enter the facility through a main reception area. This area includes a gallery space to display art and photography that showcases the mission and daily operation of the facility. The tenant staff needs only to enter the tenant office areas and will not interact with the other aspects of the program.

Tenant Office Spaces

Simultaneous to this educational experience, a small business community exists. The site will allow for up to 20,000 sf of tenant

office space, the character of these tenants being small New Tech organizations, whose focus is on environmental outreach and education. One such tenant, Community Harvest, is a non-profit organization whose mission is to create a locally rooted, sustainable food system that meets the needs of low-income communities in the Washington, DC region. Community Harvest maintains a one-acre farm on the other side of the Anacostia River at the Saint Elizabeth's Hospital site that is kept up by volunteers and school groups, and could benefit from a central office and garden location in Southeast. In this thesis project, the garden workstation will be funded and operated by Community Harvest, who will benefit from the labor of the school groups.

Tenant office space will include a lobby, conference room, restroom and kitchen that are separate from the main office space of the educational facility. Tenant offices will share the parking facility with the main building, as well as the loading zone at the rear of the site.

Stable

One of the workstations on the site, the stable is where the children learn the responsibility involved in caring for animals, as well as the composting of manure for garden use during their lessons at the

stable. Four horses will be housed on the site, adding to its rural character.

Program Tabulation

Main Building

Reception Area/Gallery – 600 sf

Main Office – 2000 sf (includes restrooms and storage)

Classrooms – 3 @ 900 sf

Conference Room – 300 sf

Total: 5,600 sf

Tenant Office Building

Lobby – 200 sf

Offices – 20,000 sf (includes restrooms, storage and kitchen)

Conference Room – 300 sf

Total: 20,500 sf

Stable Building

Stalls – 4 @ 168 sf

Tack/Feed Stalls – 2 @ 84 sf

Hay Loft – 500 sf

Classroom – 600 sf

Office – 100 sf

Total: 2,040 sf

Kitchen Building

Kitchen/Classroom – 600 sf

Eating Area – 1200 sf

Storage – 200 sf

Total: 2000 sf

Outbuildings

Greenhouse: 600 sf

Heavy Equipment storage: 300 sf

Manure Shed: 100 sf

Tool Shed: 100 sf

Total: 1100 sf

Outdoor Spaces

Courtyard

Garden

Horse Paddock/Turn Around – min. 1 acre

Parking – 10 staff spaces, 4 visitor spaces

Truck Loading

TOTAL BUILT REQUIREMENTS: 31,240 sf

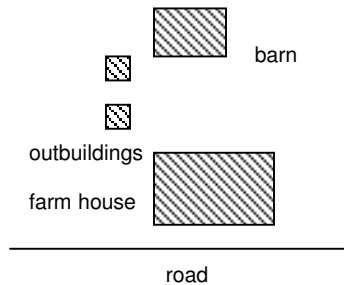
Farm Yard Arrangement

Five buildings will occupy the site and represent the different programmatic elements of the facility: the educational building, which will house reception, office, classrooms and conference room; a tenant office building; a barn and stable; a kitchen and dining building and a greenhouse. Smaller structures such as manure and tool sheds will also be located on the site.

Separating functions into distinct buildings allows a more controlled energy-conserving environment, as buildings are used differently throughout the course of a twenty-four hour day. The main educational and tenant office buildings will be the main resource users on the site, and will therefore be sited first, so as to take advantage of daylighting and breezes to minimize use of HVAC systems. The kitchen building will only be used around mid-day for lunch preparation and serving, and can be shut down at other times. The stable will need no HVAC system, only minimal lighting and plumbing.

The separate programmatic elements will be organized according to principles of traditional Mid-Atlantic farmyard arrangement of buildings. Farms are a model of efficient living; farmers organize their

buildings so that they can see all the activity from a single vantage point. Farms also represent a historic model of sustainability and environmental stewardship, as the farmer farmed tenaciously and in respect of the land to secure his survival.



There are three traditional patterns of farm building layout; the courtyard, linear and range. For the purposes of this project the courtyard arrangement will be used.

COURTYARD ARRANGEMENT

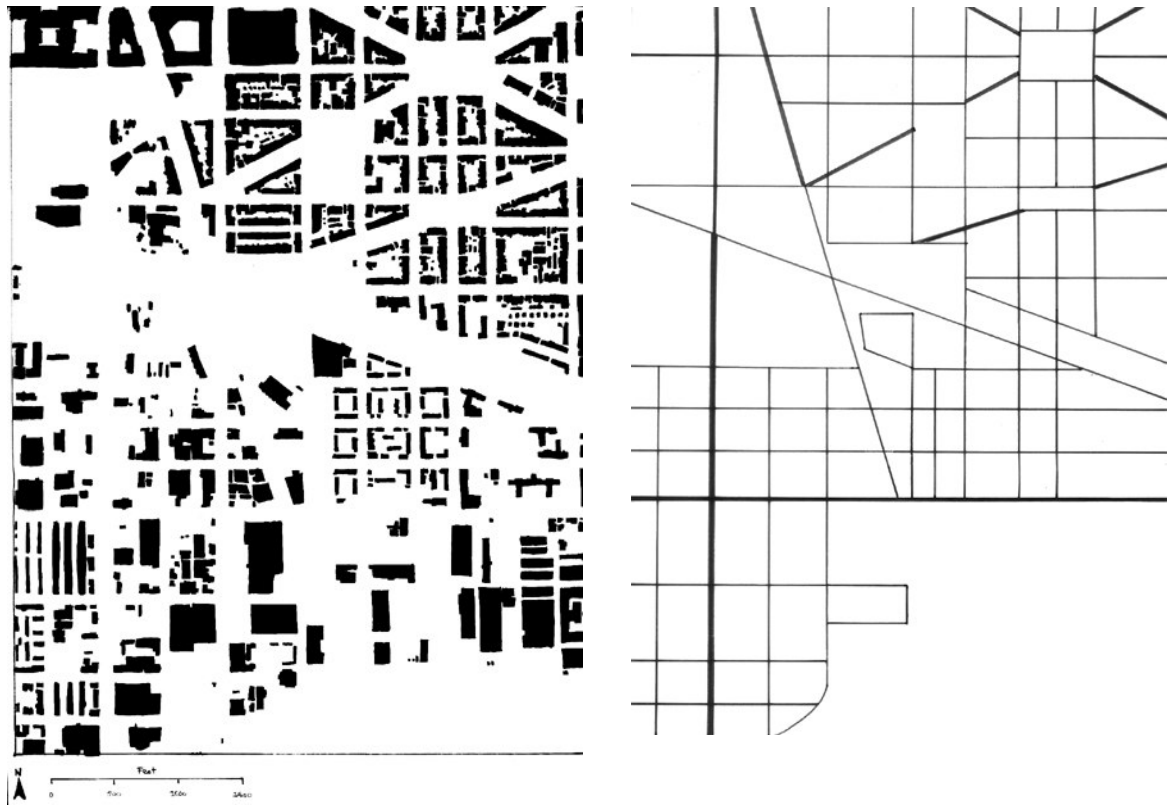
The courtyard will act as a large multi-purpose space, onto which the classrooms, stable, conference room, and kitchen open. Other exterior program includes the garden, a fenced turn-out area for the horses, parking and truck loading. Heavily planted areas will also occur at specific edges to block out visual and audio noise. These areas will be planted with native species of plants that are low maintenance and that can be incorporated into micro-environment lesson plans. Storm water run off will be filtered on site through the use of bio-retention areas.

Chapter Three: A Cornered Site on the Outskirts of Place

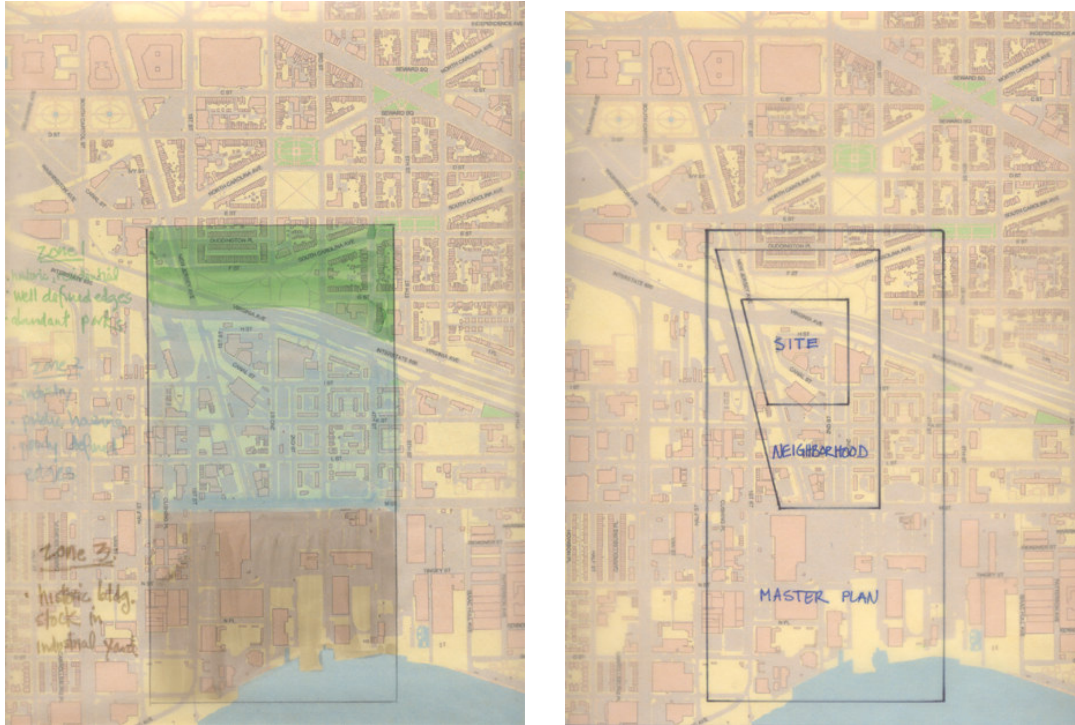
NEAR SOUTHEAST

Situated between the Capitol Building and the Anacostia River, the site is located in the Near Southeast neighborhood of Washington, DC. Near Southeast is just one of many neighborhoods highlighted in AWI's vision; the most urban, it is home to the historic Navy Yard and the Southeast Federal Center (SEFC).

