

Redefining
(INTERIOR)SCAPES
Integrating the Natural and Built Environment

by

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A REPORT

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“Interior landscapes – and the pleasure they can bring – have no limits.”

- Malitz, 11

(ABSTRACT)

In the temperate Midwest, interiorscapes are seldom a feature of public schools. The interior spaces of school environments tend to be dull, uninspiring, and do very little to nurture the wellbeing and needs of students. Interiorscapes can greatly influence the overall productivity of users by creating healthy, pleasant environments. Schools fail to create richer indoor environments for a number of reasons, such as lack of resources as well as knowledge about the design, implementation and benefits of interiorscapes. In addition students today “are not the outdoor-living [children] they were 100 years ago, and as much as 90% of [their] time may be spent indoors” (Manaker, 2). Healthy and stimulating school environments have the potential to enhance students’ productivity and creativity. Therefore the question at hand is: how can a Manhattan Kansas’ high school integrate the natural and built environment to create richer interior spaces?

In this Master’s report, I explore the potential benefits of designing an interiorscape that integrates the natural and built environments within a school setting. Using Manhattan High School West Campus as the project site, I analyzed the effect and design of

existing interiors on students through passive observation.

Numerous research precedents identified valuable information on design processes and methodologies for designing interiorscapes and evaluating user interaction with existing places. Following a thorough analysis of the typology and characteristics of each precedent, I considered unique facets that were directly applicable to my project site. I then went to test the aspects selected from these precedents by incorporating them into the design for the selected project site; north courtyard and adjacent interior dining space. Based upon the precedent research and literature review, design goals and objectives evolved.

The end product is a schematic design for Manhattan’s High School cafeteria area and north courtyard. The plan encompasses desired characteristics of an interiorscape and needs of its potential users. Ultimately, this proposal presents ideas for ways of implementing interiorscapes to enhance the overall productivity of users, while simultaneously strengthening the relationship between the natural and built environments.

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To all of you, I say thank you from the bottom of my heart!

(FOREWORD: LANDSCAPES OF LEARNING GROUP INTRODUCTION)

The Landscape Architecture/Regional & Community Planning graduates of 2012 are the first class to participate in a collaborative studio process leading to completion of their individual master's reports. Seven of these graduates chose to work under the topic Landscapes of Learning. The interests of the group were broad: biophilia, access to nature for children, childhood development and special needs, ecological interpretation, participatory design, public play spaces, and landform as art. The common conversation centered around big questions: How can all children have access to nature for learning through play? What creates a rich, outdoor environment for all kinds of children and young adults?

A formative experience in my understanding of landscapes for learning occurred in 2008-2010, when I helped create a learning garden at a local elementary school. One hundred eighty people built the school garden over eighteen weekends. The garden was handmade. Raised planters were built by Boy Scouts and a kind dad with a miter saw. A talented landscape contractor helped build a 14-foot long limestone bench. The Parent-Teacher Organization's unofficial 'dad of the year' made it a family affair — his siblings, mother, father, and children all returned to the garden site for many weekends of work.

Sadly, the garden existed for just 153 days.

The voting public passed a bond for school renovation and the elementary school received funds for a beautiful building expansion. The garden turned out to be too difficult to stage around during construction.

The learning garden had become a talisman to me. In it, I saw a kind of landscape I had never made in a professional firm. The garden was decidedly humble and handcrafted, made of creamy Kansas limestone and native plants bought or donated and dug in a few at a time. The garden was 'quiet' aesthetically: native wildflowers and grasses, crushed stone paths, tree shade, planters with compost-rich soil. The garden was designed for diverse experiences: learning across the grades and curriculum, quiet time, and play. There was always a puddle somewhere, reflecting leaves and strands of switchgrass. During the fall it was completed, 4th graders would run to the side of the garden intern at recess to ask if they could help weed, or mulch, or rake. When the news sunk in that the garden was gone, I looked at its photographic ghost in satellite imagery. How could so many people want something, work so hard to make it happen, and yet it could not survive?

The humble learning garden had answered a creative drive for me. I had wanted to make social sculpture: to bring a socially-significant place to life beyond words and images. The

garden's absence opened me to questions about landscapes of/by/for learning.

The 2012 Landscapes of Learning studio became a forum for these questions. Seven master of landscape architecture and master of regional and community planning students selected the studio as the crucible for their final year's projects. The graduate student researchers conceived of their bond as a colloquium, where each shared information freely to raise the expertise of all.

Though each student defined his or her own project, all projects engaged the community of Manhattan, Kansas (the setting for Kansas State University); and all projects questioned what we as future landscape architects and planners assume about landscapes for children. In nine months' time, a diverse set of projects took shape to address a range of questions:

If we assume access to nature to be beneficial to children, are some children denied access due to socioeconomic status and its impact upon housing choice?

Jonathan Knight, Wichita, Kansas

In a neighborhood with no parks, can an oversized middle school property serve a joint use for school and neighbors?

Shuang Hao, Manhattan, Kansas / Suihua, China

How can an elementary school in a flood plain landscape meet diverse schoolyard needs while also interpreting the hydrologic cycle for children?

Laura Weatherholt, Tulsa, Oklahoma

How can a schoolyard be designed to be a therapeutic environment for all children, with an emphasis on benefiting those children with autism?

Chelsey King, St. Peters, Missouri

How can planners and landscape architects improve community participatory design methods for determining what children need and desire in a school landscape?

Kweku Addo-Atuah, Accra, Ghana

Contemporary schoolyards often lack creative expression. How can humanities research serve as evidence for the design of a functional schoolyard that is also a sculptural work of art?

Rebecca Melvin, Seattle, Washington

In the temperate Midwest United States, interiorscapes are seldom a feature of public schools. How should an interiorscape be designed to integrate the natural and built environment within an existing high school?

Sukaina Fakhraldeen, Kuwait

The reports address landscapes of learning at

a range of scales: from city planning to interior scale. The projects also exhibit a great variety in conceptual approach: from personal and poetic design driven by humanities knowledge to participatory design process including nearly one hundred students. What is not evident in the list of questions is the interrelationship between projects. The individual report which follows will provide a point of reference. The individual researcher's goals will be made clear, but will also be linked to a collective annotated bibliography made by the studio. Some reports refer to the work of other students, as several projects were interdependent, but each report is original work, completed by the individual author.

As a whole, the 2012 Landscapes of Learning master's reports do not focus narrowly upon the most popular topics of the day: encouraging active play and control of childhood obesity. Instead, our holistic approach demonstrates creative and scholarly inquiry representing a breadth of themes in contemporary discourse about experiential learning environments for children.

Assistant Professor Mary Catherine (Katie) Kingery-Page
Major Professor to the Landscapes of Learning Students
April, 2012

Figure 1.1: Compiled images of Kuwait (Author 2009/2011)



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(MEMOIR)

An individual's professional choices may be influenced by any given number of elements: a person, an event, or an experience. Having my own unique yet relatable reasons for joining the field of landscape architecture fully illustrates this truth. Not only did I perceive landscape architecture as a profession that would dovetail nicely with my undergraduate degree in architecture, I also saw it as an opportunity to obtain an education in a field that would greatly benefit my home country, seen in figure 1.1. As a child, I always saw images and scenes of people enjoying the outdoors, playing, eating, and socializing. Having grown up in Kuwait, it was not always possible to experience the outdoors as much given the harsh aridity of the climate.

Dry heat, along with other extreme climatic elements such as sun and wind, greatly influence daily activities and productivity; these elements often lead to fatigue, sunburn, and dehydration. Despite these climatic drawbacks, Kuwait is my home and will always be in my heart, motivating me to seek solutions to these issues. The lack of opportunities for enjoying the outdoors has raised my curiosity about how people living in regions characterized by harsh climatic conditions can experience and

enjoy nature. The solution made itself apparent when I learned about the field of landscape architecture. That solution appeared even more evident after witnessing a project being built in Kuwait. The project entailed the construction of a large, green, aesthetically pleasing, and functional space within one of the major malls in Kuwait. That green space represented much more than a simple interior garden; as far as I was concerned, the captivating project is one that seemed to be filled with the potential for creating an incredibly serene environment amidst the other, more bustling areas within the mall.

Upon learning more about the project, I was awestruck by the beauty of the proposed green space and the practicality of its indoor locale. However, it quickly became apparent to me that my knowledge of the process of establishing and maintaining an indoor landscape was in need of some serious broadening. The pursuit of such knowledge revealed and nurtured within me a keen interest in learning more about interiorscapes, a sub discipline of landscape architecture. This sincere fascination with interiorscapes led me to enroll in graduate school in order to pursue a degree in landscape architecture.

PROJECT INTRODUCTION

(DILEMMA)

Our interior and exterior surroundings are the result of considerable evolution over many years, and this evolution continues. People are living in acclimatized surroundings where indoor spaces are air-conditioned or heated for maximum comfort and where people can agreeably meet, eat, and interact with one another. These changes are most pertinent in regions experiencing harsh climate conditions with extreme temperatures. The dry arid climates of the Middle East and the harsh and freezing winters of Canada, for example, have become excessively controlled. The problem with such controlled environments is that they detach people from nature, as seen in figure 2.1, while the harsh climatic conditions make it extremely difficult for people to enjoy the outdoors and experience nature.

People spend much of their time living and working in interior spaces. One research conducted by the Environmental Protection Agency (EPA) in regards to buildings and their impact on the environment indicates that “people spend approximately 90 percent of their time indoors” (EPA, 2011). In modern day

living, people are becoming more disconnected from nature, which can greatly influence their overall growth and development. The problem with interior spaces is that they are “designed and modified every day in ways that fail to support people’s need and requirements” (Kaplan, 7).

This failure is partially due to designers not being fully aware of the needs of the occupants, what makes them comfortable and what is appropriate for them. It also important to acknowledge that, along with designers, there are other factors that play a major role in the design of our everyday spaces. Engaging the users throughout the design process can address such issues and subsequently prevent their occurrence. This can be done through a participatory design approach. When it comes to designing interiorscapes, designers ought to “strive to understand people by exploring the relationship between [humans] and [their] environment [...] and] plan not only for the physical comfort but also for the psychological comfort of people in these spaces” (McClure, 116).

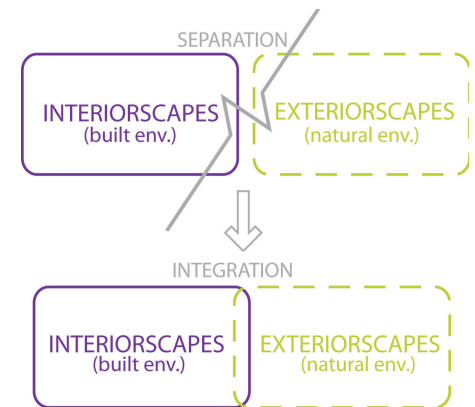


Figure 2.1: Currently the design of our interior buildings are separated or disconnected from the exterior natural environment. The aim is to integrate them through “interiorscapes” (Author 2011)

How can Manhattan Kansas' High School integrate the natural and built environment to create richer interior spaces?

(THESIS)

A potential solution is to try to bring the outdoors in through interiorscaping because ultimately “we want something natural in our artificial environments” (Gaines, xiv). Interiorscaping, also interchangeably referred to as “plantscaping” and “interior landscaping,” is “the practice [and the art and science] of designing, arranging and caring for living plants in enclosed environments” (“Interior Landscaping,” 2010). Interiorscaping refers to a total environment, not only indoor planters.

Interiorscapes can enhance the overall productivity of users by creating pleasant and healthy environments (Gaines, 1977; Manaker, 1997). Interiorscapes, as seen in figure 2.1, can help integrate the natural and built environment. This integration evident in the proposed design for Manhattan High School (West Campus) can be achieved through spatial design evident in the design form, materiality, and site furnishings.

(SITE OVERVIEW)

The proposed site for this Master's project is the Manhattan High School West Campus, seen in figure 2.2. Situated just a few miles from Interstate 70, the Manhattan High School West Campus is a public high school serving students in grade 9 to 12. This location is a good candidate for application because of its geographical position in Manhattan, Kansas, where residents can experience extremely harsh and freezing winters in addition to dry summers, making it difficult for users to enjoy the outdoors on a consistent, daily basis.

Currently the school is undergoing major improvements to accommodate a diverse student body and create an environment that promotes various styles of learning. The West Campus consists of several open spaces, also referred to as "common areas", that show real potential in creating richer interior and exterior environments that can benefit student development and provide users with the opportunity to experience nature indoors through interiorscaping.

The current design, or lack thereof, of these spaces does very little to promote student development and growth. School environments

have a great deal of potential when it comes to expanding their students' imaginations and creativity while catering to a diverse set of activities. Designing school interiorscapes requires a thorough design process that entails interaction and engagement with the inhabitants, in this case the high school students.

In their book "Children and Nature; Psychological, Sociocultural, and Evolutionary Investigations," Kahn and Kellert declare this age group to be one of the three age stages in which the youth population's "development of values of nature occurs" (Kahn, 135). The authors characterize this age group as a period where the youth rapidly mature "abstract, conceptual, and ethical reasoning about the natural world" (Kahn, 135). It is subsequently extremely important to take advantage of this opportunity.

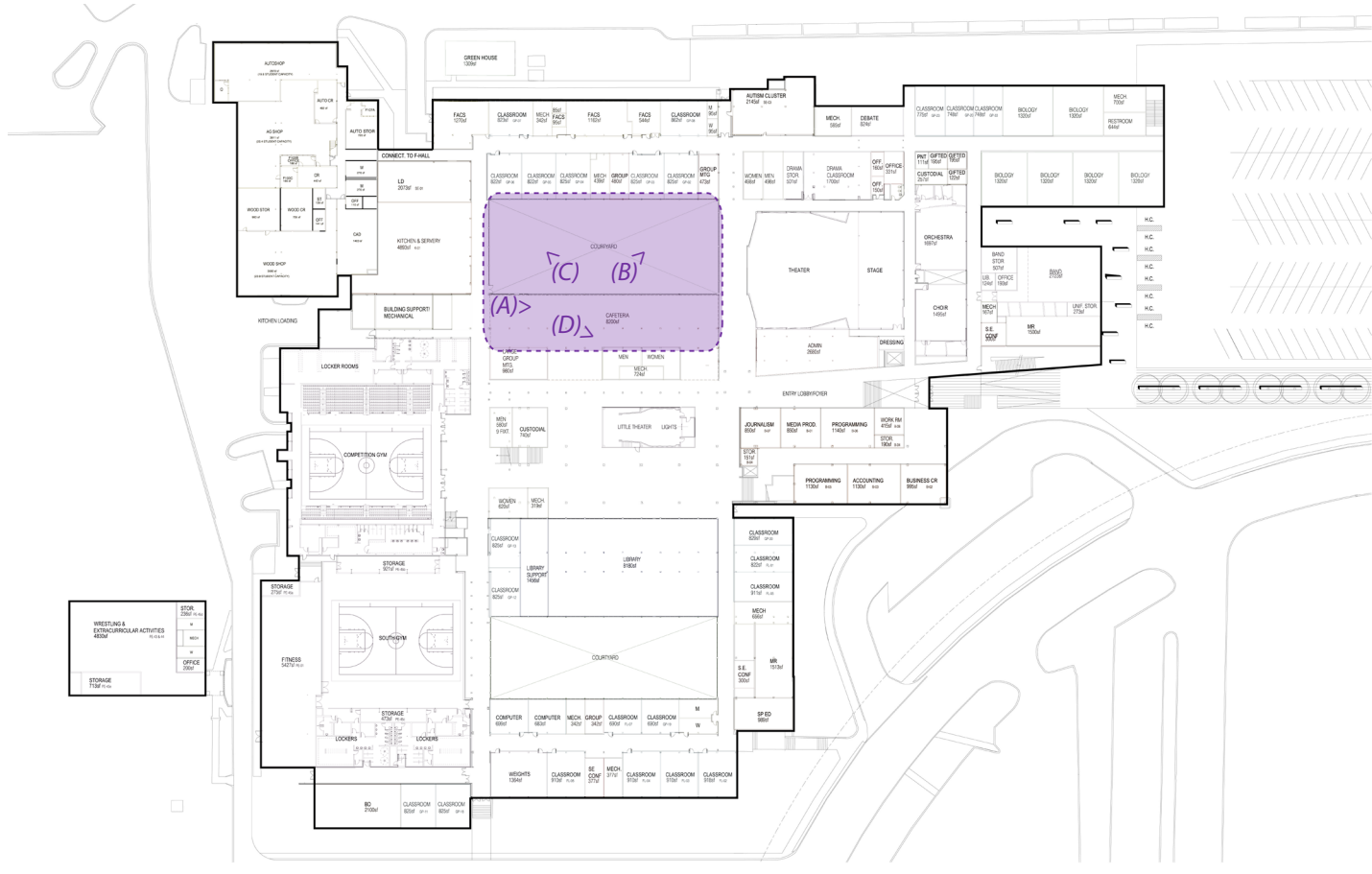
Such interaction or engagement can take form through participatory design. By engaging and interacting with the users of the spaces, designers can have a better understanding of what the users envision the space to be and what they would like to have in this space to create a more pleasant and healthy environment; aesthetically pleasing yet functional.

Figure 2.2: Images of the selected site at Manhattan High School; interior cafeteria space (A and D) and north courtyard (B and C) (Author 2012)



(SITE INVENTORY - LOCATION)

The selected site for this Master's project is located within the Manhattan High School (West Campus), as seen in figure 2.3, and consists of the North Courtyard along with the cafeteria area directly to the south of this courtyard. The site has been chosen for its potential to integrate the relationship between interior and exterior spaces. Both spaces are also characterized by their open floor plan thus allowing for flexibility in design. Given these two aspects, the site has the potential to address issues such as how to improve upon and strengthen the relationship between interior and exterior environments to create richer functional spaces.



STOR 2000' x 1000'
 WRESTLING & EXTRACURRICULAR ACTIVITIES 1000' x 1000'
 OFFICE 2000'
 STORAGE 1125' x 1000'

Manhattan High School - West Campus Renovation

first level plan

1"=32'-0"



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 san francisco · tampa

Schematic Design - Progress

0209-2170

Figure 2.3: Manhattan High School Plan highlighting the location of the site and the views from the previous page (diagram by author, adapted from USD 383 2012)

(SITE INVENTORY - PROGRAM ADJACENCIES)

The overall design of the space is greatly influenced by the programs of the surrounding context. Adjacent programs influence how one enters and circulates through the space, or moves to and from the space as well as views to and from the space (sight lines). The programs that surround the site are as follows; classrooms and a few meeting spaces to the north, auditorium to the east, and the kitchen and servery to the west, as seen in figure 2.4. Hallways that surround the site are constantly used by students and staff so as to gain access to adjacent spaces. During lunch hours, the hallway to the west of the site (between the courtyard and kitchen and servery area) is heavily used by students who are picking up their food before heading back to the cafeteria space.



Manhattan High School - West Campus Renovation

first level plan

1"=32'-0"



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Schematic Design - Progress

0209-2170

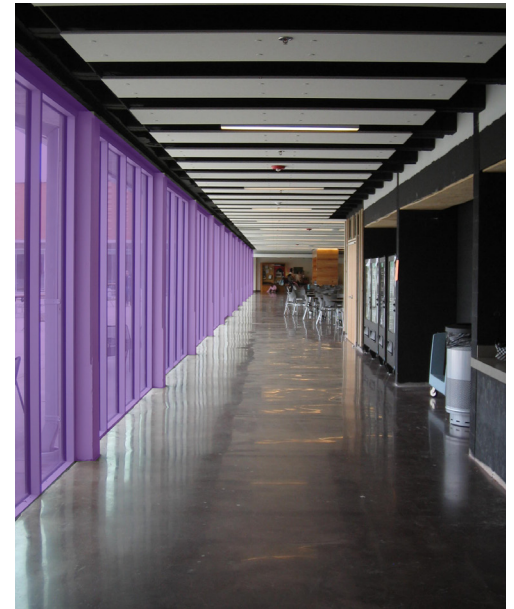
Figure 2.4: Manhattan High School Plan highlighting program adjacencies (diagram by author, adapted from USD 383 2012)

(SITE INVENTORY - EXISTING CONDITIONS)

Several issues face the current design of the selected site. Some of these exterior issues, as seen in figure 2.5, include a lack of organization, poor exterior lighting, and poor landscaping. The interior site constraints pertain to scale, lighting, and maintenance. The height of the building limits the size of proposed elements along with plants. In terms of lighting, the farther from the courtyard glazing, the greater the shade level. This can perhaps be resolved through the addition of skylights. Along with maintenance, plants need three main elements to survive: light, soil, and water. Some plants do not grow naturally inside, therefore requiring more maintenance and care if placed indoors.

The exterior and interior spaces are separated by a transparent membrane of floor-to-ceiling glazing. This physical boundary is causing a lack of connection between the interior and exterior spaces, serving purely as a physical boundary delineating the two spaces and nothing more. This missed opportunity for more connection between the interior and exterior space not only limits the functionality of the spaces but also takes away from the overall aesthetic appeal of the site as a whole.

Significant transparent membrane



Lack of sufficient exterior lighting



Poor drainage and landscaping



Lack of design and organization



Figure 2.5: Existing site conditions and limitations (Author 2012)

(SITE REFLECTION)

Having observed the site over the course of few days in addition to going over the floor plans, I was disappointed with the lack of attention paid to the courtyard. Given that students spend a good portion of their time within schools, it is exceedingly crucial that they are provided with richer spaces that would promote a pleasant and healthy environment.

School environments offer a great opportunity to enhance students' experience with nature and allow them to grow and develop. Interiorscapes can improve the overall appeal of a space making it more inviting and more functional. The development process for interiorscapes is similar to that of outdoor spaces but with a few unique restrictions: restricted access to water, daylight, and other natural elements and processes.

In order to achieve successful interiorscape designs, it is important to consider the size of the space, location, access points, structural and lighting parameters, ventilation and maintenance. Figure 2.6 is a conceptual montage representing a potential vision of the space. The aim is to provide users with richer integrated spaces that are functional and aesthetically pleasing.



Figure 2.6: Conceptual montage reflecting the author's potential vision of what the space can provide and do for its users (Author 2012)

PROJECT INTENT & APPROACH

(STAKEHOLDER NEEDS)

A combination of passive observation and informal interviews directed this research project. When designing a space it is important that we as designers have a clear understanding of our clients' needs. They are after all the ones who will be using and maintaining the space. This passive observation took place over a period of four site visits each lasting for two hours.

Given the amount of time to conduct this research, I was not able to gather substantial user feedback but was able to thoroughly observe how people use the space over my site visits (seen in the "Program & Site Inventory & Analysis"). My goal is to design an interior space in such a way that users can interact with the space and experience nature. Ultimately, I aim to create a space that is responsive on both the basic and experiential levels.

The project relevance will describe the "relevance of [our] project to contemporary temporary landscape architecture, and if appropriate, city planning"

- LAR. 700 Project Programming - Expectations

(PROJECT RELEVANCE)

Interiorscapes serve many purposes. Over the years researchers from several disciplines including psychology and behavioral medicine have investigated the benefits of interiorscapes and contact with plants in multiple environments, such as corporate and institutional buildings. Human interaction with plants may vary from active involvement, such as gardening, to more passive involvement, such as looking at plants through a window.

Considering the amount of time people spend indoors, interiorscapes tend to support people in accomplishing their tasks by creating an uplifting, positive environment. It is hence of great significance that we as the designers address the needs and desires of the users. Interiorscapes have the ability to integrate nature and the built environment and to provide users a chance to experience nature indoors.

(GOALS & OBJECTIVES)

This report explores the benefits of integrating interiorscapes within Manhattan high school, so as to find out how they can influence and improve users' performance and productivity. The goal here is to explore how spaces within school grounds can be better designed to provide users with richer spaces. This can be achieved through an in-depth research of the impact of nature on humans and an understanding of young adults' needs and mind sets.

The plan is to raise awareness about the design process involved in interiorscapes and shed light on ways in which interiorscapes can be better applied in school settings to create environments that promote opportunities for growth and development. Another objective I would like to achieve through this report is that of inspiring designers to revise the traditional approach to school design by incorporating more natural environments with which users can better interact.

(METHODOLOGY)

In this section, I discuss the methods and approaches adopted in order to achieve the goals put forth in this project. The intent here is to provide a framework for those interested in investigating the application of interiorscapes to other projects. The diagram shown in figure 3.1 illustrates the method process for this Master's project.

After defining a research question through broad reading, I undertook a more focused review of literature. To begin we identified a dilemma and proposed a thesis, as described earlier. With a defined predicament and thesis in hand we set out to choose a potential site for our project. The site selection was based on the topic of interest within our group topic umbrella: Landscapes of Learning. After site selection each student took the time to carefully review the literature related to our topic of interest which, in my case, was and continues to be interiorscapes.

The selected readings discussed in depth later in this document, cover topics pertaining to interiorscapes and learning environments. Part of the readings also touched upon analysis and observation of spaces in addition to design elements or factors that could influence usage of space, ultimately determining whether or not the space would be successful. One of the main

challenges here was the lack of published work about interiorscapes; little else was there aside from literature regarding how to maintain an interiorscape and some technical information. Based on the literature analysis, I established a design matrix to document the readings in a visual format and also to be used as a guide to analyze my site.

The literature review was followed by the precedent study. Several interiorscapes were analyzed for their use and application, which allowed for the establishment of typologies of the different interiorscapes' intent and use. Both the literature review and the precedents helped me to make informed decisions. Site inventory and analysis followed the precedent study. This part of the project involved collecting data relevant to my site and related to my topic of interest, followed by a meticulous observation of people using the site.

The questions that arose through observations provided a guide for what data needed to be acquired. A combination of passive observation and participatory design guided the overall design process. The process started with a passive observation, which involved analysis of the space with no user interaction. Once users realize that they are being observed they may

alter their behavior, which is counter to my goal of studying how the space is normally used. The observation entailed scrutinizing social patterns, behavioral patterns and program usage.

After the first few site visits I began a limited participatory design process, which entailed asking the users about their thoughts on the space in addition to their needs and expectations. It is critical to incorporate users into the design process since the success of the space depends on its usage. The design process is usually an on-going cyclical process. However there were time limitations that constrained the participatory design process of this project. Given the time constraint and scope of the project, user involvement was quite limited.

Having thoroughly analyzed the site, I was able to come up with a few conceptual design options influenced by site observation and user feedback. After the conceptual design phase came the design development phase where I further explored my design through details to solidify and enhance my project. This phase is supported by visual photo montages reflecting my vision of the space. All of the previously mentioned topics will be discussed in further detail in the following sections.

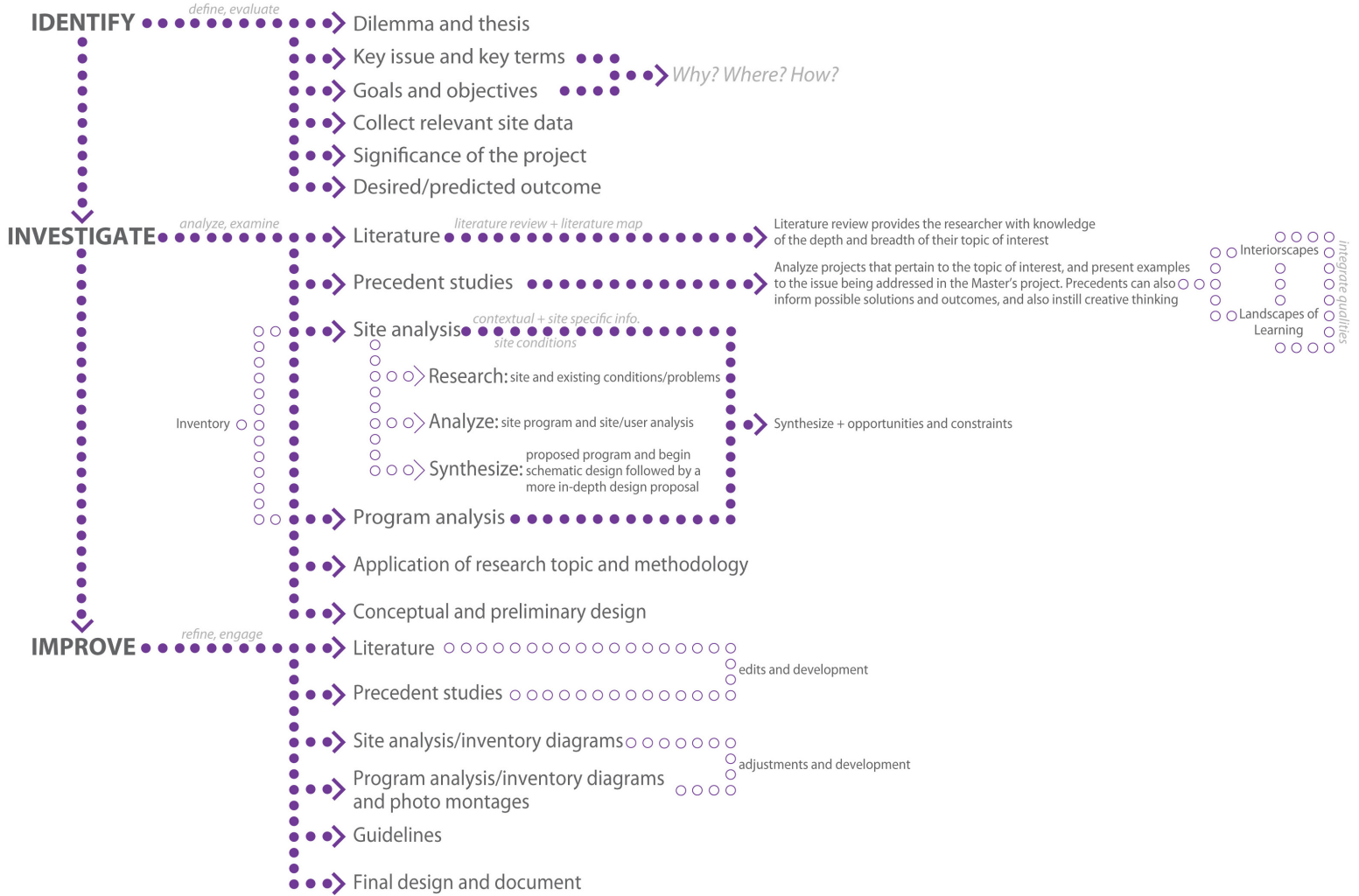


Figure 3.1: Methodology diagram (Author 2012)

“If landscape architecture is a flower whose bud has opened within the past 150 years, interior landscape design is still a seed just breaking through the soil.”

