ABSTRACT

Title of Document: *EXPANDING ON ARCHITECTURE:* A New School of Architecture Planning and Preservation, UMCP

John Michael Talbott Jr., M.Arch, 2007

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This thesis explores the limits of the architectural design process by proposing a continuous and evolving vision of space and form as a dynamic and adaptive response to changes in context. The document defines a restructured framework of architecture in time. The theory prescribes a dynamic architecture, able to evolve and transform over the course of its life for the good of ecological and functional sustainability. The result demonstrates the benefits and challenges of a dynamic design process applied to the future expansion of the University of Maryland School of Architecture, Planning and Preservation.

This thesis evaluates the current condition of the school, identifies the opportunities and issues, and designs the architectural interventions and additions necessary to satisfy the current and future needs of the school. The result addresses any identified programmatic issues in a series of sequential architectural propositions over the next 8 years. The effort focuses on the following question: How can architecture be designed to better adapt to contextual changes over time to create more efficient, more functional, and more beautiful architecture and that avoids obsolescence and environmental degradation?

*EXPANDING ON ARCHITECTURE:*A New School of Architecture Planning and Preservation, UMCP

By

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Thesis submitted to the Faculty of the Graduate School of the
University of Maryland, College Park, in partial fulfillment
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Dedication

This Thesis was possible only through the support and help of Isaac Williams, Karl DuPuy, Alyse Riggin, Jake Zager, Sarah Sayler, Nandor, Karen Wolfe, John Wolfe, and my parents.

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Preface

The intent of this document is to raise questions about the design and construction of architecture. These questions form the basis of exploration during the design process. While at times, the questions may seem unresolved, unsupported or inconclusive in theoretical form, the intent is to explore their possibilities within the design process. The formal result is the support and conclusion to the theoretical proposition. Let this document serve as a hypothesis' to be tested and judged as successful or faulty through the result of a semester of design.