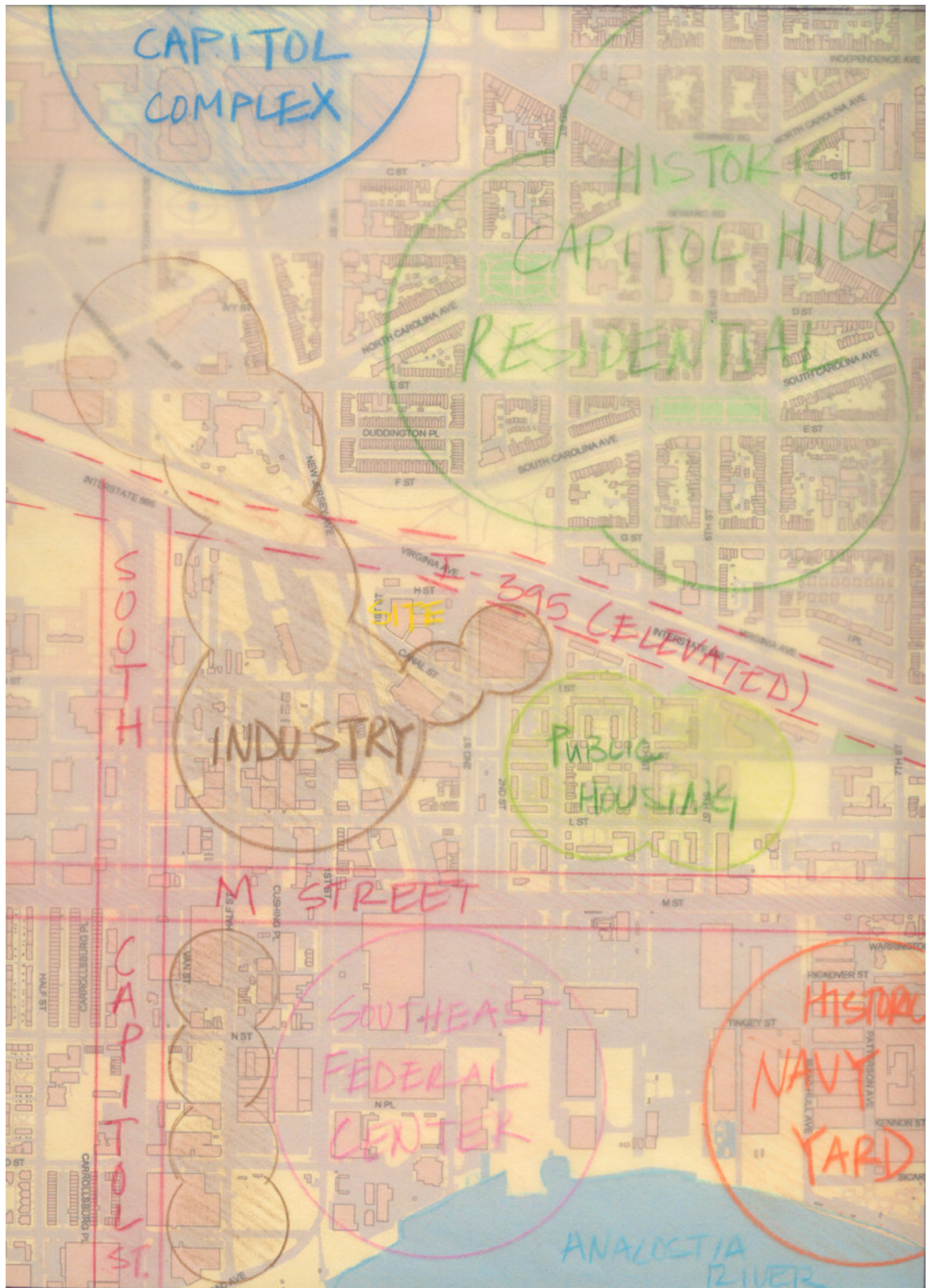




Left: Figure Ground Diagram. Notice defined streets, parks and diagonals within grid. Right: Streets. Notice M Street as edge, south of which is SEFC, with no formal grid introduced.



Left: Diagram showing three zones of character (Green: historic, residential, Blue: eclectic mix of industrial, public housing, Brown: historic industrial)
 Right: Scope of project at three scales.



A hand-drawn map of the site area, showing various landmarks and infrastructure. The map is oriented with North at the top. Key features include:

- Top Left:** "Capital power plant" and "railroad" with an arrow pointing right.
- Top Center:** "historical" with a circled 'S' and "GREAT PARK!" in large letters.
- Top Right:** "school", "great park" (in a green box), "Cap. Hill", and "Residential".
- Center:** "I-395 (elevated)" running diagonally from the top left to the bottom right. "Public Housing" is written in the center.
- Left Side:** "potential site expansion", "Industrial pond", "former Industrial factory", "commercial", and "DCPW" (in a circle).
- Right Side:** "historical school" (with "turnover into gym" below it), "I-395 (elevated)", and "commercial" with an arrow pointing right.
- Bottom Left:** "Industrial" (in a circle), "DCPW" (in a circle), and "possible green connection" with an arrow pointing to a shaded rectangular area.
- Bottom Center:** "SEFC" (in a circle) with an arrow pointing to a shaded rectangular area, and "greenhouse?" (in a circle) with an arrow pointing to a shaded rectangular area.
- Bottom Right:** "unharvested" (in a circle) with an arrow pointing to a shaded rectangular area, and "Navy Yard" with an arrow pointing to a shaded rectangular area.
- Bottom Edge:** "Great historical bldg" and "AWI waterfront" (with a drawing of a ship).

The map is drawn on a grid background, with various lines and arrows indicating roads, boundaries, and connections between different areas.

Just north of Near Southeast, in the prestigious and historic Capitol Hill district are narrow blocks of brightly colored, well maintained townhouses – a high-value residential neighborhood, home to many Members of Congress and their staff. Several blocks to the east

however, frugal rows of public housing recall well-meaning 1950's urban programs.

To the south and west of the site, industry thrives. Rock yards, power plants and water treatment facilities are imposing neighbors in this industrial area. Chain link fences, weed lots, and dilapidated late 19th century townhouses standing alone on a lot are common. Much of the industry in this active area provides Washington with its most basic necessities – power, water, sewage, etc.



Possible Pedestrian Route: From Capitol Hill residential neighborhood, underneath freeway, with proper lighting and paving, past site, along 2nd Street boulevard, one block on M Street commercial strip. A nice walk, if detailed at the pedestrian scale.

Several blocks to the south of the site is M Street, a major through street connecting Southeast and Southwest, on which the Navy Yard and the SEFC front. Ten years ago, this area was known for underground nightclubs and illicit drug use. Today, with the Navy Yard's commitment to bring 5,500 jobs from Virginia,

M Street is a growing commercial strip where many new office buildings are being built in close proximity to the new Navy Yard Metro station, which is just three blocks from the site.



Topography of area immediately surrounding the site. Notice in top center, underneath the freeway, railroad tracks emerge from underground just above the site.

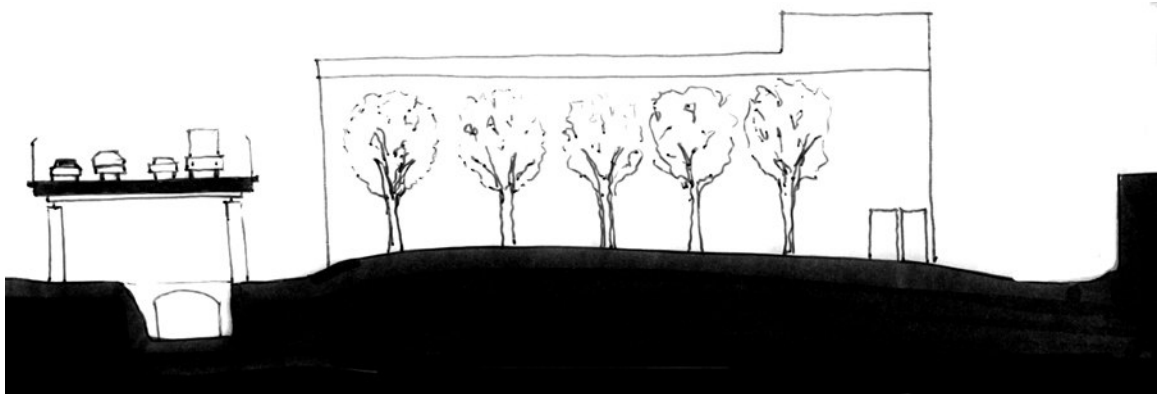


Land use of area immediately surrounding site. Site is currently a parking lot. Proposed green between 2nd Street boulevard is currently paved and holds school buses. Underneath the freeway is a basketball court.