- Hammer, 15

PEOPLE & NATURE

“To accomplish an interiorscape design that is both functional and attractive, designers use a logical thought process that combines the architecture of the building, the interior design with the space, and plants with constructed features.”

- Piercall, 4

(INTERIORSCAPING)

The relationship between plants and people is one that has always been profoundly important. Interiorscapes play a major role in our lives on a daily basis, influencing every aspect of it. Presently, a greater emphasis is being placed on interiorscapes, indicating their significance in “enhancing the interior of buildings and contributing to the psychological well-being of people” (Manaker, ix). In order to achieve the desired goals and objectives established in the thesis, some background knowledge about interiorscapes is required.

Interiorscaping “may date back to ancient times with the use of cultivated plants in containers by the Chinese” (Pierceall, 11). The idea of decorating interior spaces with plants can also be seen in ancient Greece, Rome, and during the Victorian Era and in greenhouses. In the past, plants were used merely as decorative elements and were typically placed in containers. Over time, the idea and concept of interiorscaping has evolved; today, designers must provide and thoroughly design a more functional and aesthetically pleasing indoor human environment. Keeping plants indoors has

become part of our lifestyles, so “great is [our] love that seeing landscapes outdoors is not enough. [We] are driven to place them in public buildings, offices, and homes as well” (Malitz, 7). In 1967, the first large-scale, permanent commercial interiorscape was installed in the Ford Foundation garden, designed by Kevin Roche-John Dinkeloo and Associates of Hamden, in New York. Another example of an interiorscape can be seen in figure 4.1: Winter Garden, in Sheffield, UK.

The growing interest in interiorscapes stems, partly, from the benefits plants provide, i.e., filling a psychological need and enhancing our environments (Manaker, 2). A space lacking living greenery may serve the basic needs of the users, but it tends to be dull and uninspiring. Plants “bring vitality and visual excitement to a room” (Snyder, 14). One of the most noted characteristics of plants is that they help clean the air, making it more ‘breathable’ for the users by regulating the concentration of gases in the space, and can also help reduce stress and improve user performance and productivity. Several studies, such as that conducted by Roger

Ulrich, Ph.D., have analyzed the relationship between people and plants with the aim of exploring the effects plants have on humans psychologically and physically. For instance, interiorscapes in work environments help to reduce common complaints such as fatigue and headaches. Thus, the addition of plants to a space makes it more user-friendly and promotes a healthy work environment. Another study regarding brain research indicates that our experience with our environments greatly influences our development and growth (Voss-Rodriguez, 2012). Hence, when designing our environments it is extremely important to understand users’ needs and what it takes to make them feel comfortable and welcomed. When designing a space for students in a school, for example, it is important that we recognize their different needs, developmental needs, and mind sets as well as their backgrounds. Furthermore, given that many people spend a great deal of time indoors, we, as designers, need to ensure that we provide our clients and users with elements that make them feel comfortable, relaxed, and welcomed.



Figure 4.1: Images of interiorscapes, Winter Garden, in Sheffield, U.K. (Kingery-Page 2011)



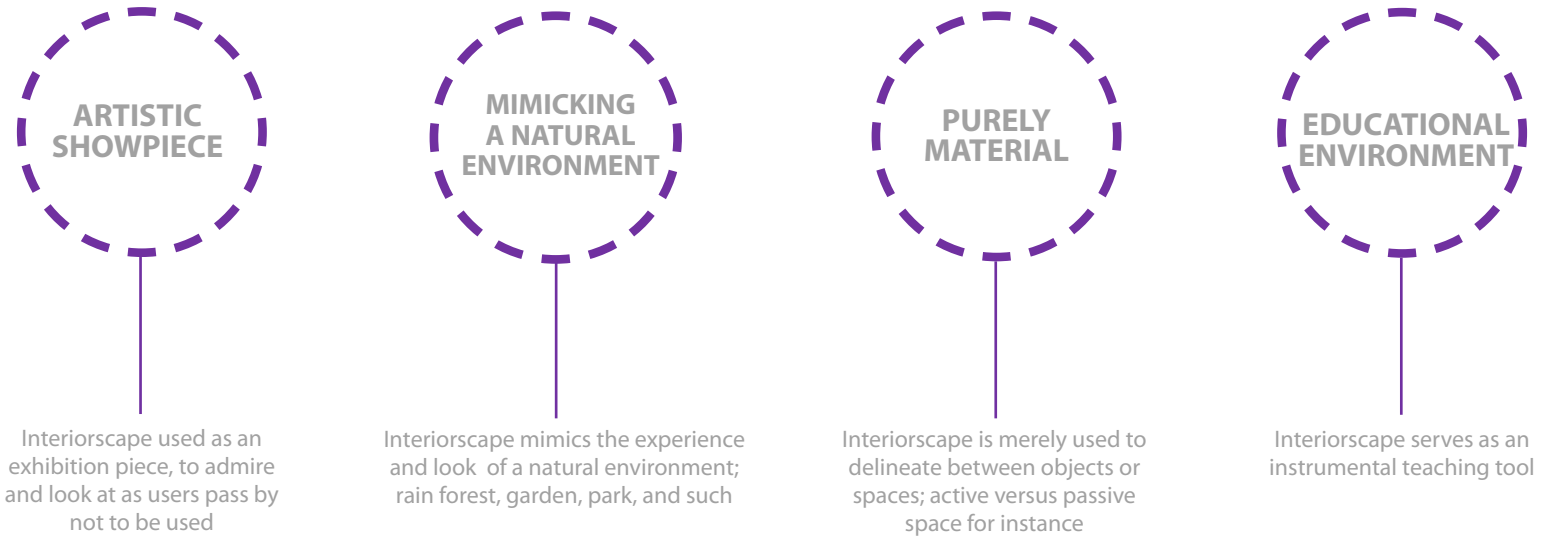


Figure 5.1: The various typologies and approaches (top) by which interiorscapes are used throughout the following precedents, and what is meant (bottom) by each typology (Author 2012)

PRECEDENT STUDIES

Precedents were chosen based on their interior landscape design within various contextual settings including: commercial, corporate, and institutional. Though the focus here is the use of plants in interior environments intended for people, it is also important to acknowledge how these environments “create aesthetically pleasing, healthier, more people-friendly interior environments” (Hammer, 9). The following precedents are intended to inform the reader how to create an interior landscape design from “concept to reality” (Hammer, 213), and to analyze how previous examples have successfully been done by others. These precedents are also intended to guide my

research by looking at how they went about integrating the natural and built environments.

The following precedents will also help determine the different approaches that interiorscapes are, or can potentially be, used or be it an artistic showpiece, or purely a material, or to mimic a natural environment. These different typologies, seen in figure 5.1, will be indicated on the top right corner of each precedent, based off of research and information gathered. Each subsection will start off with a key piece of literature, followed by the significance and relevance of researching such precedent studies.

“People react to indoor environments in markedly different ways. Complex modern building environments produce reactions of a psychological (perceptual) and physiological (biological) nature, sometimes affecting people in visceral ways.”

– Hammer, 9

(INTERIORSCAPES)

PRECEDENTS

(RESEARCH AND LITERATURE)

Part of this Master's project research entailed gathering necessary and relevant literature pertaining to my topic of interest. This part of the research would ultimately provide me with the necessary and existing background information about interiorscapes, such as how to incorporate an interiorscape into various settings, and what are the benefits. The literature would also help me to inform my design decisions and processes. Hence, key pieces of literature review that heavily influenced my design, research, and framework are included here as they relate to the case studies.

(INTERIORSCAPES)

KEYWORDS: INTERIORSCAPING, HUMAN ENVIRONMENT INTERACTION, HEALTH & WELLNESS

Over the years, people have become increasingly aware of their surroundings, interior and exterior, and the importance of improving their environments. People have become increasingly dependent upon plants to improve their environments particularly interior settings. This dependency does not merely stem from the fact that without the food and oxygen plants produce we could not survive. We have also become dependent on plants for the beauty and serenity they provide in various settings. Academics and authors, such as Gaines, Hammer and Malitz, ultimately agree “we want something natural in our artificial environments” (Gaines, xiv). One method of going about this is through interiorscaping; bringing the outdoors indoors through plantscaping.

Interiorscaping, interchangeably referred to as “plantscaping” or “interior landscaping”, is the “practice [and the art and science] of designing, arranging, and caring for living plants in enclosed environments” (Interior Landscaping, 2010). In his book “Interior Landscape Design,” Nelson Hammer, an ASLA author, states “if landscape architecture is a flower whose bud has opened within the past 150 years, interior landscape design is still a seed just breaking through the soil” (Hammer, 15). While it may be relatively new, the appeal of interiorscapes has grown and gained popularity in recent years due to the influential role plants play in enhancing interior spaces, and “contributing to the psychological well-being of people”

(Manaker, ix). Designers have come to realize the significance of interiorscapes in commercial, residential, and educational settings and ever since have designed building interiors to accommodate plants. Adding plantscaping to our interior environments makes the space “more aesthetically pleasing and perceptually stimulating” (Manaker, 3).

Interiorscaping “is not a fad” (Manaker, 1) nor is it a grand copy, or miniaturized version of outdoor landscapes, or merely a décor (Malitz, 7). In his book “Interior Planstcapes,” Manaker states that interior planting “is part of the back-to-earth, back-to-nature, back-to-the-senses movements evolving in our culture” (Manaker, 1) to restore our connection to nature. That connection has deteriorated for some time due to our shift in lifestyle interests and necessities including our heavy reliance on technology, automobiles, and such on a daily basis. However, plants are just as much a necessity as any technological device. Interiorscapes should not be perceived as nonessential luxuries since they “fill a psychological need and enhance our environment” (Manaker, 2).

Interiorscapes serve many purposes. Over the years researchers from several disciplines, including psychology and behavioral medicine, have investigated the benefits of interiorscapes and contact with plants in multiple environments, such as corporate and institutional buildings. Human interaction

with plants may vary from active involvement such as gardening to passive such as looking at plants through a window. Given the amount of time people spend indoors (“as much as 90%” (Manaker, 2)), interiorscapes for the most part tend to support and satisfy people in accomplishing their tasks by creating an uplifting, positive environment, and connecting people with nature. Interiorscapes can render more lively and encouraging environments; whether it is for work or leisure. Several studies, such as that of Ronald Wood, prove that interiorscaping helps people better cope with stress-related issues, and create healthier and cleaner indoor environments (Hammer, 12).

Successful and effective interiorscapes are ones that increase human comfort, efficiency, enjoyment and, ultimately, productivity. Having designed various projects including interior landscapes, the team at McCaren Design firm believes that “interior landscaping will often make the difference between a space that simply exists and a place that is full of life and activity” (“Interior,” McCaren 2010).

It is these types of studies and explorations that provide the most relevance for my topic of interest and research. These studies provide the foundation for my research: how to go about bringing the outdoors indoors to create richer environments.

Gaines, Richard L. 1977. Interior Landscaping: Building Design for Interior Foliage Plants. New York: Architectural Record Books.

Hammer, Nelson. 1992. Interior Landscape Design. New York: McGraw-Hill.

“Interior Landscaping.” Planterra - Interior Landscapes. [cited 10/5/2011] http://www.planterra.com/interior_landscape_resources_5.html (accessed 11/15).

“Interior Landscaping.” McCaren Design Inc. [database online]. [cited 11/15/ 2010]. <http://www.mccaren.com/interiorscaping.html> (accessed 11/15).

Malitz, Jerome, and Seth Malitz. 2002. Interior Landscapes - Horticulture and Design. New York. London: W. W. Norton Company.

Manaker, George H. 1997. Interior Plantscapes : Installation, Maintenance, and Management. 3rd ed. Upper Saddle River, NJ: Prentice Hall.

“A growing interest in human interaction with “nature” has recently directed research toward the benefits of people/plant relationships in the indoor environment.”

– Hammer, 13

(INTERIOSCAPE PRECEDENTS)

SIGNIFICANCE AND RELEVANCE:

Over the years, researchers of various backgrounds, including environmental psychology, sociology, and other related disciplines, have examined the benefits of contact with nature and plants. Researchers “estimated that Americans spend ninety percent of their time inside buildings, seven percent in cars, and only three percent outdoors” (Hammer, 12). Therefore, it is important that we personalize our space, be it office space or living area and everything in between, in order to create a “sense of connection” (Hammer, 12) with events happening beyond our work space and the surrounding walls. Personalization of space is important as it allows for the establishment of a connection with our fellow peers and employees, and the rest of the world out there. Furthermore, research on interiorscapes show that “natural settings with vegetation can help people cope with stress and deal more effectively with workplace requirements”

(Hammer, 12). Interiorscapes also help improve a building’s air quality, creating a healthy and clean environment. Currently, this is an issue of great concern where our interior spaces are negatively affecting our health and performance.

Interiorscapes can serve multiple purposes and can be categorized into various typologies: showcase, educational environment, mimic a natural environment, or be used purely as a material within the environment. Having thoroughly analyzed these interiorscape case studies I am able to select some of their characteristics and incorporate them into my design. Some of these desired characteristics consist of creating and/or incorporating a natural setting within our artificial environment to ease every day tensions and provide a healthy and pleasant environment. Another characteristic is to use interiorscapes to integrate our natural and built environment.

GARDEN OF THE FORD FOUNDATION BUILDING

LOCATION:

East side of Manhattan's midtown area, New York City; the site fronts on both 42nd and 43rd Streets and between First and Second Avenue. Between those avenues is a 13 ft. grade change.

DATE DESIGNED:

1964-1967

SITE DESIGNERS:

Kevin Roche-John Dinkeloo and Associates of Hamden, CT

PROJECT BACKGROUND:

"In addition to its many other attributes, the Ford Foundation Garden earned its place in this list by virtue of its historic importance to the discipline of interior landscape design. This project was the first large interior landscape built within a contemporary commercial building in the United States, and serves as a landmark in field."

- Hammer, 213

The building was "built to house the 400 employee headquarters staff of the Ford Foundation in a square, 12-story structure. The Ford Foundation is "one of the largest philanthropic organizations in the world" (Hammer, 213). Given the amount of time that the employees spend indoors, the designer's wanted to create an "oasis amid the concrete, steel, and glass of New York City" (Hammer, 70), as seen in figure 5.2 and 5.3. They wanted to provide the users with a space that promotes a healthy, clean working environment.

The Garden of the Ford Foundation building, seen in figure 5.4, is the world's first large-scale permanent interior landscape in a commercial building. Inside the square structure, the offices "occupy the northern and western end of the structure; forming an "L" shape around the garden" (Hammer, 213). The atrium space opens up to all of the twelve stories 156 feet), and extends all the way to the skylit roof. "The landscaped atrium, combining daylight with nature, provides a good antidote to the confinement of cube or office" (Hammer, 12).



Figure 5.2: (left) View of the interiorscape from the 12th floor, circa 1981, at the Garden of the Ford Foundation Building (*Hammer 1999, 81*)
Figure 5.3: (middle) View of the main stairway, at the Ford Foundation Building, lined with Pointsettias during the holiday season (*Hammer 1999, 78*)
Figure 5.4: (right) View of the grand stairway at the Ford Foundation Building looking up (*Hammer 1999, 79*)



DESIGN AND CONCEPT:

*“The design **concept** and planting plan for the garden was, to a large extent **experimental in nature**, since projects of similar scope did not exist on which to base conclusions or expectations, and the design team was not able to predict what kind of environmental conditions would be present in the garden on completion.”*

- Hammer, 214

While the plant palette might have changed over time, from its 1967 origins, “the basic design concept and overall effect of the dense planting, seen in figure 5.5, in this urban oasis is every bit as successful now as it was when it first opened” (Hammer, 214). The designer’s goal was to create a park-like setting that is aesthetically pleasing, enjoyable, and functional space to the users. The original plan of the tree and shrub planting can be seen in figure 5.6, highlighting the planted beds. Figure 5.7 reflects a diagrammatic plan illustrating the active versus passive space of the Garden at the Ford Foundation Building. The intent is to create a space where the employees can escape the stresses and tensions of their work environment and enjoy some social interaction with their peers.

Figure 5.5: View of the reflecting pool, at the garden of the Ford Foundation Building, integrated into the design, altered over time (Hammer 1999, 84)



AN ORIGINAL PLAN OF THE TREE AND SHRUB PLANTING

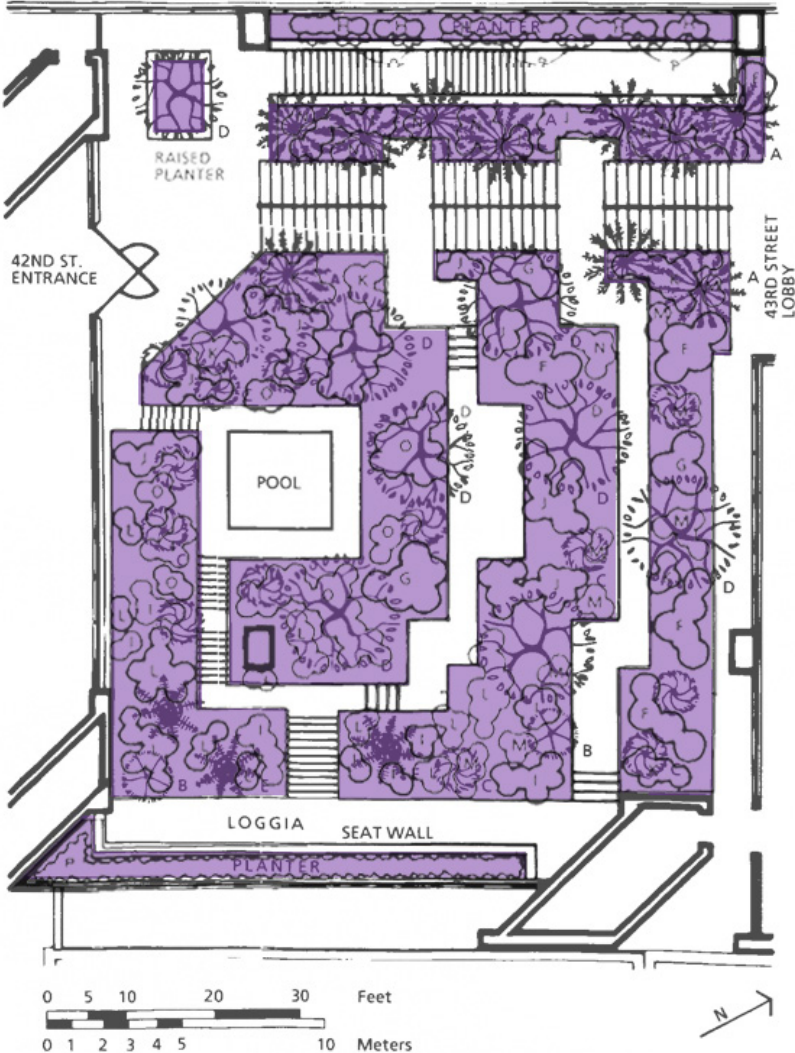


Figure 5.6: Tree and shrub planting plan of the Garden at the Ford Foundation Building (softscape highlighted by author, adapted from Hammer 1999, 85)

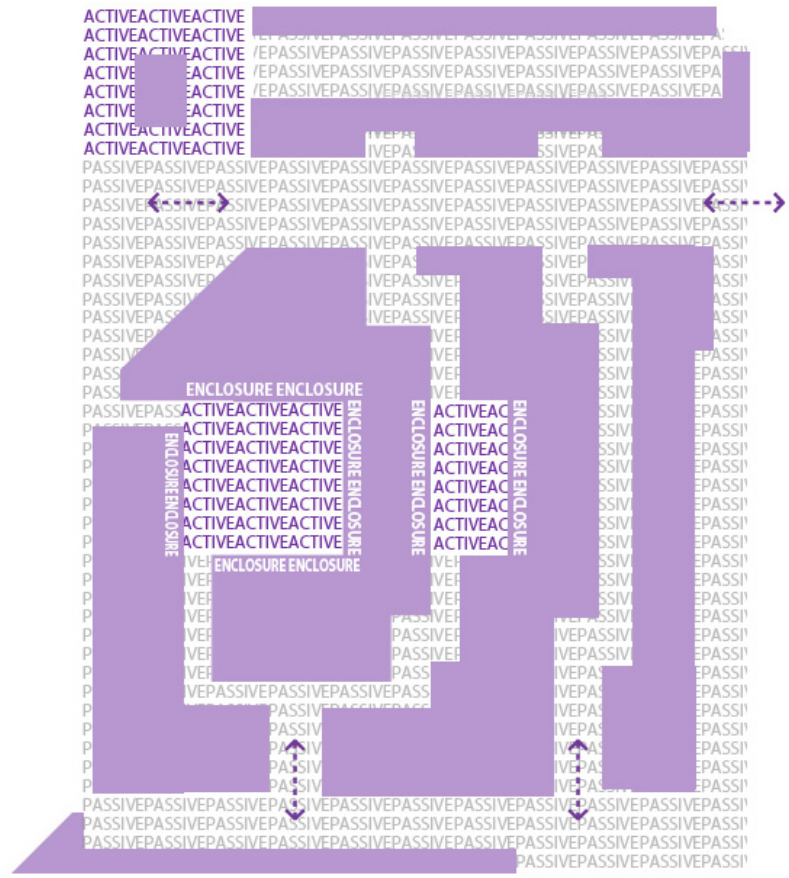


Figure 5.7: Diagram illustrating active versus passive spaces of the Garden at the Ford Foundation Building. The active spaces refer to the gathering spaces/pockets, whereas the passive spaces are those transition spaces or circulation paths. (Author 2012)

SISSII (Office for the Japanese Clothing Brand)

LOCATION:

Kobe, Japan

DATE DESIGNED:

N/A

SITE DESIGNERS:

Yuko Nagayama, Toshiya Ogino

PROJECT BACKGROUND:

“An architect and a landscape designer outfit a fashion showroom, in steel plate, lava stones, leather, and pine”

- Nujisink, 30

Takashi Koike, head designer of Sisii, wanted to create “a space that was striking enough to leave a lasting impression on national and international buyers visiting Kobe” (Nujisink, 30). He hired two designers, from two different disciplines, to help execute his vision in his new showroom and office for Sisii; the brand was born in 2001. Given the office setting, Koike wanted the space to provide the users with a sense of relaxation and soothe, while simultaneously being functional; not purely an aesthetic element.

In executing Koike’s vision, Ogino, the landscape

designer, “assembled an interior garden stocked with local lava stones and indigenous vegetation, including Japanese red pines” (Nujisink, 30) seen in figure 5.8. Ogino and Nagayama, the architect, worked closely together in order to create a space that has lush greenery that is well integrated with the program of the office, as can be seen in the floor plan in figure 5.9. The plan seen in figure 5.10 highlights the active (work spaces) versus passive (circulation) spaces. The interior landscape design is located within a glassy storefront, on a busy shopping avenue, that is transformed into an “eye-catching public showcase” (Nujisink, 30).



Figure 5.8: Designer’s intent is to integrate interiorscaping within the SISSII office setting ; have an aesthetically pleasing and functional space (diagram by author, Nujisink 2011)

PROGRAM INTEGRATION : OFFICE SPACE & INTERIOR GARDENS



SOOTHING, RELAXING, & FUNCTIONAL

SISSII (Office for the Japanese Clothing Brand)

Figure 5.9: (left) SISSII office plan highlighting the location of the planting spaces (*Nujsink 2011*)
Figure 5.10: (right): Diagram illustrating active versus passive spaces at SISSII. The active spaces refer to the gathering spaces/pockets, whereas the passive spaces are those transition spaces or circulation paths (*Author 2012*)

NATIONAL FIRE PROTECTION ASSOCIATION HEADQUARTERS

LOCATION:

Quincy, Massachusetts

DATE DESIGNED:

N/A

SITE DESIGNERS:

Zen Associates (Sudbury, Massachusetts)

PROJECT BACKGROUND:

Located in Quincy, Massachusetts, the National Fire Protection Association is an association that administers the development and revision of several standards and codes. The interior landscape design, seen in figure 5.11, is located in the south corner of this corporate building, where the “floor-to-ceiling south-facing glass wall framing the south side of the garden provides sunlight for both healthy plant growth and light contrast along the waterway” (Hammer, 88). Given its location within the structure nearby the glass façade, the “glass wall allows for the exterior to commingle with the interior landscape effectively enlarging the lobby to include the adjacent planting outdoors” (Hammer, 88), as seen in figure 5.12.

The naturalization of the interior environment was complimentary to the exterior environment; a transitional indoor-outdoor relationship enhancing the overall experience of the user. The intent here was to create a natural-like setting within a corporate building that would encourage human interaction with the landscape through careful design, and provide a serene setting.



Figure 5.11 (Left) View down the mezzanine, at the National Fire Protection Associates Headquarters, showing the contrasting textures of the plant selection (Hammer 1999, 91)
Figure 5.12: (Right) Placement of the interiorscape, at the National Fire Protection, along the window wall implies an act of extension of the garden outside (Hammer 1999, 88)

THE INTERIOR GARDEN BECOMES AN EXTENSION OF THE GARDEN OUTSIDE



INTERIOR  EXTERIOR

CLIMATRON, MISSOURI, BOTANICAL GARDENS

LOCATION:

St. Louis, Missouri

DATE DESIGNED:

The Climatron “underwent a two-year renovation that was completed in 1990 (30 years after it first opened” (Hammer, 164)

SITE DESIGNERS:

Larson Associates (Tucson, AZ)

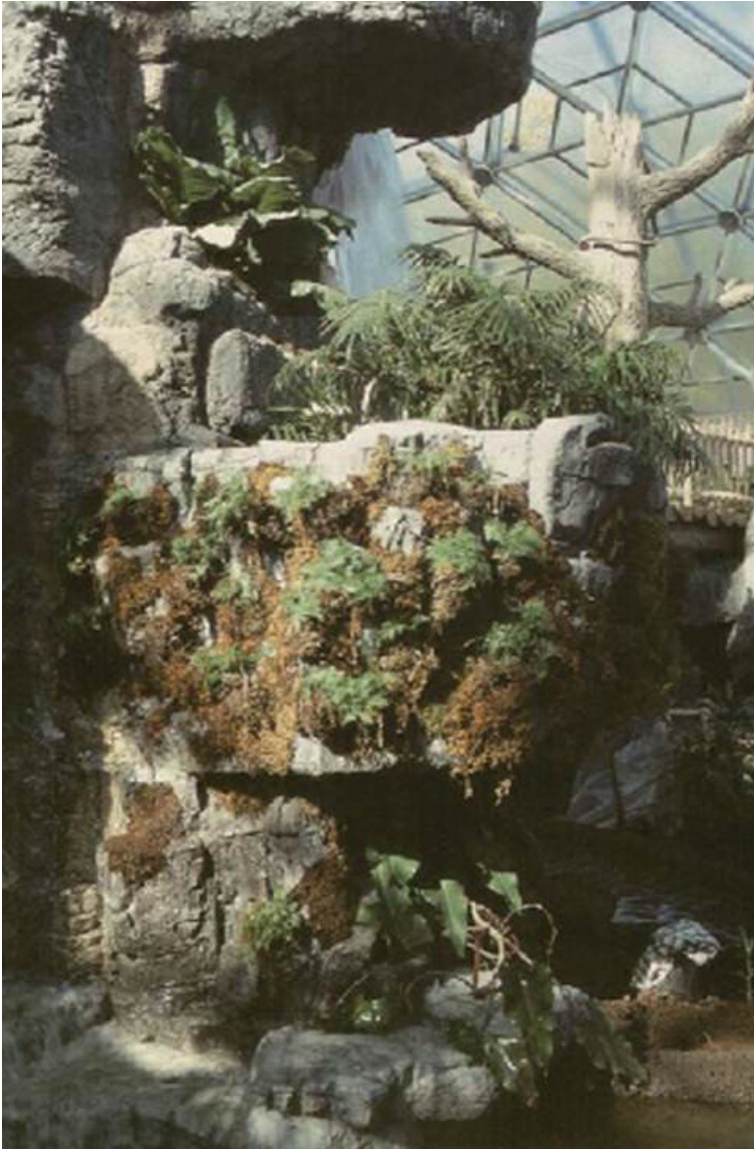
PROJECT BACKGROUND:

Located at the Missouri Botanical Garden, the Climatron is the “first geodesic dome used as a greenhouse,” and it is 70 feet high and 175 feet in diameter and covers 23,000 square feet (Hammer, 165). Some of the improvements that took place as part of the renovation “were not solely cosmetic the Climatron’s focus has shifted to include an educational component” (Hammer, 164). The intent here was to provide visitors with a glimpse of the beauty and biodiversity of an actual rain forest, as seen in figure 5.13 to 5.16. “As visitors experience the beauty and diversity of tropical plants they also learn why rain forests are so diverse, vital, and endangered” (Hammer, 164). The design is also intended to educate visitors about natural processes such as the role of decomposition and nutrient recycling.