The Unabridged Abstract

A clarification of intent, motivation, and what this thesis is and is not

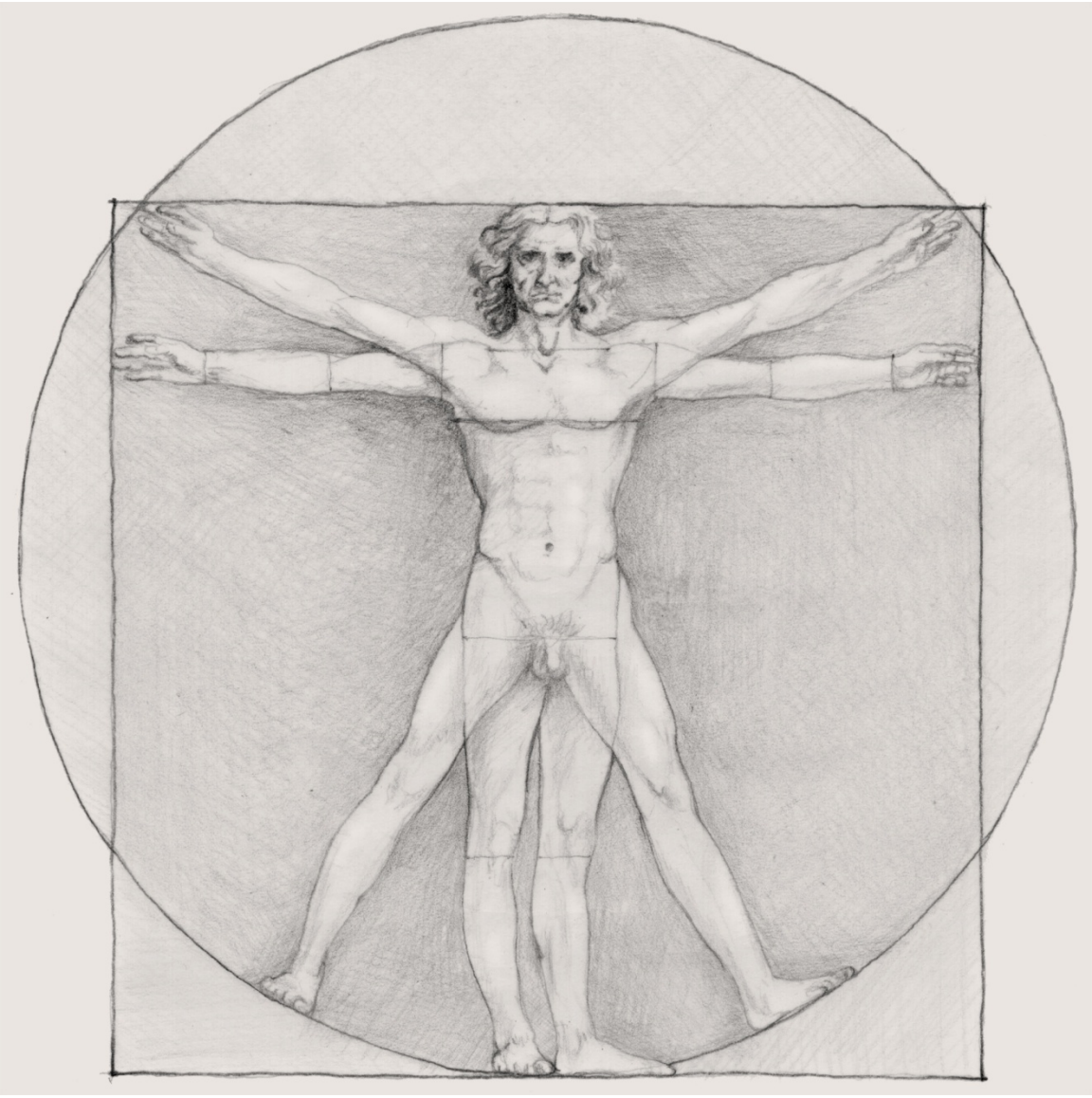

Figure 1 - The Vitruvian Man

Today in a world where global warming is a regular dinner table conversation topic, we have all been told the apocalyptic tales of depleting resources, exploding population, and the irreversible environmental damage that we cause through our consumptive lives. Former vice president, Al Gore, for example, strives to educate us about the damage that we cause through his campaign and documentary, An Inconvenient Truth. Architect, William McDonough, and the German chemist, Michael Braungart, write extensively about these environmental concerns and their consequences in their book, Cradle to Cradle, which calls for the transformation of human industry through ecologically intelligent design. In both sources, architecture is identified as playing one of the larger roles in our environmental abuse. Like these sources and many others available. This thesis shares a moral desire to do something about the environmental abuse our buildings are responsible for. However, because of the extraordinary amount of attention and scientific study that these theories already receive, it is not the goal of this thesis to support their validity at length.

Figure 2 - Movie Poster from An Inconvenient Truth

It is important to note that an environmental conscience is not a revolutionary addition to architecture. Decades of good intentioned theories and applications have had similar goals. Due to the built environment's great influence on our symbiotic relationship with nature, environmentally conscious architecture has already become an inevitable and essential part of the profession. The current role model for environmental design, termed "green" architecture, is founded on centuries of traditions before it, with an amended constitution to implement methods and materials in a way to reduce environmental impact. In addition to the already mentioned, Cradle to Cradle, other resources for sustainable architecture include: The Environmental Brief, by Richard Hyde, where he looks at the design process and argues that the use of an "environment brief" to drive building design at the earliest stages is extremely effective in producing high environmental performance; The Green Studio Handbook, by Alison Kwok, which provides a collection of green strategies to implement in a schematic design phase; Building with Earth, where Gernot Minke explains particular building methods relating to prefabricated panels and the environmental benefits; and Strategies for Sustainable Architecture where Paola Sassi complies a collection of case studies of sustainable buildings in Europe, North America and Australia. The amount of literature on sustainable/"green" design is seemingly endless. This thesis acknowledges the progress, accomplishment, and success of current "green" building philosophies and is not an attempt to prove, disprove, or even apply the current accepted methods. Instead, this thesis observes the unfortunate truth that current results typically only lessen our detrimental effect instead of eliminate it and consequently do not provide a conclusive solution. Therefore, through a rethought examination of the interrelationship of the built and natural environment this thesis searches for an alternative sustainable response to repair the current parasitic condition.

Before an alternative means to sustainability can be proposed, we must first recognize that the unqualified acceptance of conventional philosophies and theories diminished our ability to advance and improve society. In his essay entitled "Animate Form," the contemporary architectural theorist, Greg Lynn, radically questions and criticizes contemporary practice in a way similar to this thesis. For him, his views are validated by noting that challenging the traditions of architecture will not threaten the essence of the discipline, but will advance it.[1] Just as the development of the light bulb built upon the needs and developments that preceded it, so too will new philosophies of architecture subsume and improve traditional models creating possibilities that could not be imagined before. Additionally, due to architecture's important responsibility to the public's health, safety, and welfare, the contemporary theories of architecture and design must be constantly reconsidered, reiterated, and refined to ensure maximum societal wellbeing. This thesis recognizes that because the historic foundations of architecture did not understand nor address the astonishing environmental stress our buildings now cause, a truly sustainable system cannot function completely on the principles of the past. The light bulb's propose

Figure 3 - The Development of an Idea

[1] Lynn, Greg. "Animate Form" Page 1.

was to satisfy the same need for light as the fire but the product of invention achieved it in a completely new way. Similar to the light bulb, this thesis provides a reconsideration of architecture from the ground up. While still focused with the fundamental principles and purposes at the core of architecture, this thesis reconsiders the methods and means to achieve them. Working towards the practical application, it questions tradition, identifies issues, and proposes alternatives to how we design, build, and use architecture.