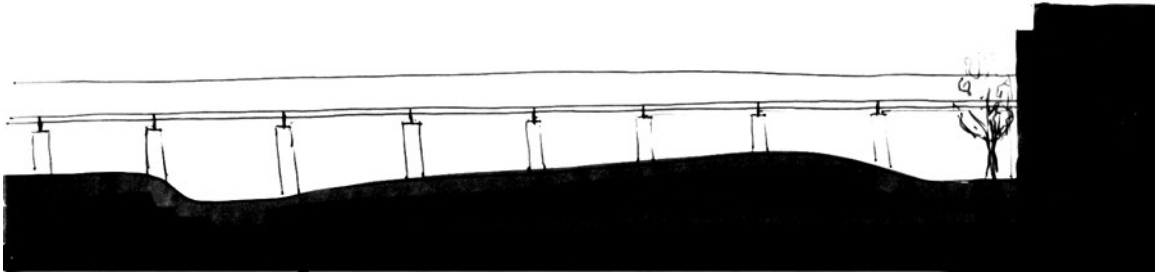
DESIGN CONSIDERATIONS: “Something there is that doesn’t love a wall”

Much of the I-395 overpass acts as an imposing barrier between Capitol Hill and Near Southeast, however this project will attempt to knit these two distinct neighborhoods together. In breaking down this conception of wall between residential and industrial/commercial

fabrics, this thesis will design the site to provide cohesion between two distinct areas of the city. What might be considered as the back of this site, in fact could be designed as a primary façade, fronting Capitol Hill. Paying close attention to improved circulation, landscaping, and architectural detail, this facility could easily draw pedestrians under the freeway and into Near Southeast, where they can enjoy the new amenities the neighborhood has to offer, such as commercial activity on M Street, the new waterfront, or the horses at play at the educational facility.



Sections through site showing I-395 overpass in section and warehouses in elevation and at right. Note the train tunnel that has just emerged from the ground immediately north (left) of the site. On the other side of the overpass is a very nice park that serves the residences and schools of Capitol Hill.



Sections through site showing I-395 overpass in background, and warehouse at right. New Jersey Avenue is at the left, higher in elevation.

Chapter Four: Precedent Analysis

BUILDING TYPOLOGIES: Industrial

The industrial fabric of Near Southeast can serve as a typology precedent for this project. It is extremely eclectic, revealing outwardly what is occurring functionally within.



Various industrial buildings within a half mile of the site.

This regional character is diverse in nature. Older industrial types have large windows, often covering most of the façade, to allow for ample daylighting and natural ventilation. New structures, as in the case of the Washington Post facility (now vacant) have almost no fenestration, and makes for ominous neighbors. The Poplar Point Sewage Pumping station on the other hand, is a beautifully ornate example of historic industry, and is a good candidate for adaptive reuse.

Rural

The character of the educational facility from the courtyard vantage point will be inspired by regional vernacular themes. A study of barn typologies and details from the Mid-Atlantic can offer an understanding of the principles of basic barn design, and will seek to inspire a careful attention to the details of building-making.

See Appendix B for a photographic catalogue of rural precedents.

Hybrid

As this facility will contain a rural experience clothed in an urban industrial façade, it is important to look at other hybrid building types.

The Salt Lake Hardware Building, by FFKR Architecture is a historic warehouse to office space conversion in Salt Lake City Utah, that represents a good



Atrium of Salt Lake Hardware Building. Note heavy timber structural members cut through space, a constant reminder of basic structure, as well as the industrial detailing of railings. Source: FFKR Architecture website.

adaptive reuse. Inserting a five-story atrium into the space, the architects were able to provide tenants with an experience of a

historic warehouse – including exposed structure, steel detailing and thick masonry walls.

A residence and stable by Marlon Blackwell is a second example of a hybrid typology. Built at \$40 per square foot on a small site in Wedington, Arkansas, this building represents multiple uses within a



Blackwell residence and stable. The vertical zoning, home on top of stable of this building is a good means of reducing the overall footprint, so as to maximize the presence of the high-design stable enclosure. Source: [40 Under 40](#).

compact footprint, and a heavy emphasis on Neovernacular detail.

Chapter Five: Parti Development

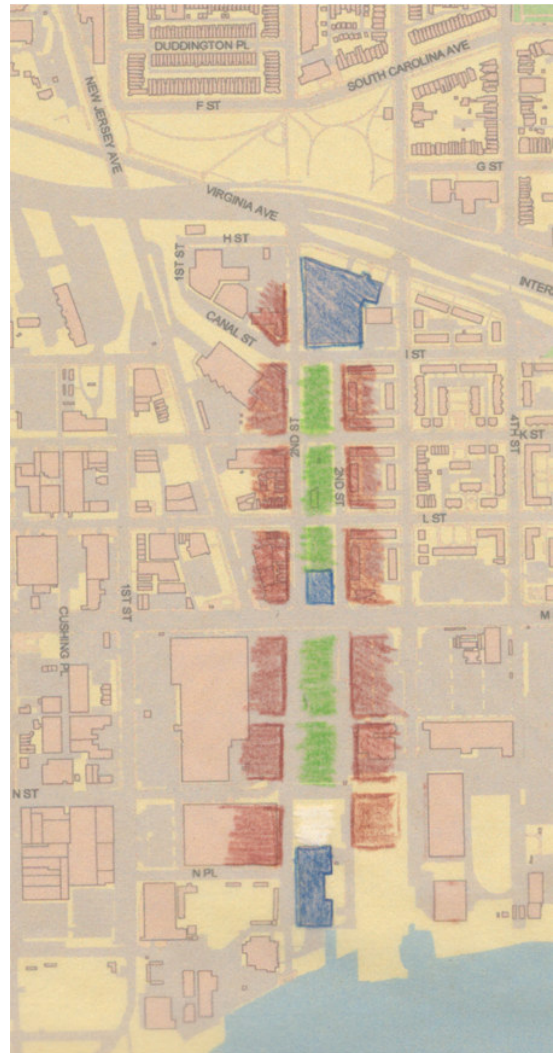
MASTER PLAN INTERVENTIONS

The following pages of diagrams represent the exploration of the site conducted during the pro-thesis semester. Appendix A contains all final analysis and intervention as presented on December 14th.



MASTER PLAN INTERVENTION #1

This plan is guided by a notion of distinct urban spaces. In this plan, two shafts of urban green space have been created along the 2nd Street boulevard. From the Washington Post building at the north of the space to the historic Sewer Authority at the far south, the space spans over 1500 feet. Therefore a prominent building was placed at the intersection of 2nd and M Streets so as to break the space into two. In this way, the southern space becomes a more formal civic center, while the northern space is an informal business community.



MASTER PLAN INTERVENTION #2

Similar to the first intervention, this plan is guided by a connection of urban spaces as well as a healthy pedestrian experience. Finding spaces that can be defined by urban edges, this scheme seeks to connect those spaces both programmatically, through public land use, as well as with proper urban landscaping. In this scheme a green space similar in character to the national mall has been created, with secondary green spaces to the north and south.



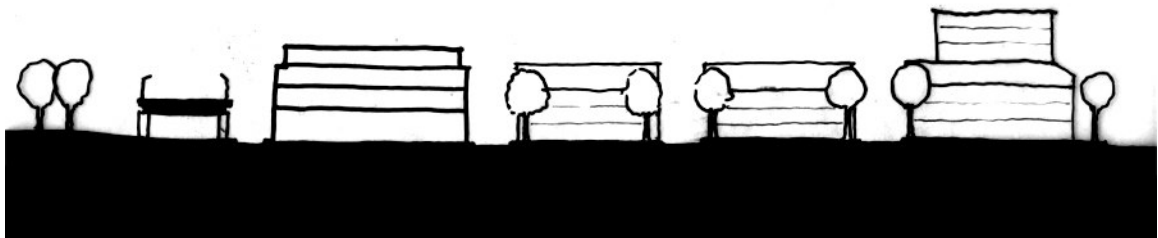
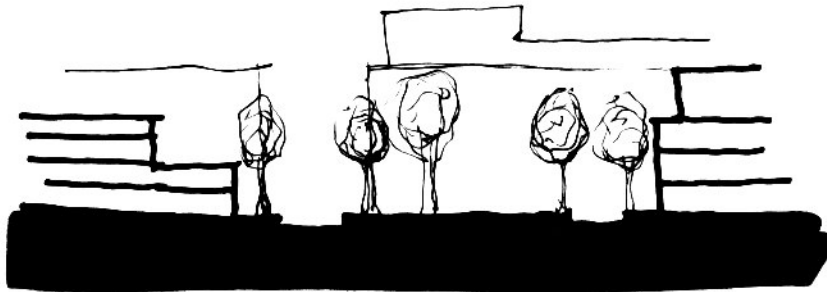
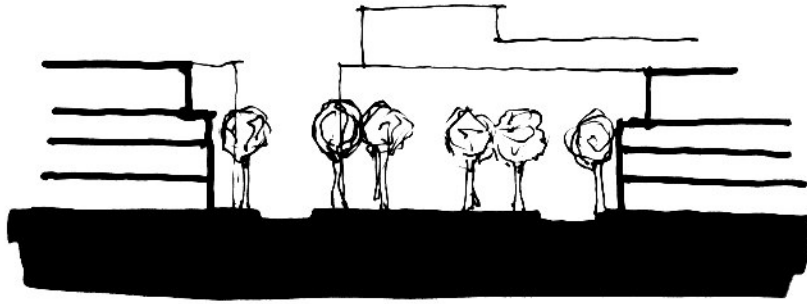
MASTER PLAN INTERVENTION #3

This scheme steps back to the city scale to create meaningful connections of public land use, using elements from the original L'Enfant plan for Washington. New Jersey avenue radiates southeast directly from the Capitol building, and is in need of a terminus. By programming the Sewer Authority building as a major museum, this connection has been established and an urban plaza is created, that highlights the relationship between the L'Enfant diagonal and the uniform street grid. This scheme also provides a meaningful entrance to the SEFC.