Figure 5.13: (left) Newly fabricated interior of the Climatron (Hammer 1999, 166)

Figure 5.14: (right) Tropical trees, palms and bamboos flourish in the original Climatron (Hammer 1999, 164)



**RAIN FOREST-
LIKE SETTING**

MIMICKING A NATURAL ENVIRONMENT ...



Figure 5.15: (left) The cascade waterfall, at the Climatron, allows users to experience what it feels like to be under a tropical waterfall with the roots of tropical vines dangling around (Hammer 1999, 165)
Figure 5.16 (right) The waterfall is one of the main architectural features of the Climatron (Hammer 1999, 167)



(LANDSCAPES OF LEARNING)

PRECEDENTS

(THE ENVIRONMENT AND SOCIAL BEHAVIOR: PRIVACY, PERSONAL SPACE, TERRITORY, CROWDING)

KEYWORDS: HUMAN-ENVIRONMENT RELATIONSHIP, PRIVACY, TERRITORIALITY , PERSONAL SPACE, CROWDINGS

In his book "The Environment and Social Behavior: Privacy, Personal Space, Territory, Crowding," Altman "presents an analysis of the concepts of privacy, crowding, territory, and personal space in humans" (Altman, vii) to guide designers in their research and studies. These concepts are thoroughly discussed and analyzed looking at some background research, theory and examples. The discussion and research conducted in relation to these four key concepts is extremely significant to the human social behavior in relation to the physical environment.

The four key concepts addressed significantly influence high school students, especially in the course of social interaction. During this age period, students usually develop and enhance their social skills, which could be easily influenced by outside factors such as friends and other social groups. Altman defines privacy as "an interpersonal boundary-control process, which paces and regulates interaction with others" (Altman, 10). High school students tend to be open and receptive in certain situations, and closed off at other times. The same applies for personal space, which Altman defines as "an area with an invisible boundary surrounding

the person's body into which intruders may not come" (Altman, 53). With personal space, it is a matter of how close and comfortable one feels to others during gatherings. The question of how comfortable does one feel when surrounded by others is brought to the forefront. Some might perceive personal space as being purely the physical distance between people. Altman states that "personal space and distance serve as a milieu within which different degrees and forms of social contact are possible" (Altman, 54).

As for the territory, Altman states that there are several definitions with shared concepts. Some of these concept similarities include the needs and/or motives of a group, personalization of space by some sort of marking, and group domain as opposed to an individual domain (Altman, 105). High school students would feel intruded upon when someone enters their territory uninvited (this is especially evident in groups.) Altman defines crowding, the last concept, as "an interpersonal process, the level of people interacting with one another in pairs or small groups" (Altman, 149). Crowding is a complex concept used in various situations and

is not necessarily an undesirable or stressful situation. In certain situations, "some people fear physical, physiological, and psychological damage as a result of over-crowding" this could ultimately influence their social behavior skills. Most of these key concepts can be influenced by factors such as gender, race, social relationships and age.

As designers, it is important that we carefully address these key concepts as needed and pertaining to the beneficiary, who, in our case, are high school students. It is important that the relevant concepts be addressed from their point of view. What does privacy and territoriality mean to a high school student? With this age group, it is important to recognize their needs of solitude and intimacy, for instance, and the extent to which are they needed. Altman's research and exploration of the four key concepts provide the necessary social and behavioral background for my own research related to high school students. It is Altman's work that brought to my attention the significance of acknowledging such traits and characteristics and how these may influence the students' social skills, growth, and development.

“The natural environment is a powerful force in the outside areas of [...] schools. Education happens among the trees as much, if not more, than within the walls. The outside offers students opportunities to explore and manipulate their environment. They are able to “mess around” outside, build [structures] in the trees or [dig] pools in the mud.”

- Stine, 84

(LANDSCAPE OF LEARNING PRECEDENTS)

SIGNIFICANCE AND RELEVANCE:

School environments play a crucial role in the development and growth of students. Thus, it is important that we look at examples of such settings to gain a better understanding of the processes of creating educational settings that support students, teachers, and designers, all of whom work together as problem solvers.

It is within these environments that students are able to expand their imagination and creativity, and to explore different opportunities on multiple levels. Such settings allow students to test their ideas, consider the results, change their physical environments as they like based on what they believe best fits their needs, and ultimately learn from this enriching step-wise experience. These educational settings should be designed in such a way that utilizes both indoor and outdoor spaces as recreational areas and as classrooms and academic/instructional tools. For sake of report readability the Landscape of Learning precedents are included in Appendix 'B'

“It is programming [and site analysis] that permits the designer to delve into the client’s wants, needs, and budget; in effect to “scope out” the project”

– Hammer, 77

PROGRAM & SITE INVENTORY & ANALYSIS

This section presents necessary data that is relevant to the selected site and topic of interest, followed by a thorough synthesis of the data gathered and observed during site visits. Questions arising as part of the observation and synthesis guide further collection of information and data and design decisions.

(SITE ANALYSIS)

Spatial Analysis

The plan seen in figure 6.1 illustrates the existing physical elements and conditions on site. Having observed the site over the course of a several visits, it was evident to me that there were a few design issues at hand that took away from the overall aesthetic and functionality of the space. The courtyard, for one, is barren, dull and uninspiring. In contrast to the considerable amount of asphalt paving, landscape is sparse and the planted beds were designed with some storm water merit. This lack of design is also evident in the layout of the interior and exterior tables. The courtyard contains a mixture of under-utilized new and old furniture which take away from the overall aesthetic appeal of the space. The layout of the dining space tables,

protruding out into the hallways, is somewhat obtrusive to user circulation. The lack of attention to these details negatively reflects on the functionality of the space.

The interior and exterior spaces are divided by a glass façade, rendering no relationship between the two spaces. The glass wall seems to divide the spaces rather than strengthening the relationship between the interior and exterior environments. This unique physical border has the potential to do much more, such as the provision of seating alcoves and, more importantly, the integration of interior and exterior spaces through interiorscapes.

(SITE ANALYSIS)

User Analysis

The plan seen in figure 6.2 demonstrates the observed usage of the space over a few days. Students rarely used the outdoor courtyard, given its lack of aesthetic appeal and maintenance. The current design of the exterior space does very little to promote student development and growth, and bears no relation to the interior space. Additionally, the busy class schedules tend to discourage teachers from altering their plans to accommodate for outdoor classes. This can be resolved through a smoother integration and relation between the interior and exterior spaces, one option being to extrapolate elements of the interior classroom, such as seating and gathering spaces, to the exterior space. The addition of elements that a person may interact with offers complexity and variety to the space, making it more appealing and welcoming. The replication of these elements also serves to harmoniously bind the two spaces, effectively rendering interior and exterior spaces as extensions of one another.

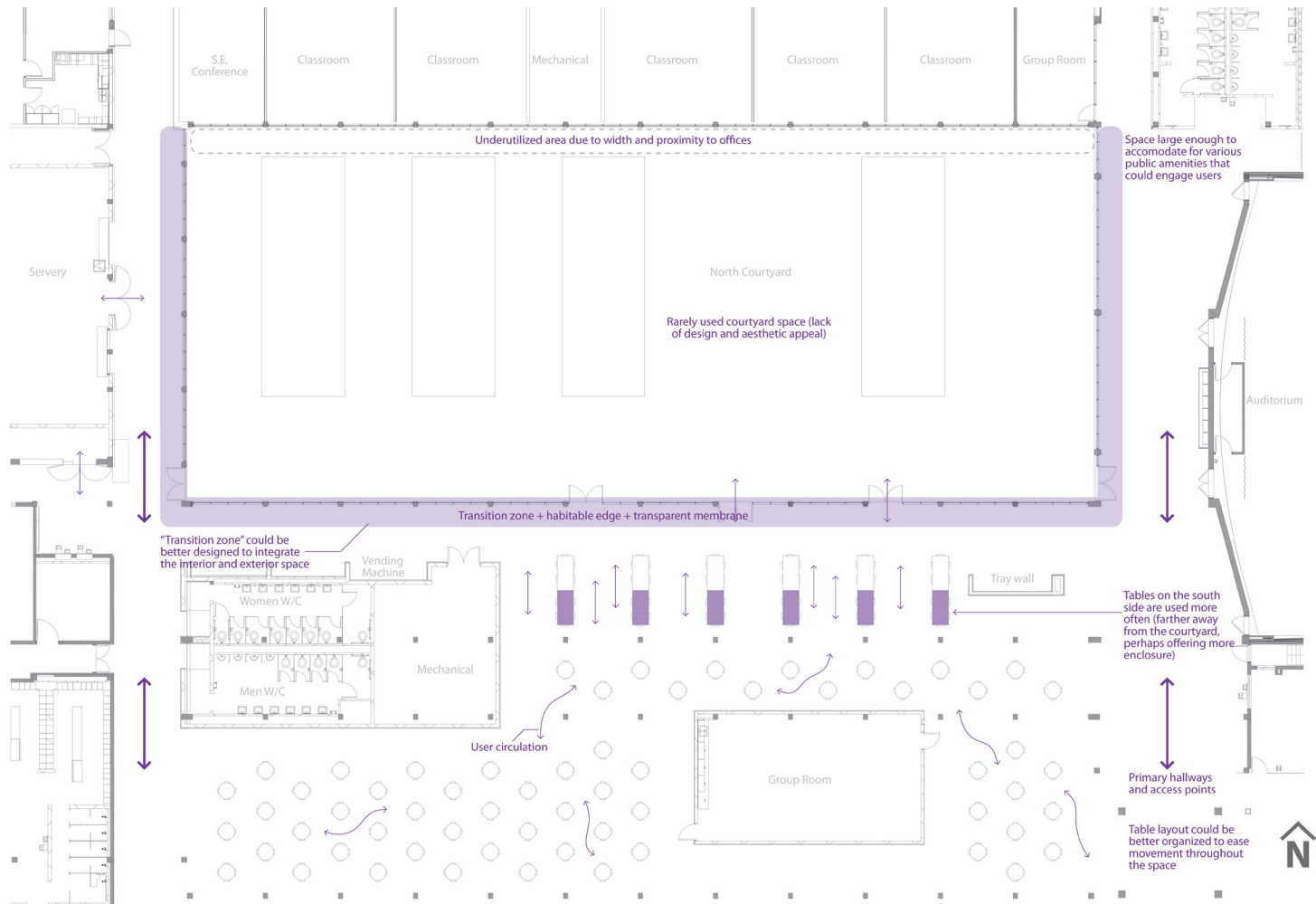


Figure 6.2: User observation on site (Author 2012)

(CONSTRAINTS AND OPPORTUNITIES)

As mentioned above, the current function of the transparent membrane is purely to serve as a physical boundary delineating the interior from the exterior space. In order to better integrate the two spaces, the function and design of glass wall had to be reassessed. Guidelines for the design were derived from several questions that had to be addressed including:

How can this transparent membrane serve as a habitable edge?

How can this edge provide some privacy for those utilizing the courtyard to avoid the feeling of sitting in a fishbowl?

How can the courtyard become more inviting and welcoming?

In order to tackle these issues, a thorough analysis of this edge had to be done as part of the analysis study. Figure 6.3 illustrates a conceptual vision of the various edge conditions that can be implemented to better integrate and relate the interior and exterior spaces. The habitable edge illustrates the incorporation of

seating elements (along the edge) to allow for views into the space and out to the courtyard. These small gathering pockets would provide some enclosure through low walls so as to not block views while, at the same time, ensuring safety. Plants are also integrated into the design as an implied extension of the outdoors. As for the privacy issue, the privacy gradient (figure 6.3) illustrates how the use of a filter and/or screen can prevent the feeling of sitting in a fishbowl. The intent here is not to completely block the view to the outdoors, but to provide glimpses every now and then and still maintaining privacy.

The courtyard, as it is now, seems lifeless and bland. With sparse landscape, the courtyard lacks organization and is poorly maintained. This is evident in the misalignment of the entry doors to the planted beds, to the scoring of the paving, and the combination of old and new furniture. Figure 6.4 illustrates a conceptual sectional elevation of the proposed vision of the courtyard. Incorporating more greenery into the space along with seating elements can give the courtyard a more welcoming and appealing look.

Figure 6.3: (top) Conceptual diagram illustrating the multiple options for the transparent membrane conditions to better serve user needs (Author 2012)
Figure 6.4: (bottom) Conceptual diagram illustrating a sectional elevation vision of the courtyard (Author 2012)



(PROGRAM INVENTORY AND ANALYSIS)

Program Matrix:

In order to create a successful space that integrates the natural and built environments, it is essential to address users' needs and incorporate them into the design process.

While there are no precedents that examine interiorscapes within school settings, several authors have conducted studies examining the constituents of a successful space. Some of these publications, seen in figure 6.5, include William Whyte's *The Social Life of Small Urban Plazas*; Carolyn Francis, Clare Marcus and Trudy Wischemann's *People Place*; and Randolph Hester's *Neighborhood Space*, seen in figure 6.5.

Each of the authors proposes a list of essential design elements and recommendations that can greatly influence the success of the space and users' comfort as well. I will focus and mention those that are, in my opinion, primarily related to interiorscapes. Those elements along with design criteria from Project for Public Spaces (PPS), will act as design criteria I can consider for Manhattan High School (West Campus) site. I will consider the Sustainable Sites Initiative handbook for design recommendations, seen in table 1.1, for important design considerations in order to ensure that the proposed design is sustainable and durable.

Figure 6.5: Program matrix (Author 2012)

	PROGRAM GOALS & INTENTIONS	FRAMEWORK	SITE ANALYSIS & INVENTORY QUESTIONS	TASKS
HUMAN ENGAGEMENT & INTERACTION SOCIABILITY (PPS) USERS & ACTIVITIES (PPS)	Design a space that fosters different types of social activities.	PEOPLE	Does the place allow for social activities? Do people use the space regularly? Are people using the space or is it empty? Is the space being used by people of different ages and genders? Are people in groups?	Users activities map (word diagram) (over an interval period) Program adjacencies diagram
	Provide a wide array of activities to allow for users, of various ages and genders, to engage in and interact with.		Understanding how people are using or will use the space.	How many different types of activities are occurring within the space? Are there parts of the space that are not being used? Is there a pattern to where people choose to circulate and/or congregate?
	Provide a wide array of public amenities, such as seating.	USAGE (Food & Seating)	Are there enough places to sit? Are the seats conveniently located? Do people have a choice about where to sit (sun or shade)? Does the space function for people with special needs?	Space dimensions analysis
	Provide sufficient movement throughout the space.			
HUMAN EXPERIENCE COMFORT & IMAGE (PPS)	Create a warm and welcoming environment; safe, clean, with public amenities.	COMFORT & SAFETY	Does the place make a good first impression? Is the space clean and free or litter? Who maintains the space? How often is it maintained and when?	Lighting map (natural vs. artificial) Views (interior and exterior)
	Design an aesthetically pleasing space that is durable and does not require a lot of maintenance.	COST	Does the space comfortably accommodate attendees during an event? Does the space feel safe? Is it well-illuminated? What are some of the factors and elements that can help minimize cost?	Materials Plant palette
HUMAN INQUIRY ACCESS & LINKAGES (PPS)	Ensure ease of access; easy to get to and through. Ensure visibility from a distance and up close.	ACCESSIBILITY	Is the space visible from a distance? Is its interior visible from the outside? Is there a good connection between the space and its surrounding context? What are some of the 'obstacles' in the space (elements that users have trouble with)? Can people easily walk to the place?	Access location diagram Circulation flow from surrounding context diagram

Design Recommendations/ Authors	HESTER 1975	MARCUS/WISCHEMANN 1998
ACCESSIBILITY		Ease of access
COMFORT	User's physical comfort	Provide some shaded area (through overhangs or trellises)
	Convenience	
	Settings for activities	
	Natural elements (trees)	
COST	Maintain a relative low cost	
FOOD		Food is provided and located within close proximity
PEOPLE	Ensure that the space can accommodate a diverse group of people	The users should determine how the space is to be designed based on their needs
	Fun and friendly place	
SAFETY	Safe environment	Well-illuminated space
	Psychological comfort	Provide partial enclosures for transition
SEATING	Placement of public amenities, such as benches, influences the type of activity and interaction that will take place within the space	Place to sit, study, and eat comfortably
		Seating to accommodate various number of users (not too big of a bench though)
		Provide seating to accommodate for both the abled and disabled
USAGE	Provide a wide array of activities	Users determine use

WHYTE 1980	PPS (Project for Public Spaces)	SSI (Sustainable Site Initiatives)
	Access and linkage	Provide for optimum site accessibility, safety, and way-finding, and provide access for those that are able and disabled
Natural elements (trees, water, sun, wind)	Comfort and image	Human health and well-being, provide views of vegetation and quiet outdoor spaces for mental restoration
Effective capacity		
People bring life to the space	Sociability	Provide outdoors spaces for social interaction
	Comfort and image	lighting, entrances and walkways, visibility, multiple and a variety of accesses, nodes, hierarchy of pedestrian circulations
Provide some space for sitting		
	Users and activities	Promote equitable site uses Provide opportunities for physical activity

Table 1.1: Design recommendations matrix (with highlights indicating areas of particular interest to interiorscapes) (table by author 2012, adapted partially from the Sustainable Sites Initiative 2012)

“How do we go about designing a landscape?... We may decide in advance on a theme or direction. Perhaps a memory of a photograph triggers the idea...We may search through our files of drawings for something that is relevant. We may make a new series of drawings, cranking out as many as we can, with as much variation as possible...The process continues and steps are repeated until we see that nothing more is to be gained.”

– Malitz, 9

DESIGN PROCESS AND APPLICATION

(THEORY FRAMEWORK)

Having identified the constraints and the opportunities of the selected site, I can now propose potential design solutions. Attaining a solution to such problems may be a long, agonizing process, but there are multiple resources that can aid us as designers in identifying the scope of our project and the elements within it. This process necessitates that the designers identify the relationship between various elements within the site and develop and refine the necessary diagrams from a schematic level to a well-developed, carefully designed proposal.

The design process comprises the concept design/development, followed by preliminary design, and then the final design. These phases vary based on the scale, complexity, and ultimate feasibility of the project.

The design process and application, detailed in the upcoming pages, is a composite of the desired project goals and objectives and the synthesized literature; it is evident through the framework, people, usage, comfort and safety, cost, and accessibility. This is illustrated visually in the theory framework diagram seen in figure 7.1. These framework aspects are also highlighted, later on, in the composite site analysis. The framework diagram is the skeletal structure upon which a project or design is built/formed. I established the theory framework diagram illustrated here as a structure that would enforce my methodology, and illustrate the relationship between my goals, objectives, and literature review.

Figure 7.1: Theory framework diagram *(Author 2012)*

PROJECT GOALS & INTENTIONS

LITERATURE REFERENCES

(PROCESS & THOUGHTS)

FRAMEWORK



(PEOPLE AND USAGE)

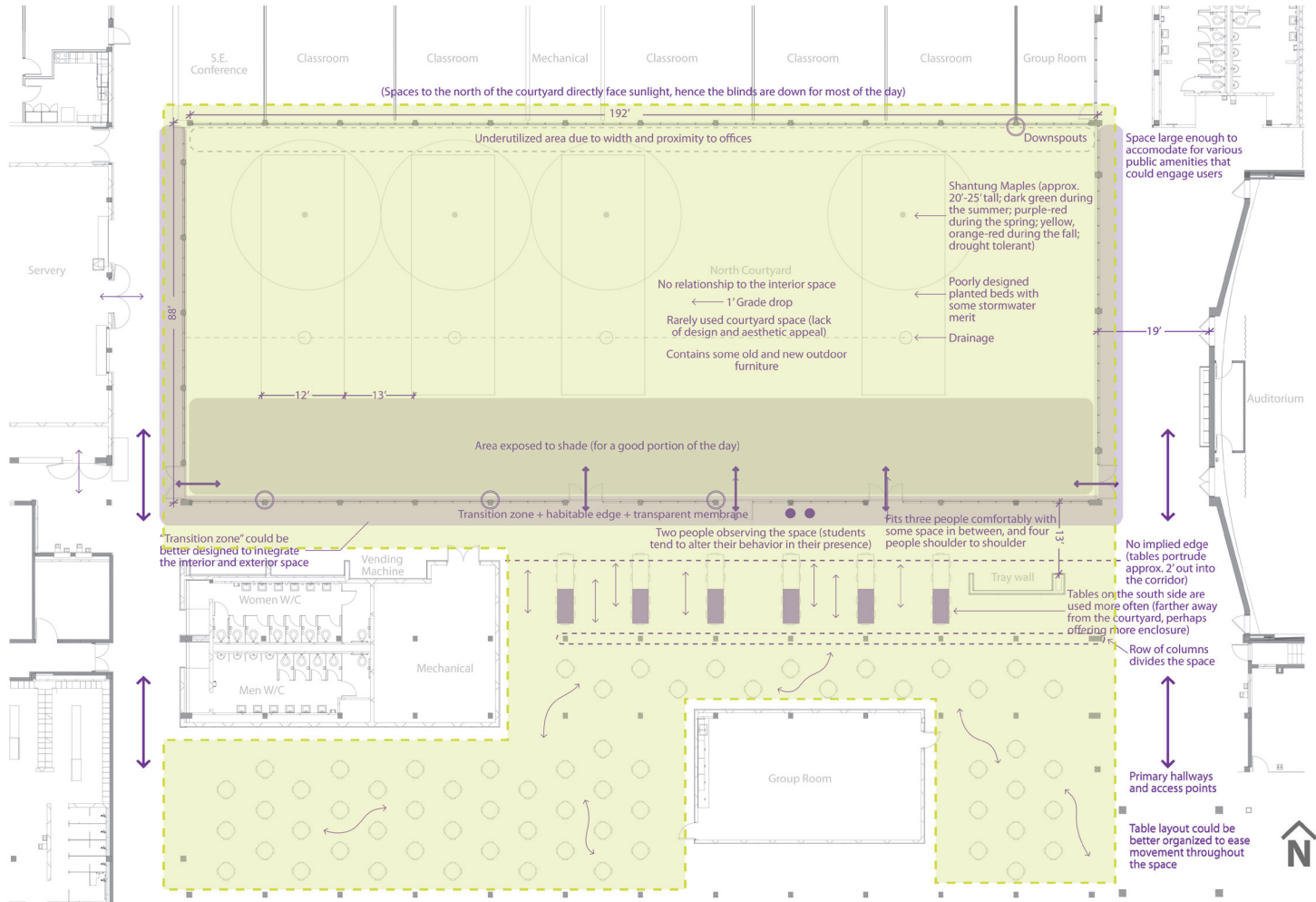
The “people and usage” component of the framework explains how users utilize the space on a daily basis. Hester (1975), Marcus/Wischemann (1998) and Whyte (1980) define this category as one that pertains to how many people the space can accommodate, how the space is utilized, and the placement and location of public amenities. Some of the questions asked as part of this research were: Does the space allow for social activities? How often is the space used? How is it used? How do people congregate? Can the space accommodate large groups? Are there enough seats? What are the constraints and opportunities of the space?

The composite analysis plan seen in figure 7.2 highlights the areas within the site that pertain to people and usage. In this case it is most of the

site; interior cafeteria space and north courtyard. How are these spaces used by users? How often are they used? What are the different functions that take place within these spaces? The answers to these questions helped me formulate my design decisions.

The cafeteria space was mainly and heavily used during lunch hours. Meanwhile, and regardless of the weather conditions, the courtyard was not used as often. Having walked into courtyard myself, I did notice the glass wall's glazing. People in the courtyard cannot really see everything inside, but people on the inside can still see everything happening outside. These were some of the issues that I observed during my site visits, and are taken into consideration for the proposed design.

Figure 7.2: Framework people and usage analysis diagram (Author 2012)



(ACCESSIBILITY)

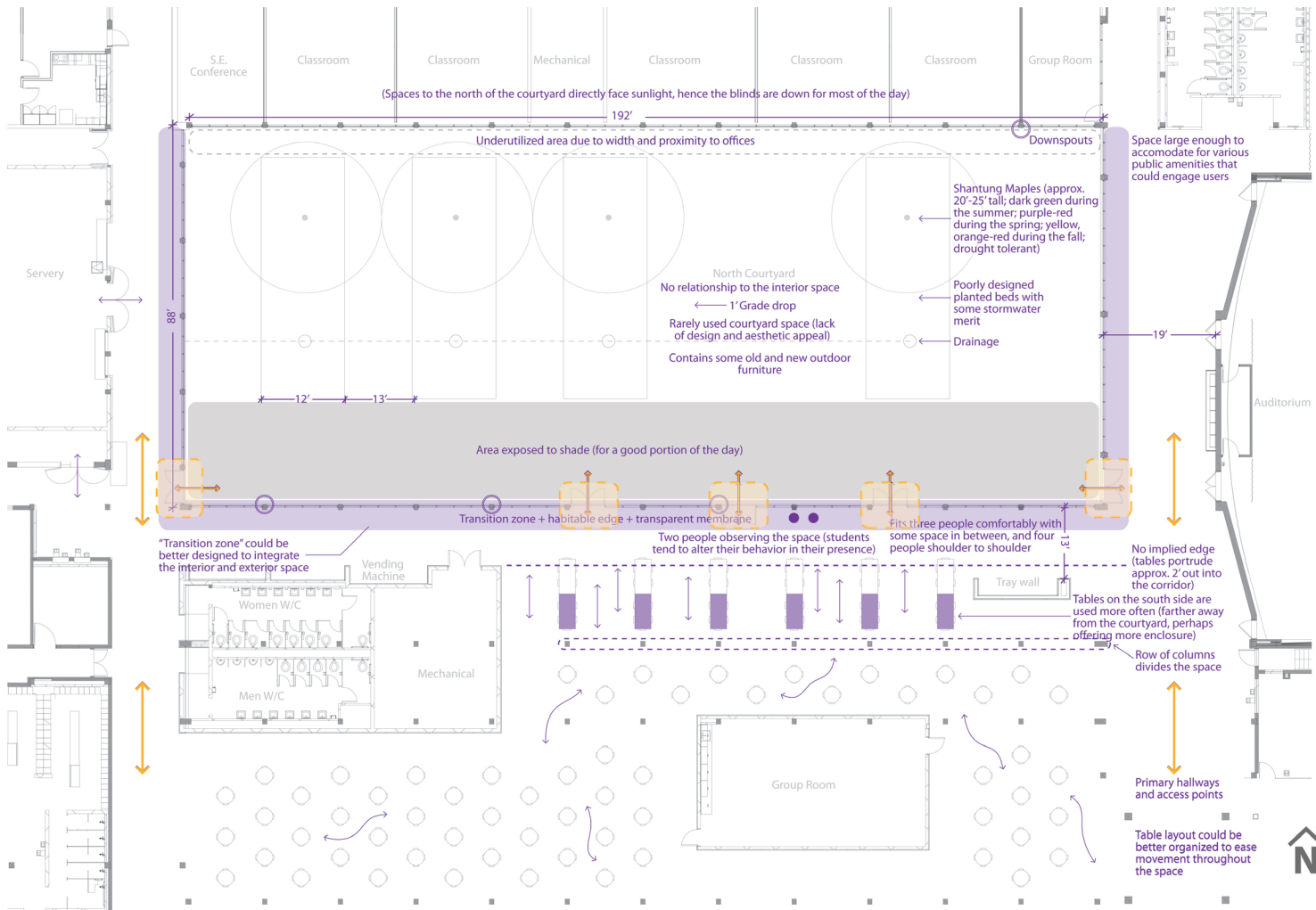
The “accessibility and linkage” component of the framework refers to how users go about accessing the space. Hester (1975), Marcus/Wischemann (1998) and Whyte (1980) define this category as one that pertains to ease of access. The questions posed to users as part of this research included the following: Can people easily walk to and access the place? What are some of the obstacles in the space preventing ease of accessibility and movement? How does the space relate to its surrounding environment?