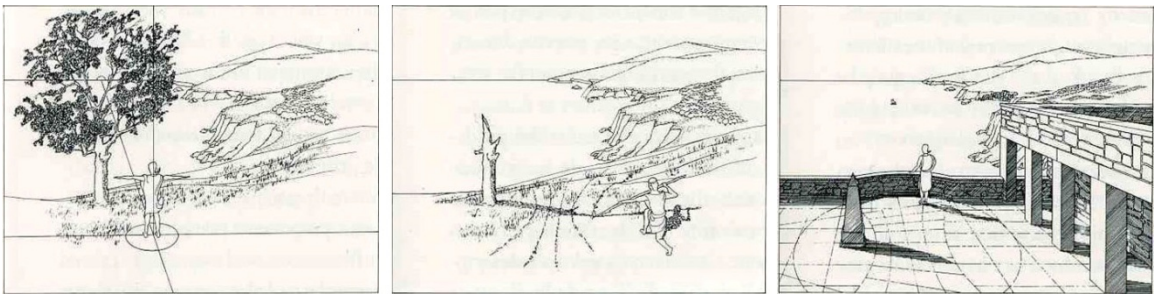

Figure 4 - The Progression of Man and Nature (Crowe)

The first step is to identify the primitive role and purpose for why we create architecture and how we create it. In his book, Nature and the Idea of a Man-made World, Norman Crowe suggests that, initially, built form arose from the search for order in our environment, made to ensure survival within a multifarious and unpredictable world. Crowe suggests that built form was an attempt to understand and imitate nature by creating forms as a measure and frame of the natural environment.[2] Architecture serves as a mediator between the hap-hazard world we live in and the landscape that surrounded us. Consequently, the built environment would best serve our homeostatic needs if the execution was to express safety through stability and continuity. Furthermore, in the book, The Conscience of the Eye, Richard Sennett adds that

[2] Crowe, Norman. Nature and the Idea of a Mad-made World. Page 9

architecture fundamentally satisfies our human need for places in which we can visually experience the fullness, complexity, and reality of our lives.[3] Sennett believes that the stability of the place is important to produce a homeostatic environment conducive to our intellectual and spiritual development. Therefore, again, architecture is determined to best create these places as the static frame through which life progresses. This tradition of physically fixed and static form can be traced back to pre-historic times in works like Stonehenge and the Great Pyramids where only the most permanent of materials were acceptable. A few thousand years later, In 43 BC, Vitruvius wrote the first surviving treatise on architecture. His ten books titled, *De Architectura*, explains not only what architecture was, but also what it should be. In the first Chapter, Vitruvius is quick to support the static model by outlining the elemental role of strength, stability, durability, and continuity in architecture.[4] The observation is that Vitruvius was following the historical precedent that he was surrounded by (Greek and Etruscan Architecture), so it can be said that the prescriptive suggestions of Vitruvius are closely linked to the static permanence of structures from before his time and would inherently influence the permanence of architecture after him. Like a genetic trait, architecture continues to carry on the static tradition, instinctually driven for timelessness in formal purity and autonomy. Two thousand years after Vitruvius and five thousand years after Stonehenge, centuries of tradition have cast our buildings as the static frame by which the context of nature, life, and time passes. Our minds are still coded to strive for one form to answer all needs, independent of time. The result is static forms within a specific dimensional space. Inert and steadfast, architectural form creates a dichotomy of ephemeral and sensual perception. Today we value the juxtaposition of

[3] Sennett, Richard. The Conscience of the Eye. Page 32

[4] Vitruvius, De Architectura. I.ii.3

the permanence of architecture against the ephemeral world around it. Hence, traditional architecture serves as a constant reference to perceive motion and time through the juxtaposition of inert static form and organic dynamic experience. While our desire to respond to nature, time, and the world around us has not changed, possibly our building's desire to make this response through a physical fixity and contrast to nature's ephemerality is the fault that fuels our environmental abuse. Therefore, this thesis explores the possibility that the static model of architecture today may very well be an outdated response and in need of revision.

The argument is that although physical fixity is the primarily accepted model of our built environment, our buildings often last too long, lose purpose, over consume, under function, reject change, and permanently scar our world. The issue is that through centuries of theoretical inheritance, the current theory and practice of the architect still continues this desire for permanence, even though the result is more often obsolescence and in turn unnecessary environmental impact. In preconception, we design spaces and forms to fulfill our practical and spiritual needs for shelter, safety, and beauty. In conception, we design our buildings to meet these needs as best we can reasonably evaluate and determine at the time of design. Most often, the Influences of time, conditions, and flexibility are acknowledged, judged, weighed and occasionally left unanswered as the sacrifice of optimum performance for universal accommodation in one design. Unfortunately, without the recognition of unforeseeable, unpredictable, and variable needs of the future, the static forms are inevitably fated to become abused, unused, unwanted, unloved, and unnecessary. Conclusively, it is this limited or momentary consideration of time which creates the ergonomically inept, functionally lethargic, biologically parasitic, and environmentally oblivious architecture of today. Greg Lynn posits that

architecture's dedication to permanence has stunted its ability to evolve and grow into a sustainable symbiotic relationship with our environment.[5] The result is a stagnant and sluggish built environment, socially unconscious, functionally inflexible, and ecologically detrimental. This thesis questions if this current static method of design and practice is still the best way to shape our environment. Beyond just the criticism of the current model, this thesis proposes an alternative method using the idea of time as the basis for theoretical invention. This thesis considers the life of a building as opposed to a momentary ideal and in doing so, offers a more continuous and evolving vision of space and form as an active and adaptive response to the constant changes in the surrounding environment.