NEIGHBORHOOD INTERVENTIONS



Neighborhood Strategy Diagram



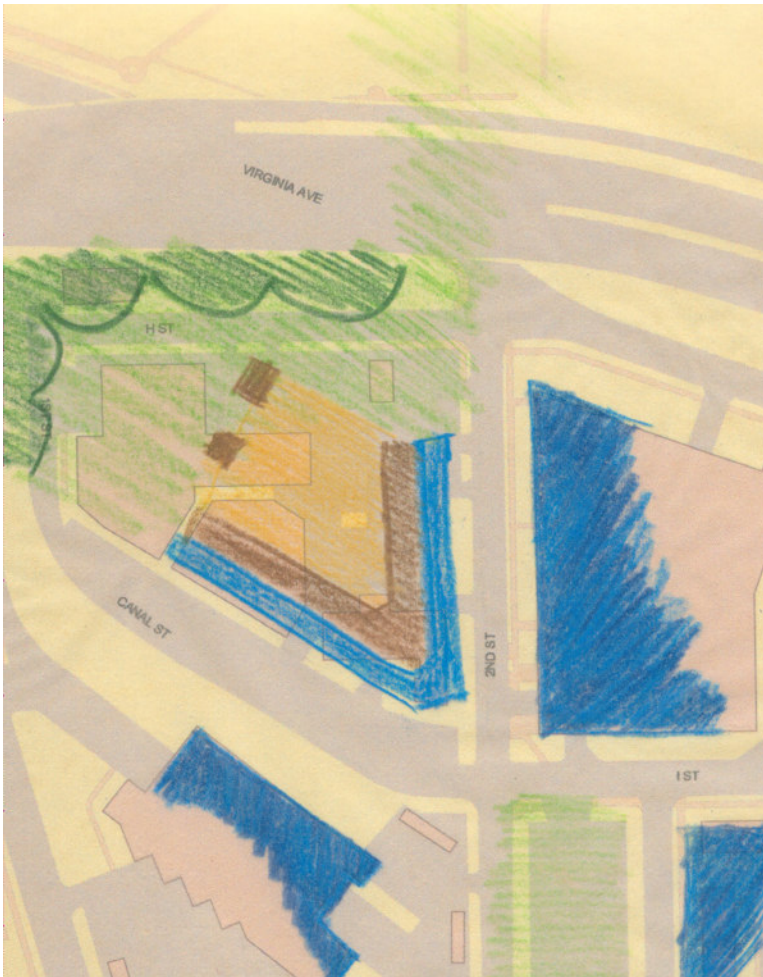
SECTIONS THROUGH NEIGHBORHOOD

Top: Section through 2nd street boulevard. Similar massing and character along 2nd street will help to contain this space. Notice how the Washington Post warehouse is a clear head building for this space - a new façade is likely.

Middle: Further down the block, this section is taken through the existing warehouse just south of the site. The massing has stepped down from M street towards the site.

Bottom: Longitudinal section through 2nd street, showing how the massing and setbacks of buildings will relate to the Post building, and the step up in massing at M Street.

SITE INTERVENTIONS



CONCEPT DIAGRAM FOR SITE

The diagram above addresses the design priorities for the site. The light blue industrial/commercial wrapper will address the urban context of the neighborhood, and serve as the public façade and entry to the facility. Within this wrapper is a vernacular structure, holding the offices, classrooms and tenant offices. This building defines two

edges of a large courtyard. Secondary structures further define this outdoor work space, and also distinguish between courtyard and field, garden or other green space.

Heavy planting will occur against the northwest of the site, to block views of New Jersey Avenue and provide privacy for the horses, as well as aid in the immersion effect for the children.

A pedestrian connection will be made towards the park to the north of the site, as well as to the south along the 2nd street boulevard towards M Street.



SITE SCHEME #1

In this scheme the urban wall is against 2nd street, and creates a narrow shaft for the pedestrian connection to the Capitol Hill Park.

The outbuildings clearly separate the courtyard from the other outdoor spaces.



SITE SCHEME #2

In this scheme, Canal street holds the major urban mass, and 2nd street is open to allow for visual access by pedestrians to the interior of the site.

The courtyard in this scheme is not defined as a geometry, instead it forms from the shape of the buildings curve.



SITE SCHEME #3

The massing of this scheme is similar to scheme #1, however the courtyard is much more defined.

Also in the scheme, the public housing has been adapted for New Tech office space, and would receive a high LEED rating.



SITE SCHEME #4

A T shaped building helps to define primary and secondary exterior spaces. The pedestrian experience from the park going south is almost shaped by the buildings, sometimes offering a sharp edge, yet other times containing space.

Conclusion

After completing the design portion of the thesis, I found that I had organized the many issues of this project into several categories: systems and design techniques of sustainability, program design and architectural character. Throughout the semester I worked to bring each of these to a similar level of completion, so that in my final presentation the importance of each would be clear.

What was lacking in my final presentation, as noted by the jury, was a more thorough investigation of the site plan. Though I spend the majority of September exploring different site design strategies within the construct of the rural courtyard that I have chosen, I can look back and admit that I left the site scheme somewhat unresolved in my eagerness to get into the design of the architectural and structural character of the facilities.

Endnotes

ⁱRated as one of the top ten US cities for domestic corporation relocation; Ranked #4 Best City for Business; Ranked as the #6 Best Metro Areas to run a small business (Microsoft bCentral); Ranked as the #1 Best City for Entrepreneurship (Entrepreneur) Source: www.dcmarketingcenter.org

ⁱⁱ The American Heritage® Dictionary of the English Language, Fourth Edition Copyright © 2000 by Houghton Mifflin Company.

ⁱⁱⁱWashington, DC Government www.washingtondc.gov

^{iv} Ibid

^v Center for Universal Design, www.design.ncsu.edu

^{vi}Living Classrooms Foundation, www.livingclassrooms.org

^{vii} Ibid

^{viii}Architectural Record Archives, www.archrecord.construction.org

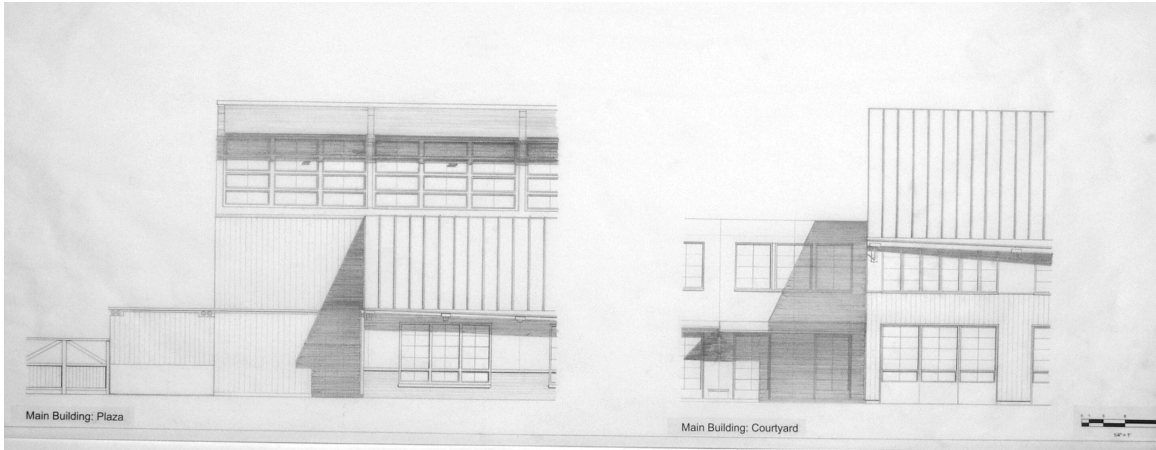
^{ix}Earth Conservation Corps, www.earthconcorps.org

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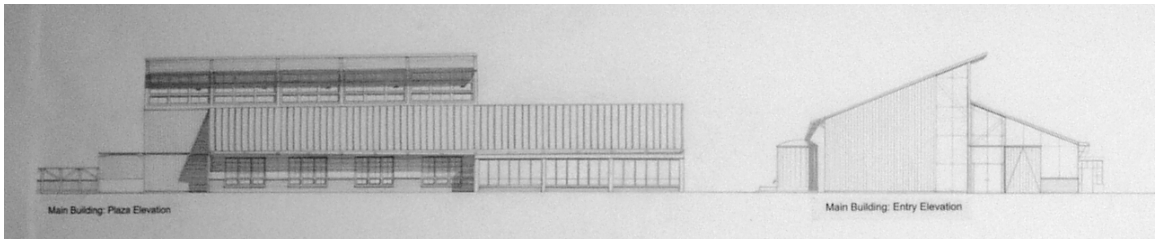
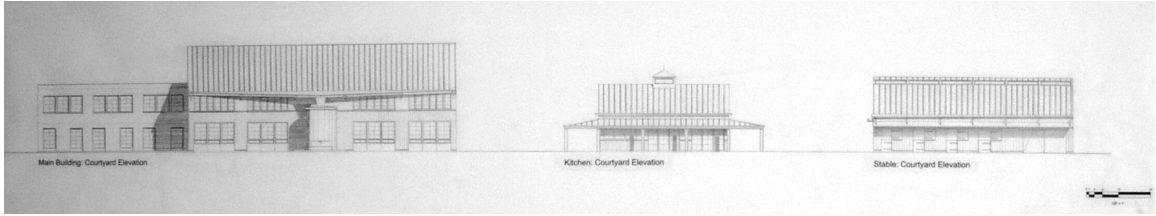
Appendix A