The plan seen in figure 7.3 highlights the main access points into both the cafeteria space and the north courtyard. Students would access the cafeteria space mainly from the west end of the

hallway between the courtyard and the cafeteria, where students would retrieve their food from the kitchen and servery area. Another access point was that of the northeast corner, given its proximity to the main entrance. The courtyard, on the other hand, has five access points; three on the south end of the courtyard and one on each of the west and east ends. The doors to the courtyard, however, remained shut for the most part and were sometimes locked.

Having observed how the site was being accessed, I took it upon myself within my proposed design to ensure ease of access to the site, while providing better connectivity between the interior and exterior spaces.

Figure 7.3: Framework accessibility analysis diagram (Author 2012)



(COMFORT AND SAFETY)

The “comfort and safety” component of the framework, seen in figure 7.5, refers to how comfortable users feel in the space. Hester (1975), Marcus/Wischemann (1998) and Whyte (1980) define this category as one that pertains to overall user comfort, such as the psychological comfort. The following are a sample of the questions asked as part of this research: Does the space comfortably accommodate various numbers of users? Does the space feel safe? Is it adequately illuminated? What are some of the existing elements that take into consideration user comfort? How can one enhance user comfort in the space?

The existing seating arrangements, seen in figure 7.4, offer various levels of user comfort and privacy. With the rectangular tables, users are, to some extent, forced to face each other and this would be repeated from one table to the next. This form of seating does not offer much user comfort as it is rigid in form, and provides limited views. The round tables

on the other hand allow for more intimate and private gatherings, where the seating arrangements provide some closure. This type of arrangement accommodates up to four or five people comfortably and allows people to stand in between seats and socialize with the group while standing up. Round tables also take up less space, thus allowing more tables to be placed within the cafeteria space to accommodate even more students.

Another aspect of comfort has to do with the glass wall. If someone were to use the courtyard they would feel like they are being constantly watched, as if in a fishbowl. The glass wall can be redesigned to accommodate for user privacy, both indoors and outdoors. Furthermore, given the large cafeteria space there is no element to provide users some level of buffering or screen for privacy. These are some of the issues that I have addressed in my proposed design to enhance user comfort and safety.

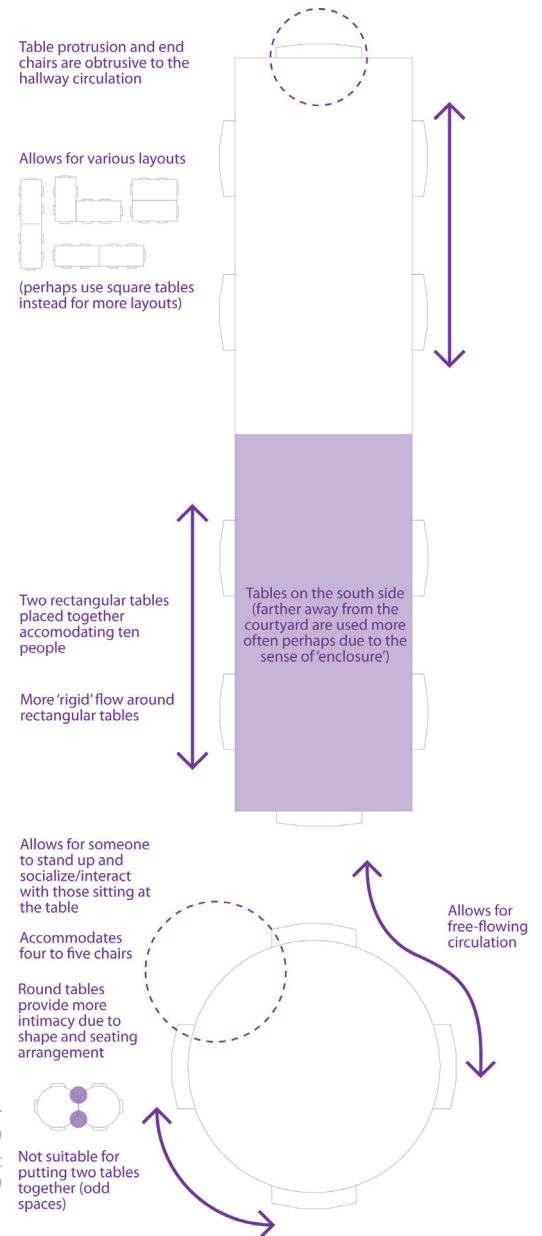
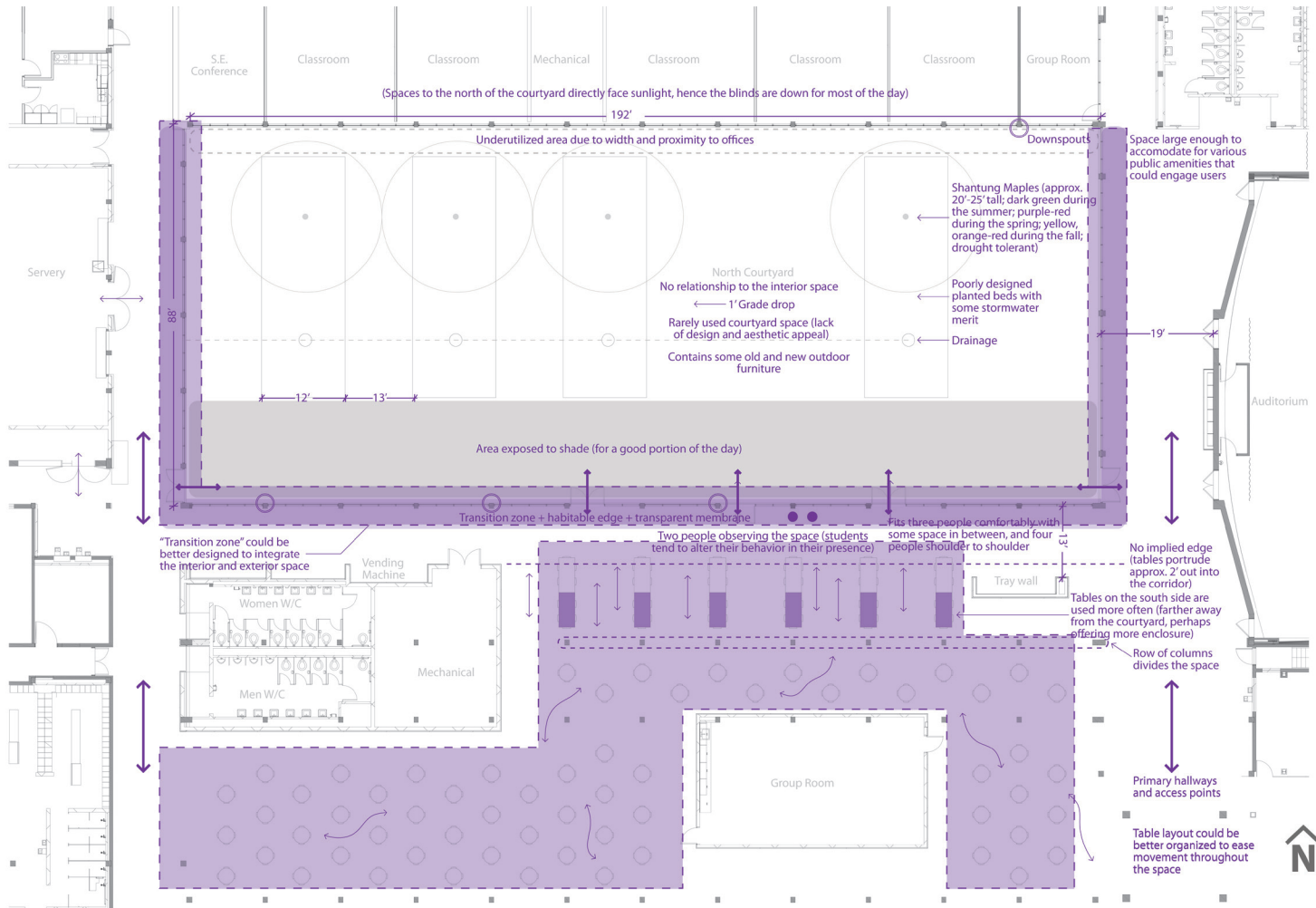


Figure 7.4: (left) Furniture options and their advantages and disadvantages (Author 2012)

Figure 7.5: (right) Framework comfort and safety analysis diagram (Author 2012)



(CONCEPT DESIGN & DEVELOPMENT)

Conceptual design entails defining the factors and elements that influence the design and development of the site. As mentioned above, site observation along with user feedback played a major role in the design of the site. Observing the existing conditions of the site and taking into account how users utilize the site can greatly influence the overall success of the design. It is important to address issues such as how users enter the space, where they congregate, what needs they may have, and what it takes to make them feel more welcome and comfortable in the space. These were some of the questions that pertained to my composite site analysis and framework. High school students, in this case, coming from different backgrounds and having a diverse range of developmental needs, present genuine challenges in addressing such issues while designing the space, not to mention the other issues reported above.

After a thorough site and program analysis, and having the framework elements in mind, I proceeded with the initial steps of the design, seen in figure 7.6 and 7.7. Given the existing grid system, I decided to explore two different design

options. The open floor plan along with the grid allowed for flexibility and variety in design. The proposed designs took into consideration the existing program and site inventory and analysis. For example, the placement of the proposed planted beds was influenced by the surrounding context and shaded areas, along with the drainage system. In attempting to create richer interior and exterior spaces, the current physical glass boundary had to be manipulated to suit the various functions and add variety to the space. Furthermore, given the users' needs and interests, I decided to add in elements that would be not only visually appealing but also interactive, such as portable furniture, operable panels, and living green walls. These interactive elements would allow the students to create their own 'personal' space through the screening panels and enable them to express their creativity on the panels dedicated for writing and/or drawing. The personalization of a space makes people feel more welcome and comfortable. Furthermore, the addition of living greenery into the space creates a better working environment and a friendlier atmosphere. Ultimately, my goal is to integrate the natural

and built environments, and this could be achieved by bringing some of the outdoor elements to the indoors and vice versa. Some of the aspects that could be found in both spaces include, but are not limited to, seating, gathering spaces, living greenery, and such.

The intent here is to enliven what is otherwise a dull and uninspiring space, a feat that can be achieved through careful redesign of the space so that it accounts for the framework aspects, along with the design and project goals and intention. The proposed design is a culmination of all the former work conducted: analysis and synthesis; the aim is to combine all of the desired aspects from all the different sections to create richer integrated environments. While the ultimate goal is to use interiorscapes to integrate the natural and built environments, it is also important to acknowledge how these interiorscapes add to the overall aesthetics of a space and create healthier, people-friendly environments.

(EXPLORATORY PROCESS DRAWINGS)

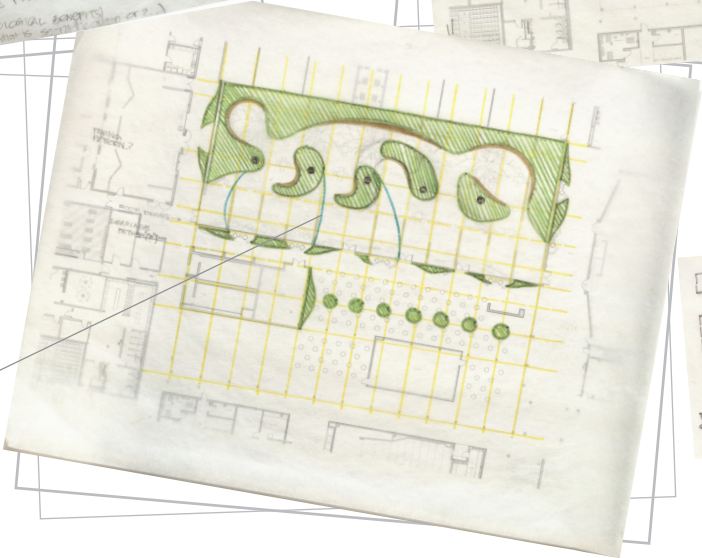
Gathering spaces
(Spatial conditions + hierarchy of space)

Paving extension
(Implied connectivity)



Interiorscaping

Drainage
(Ecological + sustainable design)



Courtyard design I

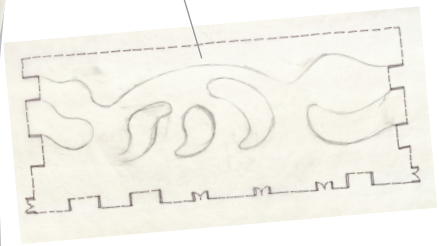




Figure 7.6: Exploratory process drawings showing design progress and evolution over time (Author 2012)

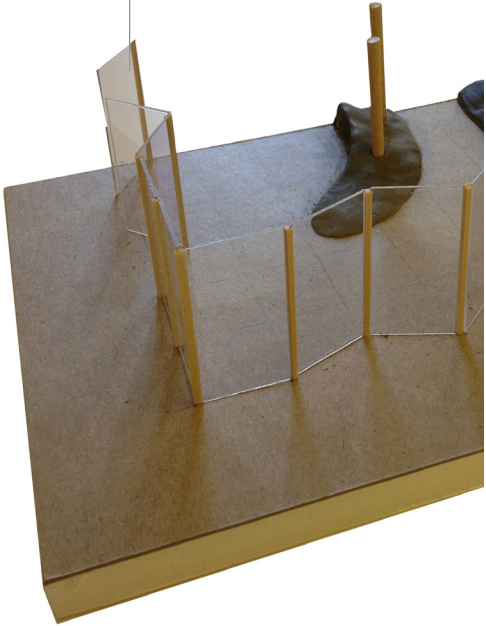
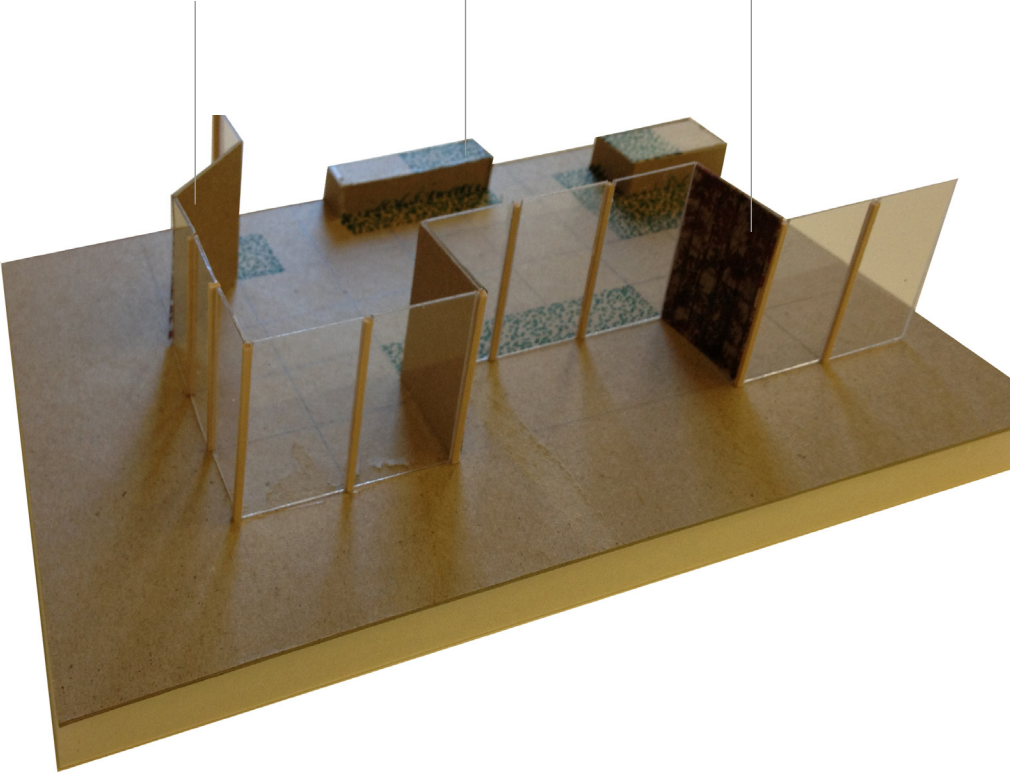
(STUDY MODELS)

Manipulating the glass wall to accommodate for seating alcoves (angled or perpendicular walls)

Raised seating and planters

Possibly integrating vegetated walls

Exploring the option of a retractable/folding glass wall to provide a larger space; integrating the interior and exterior spaces



Creating and utilizing mound-like forms to define gathering spaces, and provide a more natural setting



Utilizing vegetation as a buffer/ screen to provide for some privacy while still maintaining some level of visibility for safety purposes

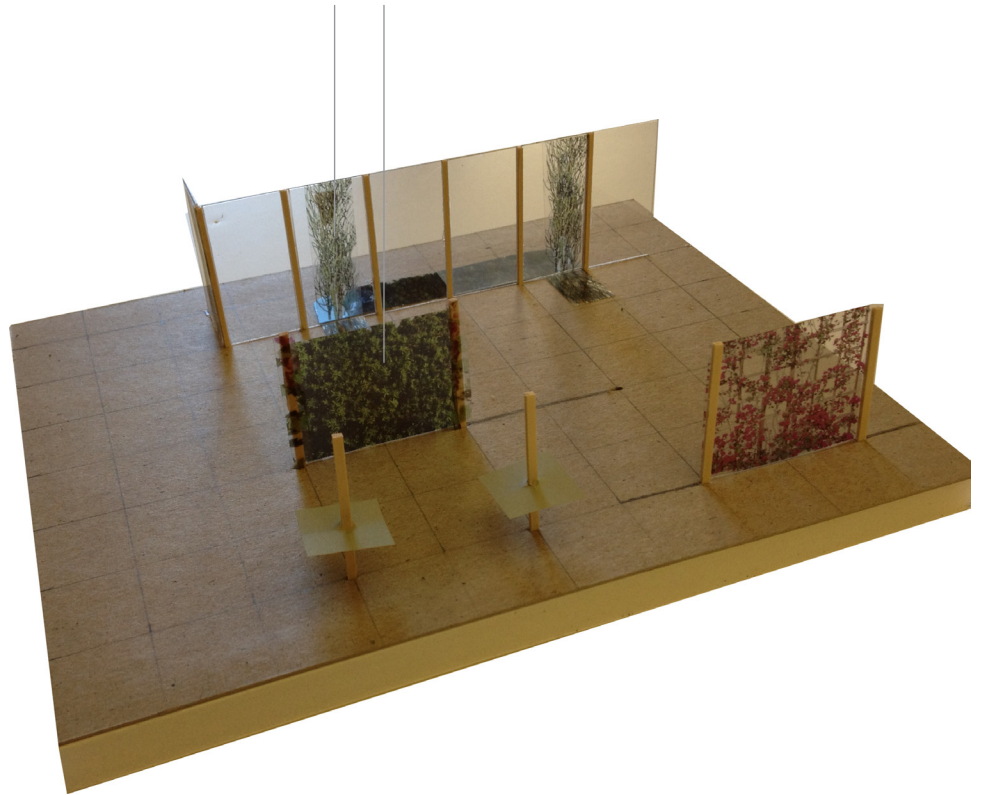


Figure 7.7: Process study models exploring the various approaches of how to go about integrating the interior and exterior environment (Author 2012)

(FINAL DESIGN)

Having developed several design iterations, I decided to combine aspects from both the orthogonal (figure 7.8) and 'organic' (figure 7.9) design proposals. I chose that route to provide a richer design, seen in figure 7.11 and 7.12, that offers both flexibility and contrast amongst the proposed elements. For instance, the proposed change in the former rigid transparent membrane allows for small gathering pockets with views to both the interior and exterior spaces. The naturalistic layout of the exterior landscaped courtyard contrasts with the more orthogonal layout of all the other proposed elements, seen in figure 7.13, but is still aligned with the base grid. The designed landscape provides opportunities for different gathering pockets that could accommodate groups of various sizes, as seen in figure 7.14, while

creating an aesthetically pleasing space. Living greenery is also incorporated into the interior space, as seen in figure 7.16, to add some life and a visually appealing element to what was otherwise a dull cafeteria space. By incorporating elements from the outdoor in, and vice versa, the natural and built environments blend in together and are better integrated, as seen in the elevation perspectives figure 7.15. I also decided to explore other ways in which the integration and relationship between the two spaces would be further enhanced and was able to achieve this by extending the interior paving to the outdoor courtyard and by adding public amenities, such as seating elements, in both spaces. The final proposal offers a minimalist yet rich multi-layered design incorporating multiple elements, such as usage and ecological design.

(ORTHOGONAL DESIGN)

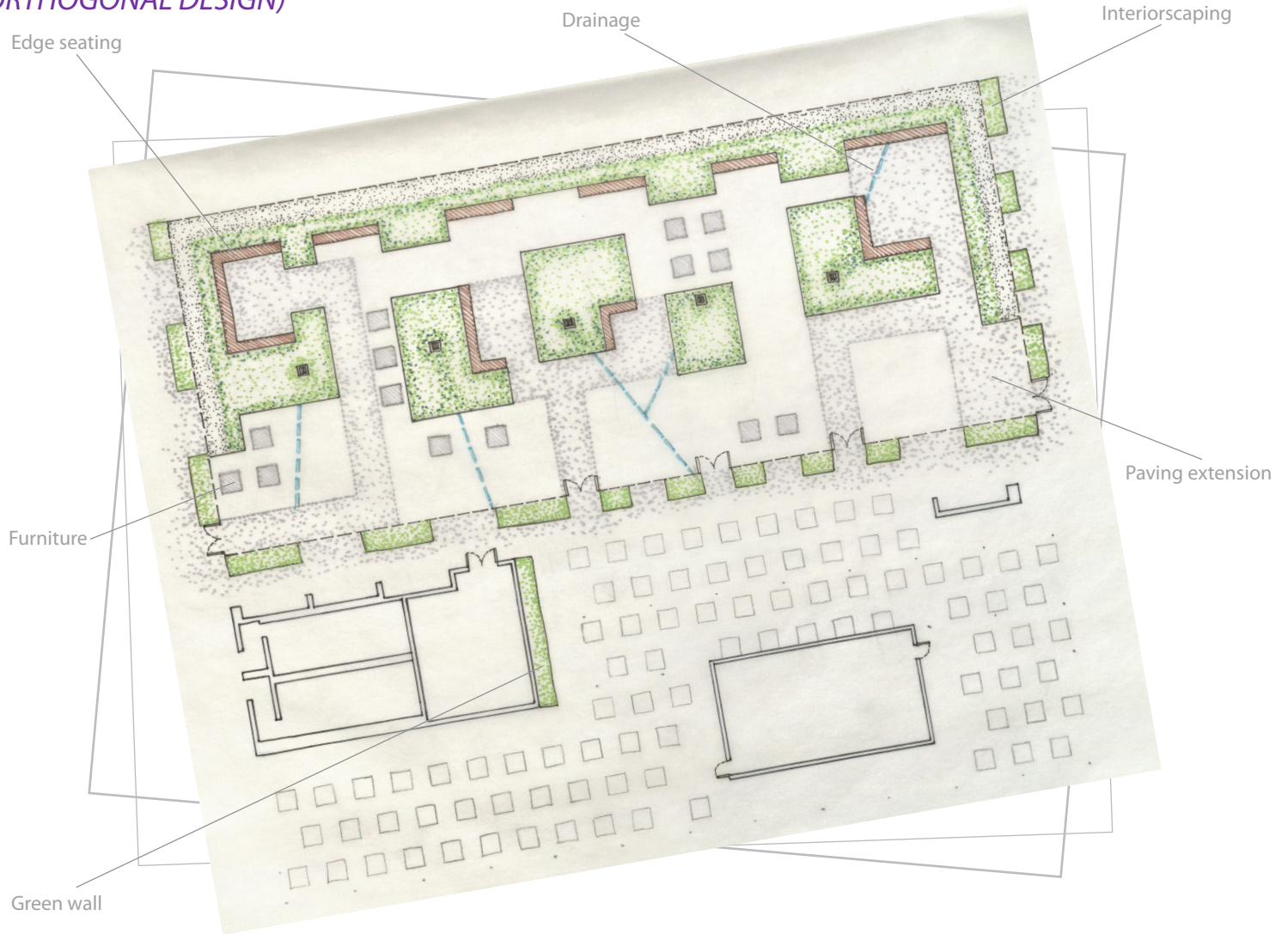


Figure 7.8: Orthogonal design concept utilizing the existing structural grid as a base to indicate the location of the regular geometric forms of the planted beds, edge seating, and various gathering spaces. This type of design allows for a more structured layout and architectural extension (Author 2012)

(‘ORGANIC’ DESIGN)

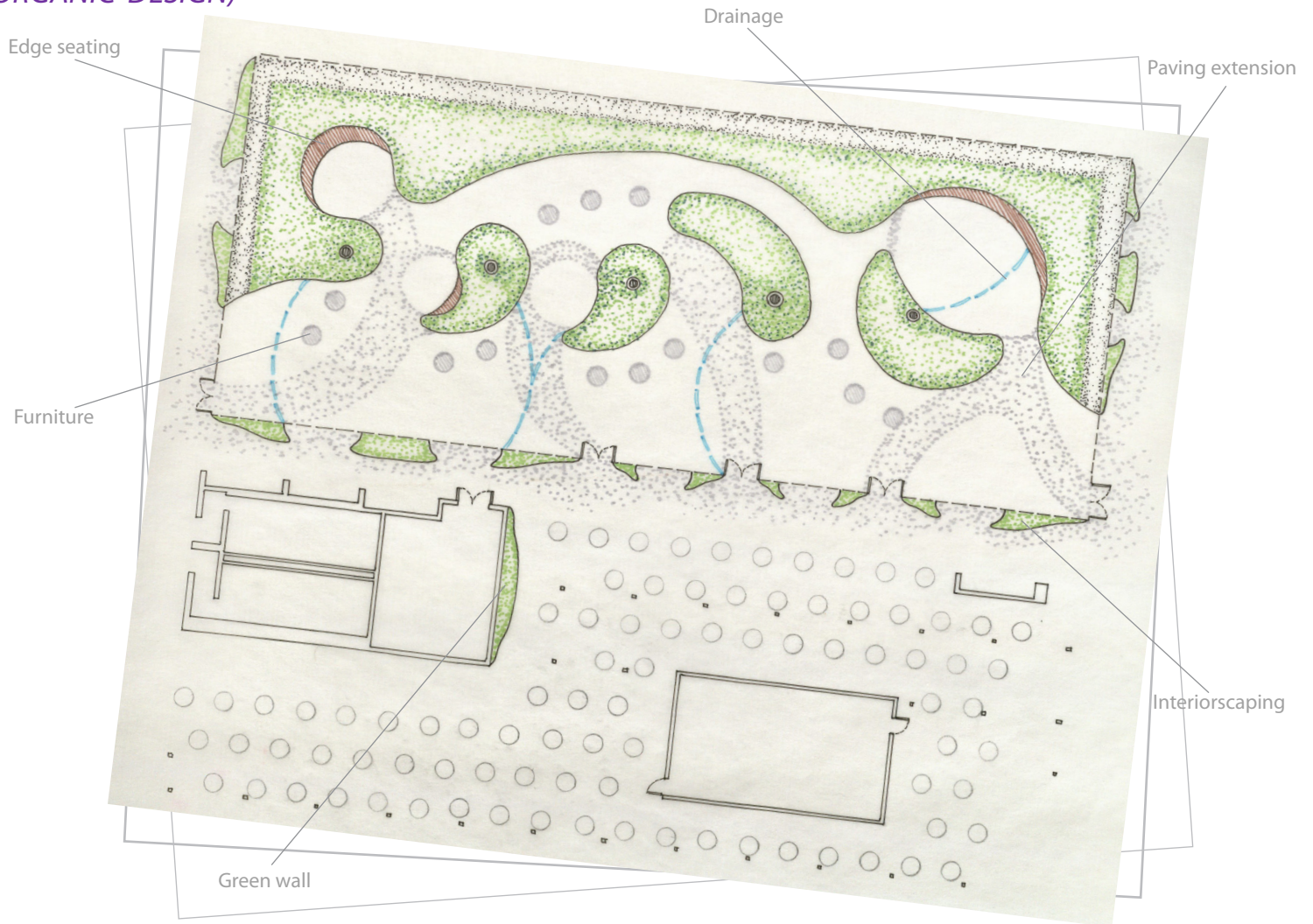


Figure 7.9: The organic approach offers a more free-flowing design, that contrasts the right angled and geometric forms of the surrounding context. This type of design allows for a more natural-like setting (Author 2012)

(FINAL STUDY MODEL)

The model illustrated in figure 7.10 reflects the final design decisions. The transparent membrane edge was altered to create a series of seating alcoves with views to both the interior and exterior spaces. The exterior space was redesigned to have a more naturalistic feel and provide outdoor gathering spaces that can accommodate various class sizes. Meanwhile the interior space is refurbished with interiorscaping as well as some low moveable panels and vegetated panels to allow users to create their own spaces as needed while still permitting visibility to the outdoor courtyard.