Reinterpreting the foundation of architecture has great implications on how we design and build. Architecture designed as a continuous response to the dynamic surrounds goes against our concept of the building as a singular vision of completed form. Instead, the process and application of design needs to be reevaluated. The process needs to be holistic and considerate of different periods of time and not an idealized momentary execution of form. The profession needs to reevaluate and refine fee structures, scope of service, project delivery method, construction administration, and the roles and responsibilities of the architect. The new model of continuous contextualism satisfies the demands of a constantly changing context and consequently transforms architecture practice both in education and the profession. This thesis studies varying methods of dynamically designing, communicating, and applying architecture. The implications look to how the identity of the architect must adapt as the

[5] Lynn, Greg. Animate Form. 1999. p. 9.

philosophies modernize and how the education of the architect must change to promote the new-school pedagogy.

This thesis explores and evaluates possible architectural dynamic responses to context by testing the theories in the real-world setting of the University of Maryland School of Architecture, Planning, and Preservation. It uses the site and program of the school as a test case for two reasons; the first is that the school is at a point in its life where it has exceeded its capacity and cannot adapt/change with the current static infrastructure; and the second is that the future technologies, theories, and methods explored in this thesis directly impact the education of the future architects which it produces. By proposing the built advancement of a design school, this thesis examines not only the formal execution of the theory but the culture ramification on the design process housed within. This thesis proposes the conception of an active design process to viably develop and continuously execute a formal vision of what the school should be presently and what the school could be in the future. The theories of this thesis are intended as universal prescriptive theories. However, when applied to the academic environment of a school of architecture this thesis go beyond simply how to design a building to also study how to design the whole design process itself.

This thesis evaluates the current condition of the school, identifies the opportunities and issues, and designs the architectural interventions and additions necessary to satisfy the current and future needs of the school. The result addresses any identified programmatic issues in sequential architectural propositions over the next 8 years while focusing on the following question: How can architecture be designed to better adapt to contextual changes over time to create more efficient, more functional, and more beautiful architecture and that avoids obsolescence and environmental degradation?

Part 1 –Theory

The Principles and Purpose for Architecture in Motion

Figure 5 - The Re-interpretation of the Vitruvian Man

Introduction

Before we can design, it is important to understand and define the principles and values of the architect in an unambiguous manner so as to allow designs of integrity, consonance, and clarity. Often architectural theories may begin optimistic and ambitious to maintain a holistic understanding and appreciation for the rudimentary reasons for architecture but quickly swing into tangents of intellectual minutia only to lose site of the bigger picture. To regain a clear perspective, we must re-root our values and beliefs by going back to the foundations of architectural theory that we have available to us.

As mentioned before, Vitruvius has written one of the oldest treatises on architect that we have today. His ten books on architecture began a tradition of architecture theory that continues on to today. In the first book, Vitruvius outlines the primitive elements of architecture with his infamous proclamation of "*firmitas*," "*utilitas*," and "*venustas*." Vitruvius' canonical definition of architecture is widely accepted and agreed upon and has served as a theoretical building block for the past millennium. While the literal translations are *soundness*, *usefulness*, and *attractiveness*, today the original definitions fall short in addressing the conditions architecture faces in the contemporary world. The interpretation has changed over time and with it the implications. To keep the theory applicable, contemporary theory has had to expand the descriptors and consider new terms to define architecture while remaining in the spirit of the original framework that Vitruvius setup so long ago.

This chapter defines the beliefs and values of architectural design that this thesis will hold during the second part of this document. In the second part, these theories will be applied to a real design scenario at the University of Maryland School of Architecture, Planning, and Preservation. This Chapter takes a closer look at Vitruvius' theory, explains Maryland's

pedagogical interpretation of this theory, identifies the current interpretation as outdated or erroneous, and proposes a progressive new perspective on the ancient framework.