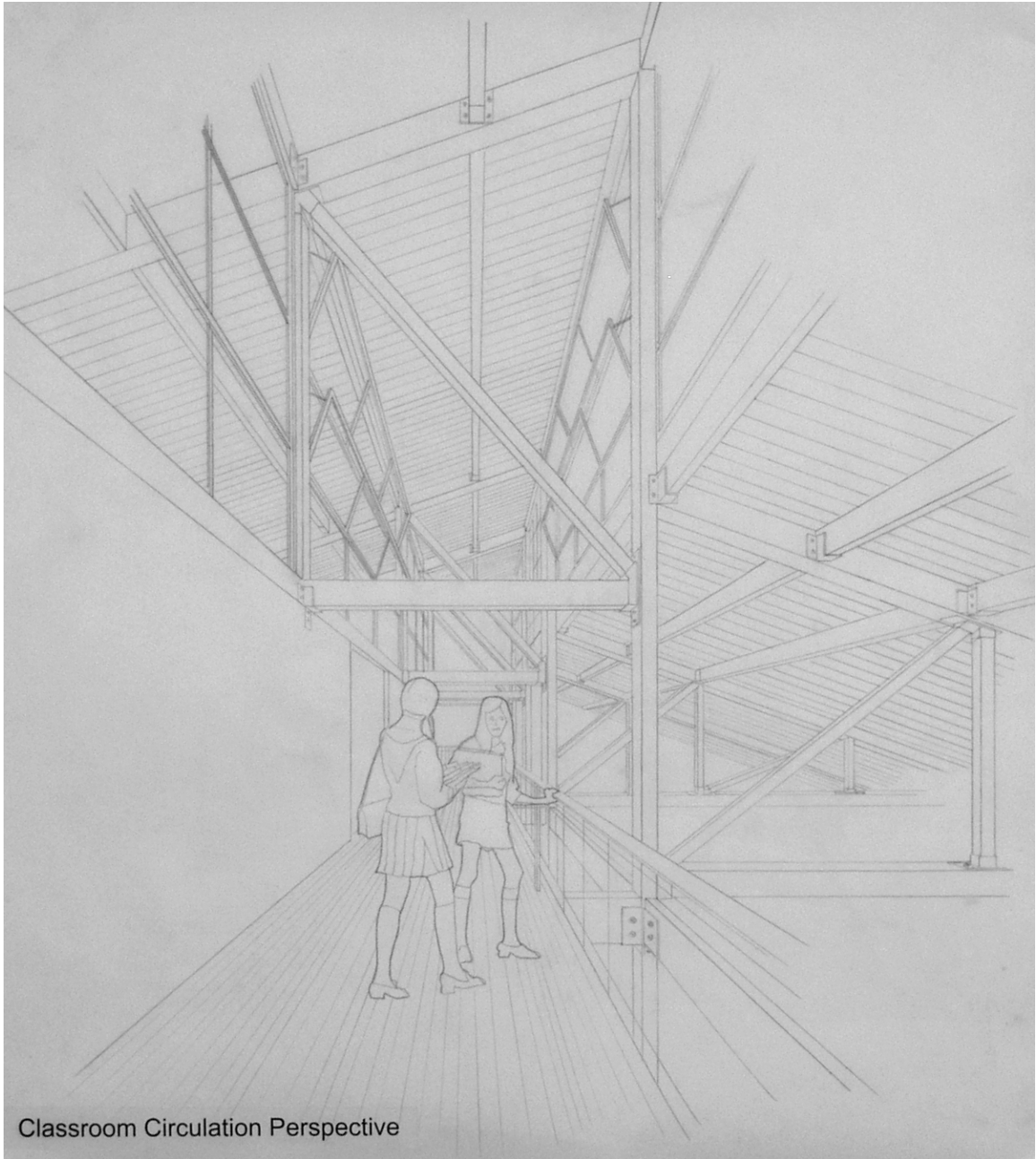
Final Drawings



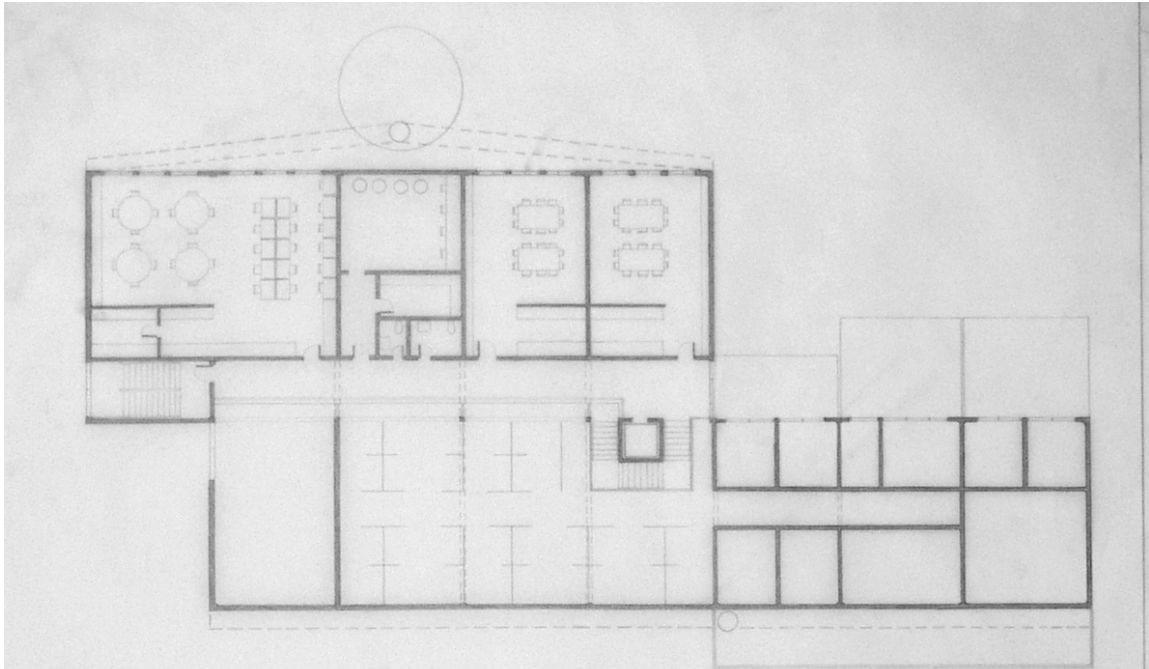


Courtyard Perspective

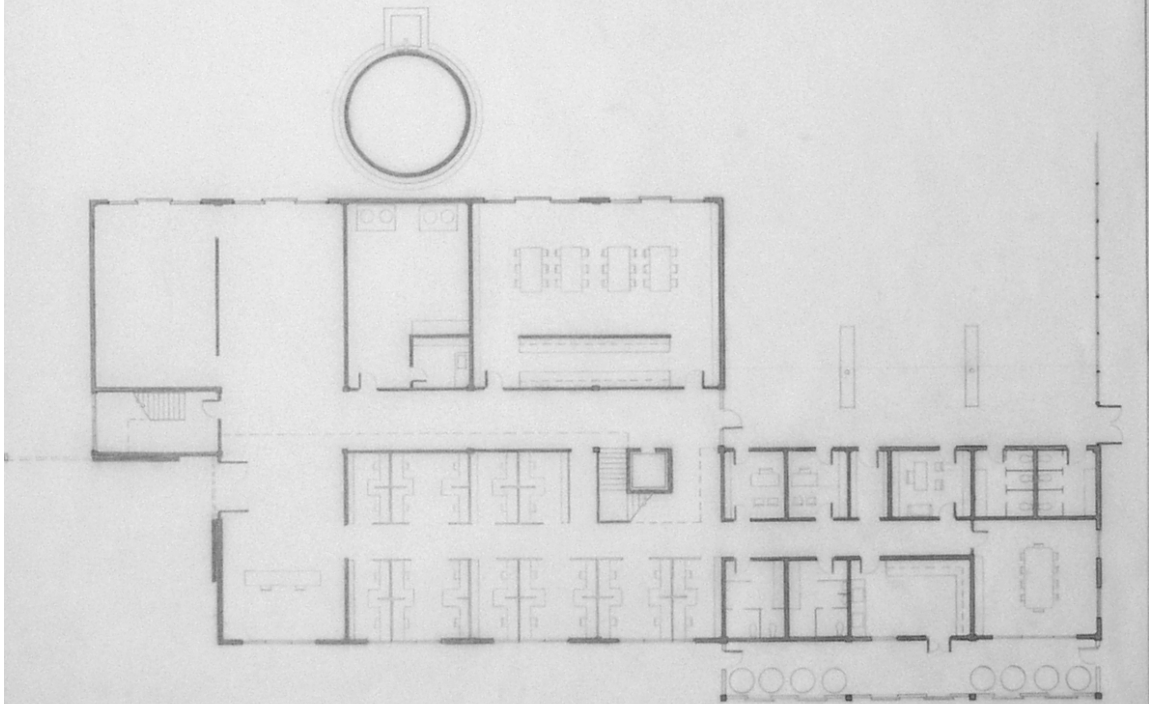




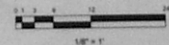
Classroom Circulation Perspective

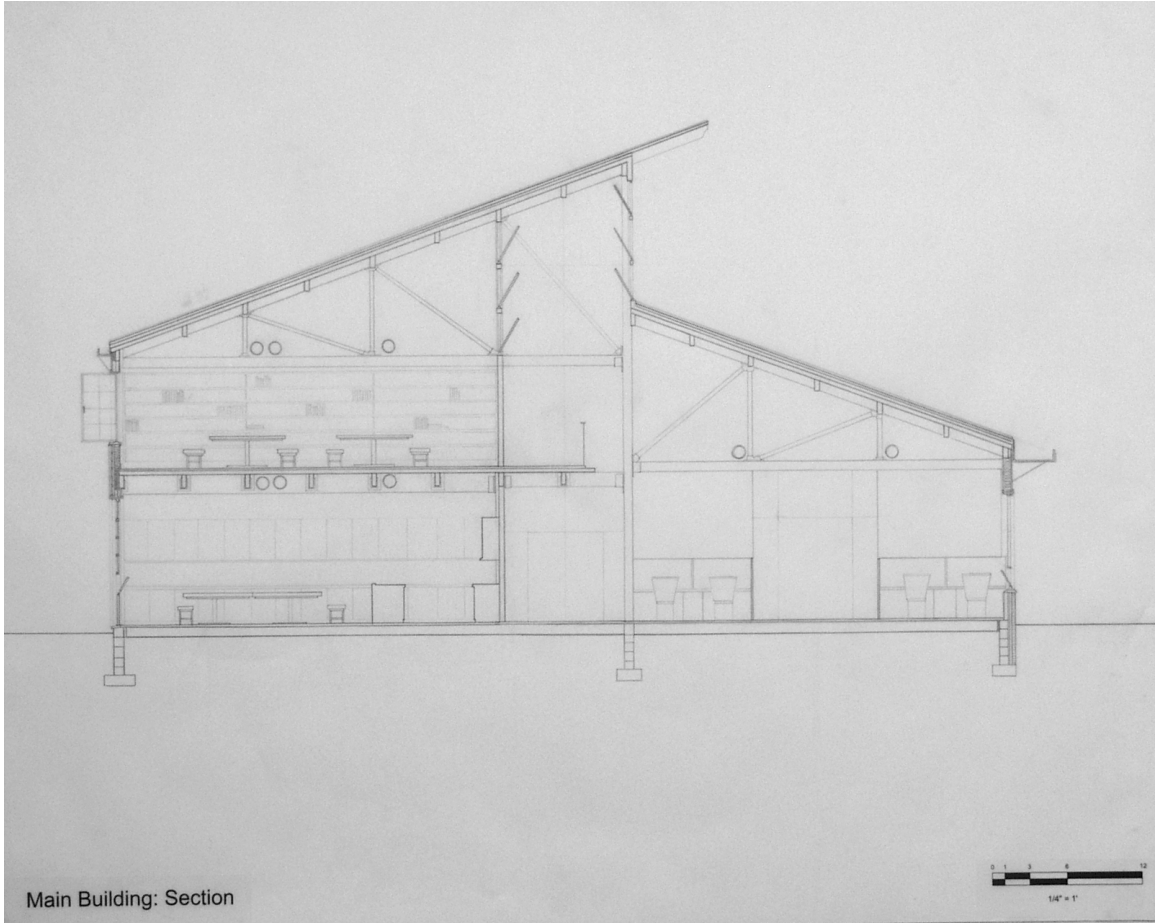