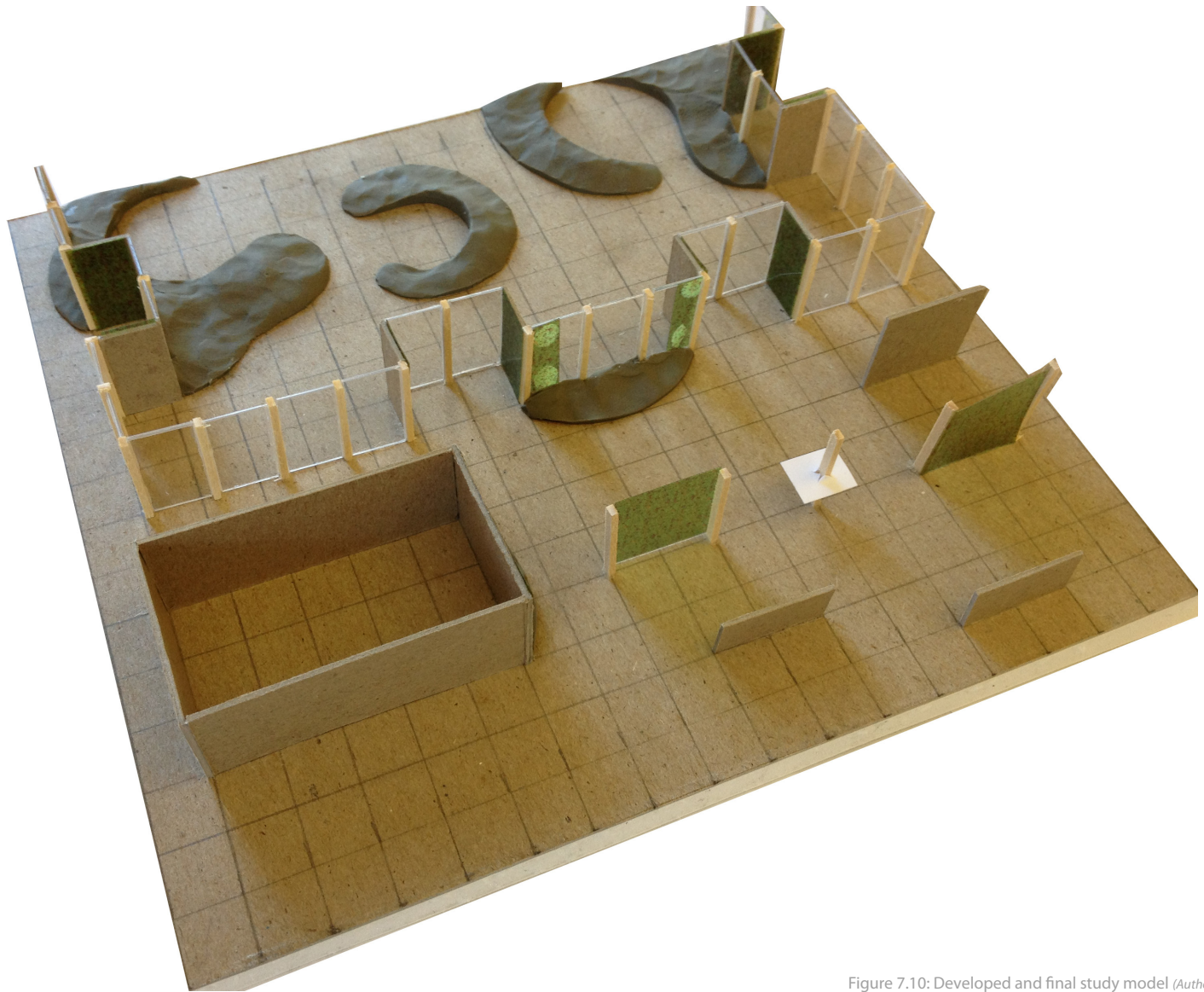


Figure 7.10: Developed and final study model (Author 2012)

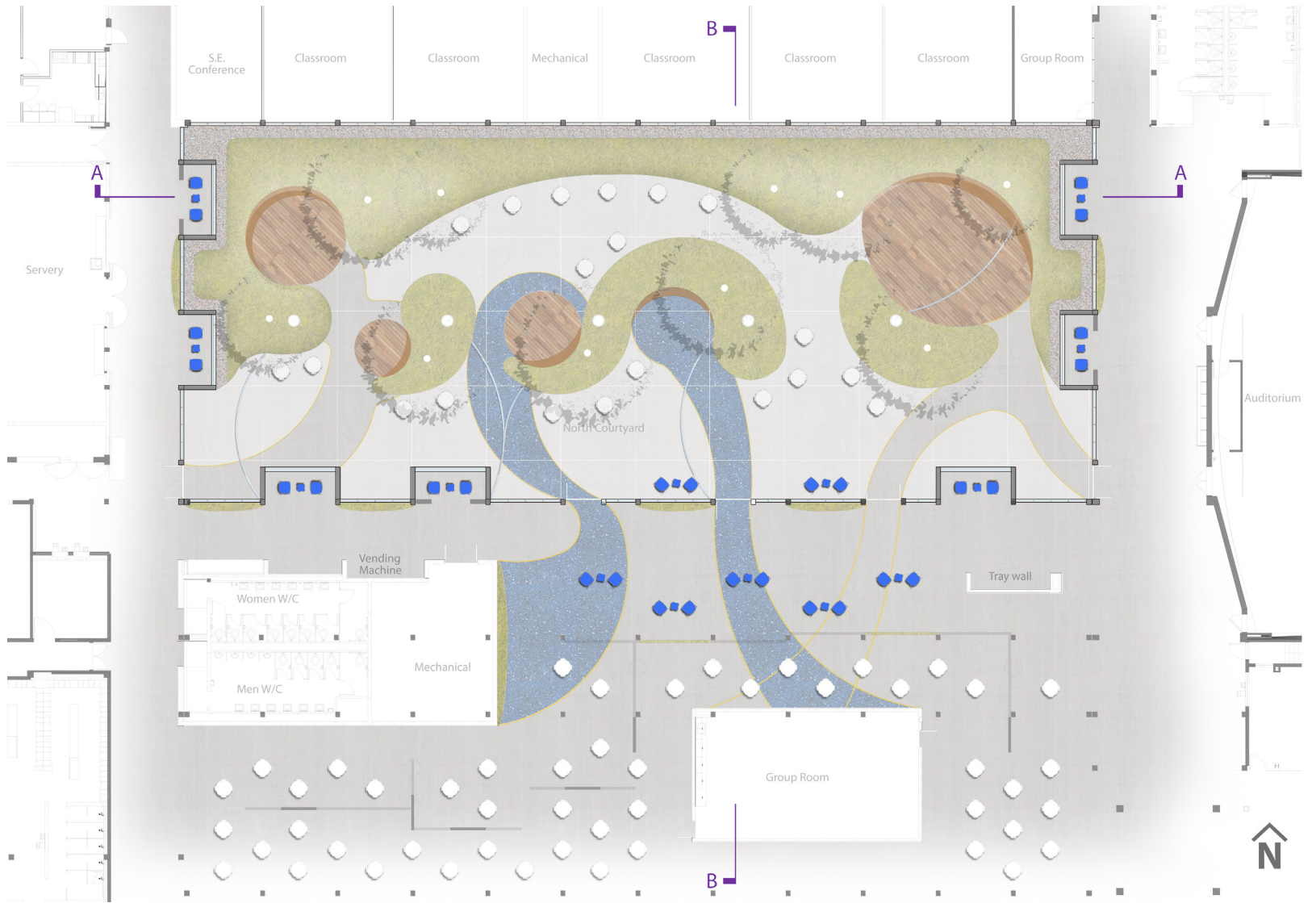


Figure 7.11: Ground plane design plan (including tree trunks indicated as white dots in the courtyard) (not to scale) (Author 2012)

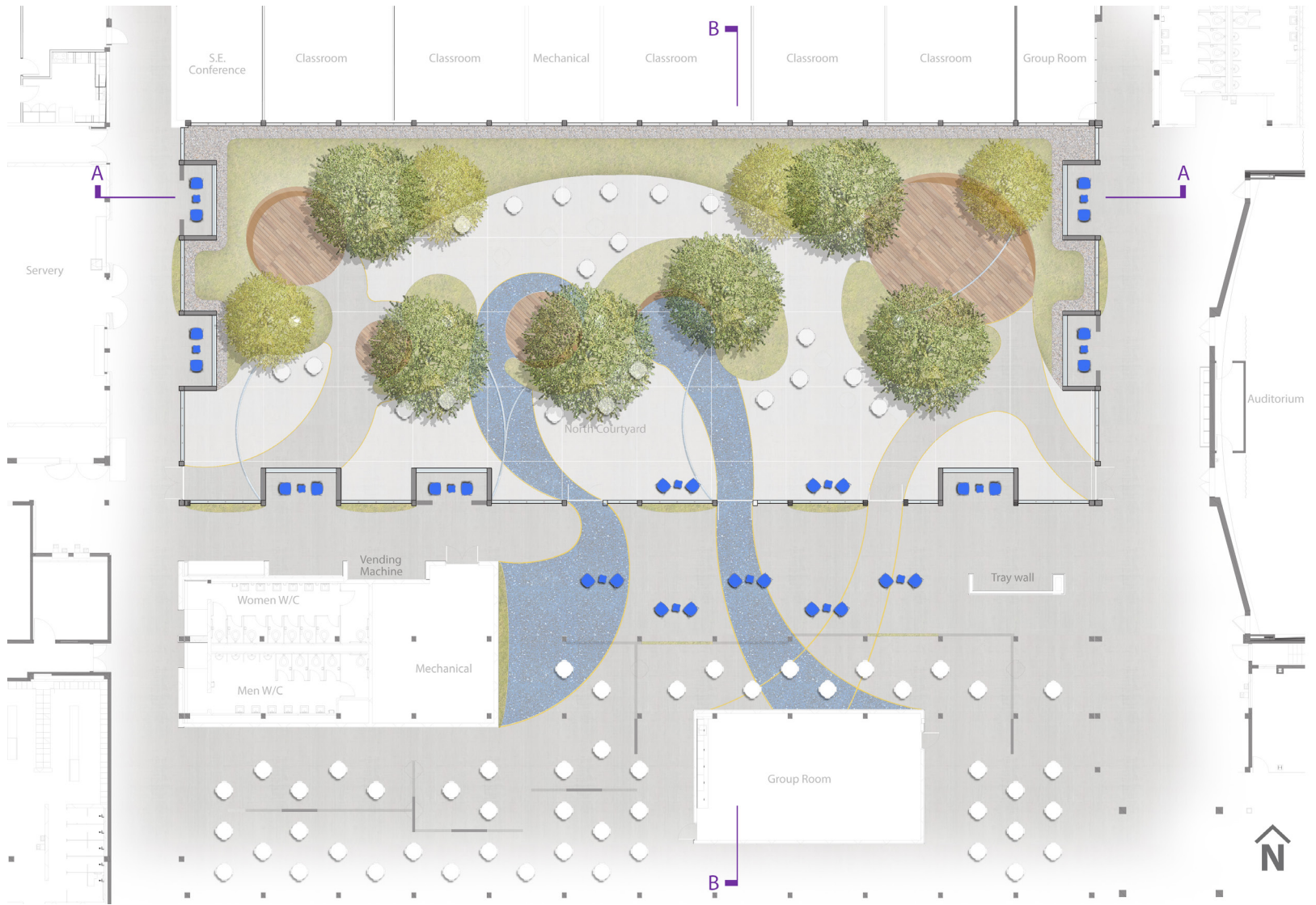


Figure 7.12: Illustrative plan (including tree canopies) (not to scale) (Author 2012)

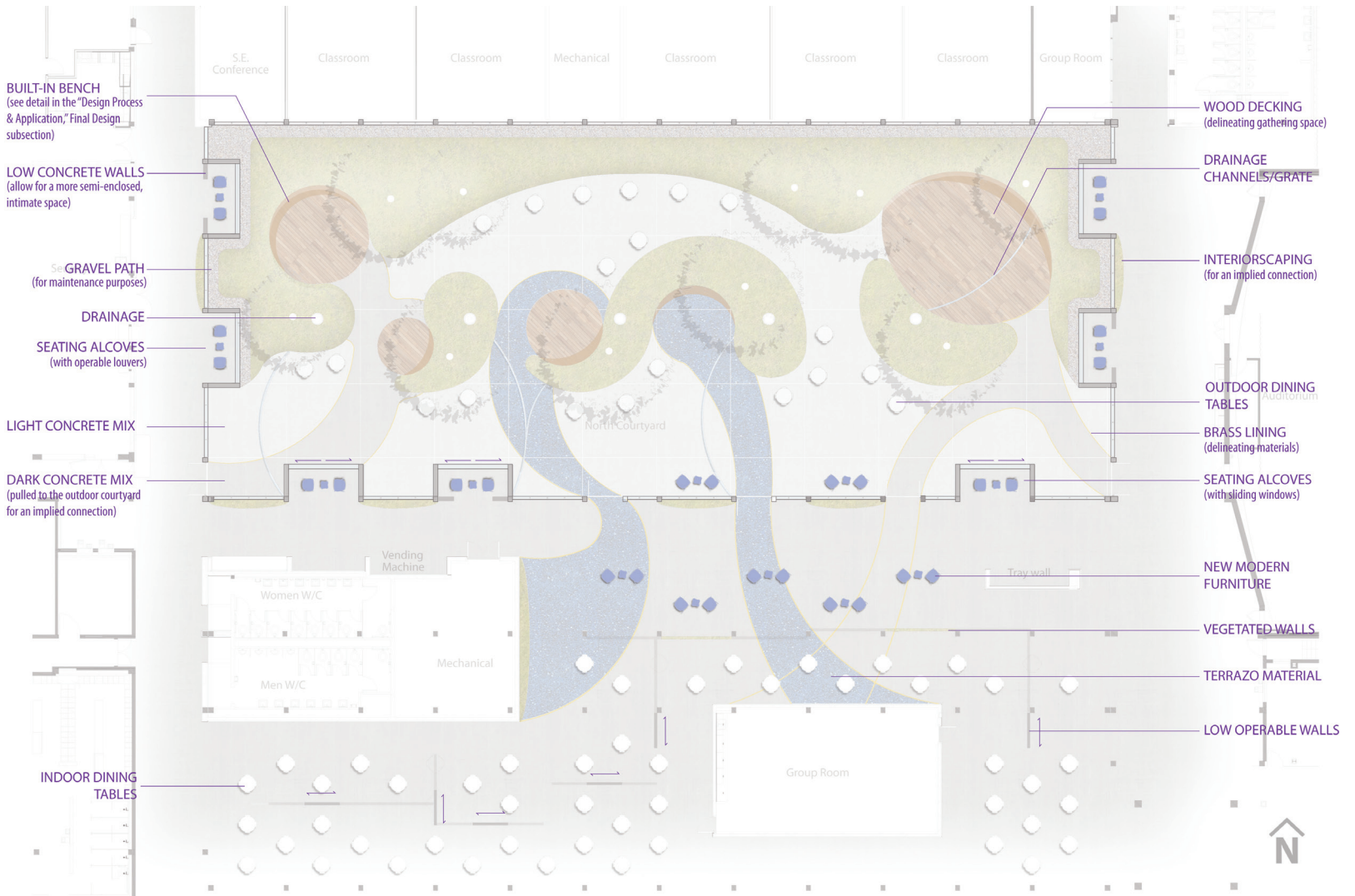


Figure 7.13: Annotated plan highlighting the physical objects of the design (not to scale) (Author 2012)

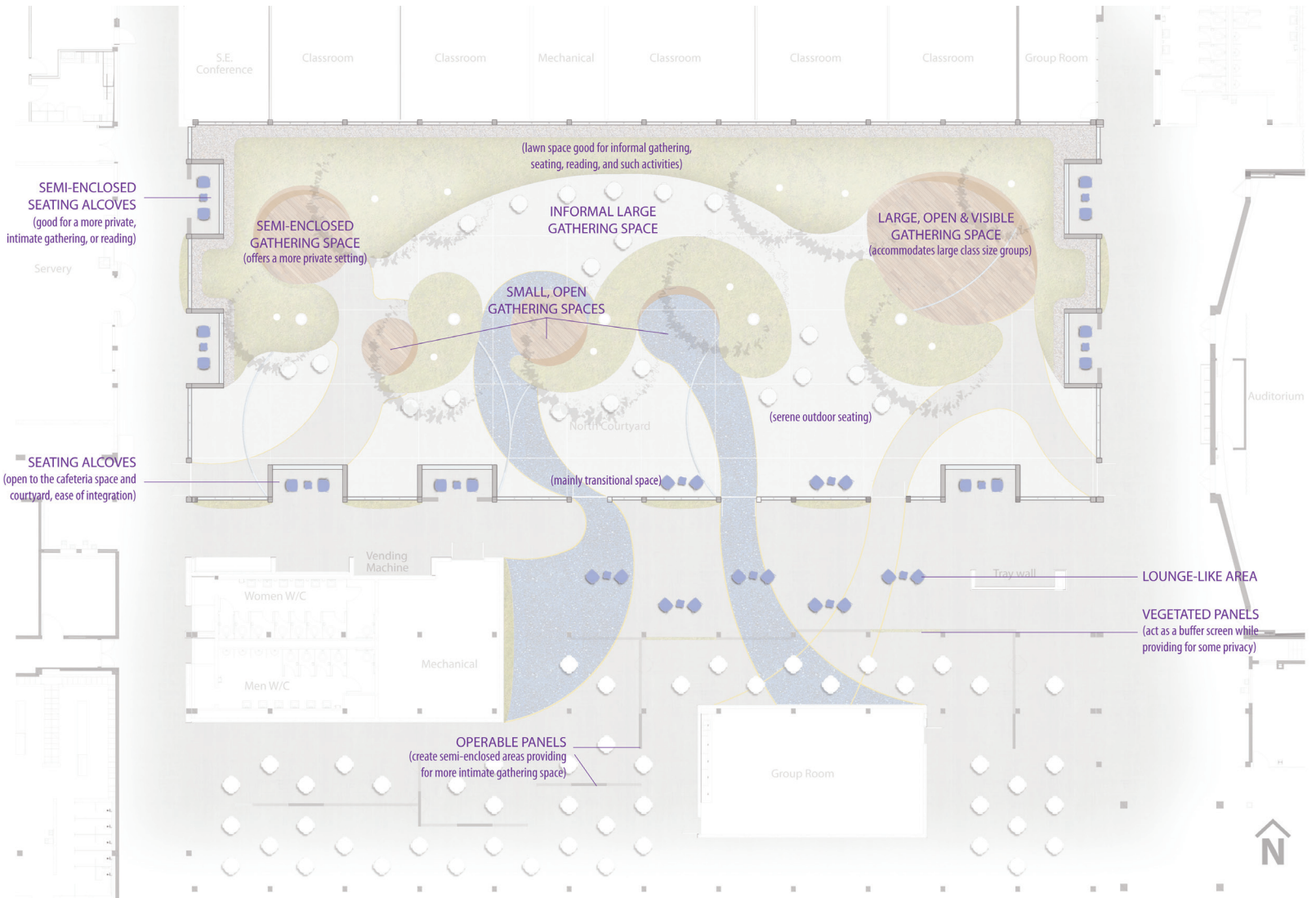


Figure 7.14: Annotated plan highlighting user experiences and levels of privacy and closure (not to scale) (Author 2012)

VEGETATED PANELS
(act as a buffer screen while
providing for some privacy)

LOUNGE-LIKE AREA



SEMI-ENCLOSED
GATHERING SPACE
(offers a more private setting)

Trees provide shade and allow
for flexible seating



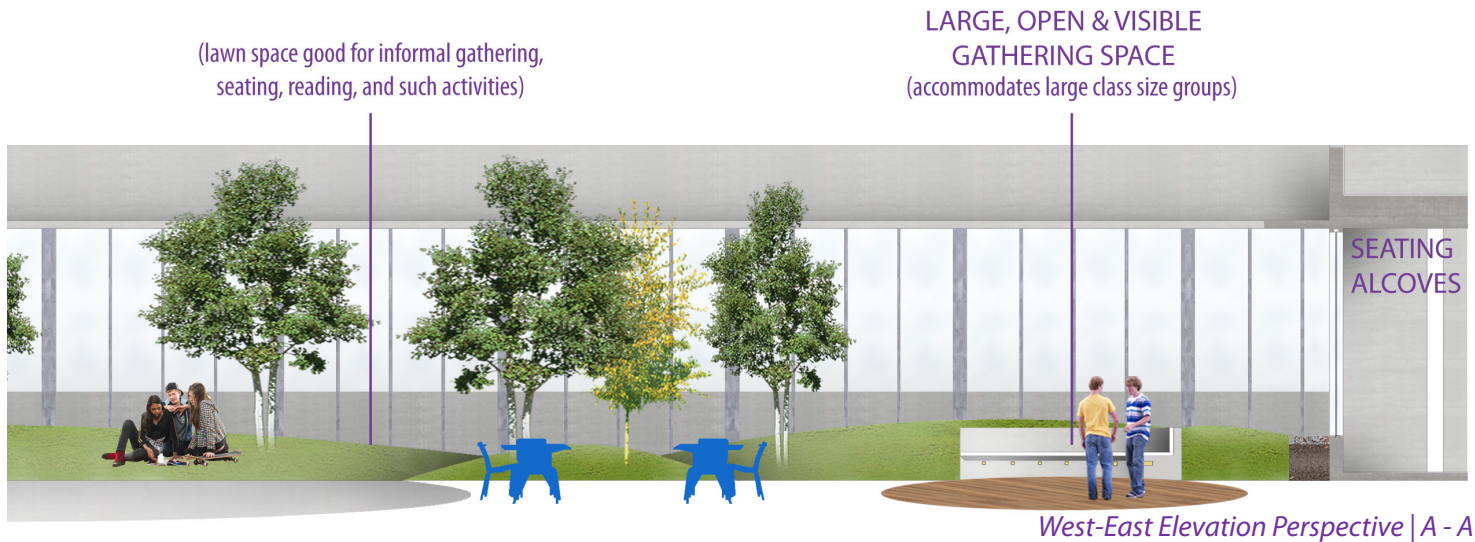
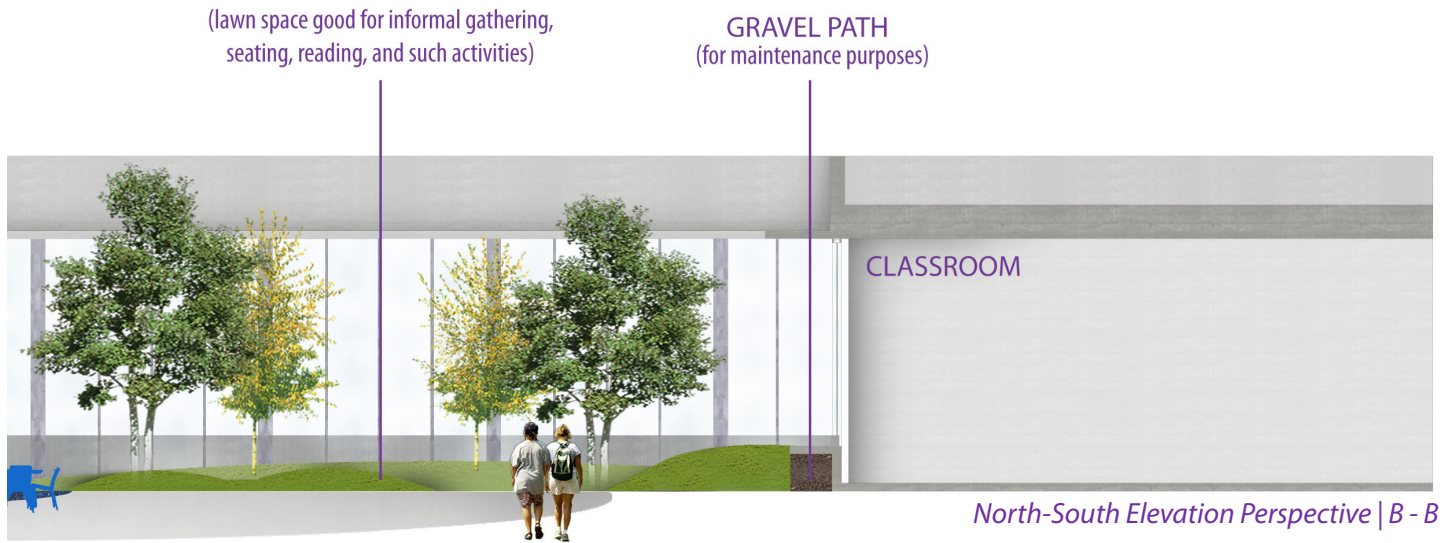
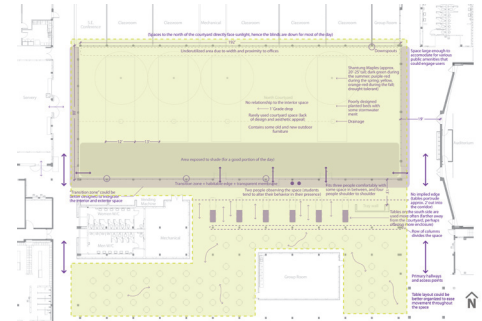


Figure 7.15: Illustrative elevation perspectives reveal the interior exterior relationships (not to scale) (Author 2012)



(PEOPLE AND USAGE)



Moveable seating

To accommodate for the large number of student body and allow for flexible seating options various gathering sizes.

Seating alcoves

Allow for small group gatherings, with some enclosure, and views to the indoors and outdoors

Figure 7.16: (left) Vision reflecting the west end (left) and the east end (right) of the interior hallway between the cafeteria space and the exterior courtyard (Author 2012)



(VEGETATED WALL DETAIL)

Living walls, as seen in figure 7.17, can offer users several benefits from cleaner air to enhancing one's wellbeing. Adding greenery to our enclosed environments brings life to such spaces. Natural elements tend to come in all forms, sizes, textures, and colors. Living walls can be considered as living art.