Vitruvius' Formulation	***Firmitas***	***Utilitas***	***Venustas***
Original English	*Firmness*	*Commodity*	*Delight*
Current English	*Soundness*	*Usefulness*	*Attractiveness*
UMD Interpretation			
Dynamic-interpretation			

Figure 6 - Table of Architecture Definition

Chapter 1 – Viable Architecture

Vitruvius – "*Firmitas*"

> *Original Latin: "firmitatis erit habita ratio, cum fuerit fundamentorum ad solidum depressio et quaque e materia copiarum sine avaritia diligens election"*
>
> *Current English: "Strength arises from carrying down the foundations to a good solid bottom, and from making a proper choice of materials without parsimony."*
>
> – *Vitruvius.* De Architectura (I. iii. 2)

Vitruvius only needed a sentence to describe this first of three qualities of architecture. "*Firmitas"* to Vitruvius, literally *soundness* or *strength*, simply meant that architecture should be well grounded with good foundations and that the materials should be of appropriate quality and use.[6] The connotation is stability, durability, and an implied desire for permanence. To a Roman, working primarily in the heavy materials of stone, concrete, wood, and bronze, overcoming gravitational forces was of primary importance. While the practical need for our buildings to remain structurally effective has not disappeared, contemporary technologies of buildings have allowed us to focus on other practical demands. Today, these demands are accommodated in a long list of building systems. In practice, building systems are a complex network of internal requirements and external coordination. Similar to how the human body is divided into internal systems with specific critical functions (i.e. respiratory, nervous, skeletal, digestive, etc.), buildings also have an anatomy of systems which are critical to the buildings sustained existence (i.e. mechanical, electrical, structural, plumbing, etc.). Therefore, it can be

[6] Vitruvius. De Architectura (I. iii. 2)

inferred that Vitruvius' "*firmitas*" is really referring to these architectural guts fundamental to buildings which without commodity and delight would not be possible.

University of MD – "Technology"

At the University of Maryland, the theories of Vitruvius are studied in the course, "Introduction to the Built Environment," taught by senior faculty member, Guido Francescato. In the course, Professor Francescato takes a similar progressive stance on the interpretation of "firmitas" and has relabeled this element of architecture to be "technology." The term signifies that this first fundamental component of architecture is all of the technological systems we implement and engineer. Just as Vitruvius challenges us to make the proper choice of materials without parsimony, the technological systems of a building should be efficient and effective. Professor Francescato describes this as a system's "soundness and elegance."[7] Therefore, as an example, it is not enough to use steel or reinforced concrete to support a structure safely. Instead, Vitruvius implies that architectural quality would be defined partly by its ability to gracefully resist all the forces impinging upon it with the least amount of steel or reinforced concrete. As another example, heating and cooling systems should provide for comfortable temperature and ventilation with the minimum amount of energy. Professor Francescato says that the elegance of a technological solution is not intended as an aesthetic judgment. Rather, it is elegant in the same way the explanation of a mathematical theorem or the code of computer

[7] Francescato, Guido. Introduction to the Built Environment

software may be deemed elegant when they do their job with simplicity and economy of means.[8]

Vitruvius' Formulation	***Firmitas***	***Utilitas***	***Venustas***
Original English	*Firmness*	*Commodity*	*Delight*
Current English	*Soundness*	*Usefulness*	*Attractiveness*
UMD Interpretation	**Technology**		

Figure 7 - Table of Definitions – Technology

Dynamic Definition – "Viability"

Although this re-labeling of "*firmitas"* helps to address the new considerations that contemporary architecture faces, the term, "technology" overly mechanizes the role of architecture and removes the primitive practical human needs that generate architecture in the first place. It was Abbe' Laugier who wrote in 1753 that, fundamentally, architecture emerges in response to a very practical human need. It was the need for shelter which generated his infamous primitive hut which he portrayed as the roots of all later architecture.[9] Because of this intrinsic and fundamental link to practical human needs, the first descriptor of architecture is best to stick with the analogy of architectural "*firmitas"* and anatomy. When looked at as an analogy of the human body, the built environment is elementarily interpreted as the extension of the womb we create to protect us and provide for us the homeostatic environment we crave.

[8] Francescato, Guido. Introduction to the Built Environment

[9] Abbe' Laugier. Essay on Architecture

As discussed before, architecture is fundamentally a solution to the primal need for a homeostatic shelter. Its function is to provide a safe and stable environment for the fulfillment of the vital physiological human need for oxygen, food, water, and sleep.[10] In that sense, architecture is better defined by its "**viability"** and not its technology.

"Viability," often defined solely as practicality, more completely describes the practical necessities of life and livability. In other words, like the womb, viability is defined as a thing's ability to support life. Therefore, viability would describe architectures responsibility to support and maintain life; human life in particular. Architectural viability, just like human anatomy, is still divided into the different technological systems we use. However, with this interpretation, it is not the systems themselves that are of concern, but instead their role to meet the practical needs of survival. The radical difference is that if the focus is on life, then architecture must be cognizant of life's need and ability to grow, adapt, and evolve. This viable architecture would then embody these temporal parameters of life with systems more able to respond and adapt to the practical needs of its inhabitants. The hope is that architecture more in tune with the ephemeral nature of life is in support of a more livable and sustainable environment. However, due to the engrained mentality of fixed timeless form discussed before, the concept of adaptable, evolvable architecture opposes the traditional lineage of "*firmitas*." The hypothesis of this thesis therefore questions whether or not architecture can exist free of assumed obligation to be static. If viability has been the true goal to which architecture has striven rather than the structural firmness suggested by Vitruvius, then this new freedom allows for a more

[10] Maslow, A. H. A Theory of Human Motivation. Psychological Review. 1943. P. 370-396.

advanced system of dynamic existence, in harmony with its newly defined role to be viable and satisfy fundamental practical human needs.