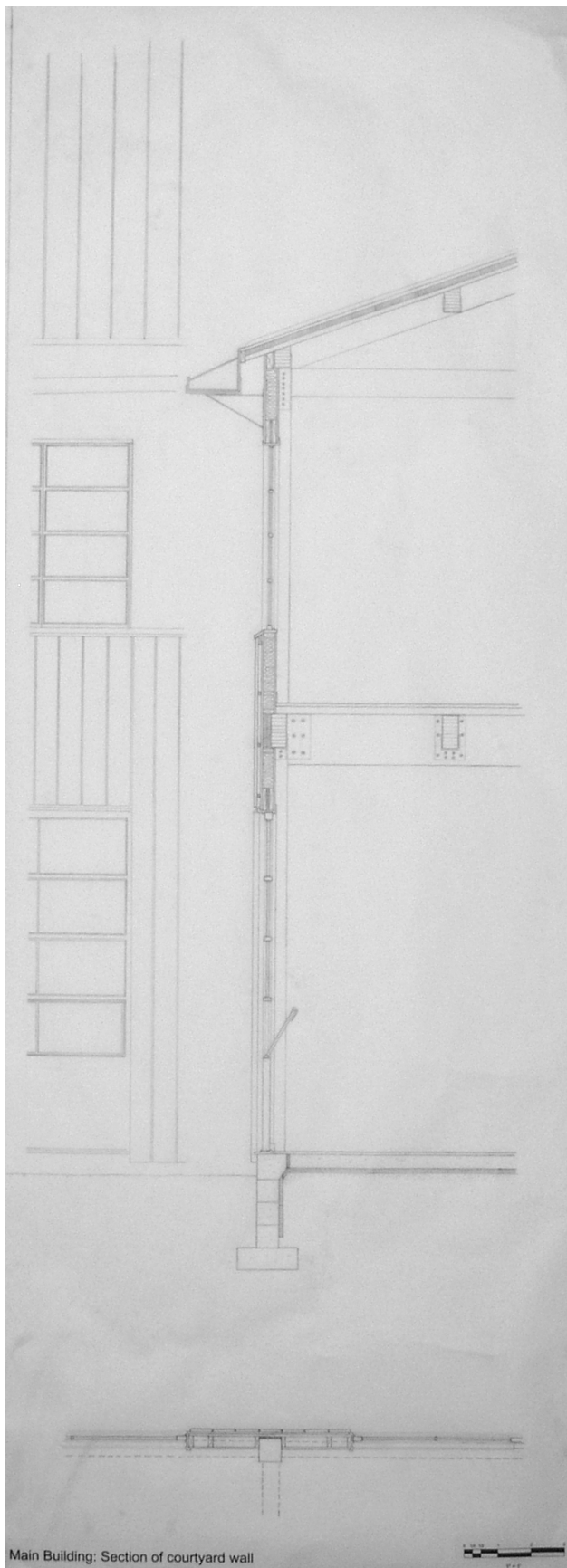
Main Building: Second Floor



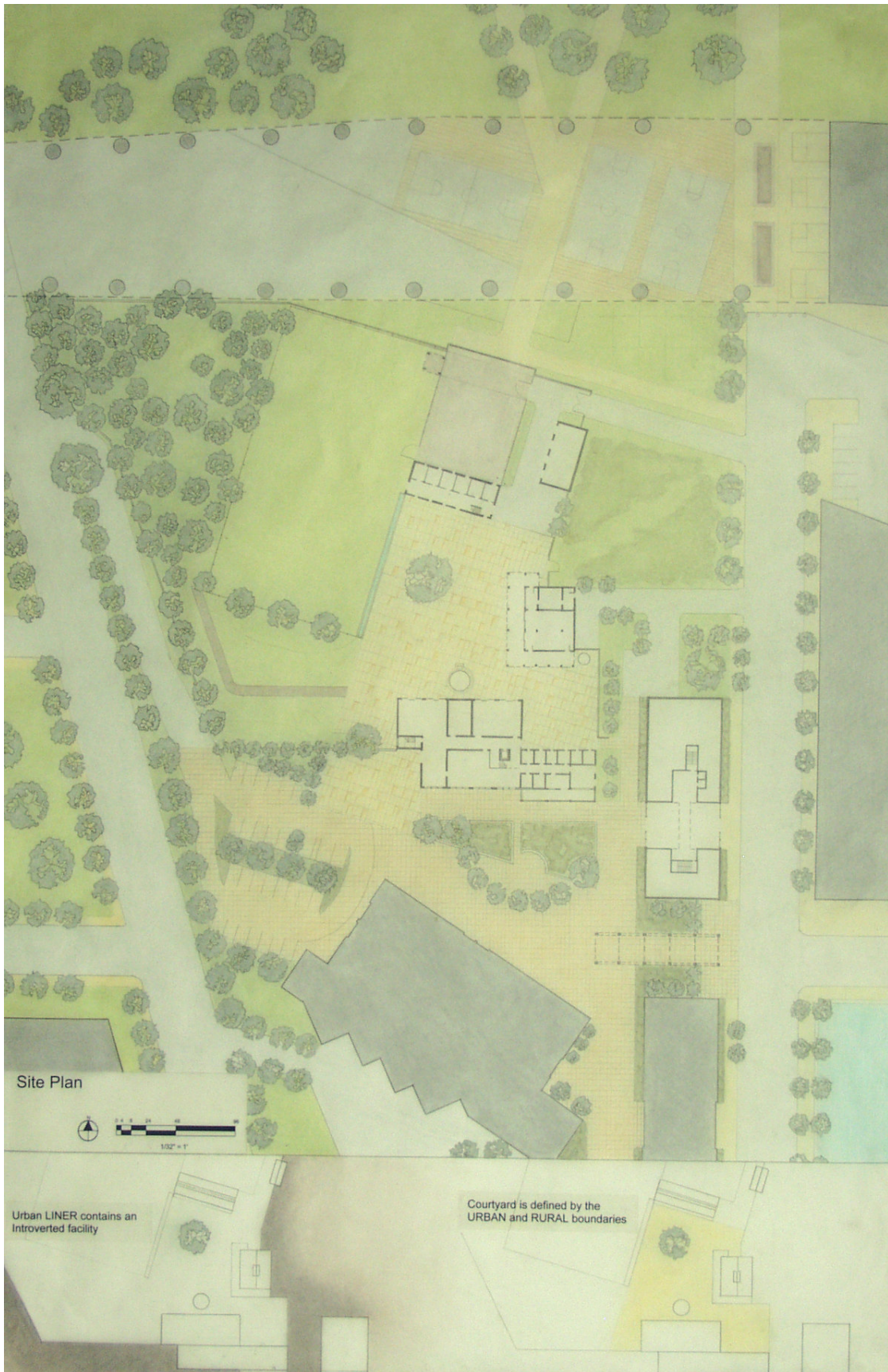
Main Building: Ground Floor

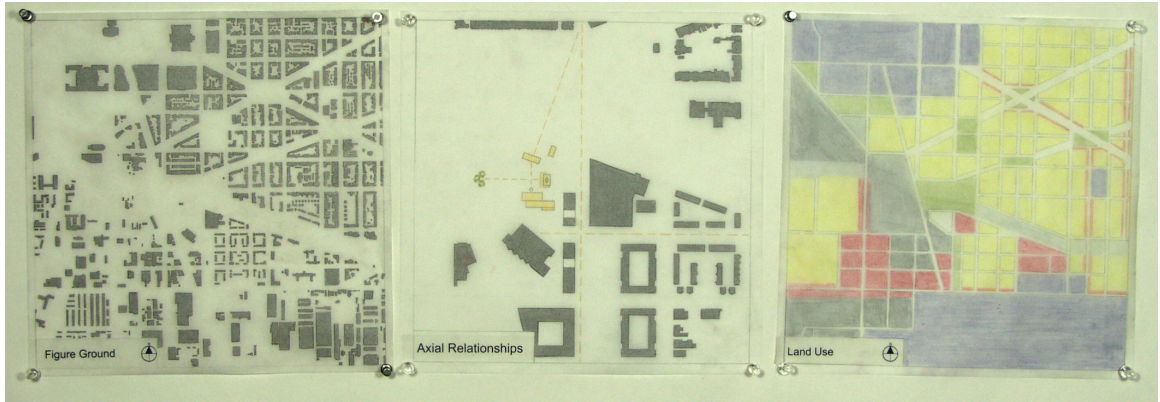


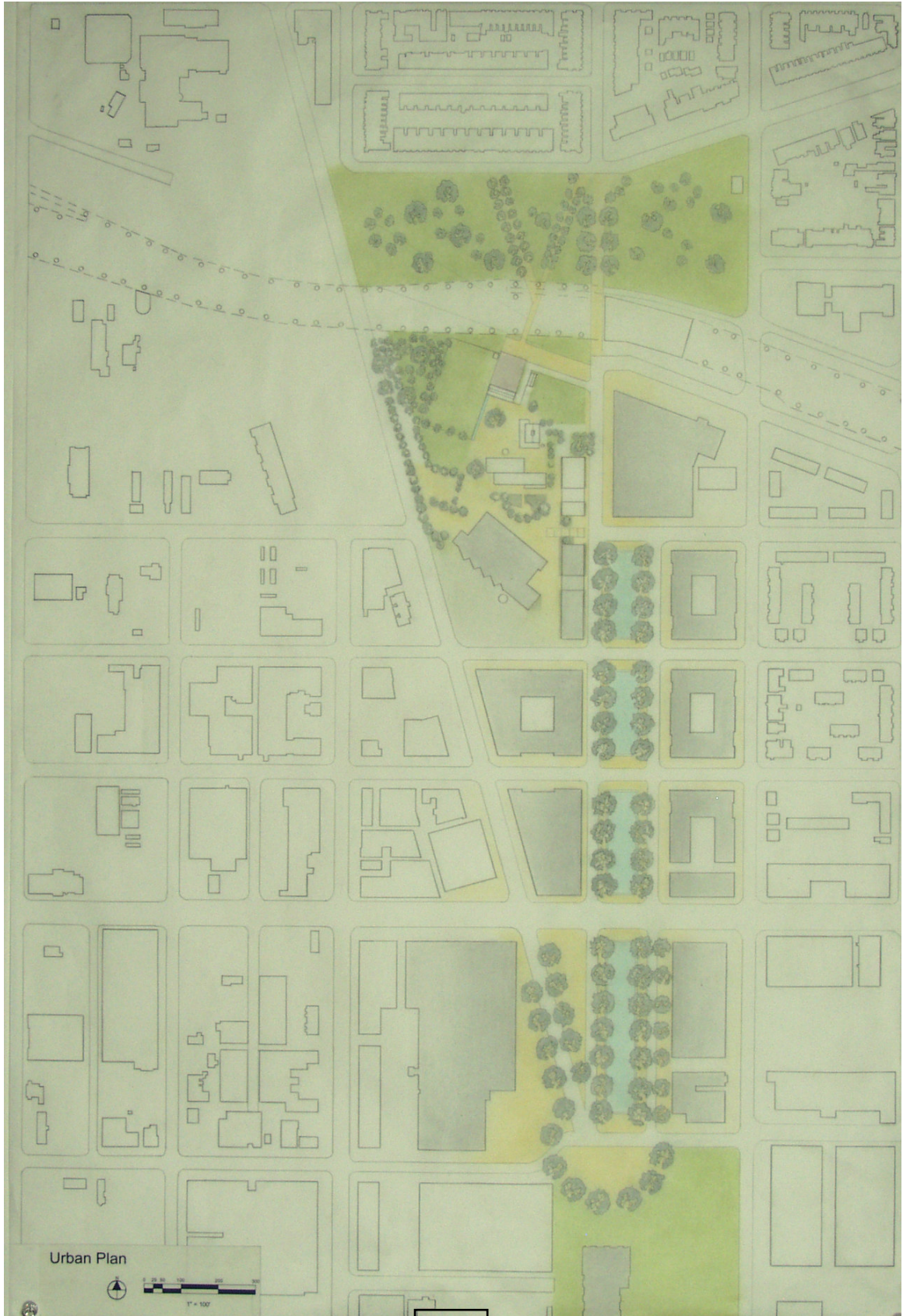


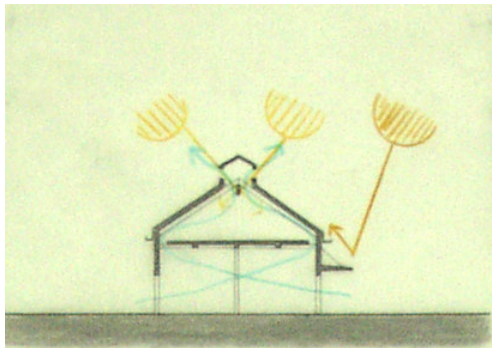


Main Building: Section of courtyard wall