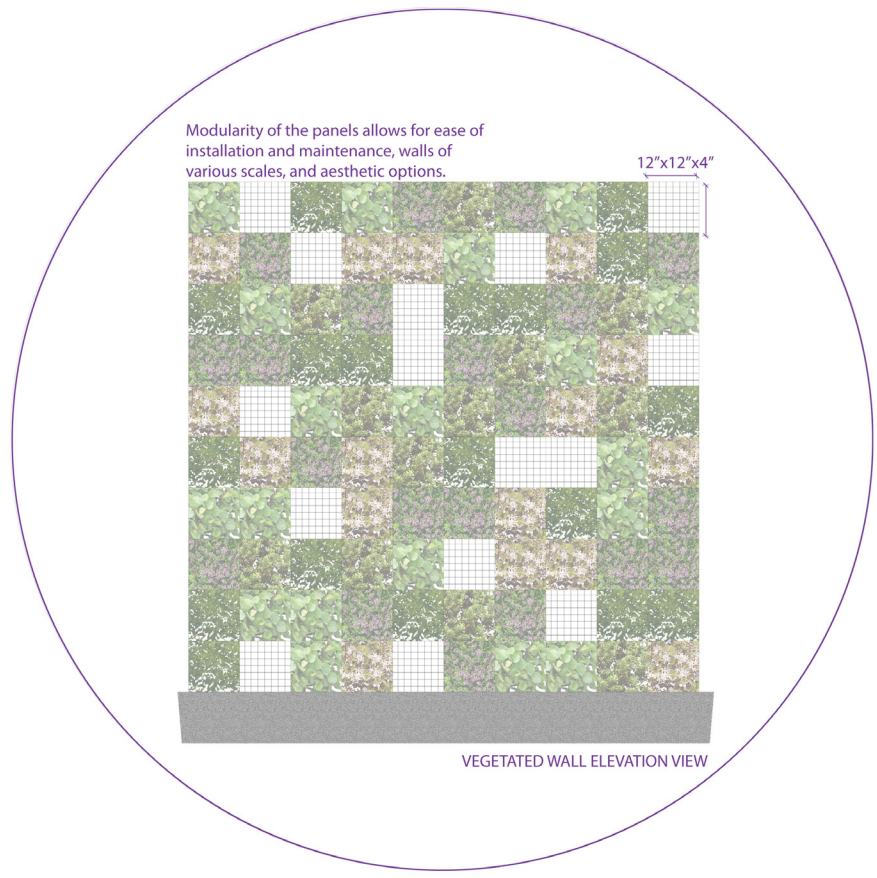
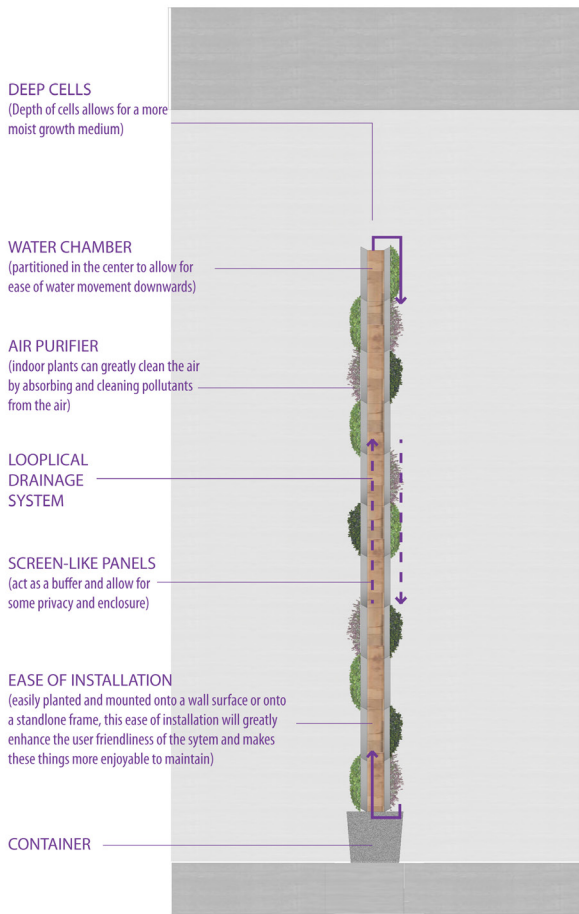
Modern environments, both interior and exterior, are experiencing increased levels of all sorts of pollution. One may argue that our indoor environments are cleaner than the outdoors, but this is not necessarily true. This is evident through what researchers refer to as the "sick building syndrome." We spend a great deal of our time indoors and are being bombarded with pollutants in the process; toxic fumes from furniture, cleaning products and the like.

The good news is that with living walls, plants are able to absorb and clean out at least some of the pollutants from the air, thus providing an overall healthier and cleaner environment. A green wall, as opposed to a planter, can contain

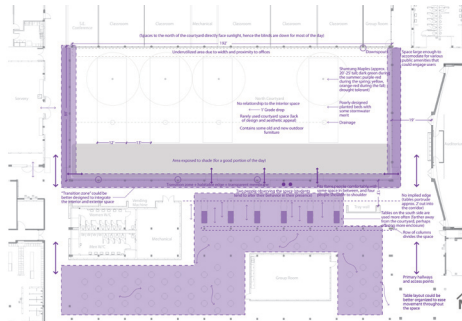
multiple plants all of which can further enhance the quality of the air indoors. Such improved environments ultimately influence users' physical and mental wellness. Living greenery in a space tends to alleviate and ease our stress and fatigue levels. Green walls also have the ability to connect us with nature even though we are amidst concrete walls.

Greenery adds life to otherwise harsh and barren environments, as seen in figure 7.18. Plants not only soften the 'hard' edge of such environments, they additionally increase user productivity by offering a more welcoming and comforting space. Instead of spending money on HVAC systems to provide ventilation and oxygen in a space, why not use what nature has already given us and utilize living green walls to clean the indoor air, while also acting as an artistic add-on? Green walls are low in cost, they do not require electricity, and they continuously filter the air. What other man-made system can provide such multiple benefits?

Figure 7.17: Vegetated wall detail (not to scale) (Author 2012)



(COMFORT AND SAFETY)



Vegetated panels

Act as a buffer screens while providing for some privacy

Seating arrangement

Seating arrangements offer various levels of user comfort and privacy. The round tables allow for more intimate and private gatherings.

Figure 7.18: Vision reflecting the design of interior cafeteria space with the vegetated panels (Author 2012)



(BUILT-IN BENCH DETAILS)

The outdoor courtyard space has been redesigned in such a way to accommodate for various group gathering spaces. The proposed design also incorporates built-in benches, as seen in figure 7.19, to provide users with multiple seating opportunities. The intent here is to incorporate some interior elements, such as public amenities, into the outdoor space as seen in figure 7.20. Another goal is to provide users with an aesthetically pleasing space that is also functional.

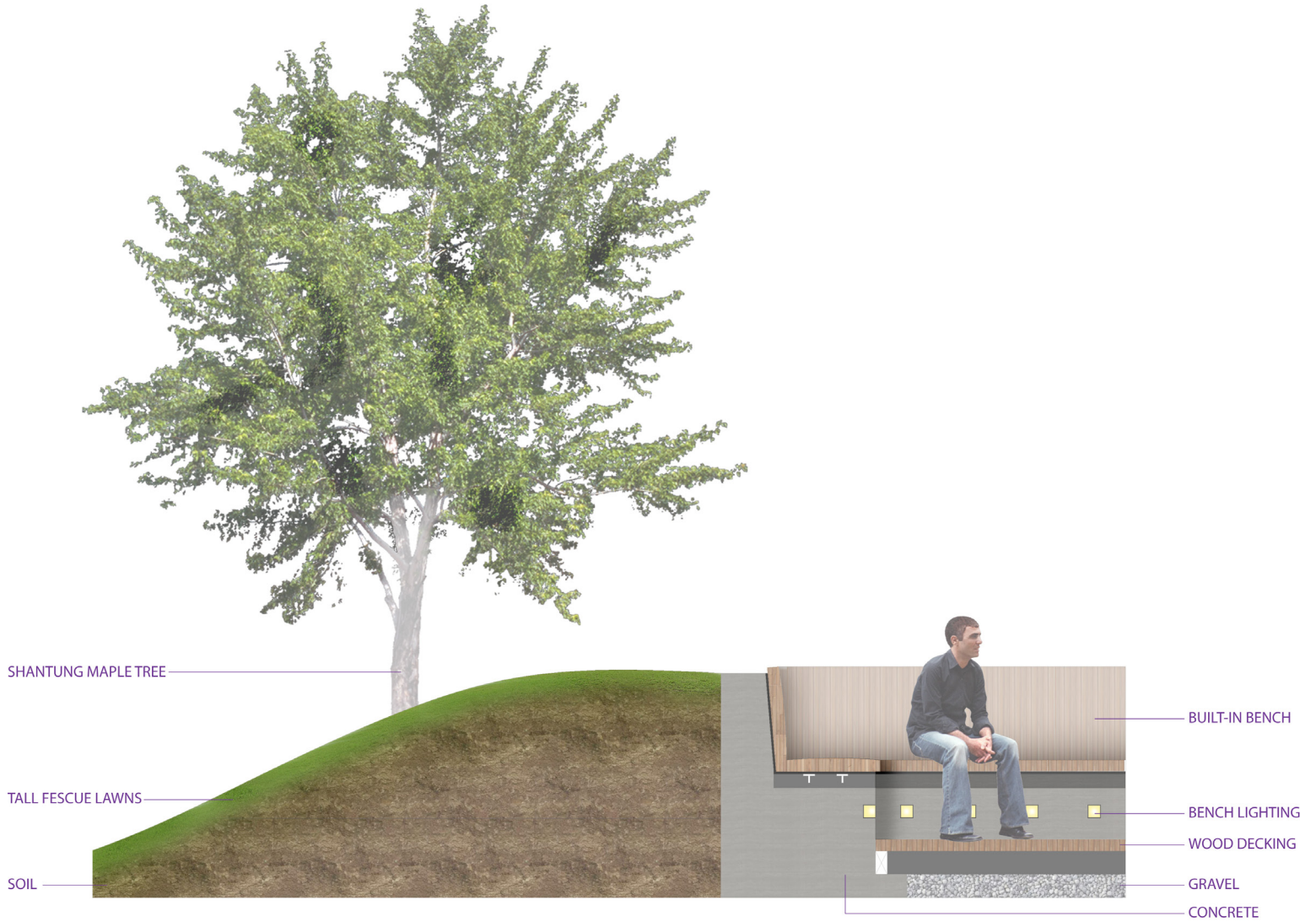
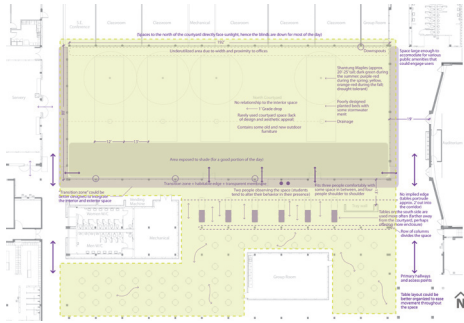
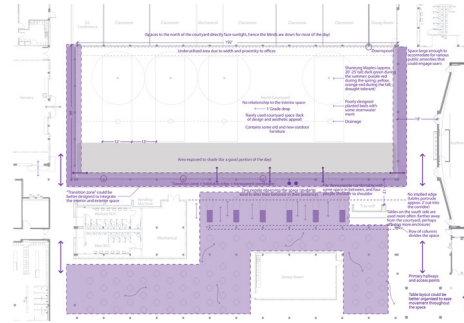


Figure 7.19: Detail of the outdoor bench seating (not to scale) (Author 2012)

(PEOPLE AND USAGE)



(COMFORT AND SAFETY)



Moveable seating

To accommodate for the large number of student body and allow for flexible seating options various gathering sizes.

Built-in benches

Provide users with multiple seating opportunities within various group gathering spaces.

Gathering space

Provide users with various gathering spaces, of various sizes, with various privacy gradients; semi-enclosed to open.

Figure 7.20: Vision reflecting the design of the North courtyard (Author 2012)



(SEATING ALCOVE DETAILS)

The transparent membrane edge has been manipulated to accommodate various seating alcoves, as seen in figure 7.21. The design of the seating alcoves located along the south side of the courtyard incorporates sliding windows. This type of window slides along the window frame so as to open or shut in a convenient manner. Sliding windows, as opposed to conventional windows that open outwards, do not take up as much space or obstruct circulation since they do not project outwards.

Having sliding windows along the south side of the courtyard allows for smoother integration between the interior and exterior spaces; when the windows are open they provide an implied interior-exterior relationship. Sliding windows are also more durable seeing as how they are comprised of fewer materials, such as hinges, as opposed to ordinary windows. They are also more durable since they incorporate window glazing, which improves insulation and energy efficiency by reducing ultraviolet (UV) ray infiltration of the interior space.

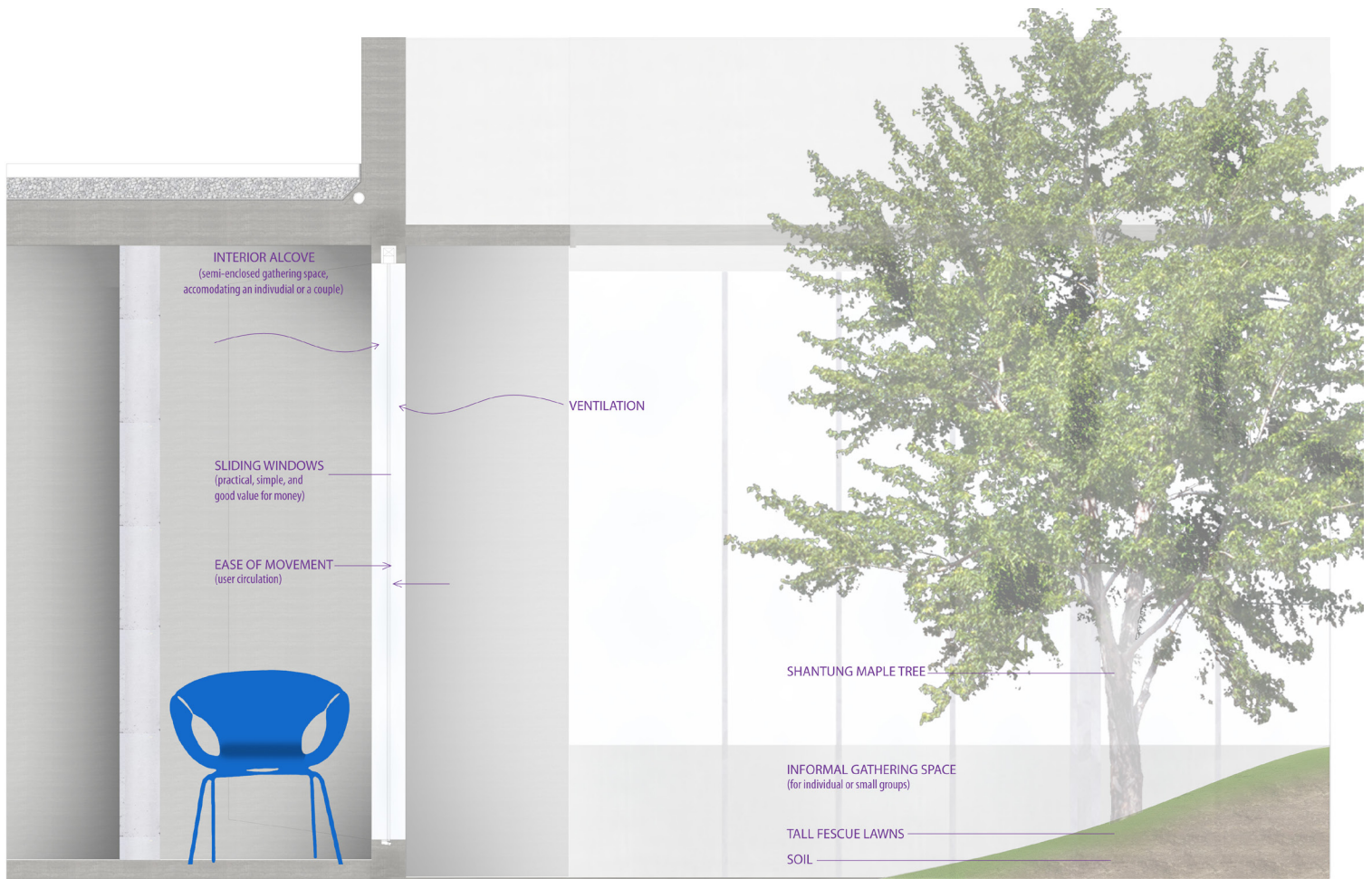


Figure 7.21: Detail of the seating alcoves on the south side (not to scale) (Author 2012)

The design of the seating alcoves located on the east and west ends of the courtyard incorporate operable casement windows, as seen in figure 7.22. Given their location, right by the gravel pathway for maintenance purposes, operable windows seem more fitting in this situation to allow for some privacy and increased ventilation. These operable windows tilt open to allow the circulation of natural breeze in the space while also providing some enclosure. Furthermore, when they are open, such windows do not project too far out and, as such, they do not impede nearby circulation paths.

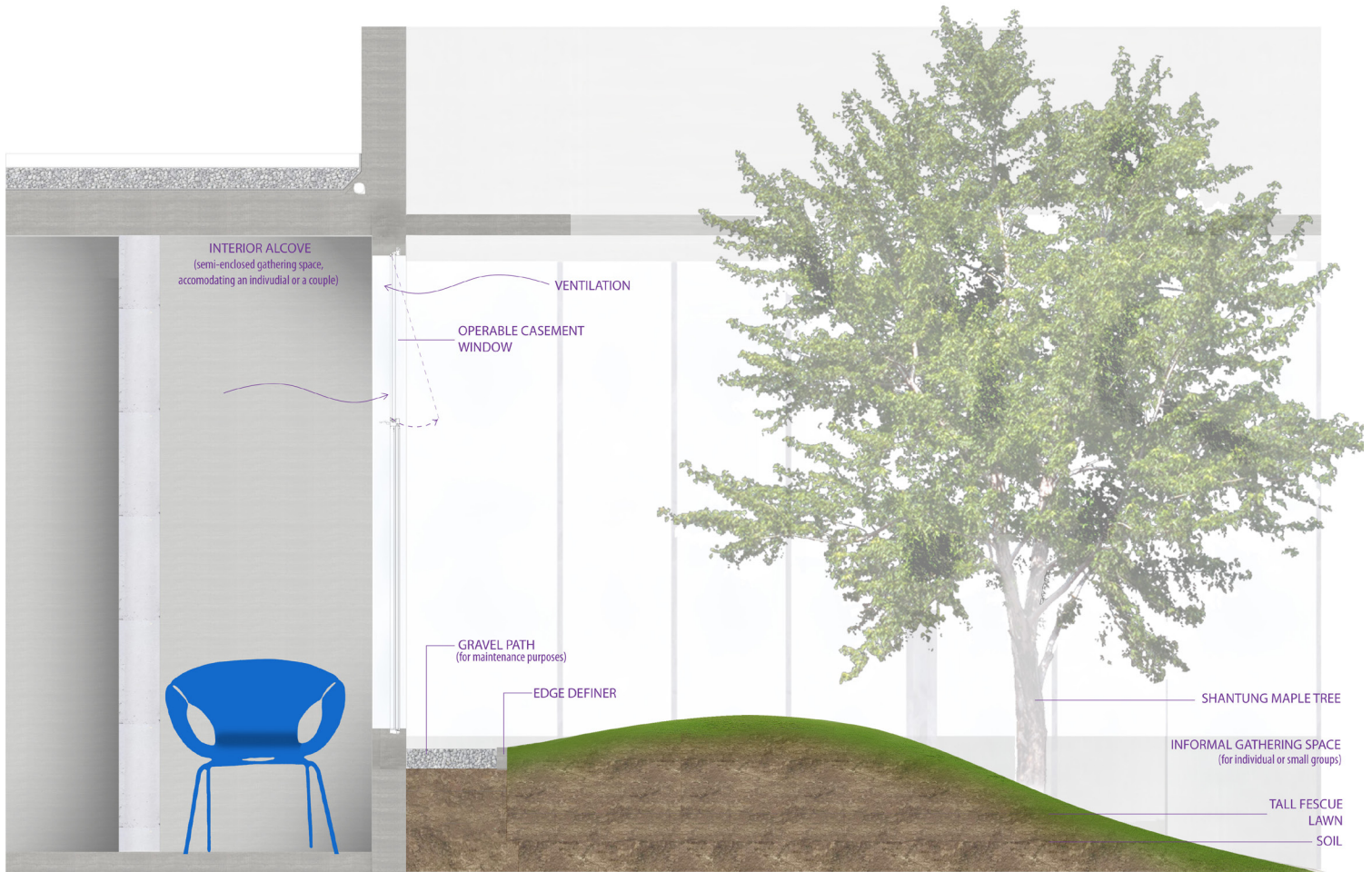


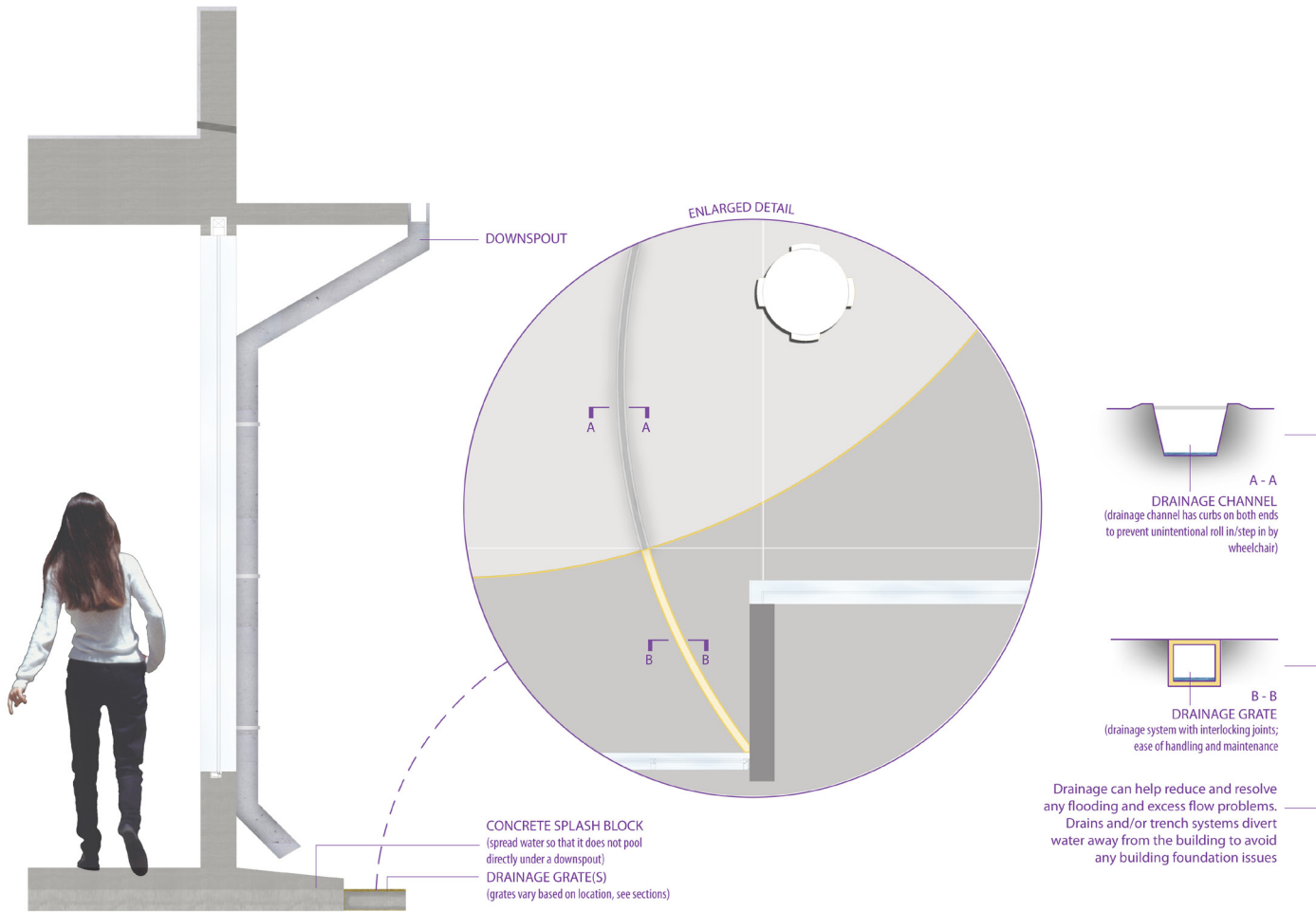
Figure 7.22: Detail of the seating alcoves on the east and west side (not to scale) (Author 2012)

(DRAINAGE DETAILS)

Part of the multi-layered courtyard design is the ecological aspect. Drainage is incorporated into the overall design of the space, as seen in figure 7.23, to manage storm water and reduce undesired flows. The courtyard, as it exists now, has a one-foot grade drop from east to west. Along with this sloping ground plane are four poorly planted beds with some storm water merit.

The newly proposed drainage system seeks to raise awareness of the significance of ecological design by revealing the flow and direction of the water. The recommended paths start from the existing downspouts and direct the water into one of the plant beds. The aim is to demonstrate how to incorporate and aesthetically integrate natural functions, such as drainage, into the overall design.

Figure 7.23: Detail of the drainage system (not to scale) *(Author 2012)*
Based on the location of the drainage path within the site some are covered with custom-made French grates while others are designed as small channels



“Plants are wonderful accessories. They are the quickest interjectors of liveliness and freshness to a room can add height, variety, color, drama all at once and are generally worth every penny you pay for them. There is almost no gap in a room that a plant cannot fill and improve, no piece of furniture that cannot be balanced by a spread of foliage.”

- Snyder, 14

PROJECT CONCLUSIONS

(PROJECT LIMITATIONS)

As with any other research project, I was faced with challenges and limitations while preparing this thesis. One of the limitations was lack of resources pertaining to development of interiorscapes. Most available resources purely discuss interiorscape maintenance. Other limitations included the small number of engaged faculty members at the school, and limited user feedback. User feedback can play a large role in the overall design of the space, providing information regarding user needs and visions. User feedback was also limited due to the time limitation. In order to complete this master's project, I had to balance my time to ensure that I have enough time to both analyze and design the site.

(PROJECT SUMMARY)

As with any other landscape design, interiorscaping is a constantly progressing field. At first glance, it may seem as though interiorscapes pertain to potted planters only. However, the deeper I delved into this topic the more I realized that interiorscaping is applicable to more than planters. The notion of interiorscaping dates back to ancient times, however back then it was used purely as an interior decorative element. It is through my thorough research and iterative design process that I realized interiorscaping, rather than referring exclusively to the workings of indoor planters, actually refers to a far more comprehensive working order. The concept of interiorscaping pertains to integrating the natural and built environments, and transitioning interior and exterior spaces. This makes interiorscaping a continually developing field, which presents several benefits to society.

Interiorscapes can enhance the overall productivity of users by creating pleasant and healthy environments (Gaines, 1977; Manaker, 1997). Interiorscaping integrates the natural and built environment through a multi-layered design transitioning the interior and exterior spaces. Furthermore, interiorscapes contribute to the overall aesthetics of a space, improve indoor air quality, and help buildings become

more energy efficient. Given these benefits and the fact that students spend a great deal of their time indoors, it is important that we provide students with richer environments that can promote creativity and user interaction.

Interiorscapes can also greatly influence how a building functions in a variety of ways. As designers, we strive to make our designs sustainable aiming for energy efficient buildings. The Indian theory "Vaastu Shashtra" considers buildings to be living-breathing organisms that respond to multiple interior and exterior forces. In order for a building to achieve that, the theory recommends that the center of the building be kept open and that it be allowed to breathe through the incorporation of a courtyard, for example. The courtyard is essentially a strategy that allows for cross ventilation in the building. This idea of cross ventilation is considered to be a sustainable design, promoting natural aeration and access to sunlight. Technically the site of this project, which is the north courtyard at Manhattan High School, is very similar to the idea of courtyard housing but in an institutional setting. Ultimately, the intent with interiorscaping is to provide users with pleasant healthier environments by integrating the natural and built environment and transitioning the indoors to outdoors.

(FUTURE RESEARCH)

Similar to all other design projects, the process never ends for the designers. The submittal of this report is not the end of this research topic. Instead, it has opened doors for further pursuit. Inspired by this living-breathing theory, it is very interesting to take this project a step further and explore more options such as:

How to go about promoting interiorscaping through sustainable design?

How can Manhattan High School further push this notion of interiorscaping within the campus to create richer space for its students?

How can the natural systems of the outdoor courtyard promote water harvesting and promote sustainable design and education?

What are some of the other design aspects or elements that can be researched and included into the design to further integrate the natural and built environments?

These are some of the questions that can be further pursued for future work and exploration. Future work would entail more research and design work addressing the questions mentioned earlier. Furthermore, as I progressed with my research and design I realized that the proposal is not only seeking to integrate the natural and built environments through interiorscaping but also redirecting the typical definition of interiorscapes away from exclusivity to indoor plants. My proposal is also addressing the notion of transitioning from the outdoors indoors, and vice versa. This notion of transition sparked the idea “transitionscapes.”

(CONCLUDING THOUGHTS)

Landscape Architecture as a profession is at the very forefront of the design and development realm. My education in this discipline, along with my architectural background, instilled in me a sense of enthusiasm and constant inquiry in terms of what to expect next and how to improve upon design. I always strive to put forth my best work in the hopes that it reflects my design abilities and the creativity that I have carefully nurtured over the years. The completion of a Master's project and report during the capstone year of my-three year program represents the major and final accomplishment of the Landscape Architecture program.

This Master's project provides its students the opportunity to not only reflect upon any given topic of interest, but also to showcase the final fruit of such interest. The work put forth in this project is also a reflection of everything that we have learned over the past three years. While this may have been a difficult task, it has nevertheless proven to be very rewarding. Equally worthy of mention is that the task has also been revelatory, as we were constantly challenged to see if we can delve even further into our subject of choice. In the end, I have found I am keenly and sincerely interested in shedding light on interiorscapes and bring this intriguing concept to the vanguard of landscape architecture.