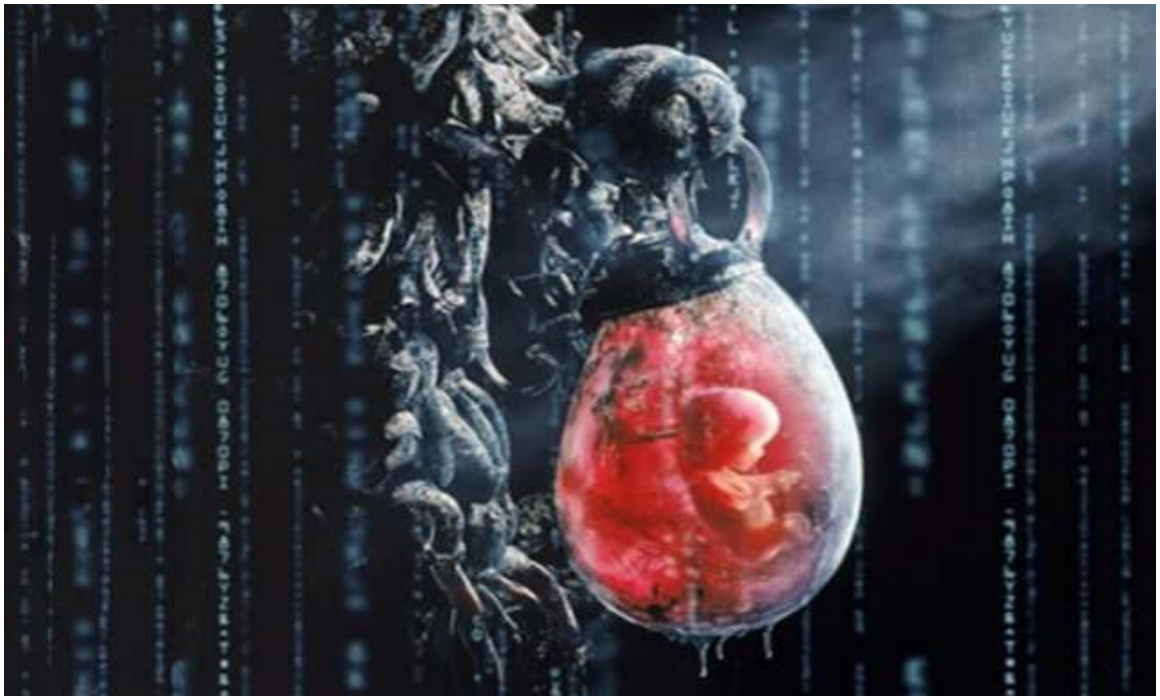

Figure 8 - The Mechanical Womb from the movie: The Martrix, 1999.

Architect and theorist, Greg Lynn, agrees that statics does not hold an essential grip on architectural thinking as much as it is a lazy habit or default that architects either choose to reinforce or contradict for lack of a better model.[11] As it is the purpose of this thesis to question conventional architectural theory and practice. This thesis explores, analyzes, and counteracts the inevitable obsolescence of static forms by creating more adaptable, intelligent, and viable architecture. The theory of "*firmitas"* traditionally holds that it is our role as designers to create inactive inert forms and systems to safely support and contain the activity of our lives. However, the theory as revised by this thesis, proposes that the systems themselves should be

[11] Lynn, Greg. Animate Form. 1999. p. 9.

active and lively. Embodying the model of life, viable architecture begins, grows, learns, responds, evolves, and dies as a way to better interact with and benefit our dynamic lives.

Vitruvius' Formulation	***Firmitas***	***Utilitas***	***Venustas***
Original English	*Firmness*	*Commodity*	*Delight*
Current English	*Soundness*	*Usefulness*	*Attractiveness*
UMD Interpretation	Technology		
Dynamic interpretation	**Viability**		

Figure 9 - Table of Definitions – Viability

Chapter 2 - Contextual Architecture

Vitruvius – "*Utilitas*"

> *Original Latin: "utilitatis autem, cum emendata est sine inpeditione usus locorum dispositio et ad regiones sui cuiusque generis apta est commoda distribution."*
>
> *Current English: "Utility arises from a judicious distribution of the parts, so that their purposes be duly answered, and that each have its proper situation."*
>
> – *Vitruvius.* De Architectura (I. iii. 2)

When Vitruvius spoke of the "*utilitas"* of architecture, he describes it as architecture's responsibility to satisfy a purpose. Literally translated to mean "usefulness" or "utility," this call for purpose in architecture inspired theorists like Laugier to write about his primitive hut in which he posits that architecture is fundamental and its only responsibility is to serve a purpose.[12] More recently, the "*utilitas"* of architecture has been the motivation of the modern theories of protofunctionalism, functionalism (a.k.a. modernism or international style), and, in a reaction to these, postmodernism.