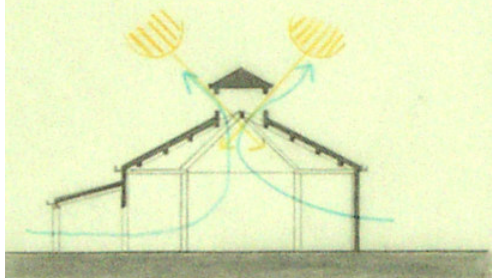




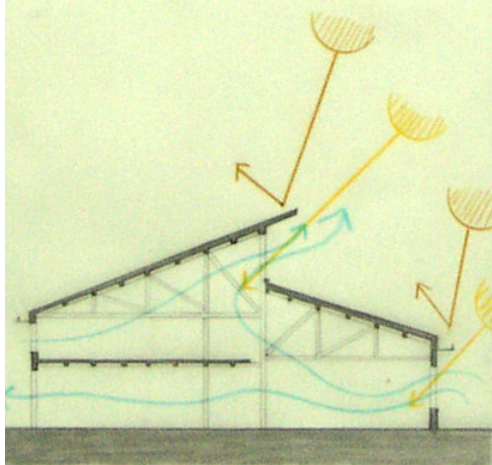




Stable

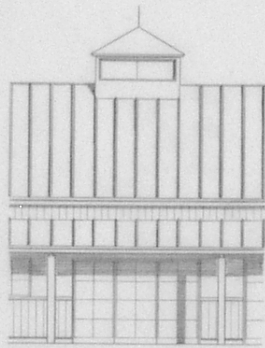


Kitchen

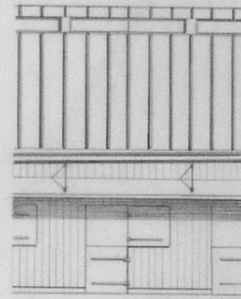


Main Building

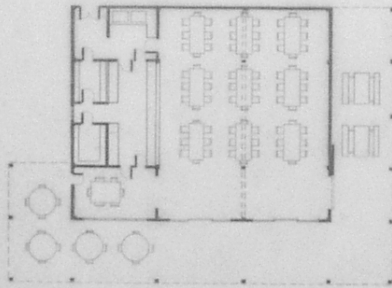
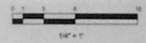
Light & Air