SUPPORTING DOCUMENTS

(PLANT SELECTION)

In order to have a successful interiorscape, it is extremely important to have a clear understanding of suitable plants that can thrive in interior spaces. In his book "Interior Landscape Design," Nelson Hammer identifies some key factors "which over the years have enabled plants to thrive indoors" (Hammer, 16). The factors discussed and identified have been chosen are characterized as "factors which differentiate between interior and exterior landscaping" (Hammer, 16). These factors are, in no particular order:

- 1. CONTAINERIZATION:** interior plants tend to be planted within containers which can limit root growth and the life span of the plant itself; "root-constricted, for their usable life" (Hammer, 16). It is important to ensure that the location where the plants will be planted will be big enough to accommodate for the desired plant's root growth over time, and also clear from heavy traffic to avoid wearing over time.
- 2. IRRIGATION:** with interior plants one needs to consider "artificial means for irrigation" (Hammer, 16) for, unlike exterior plants, interior plants do not receive watering needs from rainfall. With irrigation, one needs to consider maintenance and how to keep a regular schedule for watering the plants.
- 3. LIGHT & GLAZING:** interior plants need to be able to "withstand the lower light [artificial] levels" (Hammer, 16). The placement of the plants, whether or not they will be placed by a glazed wall or not, and the amount of natural and/or artificial light they receive influences their growth.
- 4. TEMPERATURE:** interior spaces are acclimatized and controlled environments where one can adjust the temperature and lighting for maximum comfort. Interior spaces are also occupied by people who also need to be comfortable in them. Given that, the plant palette would be "limited to tropical and subtropical species which thrive in [such environments] and also tolerate the other noted limitations" (Hammer, 17).

- 5. HUMIDITY:** “the heating , ventilating, and air-conditioning (HVAC) systems of most modern buildings do not have special provisions for maintaining particular humidity requirements, with the result that many buildings will have humidities in the 10 to 20 percent range during the heating or air-conditioning season, as opposed to normal humidities for the outside air of that climate which may be 20, 40, or even 60 percent higher. Some plants which can tolerate other limitations cannot survive the drier humidity normally found indoors” (Hammer, 17).
- 6. LACK OF DORMANCY:** designers need to keep in mind that tropical and subtropical plants, like temperate plants, have a dormant period. Influential factors include light intensity, seasonal duration (Hammer, 17). “Interior plants must either be able to tolerate growth conditions all year long, or force themselves into dormancy without the benefit of temperature and light fluctuations, and must experience dormancy without dropping their leaves” (Hammer, 17).
- 7. MAINTENANCE:** with interior plants, unlike exterior plants, one should carefully consider maintenance. They should be groomed and constantly checked to avoid diseases and/or insect damage.
- 8. WATERPROOFING:** waterproofing the plant beds can help avoid future damages to interior finishes.

(PLANT PALETTE)

Plants play a significant role in our everyday environments, aesthetically and, more importantly, ecologically. Part of interiorscaping is to bring outdoor elements, such as plants, to the indoors. Table 2.1 lists some of the suggested plants to be used in this proposal, and are selected for a variety of reasons. The suggested plant selection is a minimalist palette for aesthetic cohesiveness and convenient maintenance purposes. Plants are categorized based on their location. Selected species have to do well with minimal sun or partial shade (especially if they are indoors) and require medium to low maintenance. The selected plants were also chosen for other reasons indicated in the characteristics/info column.

LOCATION	PLANT NAME (Common name/ Botanical name)
COURTYARD	Shantung Maple/ Acer truncatum
	Japanese Maple/ Acer palmatum
	Paperbark Maple/ Acer griseum
	Tall Fescue/ Festuca arundinacea 'Kentucky 31'
	Blue grama/ Bouteloua gracilis 'Blonde Ambition'
CAFETERIA SPACE (horizontal planes)	Horse Balm/ Collinsonia canadensis
	Mother-in-law's tongue/ Sansevieria trifasciata
	Tufted Hair Grass/ Deschampsia cespitosa
CAFETERIA SPACE (vertical planes/ cell system)	Christmas fern/ Polystichum acrostichoides
	Broad beech fern/ Phegopteris hexagonoptera
	Japanese shield fern/ Dryopteris erythrosora
	Maidenhair fern/ Adiantum capillus-veneris
	Ebony spleenwort/ Asplenium platyneuron
	Virginia creeper/ Parthenocissus quinquefolia
	English ivy/ Hedera helix var. baltica

Table 2.1: Plant palette details (Author 2012)

TYPE	HEIGHT	SUN	WATER	MAINTENANCE	TOLERATES	CHARACTERISTICS/INFO.
Tree	20'-25'	Full sun to part shade	Medium	Low	Drought and heat	Excellent small landscape tree, semi-small rounded deciduous tree, densely branched, rounded crown, good fall color
Tree	10'-25'	Full sun to part shade	Medium	Low		Attractive foliage and shape
Tree	20'-30'	Full sun to part shade	Medium	Low		Attractive peeling/exfoliating, cinnamon to reddish brown bark, and nice fall color
Turfgrass	0.25'-0.5'	Full sun, partial shade, wet, or dry	Medium	Medium	Drought and heat	Most popular and adapted turfgrass for Kansas lawns, grows under a wide variety of conditions, tolerant to a wide variation in environmental conditions, wear resistant
Ornamental grass	0.75'-2.5'	Full sun	Dry to medium	Low	Drought, dry soil, air pollution	Easily grown in average, dry to medium moisture, well-drained soils, showy flowers
Herbaceous perennial	2'-4'	Part shade	Medium	Low		Nice fragrance and showy flowers, medium or well-drained soils
Herbaceous perennial	2'-4'	Part shade	Medium	Low	Drought	Easy-to-grow plant that tolerates a wide range of environmental conditions, with proper maintenance will last for many years
Ornamental grass	2'-3'	Part shade	Medium	Low	Air pollution	Attractive look, showy flowers, easily grown in average, medium, well-drained soils
Fern	1'-2'	Part shade to full shade	Dry to medium	Low	Drought, dense shade	Interesting texture and form
Fern	1.5'-2'	Part shade to full shade	Medium to wet	Low		Interesting form
Fern	1.5'-2.5'	Part shade to full shade	Medium	Low	Dense shade	Easily grown in average to medium moisture soils, interesting colors and form
Fern	0.75'-1.5'	Part shade to full shade	Medium	Low	Dense shade	Ornamental fern and interesting form
Fern	0.5'-1'	Part shade to full shade	Dry to medium	Medium	Drought, dense shade	Interesting color and form
Vine	30'+	Full sun to part shade	Medium	Medium	Drought, dense shade	Attractive fall color
Vine	20'+	Part shade to full shade	Medium	Low	Drought, dense shade	Fast-growing evergreen, primarily grown as a climbing vine, considered to be an ornamental plant, helps clean indoor air

GLOSSARY

Controlled Environments

Acclimatized indoor spaces that are air-conditioned, or heated for maximum comfort, and where people can agreeably meet, eat, and interact with one another

Experiential Landscape

Relationship between people and the outdoor spaces they use in their everyday lives" (Thwaites and Simkins, i)

Interiorscape

The "practice [and the art and science] of designing, arranging, and caring for living plants in enclosed environments" (Interior Landscaping, 2010)

Landscapes

Appearance of the land; form, color, texture, and such, and the holistic picture of all these individual elements combined and the overall picture/pattern they create.

Overall Productivity

The quality of being productive and the quality of life for users.

People-plant Relationship

Understand how the presence of green affects people

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APPENDIX 'A'

LITERATURE REVIEWS AND LITERATURE MAP

Note: A collective annotated bibliography for the Landscapes of Learning umbrella group can be found on the K-State Research Exchange database under the Landscapes of Learning Collection. The URL to retrieve this document is: <https://krex.k-state.edu/dspace/handle/2097/13625>

(LITERATURE OUTLINE)

INTERIORSCAPES



● ● ● HUMAN-ENVIRONMENT INTERACTION ● ● ● *Interaction, engagement, human-behavior performance*

- ○ ○ The Built Environment - A Collaborative Inquiry to Design (Tom McClure and J. Bartuska, 2007)
- ○ ○ Interior Landscapes - An American Design Portfolio of Green Environments (Nelson Hammer, 1999)
- ○ ○ Interior Landscape Design (Nelson Hammer, 1992)
- ○ ○ With People in Mind (Rachel Kaplan and Stephen Kaplan, 1998)
- ○ ○ Green Nature Human Nature: The Meaning of Plants in Our Lives (Charles A. Lewis, 1996)
- ○ ○ Interior Landscapes - Horticulture and Design (Jerome Malitz and Seth Malitz, 2002)
- ○ ○ Experiential Landscape – An Approach to People, Place and Space (Kevin Thwaites and Ian Simkins, 2007)

● ● ● HEALTH & WELLNESS ● ● ● *Physical and psychological benefits, cleaner and healthier environments*

- ○ ○ Interior Landscapes - An American Design Portfolio of Green Environments (Nelson Hammer, 1999)
- ○ ○ Green Nature Human Nature: The Meaning of Plants in Our Lives (Charles A. Lewis, 1996)
- ○ ○ Interior Landscapes - Horticulture and Design (Jerome Malitz and Seth Malitz, 2002)
- ○ ○ Environmental Interiorscapes: A Designer's Guide to Interior Plantscaping and Automated Irrigation Systems (Stuart D. Snyder, 1995)

● ● ● EXPERIENTIAL LANDSCAPES ● ● ● *"Hands-on" experience, exploration through interaction*

- ○ ○ Experiential Landscape – An Approach to People, Place and Space (Kevin Thwaites and Ian Simkins, 2007)

● ● ● SCHOOL ENVIRONMENTS ● ● ● *Educational facilities (various ages)*

- ○ ○ Landscapes for Learning: Creating Outdoor Environments for Children and Youth (Sharon Stine, 1997)
- ○ ○ The Passionate Mind of Maxine Greene: 'I am ... not yet' (William F. Pinar, 1998)

● ● ● PARTICIPATORY DESIGN ● ● ● *Incorporating the community in the design process*

- ○ ○ With People in Mind (Rachel Kaplan and Stephen Kaplan, 1998)
- ○ ○ Landscapes for Learning: Creating Outdoor Environments for Children and Youth (Sharon Stine, 1997)
- ○ ○ The Passionate Mind of Maxine Greene: 'I am ... not yet' (William F. Pinar, 1998)

● ● ● GREEN SPACE ● ● ● *Public/private & interior/exterior open spaces*

- ○ ○ Interior Landscapes - An American Design Portfolio of Green Environments (Nelson Hammer, 1999)
- ○ ○ Interior Landscape Design (Nelson Hammer, 1992)
- ○ ○ Environmental Interiorscapes: A Designer's Guide to Interior Plantscaping and Automated Irrigation Systems (Stuart D. Snyder, 1995)

(KEY QUOTES)

“A deeper understanding of how *humans experience open spaces* can ultimately feed into and change the *design process* for such spaces” (Thwaites and Simkins, Introduction)

“How to *effectively engage* with children to ensure that outcomes provided not only desired physical elements, or educational opportunities, for example, but were also *experientially rich* in the way this is understood in the concept of *experiential landscape*” (Thwaites and Simkins, 172-173)

“Perhaps those *indoor landscapes* satisfy some need to make *contact with nature*...”*crave some representation of nature...available in any season, in any climate, and at any time of the year*” (Malitz, 7)

“*Interior landscapes* – and the pleasure they can bring – have no limits” (Malitz, 11)

“To be in touch with our *landscapes* is to be conscious of our *evolving experiences*, to be aware of the ways in which we encounter our world” (Pinar, 2)

“We instinctively crave *natural features* in our surroundings” (Lewis, 14)

“The physical condition of a community, its buildings, streets, and vacant spaces, makes an enormous difference in the way members of the community feel about themselves. What we see often tells us what we are” (Lewis, 54)

(GREEN NATURE/HUMAN NATURE: THE MEANING OF PLANTS IN OUR LIVES)

KEYWORDS: HUMAN-ENVIRONMENT RELATIONSHIP, HEALTH & WELLNESS

In his book "Green Nature/Human Nature," Lewis examines the people-plant relationship in order to understand how the presence of green affects people, particularly at a psychological level. He traces "the history of our relationship with plants, from the time when they formed nurturing context our emergence as a successful species to their ambiguous status today in much of the inhabited world" (Lewis, 121). Lewis, after much research, emphasizes that acknowledging the power of the human to plant connection we begin to understand how nature influences people, of all ages and backgrounds, both physically and psychologically; our well-being. This powerful connection and interaction is evident "in the behavior of city-dwellers who seek relief from urban stress by frequenting parks or fleeing to weekend retreats in the country" (Lewis, xviii). This in turn stresses Lewis' point about how "contact with green nature is essential to [our] well-being and offers peace and assurance" (xviii) in a contemporary, technological world. Having a hint of green in our built environment indicates renewal and hope, and brings life to our bland materials such as concrete, asphalt, and the like. Thus, it is important to incorporate nature in various settings including work, learning, and play contexts.

The built environment greatly affects our relationship with nature, where the "physical condition of a community, its buildings,

streets, and vacant spaces, makes an enormous difference in the way members of the community feel about themselves" (Lewis, 54). With school settings, Lewis emphasizes how important it is for children to interact and connect with nature at an early age. He states that by establishing this connection at an early age children will come to develop an appreciation for and to nature at an early stage, and continue to do so as they grow; for "what we see often tells us what we are" (Lewis, 54). It is not enough for us to rely on the information gained by the media about nature programs, "only personal experience fully opens young minds to an appreciation and feeling of stewardship for nature" (Lewis, 70).

People unconsciously seek to incorporate natural features into their everyday environments; whether it was at work, home, or school. Having that natural element, or touch of a green, within our setting influences and benefits us at a physical, mental, and social level; for example reducing stress, creating a positive and cleaner working environment, and boosts our performance levels.

It is Lewis' exploration on the importance of acknowledging the people-plant relationship and the benefits that come along with that provided the basis for my research in terms of further exploring and incorporating nature indoors in order to create richer spaces.

(THE PASSIONATE MIND OF MAXINE GREENE: "I AM --NOT YET")

KEYWORDS: PARTICIPATORY DESIGN, SCHOOL ENVIRONMENT

In "The Passionate Mind of Maxine Greene," Pinar explores Greene's perspective on Landscapes of Learning; her experience and process of living and being present, along with her student's experience. He states that Greene offers a different perspective on teaching, where she encourages her students to become "more intentional and aware, [confront] issues as they [emerge in their] own consciousness and [their] lives (Pinar, 30). Greene also asks her students to "[integrate their] situations carefully, and [respond] thoughtfully to what [they uncover and discover]" (Pinar, 30).

Greene, in her research, examines the different methods and systems of learning that is being employed in schools. The research indicated that some schools are promoting "behavioral objectives [...] as the most efficient way to present information to students and assess their learning" (Pinar, 29). However, Pinar disagrees with that and does not feel comfortable with this approach/system of learning. This discomfort stems from how students are treated "as passive, disembodied recipients of expert information" (Pinar, 29). He believes that the demand and persist for the schools to get "back to the basics" is not an efficient approach since it focuses on minute and neglects to address the significant issues at hand. Another problem with the "back to basics" and standardizing elements, which can be seen in several organizations such as the National Research Council that have

"labored to establish national standards" (Pinar, 29), is the complete disregard to the children's unique learning abilities; where "one size does not fit all." With "back to basic" approach the "complex relationships among individual differences, cultural history, and social systems are ignored [causing] such alienation from self and experience created in schools" (Pinar, 30). The employment of the "scientific methods" in schools to transfer information from teacher to students in schools "places little curricular emphasis on the student as a unique, complex person" (33). Greene proposes that this approach be changed in order to incorporate and emphasize the child's experience; both "within the school and out" (33).

There are only a few opportunities for students to imagine and be creative, and a school environment is one of those places. "The most important function of the school is to provide an environment in which students can explore choices, raise questions and reach for alternatives in the situatedness of their lives" (33). This literature "provides grounds from which to understand that which may be too volatile to view clearly from personal experience only" (32). It also provided a basis for my research in terms of understanding how to go about addressing the relationship between children and their learning abilities.

(EXPERIENTIAL LANDSCAPE - AN APPROACH TO PEOPLE, PLACE, AND SPACE)

KEYWORDS: INTERIORSCAPING, HUMAN ENVIRONMENT INTERACTION, HEALTH & WELLNESS



Figure 8.1: Principle techniques that constitute participatory activity (diagram by author, adapted from Thwaites and Simkins 2007)
Thwaites, Kevin and Ian Simkins. 2007. Experiential Landscape - An Approach to People, Place and Space. London and New York: Routledge Taylor & Francis Group.

Experiential Landscape explores new approaches and techniques for looking at the “relationship between people and the outdoor spaces they use in their everyday lives” (Thwaites and Simkins, i). Thwaites and Simkins have taken a holistic approach, both theoretical and practical, to investigating how “outdoor spaces can take on new and dynamic meanings [... in what we consider] apparently routine settings” (Thwaites and Simkins, i). Their aim was to provide readers with an in-depth understanding of the relationship and interaction between humans and outdoor spaces, in the hopes that this understanding will ultimately influence and change the design process of these spaces to create richer environments.

In exploring the application of experiential landscaping, Thwaites and Simkins study the potential of applying their ideas within different contexts and settings. One of these contexts is school grounds, looking at how “experiential landscape methods have [or can] been used to understand and then inform changes in school grounds” (Thwaites and Simkins, 138). The authors talk about how those involved in the design process of school environments should take into consideration the users’, in this case the children’s, points of view in all matters that would affect them. Reason being is that these spaces, occupied by children, can greatly influence and contribute to their social development and well-being. A series of studies were conducted in a variety of ways, some of which can be seen in figure 8.1, in order to develop a method or framework to which designers can resort to reveal the experiential nature of the children’s outdoor space. The outcome of these studies revealed

significant differences in place perception between the adults, children, and in particular the professionals involved in the design of these child-friendly spaces. Out of the five studies/methods mentioned here, the two that I believe could be implemented in my project are the non-participant observation; where I’d observe how users go about using the space. The second study/method is the semi-structured interview that would create a sense of connectedness with the participants and allow for ease of talking and exchanging ideas.

Thwaites and Simkins spend much of the book exploring the theoretical and practical aspects of experiential landscape method. Some of the topics covered by the authors include the concept of experiential landscape, its vocabulary, how can one go about reading experiential landscapes.

Experiential Landscapes is an invaluable resource, offering guidance and methods, to designers interested in how to go about approaching outdoor place-making, or merely how to go about analyzing or designing everyday outdoor spaces. Emphasizing the significance of engaging users throughout the design process, to ensure that “outcomes provided [are] not only desired physical elements, or educational opportunities, for example, but were also experientially rich in the way this is understood in the concept of experiential learning” (Thwaites and Simkins, 172-173). It is Thwaites’ and Simkins’ research that provided the basis, for a sample, for how to go about incorporating users’, my target audience, in the design process of the interiorscape.

(LANDSCAPE FOR LEARNING: CREATING OUTDOOR ENVIRONMENTS FOR CHILDREN & YOUTH)

KEYWORDS: HUMAN-ENVIRONMENT RELATIONSHIP, HEALTH & WELLNESS

In her book "Landscapes of Learning," Stine explores the idea of "outdoor settings that are part of the entire educational experience" (Stine, xii). Stine explores the idea of creating rich educational settings within both interior and exterior spaces. She states that "so often we discount the potential of outside spaces as a setting for learning" (Stine, xii). These exterior spaces are often perceived as transitional spaces, excess spaces, as places to pause between classes, or merely neglected spaces. Stine also talks about how we are struck by the "contrast between outside and inside [spaces] – its design and purpose" (Stine, xi), when in fact we should think about the quality of interior spaces, too, as learning settings.

Both spaces, interior and exterior, should include a range of activities and exposure to some natural element(s) that can help with the development and growth of children over time. Stine states that "without exposure to a range of activities in the natural world, children's play and learning experiences are restricted" (Stine, 32). This aspect of "play" is an important design consideration as it is the way children learn, and can greatly influence their development and growth. Furthermore, play is not limited to children only, "adults engage in play as an essential experience throughout the life cycle" (Stine, 17). Nonetheless, play environments can also be educational settings; kill two birds with one stone. It is through play that both children and adults can learn a great deal about their surroundings and about themselves as "self-directed learners" (Stine, 17).

The physical environment, both interior and exterior, not only support play activity but are also a major educational tool. These environments have three major "players," as Stine refers to them, and they are the designer; "maker" of the school form, the teacher; "maintainer" of the environment, and finally the children; those that "mess-up" the space (Stine, xiii). All of these "players" should interact with one another, and collaborate on the design of the space in order to create rich learning environments for all. Stine states that it is important to consider the "resources, needs, and comfort [which] vary vastly between these three players," and to also consider "the personal preference, values, goals" which can impact the decision of the players. Including all three players into the design process would greatly benefit the design of the space, and increasing the potential opportunities for "growth and creative problem solving" (Stine 37) for all. Stine goes on to explore various school settings looking at how their environments provide a learning environment that promotes the development and growth of its students.

It Stine's research and exploration, along with the work of other authors, that provided guidelines and a bases for my research about including a natural setting within an educational environment. It is this type of research that can support my argument about the significance of interiorscapes and the benefits of integrating them in school settings.

Stine, Sharon. 1997. *Landscapes for Learning: Creating Outdoor Environments for Children and Youth*. New York: J. Wiley & Sons.

(INTERACTION WITH NATURE DURING THE MIDDLE YEARS: ITS IMPORTANCE TO CHILDREN'S DEVELOPMENT & NATURE'S FUTURE)

KEYWORDS: HUMAN-ENVIRONMENT RELATIONSHIP, SCHOOL ENVIRONMENTS

"With children's access to the outdoors and the natural world becoming increasingly limited, schools, where children spend 40 to 50 hours per week, may be mankind's last opportunity to reconnect children with the natural world and create a future generation that values and preserves nature."

- White, 6 (Herrington & Studtmann 1998, Malone & Tranter 2003)

In his article "Interaction with Nature during the Middle Years: Its Importance to Children's Development & Nature's Future," White examines nature's influence on the design of school environments and its students. White examines this topic by researching and synthesizing previously published literature, such as that of Moore and Wong and Kellert, regarding the interaction with nature and its significance.

From a school designer's and staff point of view, schoolyards are to be designed in such a way that would allow for ease of surveillance, maintenance, and a break from students. The problem with such thinking, which is evident in current schoolyards, is the barren design of school environments. Such environments are lacking elements that promote social interaction, such as benches, shade and shelter elements. This missed opportunity is also a reflection of a "lack of understanding of how quality outdoor [...] environments can provide [students] rich educational opportunities,

particularly in the area of social skills and environmental learning" (White, 1).

White, later on in the article, discusses the significance of students' interaction with nature. Some of the literature reviewed in this article suggest that the "natural environment has profound effects on the well-being of adults, including psychological well-being and superior cognitive functioning" (White, 4). Other studies indicate that students experiencing Attention Deficit Hyperactivity Disorder (ADHD) symptoms are "better able to concentrate after contact with nature" (White, 4). Additional benefits include higher test scores, "more advanced motor fitness" (White, 4), an improvement in the student's "cognitive development by improving their awareness, reasoning and observational skills" (White, 4), and a reduction or elimination of anti-social behavior such as violence and bullying. Designers are realizing the significance of nature in school environments, as is society, where watching nature on television and other media related aspects is not enough, as it is ultimately causing us to lose interest in nature as a whole; neither appreciate it nor understand it. However, it is important for this bond with nature to start and develop at an early age, and also to be maintained through regular interaction with nature. Given that students spend a great amount of time in school, one should consider taking advantage of this fact. It is important to maintain that interaction from a student's perspective, which would

entail discovery and exploratory learning as opposed to a "pure didactic approach" (White, 6). This would also entail and support a "hands-on" learning approach rather than having to memorize facts and such information. To sum up, these school grounds should be perceived as providing great opportunities for developing several social skills, and also as an extension of classrooms, promoting experiential learning through discovery and "hands-on" learning.

It is White's exploration of the significance of interacting with nature that provided the basis for my research in integrating interiorscapes within our built environments. White's emphasis on schoolyards as great learning and social opportunities further emphasizes my research of integrating the natural and built environment.

(SERVICE LEARNING IN AN URBAN CONTEXT: IMPLICATIONS FOR PLANNING AND DESIGN EDUCATION)

KEYWORDS: SERVICE LEARNING

In his book "Green Nature/Human Nature," Lewis examines the people-plant relationship in order to understand how the presence of green affects people, particularly at a psychological level. He traces "the history of our relationship with plants, from the time when they formed nurturing context our emergence as a successful species to their ambiguous status today in much of the inhabited world" (Lewis, 121). Lewis, after much research, emphasizes that acknowledging the power of the human to plant connection we begin to understand how nature influences people, of all ages and backgrounds, both physically and psychologically; our well-being. This powerful connection and interaction is evident "in the behavior of city-dwellers who seek relief from urban stress by frequenting parks or fleeing to weekend retreats in the country" (Lewis, xviii). This in turn stresses Lewis' point about how "contact with green nature is essential to [our] well-being and offers peace and assurance" (xviii) in a contemporary, technological world. Having a hint of green in our built environment indicates renewal and hope, and brings life to our bland materials such as concrete, asphalt, and the like. Thus, it is important to incorporate nature in various settings including work, learning, and play contexts.

The built environment greatly affects our relationship with nature, where the "physical condition of a community, its buildings, streets, and vacant spaces, makes an enormous difference in the way members of the

community feel about themselves" (Lewis, 54). With school settings, Lewis emphasizes how important it is for children to interact and connect with nature at an early age. He states that by establishing this connection at an early age children will come to develop an appreciation for and to nature at an early stage, and continue to do so as they grow; for "what we see often tells us what we are" (Lewis, 54). It is not enough for us to rely on the information gained by the media about nature programs, "only personal experience fully opens young minds to an appreciation and feeling of stewardship for nature" (Lewis, 70).

People unconsciously seek to incorporate natural features into their everyday environments; whether it was at work, home, or school. Having that natural element, or touch of a green, within our setting influences and benefits us at a physical, mental, and social level; for example reducing stress, creating a positive and cleaner working environment, and boosts our performance levels.

It is Lewis' exploration on the importance of acknowledging the people-plant relationship and the benefits that come along with that provided the basis for my research in terms of further exploring and incorporating nature indoors in order to create richer spaces.

APPENDIX 'B'

LANDSCAPE OF LEARNING PRECEDENTS

MIDLAND SCHOOL

LOCATION:

Los Olivos, California

DATE DESIGNED:

The Midland School was “born during the depression years, and it fit philosophically with the necessities of those difficult times” (Stine, 69)

SITE DESIGNERS:

Paul Squibb

PROJECT BACKGROUND:

Situated within an “oak-studded grassy hills of the central coast of California,” the school is “grounded in the vision of its founder, Paul Squibb, who wanted to build a “simple life” for boys” (Stine, 68). The school, seen in figure 5.17, sits on a 2,860 acres piece of land; which is the “current land holding and boundary of Midland School” (Stine, 69).

DESIGN AND CONCEPT:

“The founder’s primary goal was to create an educational environment that minimized buildings, equipment, and services in favor of careful study, and outdoor life, and self-help.”

- Stine, 68-69

Squibb intended for the school ground, seen in figure 5.18 to 5.21, to be a hands-on learning, and fruitful experience for its students and users; “a philosophy of self-sufficiency” (Stine, 75). The physical changes that took place on campus have always been conducted and completed by the Midland community itself; in a way “believed to be consistent with the goals and values of the school” (Stine, 79). There was no outside help,

it was the responsibility of the community to maintain the campus, build it, and remodel it. Squibb believed that “people needed to learn that “money, food, light, heat, and water are not things that flow naturally out of pipes but things for which someone has to spend time, thought, and energy” (Stine, 70). It is the vision of Midland’s founder, Paul Squibb, that shaped the built forms of the campus.