University of MD – "Function"

Due to this theoretical lineage of utility, In terms of Vitruvius' three descriptors, Professor Francescato's "Introduction to the Built Environment" class is comfortable with referring to his "*utilitas"* as architecture's "**function**."[13] Professor Francescato points to the

[12] Abbe' Laugier. Essay on Architecture.

[13] Francescato, Guido. Introduction to the Built Environment

functionalism of the past to illustrate the importance of function in architecture. He mentions Louis Sullivan, Le Corbusier and Walter Gropius, and several other influential architects who led the movement to the full-fledged formal language of modernism.

In modernism, a building's function was of utmost importance and as a result produced simple, geometric forms that seemed to express in a very direct manner the functional purpose the buildings served. Most notably, Swiss-French architect, Le Corbusier, expressed these views in his work, like the Villa Savoye, and in his writing, Vers une architecture (Toward a [new] architecture, 1923). A major assumption of modernism was that a significant historical discontinuity had occurred as a result of the maturation of industrial societies. In the world of the twentieth century, history was thought to be irrelevant because the context had completely changed. In Le Corbusier's words, the "new man" inhabiting this changed world needed "another" architecture.[14] This new architecture would yield a built environment devoid of frills and waste, white and pure, efficient and inspiring. Consequently, by rejecting history, modernism in fact insured that the all reminders of tradition were eliminated from architectural form.

Vitruvius' Formulation	***Firmitas***	***Utilitas***	***Venustas***
Original English	*Firmness*	*Commodity*	*Delight*
Current English	*Soundness*	*Usefulness*	*Attractiveness*
UMD Interpretation	Technology	**Function**	

Figure 10 - Table of Definitions – Function

[14] Le Corbusier. Towards a New Architecture.

New Definition – "Contextuality"

Modernism attempted to reach the highest levels of poetry through its bare and austere forms, poor in ornament but rich in function. It certainly reached such levels in its most important works, but it otherwise tended to produce a monotonous architecture that the public could not warm to because it seemed to be cold, stark, and sterile. While modernism attempted to re-invent the model of design by reconsidering and prioritizing the founding Vitruvian principle of usefulness, the results often alienated the surroundings, opposed the site, and abused the environment. Perhaps the fault of modernism and in turn post modernism is that the *utility* of architecture goes beyond just programmatic function to fulfill the paying client and user needs. Instead, a more holistic view of "*utilitas*" would recognize that architecture must be useful to the nature, purpose, and behavior of *all* of a building's clients—its context.

Elaborating on the traditional definition of client, a building's true client is its context, or more specifically, *everything* with which our buildings share a dialogue. For instance, imagine an object, any object, pure and solitary. In nothingness, existence can only be defined by mass, dimension, and makeup. The object is spatial, but not in any particular space; present, but separate from any particular time; visible, but with no one around to view it. In the container of our universe, German Physicists, Albert Einstein, explains that an object's spatial existence can only be defined by its circumstantial comparison to something else.[15] To Einstein this was called "relativity" to an architect this would be, "**Contextuality**." With architecture as the subject, by

[15] Einstein, Albert. Theory of General Relativity.

shifting the focus from the level of the original system of interest (the building) to another level of the hierarchical structure in which it is embedded (the context); it is observed that the inevitable context and their interaction with form are intrinsic to the fundamental nature of architecture.

Context, in a traditional sense, refers to the surrounding built and natural environment and occasionally includes its social and cultural surroundings as well. Designs are informed by the measured comparison of context to form and space. Just as modernism believed that the buildings function should determine its form, contextualism believes that function is a dialogue with context and it should be the context which determines its form. However, traditional design claims responsible contextual consideration to be a dialogue of the existing or predicted surroundings as defined at a particular time whether present, future, or past. Again, as criticized before, traditional models of design strive to satisfy the demands of the planned moment of imagined ideality. The context is a part of the pinnacle vision of a complete architectural product in suspended motion. Due to the scantiness of its content and the deficiency of its attention to changes over time, it is therefore observed that traditional use of context in design is inadequate. Therefore, this thesis recognizes a contextuality which extends beyond the typical description of context in both content and temporal dynamics.