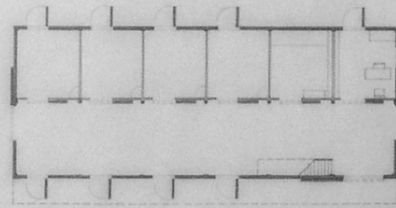
Kitchen



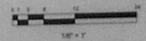
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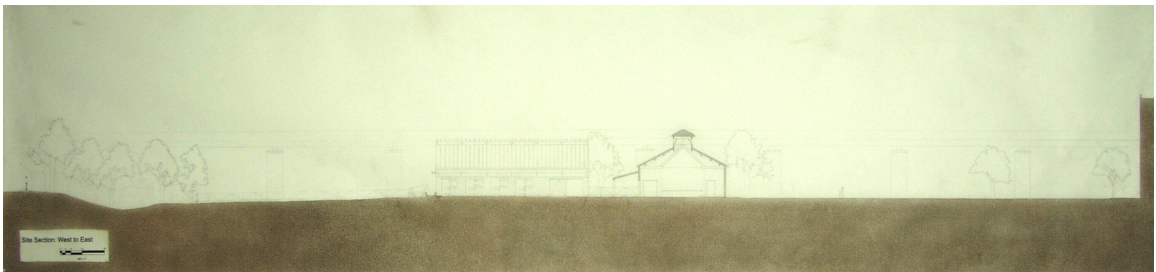
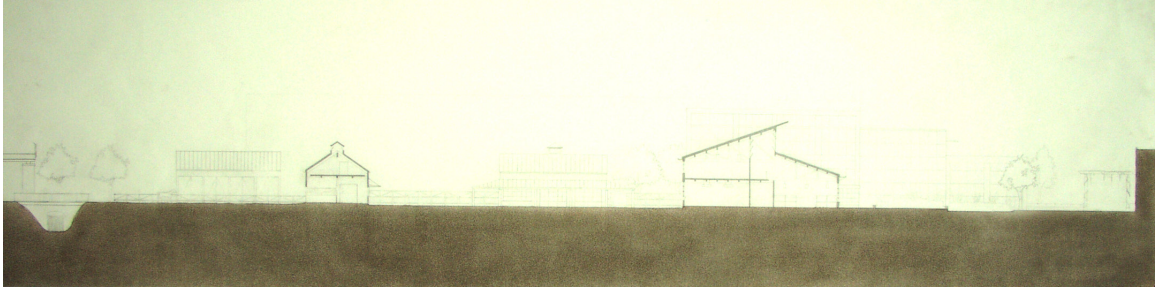


Kitchen Plan



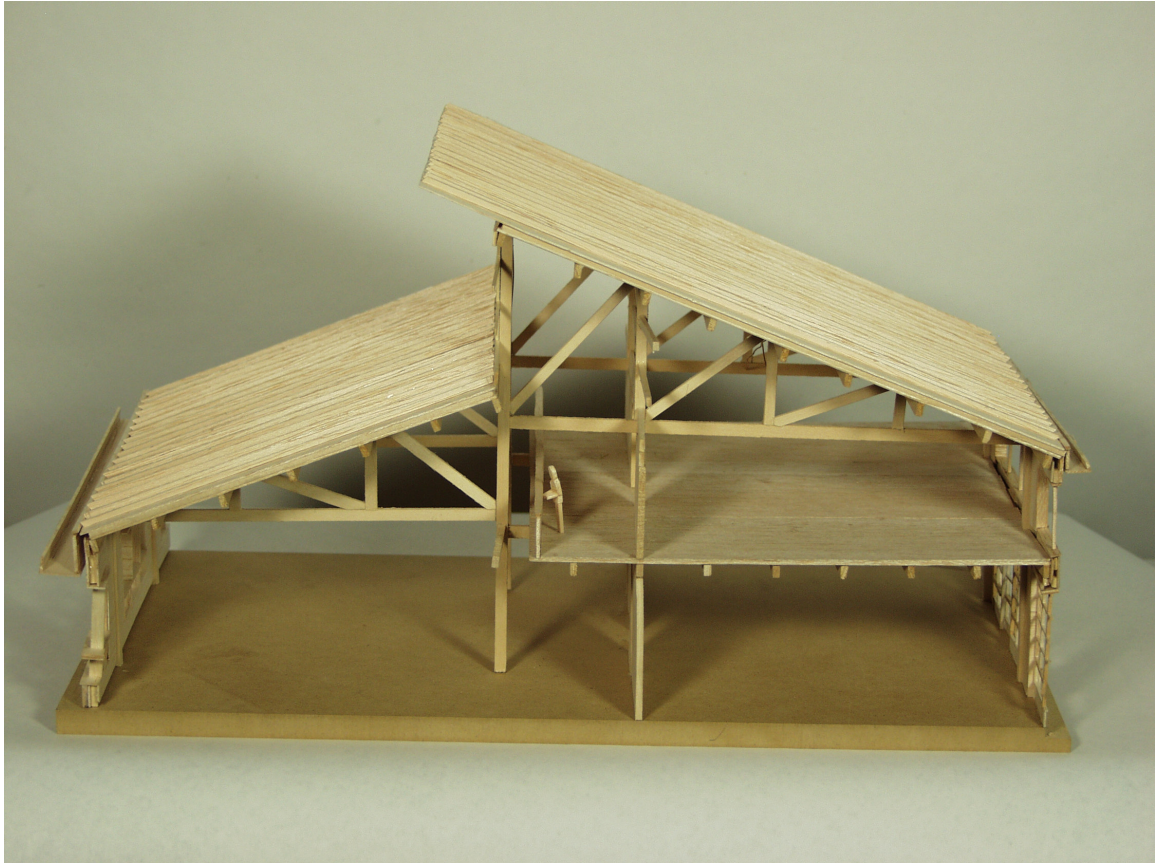
Stable Plan



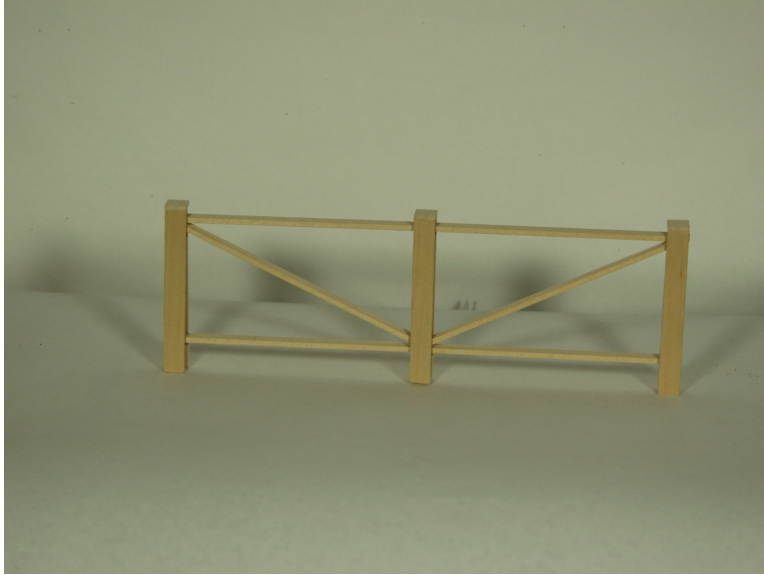




Site Model
1" = 32'



Model of Main Building:
Structural Bay
 $1/4" = 1'$



Fence Models
1/2" = 1'

Appendix B

Photographs of Precedent



Vernacular Details: Collecting Water



Vernacular Details - Porches



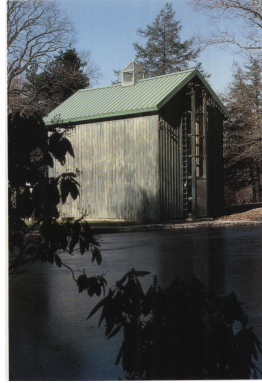
Vernacular Details: Shading



Vernacular Details: Gables



Vernacular Details: Light



Vernacular Details: Gutters



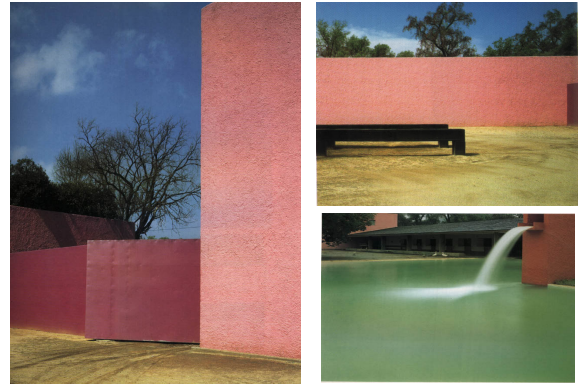
Vernacular Details: All season gardening



Vernacular Details: Framed Views



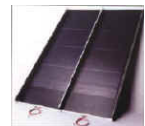
Vernacular Details: Light



Luis Barragan: San Cristobal Stable



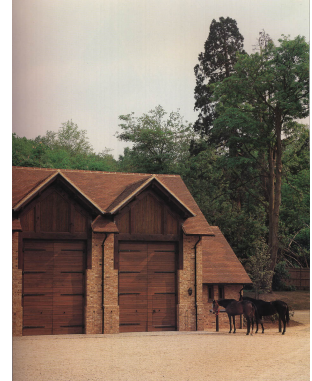
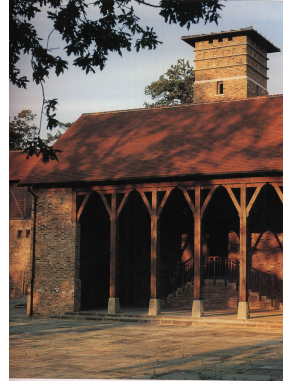
Luis Barragan: San Cristobal Stable



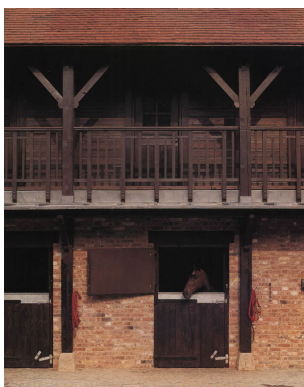
Standing seam roof with integrated PV panels



Greene & Greene: Gamble House



Demetrios Porphyrrios: Belvedere Village



Demetrios Porphyrrios: Belvedere Stable



Details – Wood Siding



Details: Atrium



Details: Green Roof, Plywood finishing



Water Towers



Water Towers



Site Neighbor:
Washington Post
from site



Site Neighbor: DCPW from site



Site Neighbor: DCPW – from NJ Ave