MIDLAND SCHOOL | CORE CAMPUS

A "SELF-SUFFICIENT" ENVIRONMENT

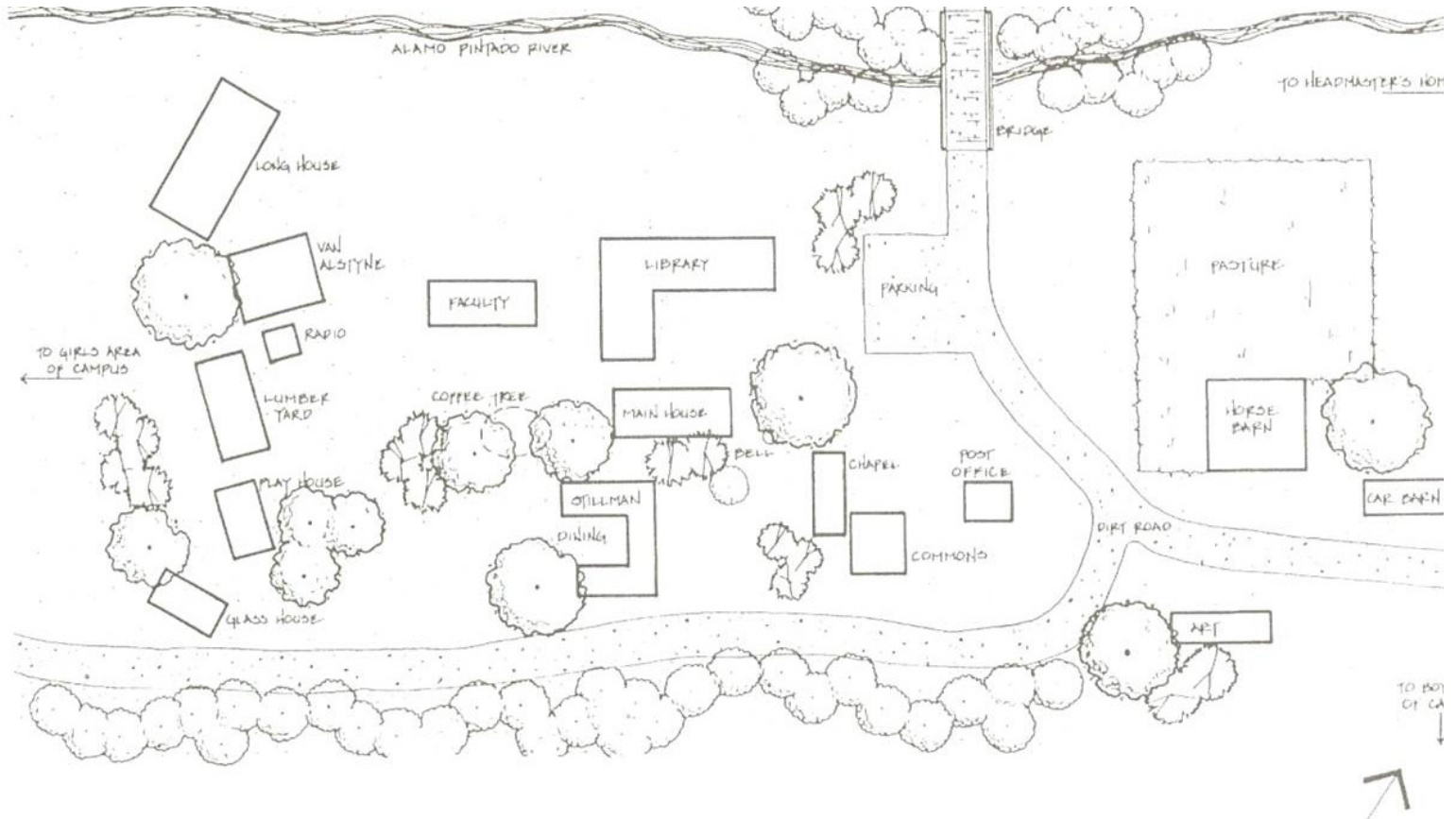


Figure 5.17: Primary buildings and outside environments, at Midland School, used by the community (Stine 1997, 81)

A PLACE OF...



(146)

Figure 5.18: (left) Gathering spot at Midland, for morning break, around the coffee tree (Stine 1997, 76)

Figure 5.19: (right) Students practicing welding outside in the car park work area at Midland (Stine 1997, 74)

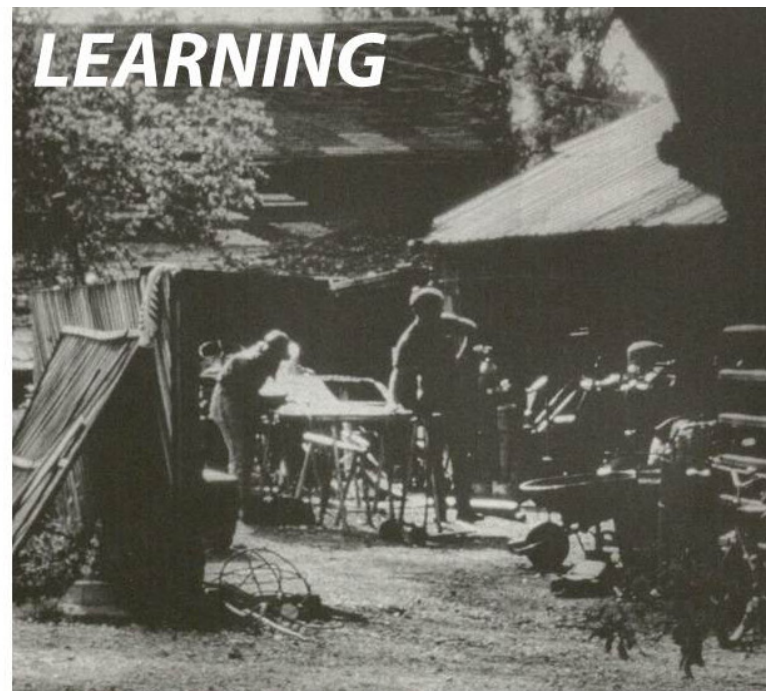
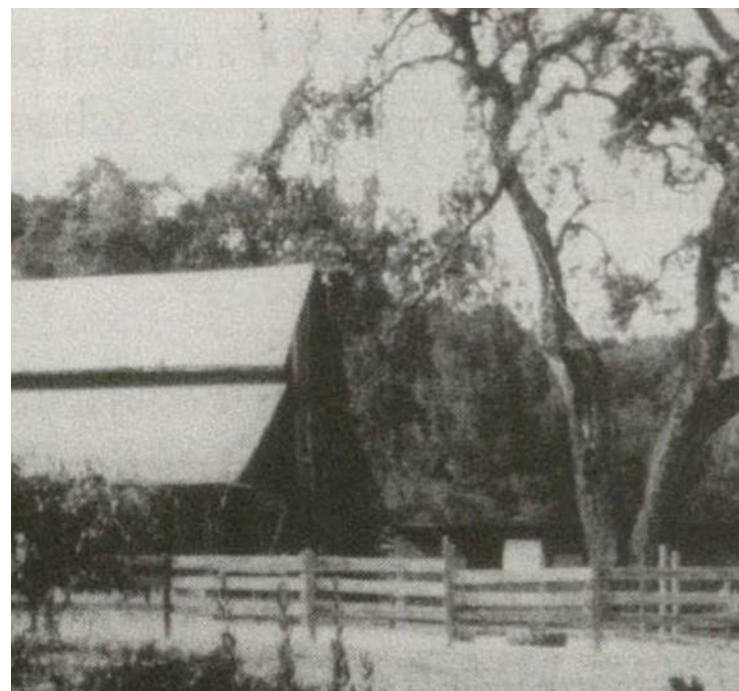




Figure 5.20: (left) Teens enjoy “hanging out” at the school reservoir at Midland, a place for retreat for students (Stine 1997, 73)

Figure 5.21: (right) One of the landmark buildings at the Midland campus; the horse barn (Stine 1997, 72)



ROSEMEAD HIGH SCHOOL

LOCATION:

Rosemead, California

DATE DESIGNED:

Rosemead High School, seen in figure 5.22, was built in 1949 during the “post-World War II housing boom” (Stine, 206)

SITE DESIGNERS:

N/A

PROJECT BACKGROUND:

Nestled within neighborhoods of small-single family, middle class homes, and apartment complexes, Rosemead high school “served a growing suburban population” (Stine, 207). The high school, like many other high schools, experienced several changes over time seen in the greater Los Angeles area school system. Some of these changes include an influx of immigrants, and/or families “fleeing political or economic crisis” (Stine, 207) from various countries. While the school maintained its design and physical environment for multiple years, it was “deteriorated in the 1970s because of diminishing funds available from traditional sources” (Stine, 208). Restorative efforts began in the 1980s, however, most of the repair and attention went to the physical building and little attention was paid to the central courtyard; “Panther Square.” The courtyard was experiencing an increase in “the overall amount of asphalt...and a loss of trees” (Stine, 208).



ROSEMEAD HIGH SCHOOL | PANTHER SQUARE

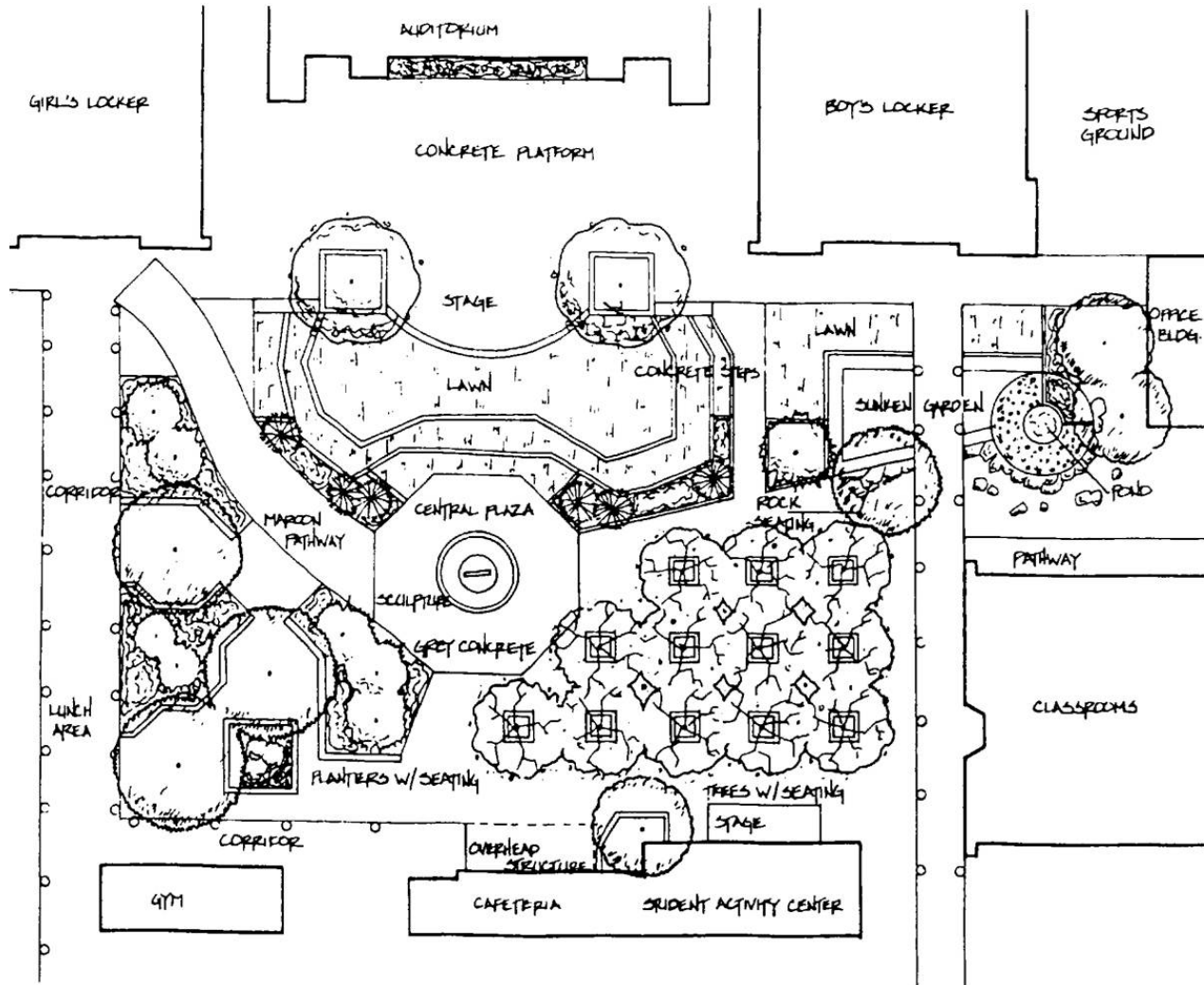


Figure 5.22: Proposed design for Rosemead High School completed with teenagers and graduate students enrolled in Landscape Architecture at California State Polytechnic University in Pomona (Stine 1997, 212)

DESIGN AND CONCEPT:

*The graduate students “described **concept plans** and suggested a design to change Panther Square. The teens saw their ideas take form. **Comfort, maintenance, and aesthetics**, three elements the teenagers described as major issues, were used as guiding concepts in the **design process.**” - Stine, 211*

As part of the restoration process, specifically of the outdoors, the high school administration reached out to the Landscape Architecture program at California Polytechnic University, Pomona, to collaboratively work together and redesign the outdoor spaces. Graduate students, from both the landscape architecture program and architecture program, work hand-in-hand with the faculty, staff, and students of Rosemead high school to gain a better understanding of the opportunities and constraints of the school's outdoor space; primarily “Panther Square,” seen in figure 5.23. Several workshops were hosted to gain insight of the user's needs and visions of the space, seen in figure 5.24 and 5.26; in order to create a successful outdoor learning environment. The result of this collaborative work was a series of potential plans and ideas for the space.

The design group used the “Take Part” process which was developed by Jim Burns (1979) as a model (Stine, 210). This process entailed small groups to get together and explore the outdoor space through a series of “awareness walks” (Burns and Halprin, 1974), as seen in figure 5.25. From these walks cognitive maps were created using color codes to indicate what was favorable/liked, and what was unfavorable/disliked. Along with this process, a survey was passed out to gain more input from a wider range of students. Throughout the process the graduate students were observing the students and recording their findings about how the space was used. The final design by the graduate students “created new design elements, based on the teenagers' desire to use the school colors and mascot, to create an outdoor setting with meaning for this particular high school” (Stine, 212).

“FEW NATURAL SPOTS MAIN IN THE HIGH SCHOOL GATHERING AREA, EXCEPT FOR SPACE ADJACENT TO THE “SENIOR WALL””

- Stine, 208

Figure 5.23: One of the few natural spots on Rosemead High School campus (Stine 1997, 208)

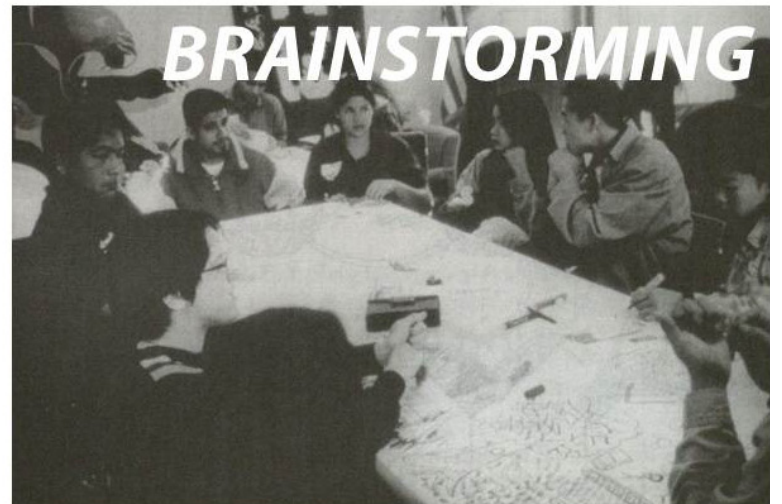
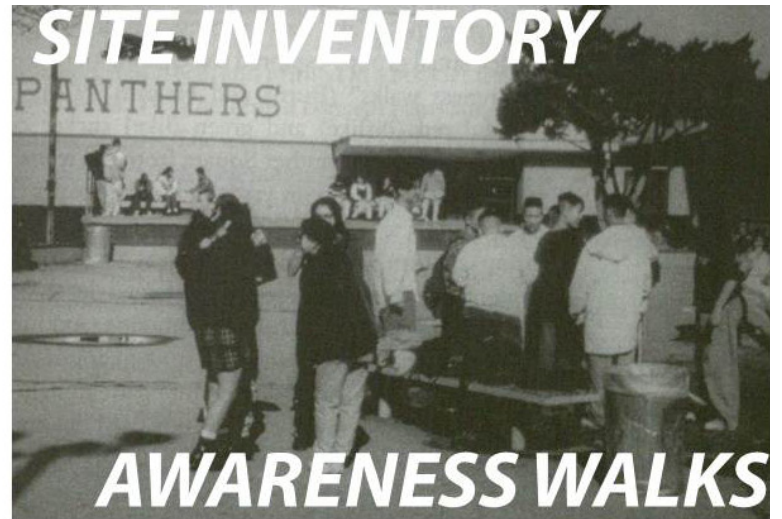


“RESEARCH CONDUCTED THROUGHOUT THE WORLD CONSISTENTLY FINDS THAT THE INVOLVEMENT OF CHILDREN AND YOUNG PEOPLE IN PROJECTS LEADS TO A SENSE OF RESPONSIBILITY FOR MAINTENANCE, CARE AND PROTECTION OF THAT WHICH HAS BEEN CREATED.” - Stine, 213

Figure 5.24 (left) Working in teams, high school students begin to express their ideas about their outside gathering area at Rosemead High School (Stine 1997, 210)

Figure 5.25 (top right): High school students begin to inventory their site, taking awareness walks as a first step in the redesign process for Panther Square at Rosemead High School (Stine 1997, 209)

Figure 5.26 (bottom right): Groups brainstorm what they need in Panther Square at Rosemead High School (Stine 1997, 211)



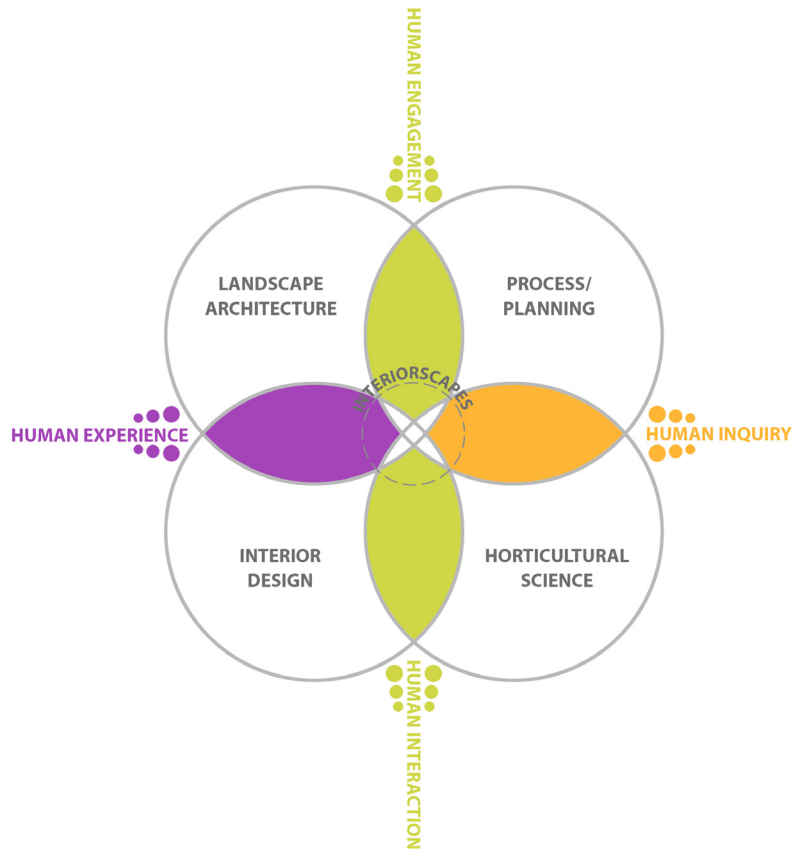
APPENDIX 'C'

PROCESS DIAGRAMS

(PHILOSOPHY DIAGRAM)

INTERIORSCAPING = LANDSCAPE ARCHITECTURE + PROCESS/PLANNING +
INTERIOR DESIGN + HORTICULTURAL SCIENCE

The interior circles are what relate to the spatial interiorscape elements and the colors where they overlap are the human/social interaction with the interiorscape.



(EXPLORATORY RESEARCH QUESTIONS)

1. INTERIORSCAPES:

- a. What are interiorscapes?
- b. How can interiorscapes enhance the performance and productivity of the people using the space (be it and educational, work, or commercial setting)? (Performance/Productivity standards)
- c. How does plant design influence our daily actions? Behavior and productivity?

2. EXPERIENCE:

- a. What is the human experience like in exteriorscapes vs. interiorscapes? (Are they comparable? Can one compare the two?)
- b. What influences our experience? (objects, colors, temperature, light, etc...senses and perception)
- c. How can one's experience influence their learning and sense of attachment/sense of belonging?
- d. How does plant design influence our experience of a space?

3. HUMAN BEHAVIOR:

- a. What significance does having an understanding of human behavior have on how a space is designed?

4. FUNCTION/FORM:

- a. How can one create an aesthetically pleasing place without losing the intended 'true' function of the space over time (ex. if we are to design landscapes of learning how can we go about doing that without having to worry about something "failing"?...temporal aspect considerations)

5. LEARNING STYLES:

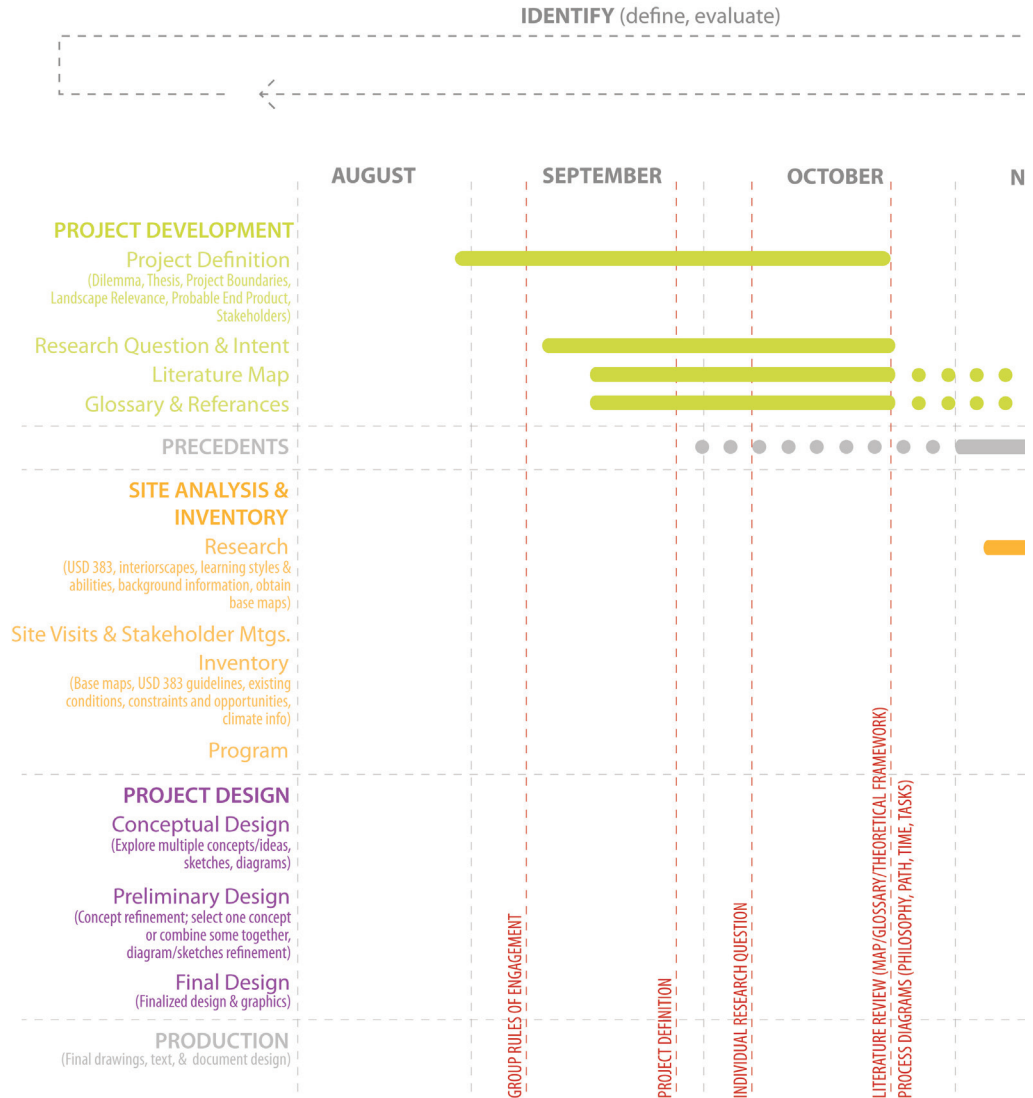
- a. What are the different types of learning styles? (ex. formal vs. informal learning?)
- b. How can one design a space that would meet the basic needs of users while keeping in mind that different people have different ways of learning? (How can we go about addressing this issue?)

6. COMMUNITY:

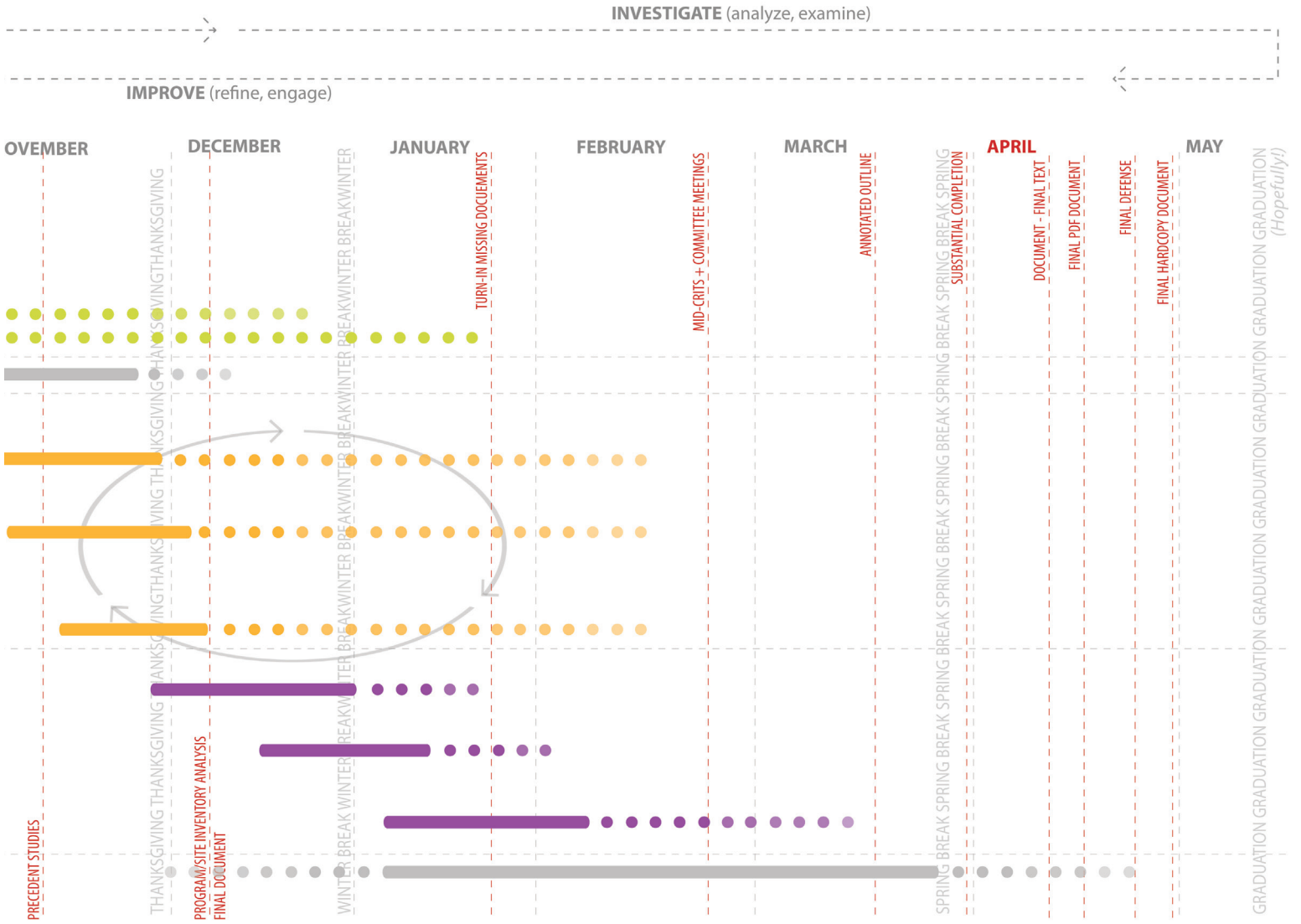
- a. How can we incorporate the community into the design process to address their needs and desires of the space?
- b. What are some of the different methods/techniques of incorporating the users into the design process?

(PATH, TASK, TIME)

PATH | TIME | TASK



Path, task, time diagram reflecting the schedule over the period of the semester, along with major deadlines, and tasks at hand (Author 2011)



Redefining
(INTERIOR)SCAPES
Integrating the Natural and Built Environment

Sukaina Fakhraldeen
Spring 2012
LAR. 700

Landscapes of learning

Mary Catherine (Katie) Kingery-Page
Alpa Nawre
Anne Beamish

(INTERIOR)SCAPES
Integrating the Natural and Built Environment

Sukaina Fakhraldeen