The first observation is the lack of temporal consideration in traditional contextualism. Just as the discussion of viability observed that life, and in turn architecture, has an inevitable relation to how things change over time, if true context is understood to be made up of differential variables, able to change, then any one architectural solution cannot be correct outside of the moment it was designed for. For that reason, context should be seen as a series of variable design forces able to appear, disappear, push, pull, increase, decrease, shift, and

transform.[16] Any change in force should affect the result. Architectural design would be better to not propose solutions to any one moment but instead offer adaptability to a dynamic context which for the most part cannot be fully predicted. Although noble in acknowledging and responding to context initially, momentary consideration of context does not completely appreciate that relativity goes beyond just momentary proximity to describe the motion and perception of one thing relative to another as a comparison of change over time. The classical use of context fails to appreciate the continually variable nature of contextual relations. This leaves the existential nature of dynamic relativity often under analyzed and undervalued.

The second failing is the lack of a comprehensive list of contextual content. Conventionally, context refers loosely to the surrounding site. However, a more complete interpretation of context would include all the things that hold a dialogue of relativity with architecture. This would include the human body and its movement though space, the regional traditions and culture and their expectations, the ecosystem and its reaction to built form, the surrounding buildings and architecture's role in the greater city, the soil on which built form must exist, the air in which buildings breathes, and even the solar system in which form exists.

It should be noted that these considerations are not revolutionary or even moderately new to architectural practice. However, when grouped together into the single genus of context, and layered together with an increasingly thorough consideration of the temporal nature of the context, the results potentially will be very different from convention. Therefore, this thesis hypothesizes that the relative spatial-temporal disposition of form and context and

[16] Lynn, Greg. Animate Form. 1999. p. 10.

their many interrelationships should be recognized as the true form determinants and the true clients. Vitruvius' called for *utility*, and modernism called for functionality to determine form. However, our buildings today can be faulted as nonfunctional as they do not function to sustain the environment and they do not function to adapt to changes in context over time. Therefore, by expanding the definition of function to mean wholly contextual, architecture will better focus on the ever-changing dialogue it holds with the entirety of the context which surround it.

Greg Lynn agrees that a shift from a passive space of static coordinates to an active space of interactions would inevitably create a move from autonomous purity to contextual specificity[17]. Therefore, context should be the hierarchical form determinant of viable forms. Any system of design within this intrinsic contextual continuum must recognize changes in context as the primary source and reason for adaptation (the secondary reason being the previously discussed viability of architecture). Consequently, rational adaptive architecture should be designed and used with systematic and sympathetic respect to its context as a function of time. By individually exploring the different relative conditions and possibility of these constraints, potential architectural responses arise. This thesis explores those responses through experimentation on a real design in a future chapter.

Vitruvius' Formulation	***Firmitas***	***Utilitas***	***Venustas***
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Current English	*Soundness*	*Usefulness*	*Attractiveness*
UMD Interpretation	Technology	Function	
Dynamic interpretation	Viability	**Contextuality**	

Figure 11 - Table of Definitions – Contextuality

[17] Lynn, Greg. Animate Form. 1999. p. 11.

To analyze and codify the context, it is useful to create an organized, manageable, and complete system for considering the influence of context on architecture. The different inherent types of external constraints that are intimately linked to architecture are organized into six categorizes. The constraints ranges from micro to macro, specific to universal, and intellectual to physical:

Personal Context

The dialogue of the human body to architectural form and space is the first contextual consideration. The practical requirements of architecture's viability discussed before show the primary importance of the human context. Therefore, the human body is established as the hierarchical tool of design. If architecture is truly for us then it should be designed for us. Design should begin with an understanding of human form and its relationship to habitable space. This inward to outward thinking suggests that architectural form be informed and determined by direct relation to humanity and humanness. As architectural context, the human user can inform design through their dynamic relation of location, vantage, age, size, gender, genetics, etc.

Communal Context

When the personal context extends to talk about the interaction of multiple people and architecture, we can define their contextual dialogue by analyzing them as a community. Webster's dictionary defines a *community* as a social group of any size whose members reside in

a specific locality, share government, and often have a common cultural and historical heritage.[18] A building's relationship to the community is essential to its success. Flexible, adjustable, and continuously evolving forms offer the optimum possibilities to satisfy the topical and ephemeral demands of a community. As architectural context, communities can inform design through their demographics, densities, needs, goals, and culture.

Biological Context

Without life, our physical world would simply be gases and interstitial space. While architecture's is fundamentally for human life, we are not the only living things that must interact with it. The biological dialogue with architecture includes everything organic which is not human. As explained in the definition of viability, life is metamorphic insofar as it has the ability to grow, adapt, and evolve. This inevitable dynamics of the biological world calls for the architect to understand why and how organic things change so that architecture might respond if not learn from them.

The central idea of ecology is that a two-way relationship exists between organisms and their habitat. That is, the environment is not merely a passive framework in which life occurs. It provides the conditions necessary for life and is itself affected and changed by life. The integration of natural biological life and our built environment has too often objectified plants as inert sculpture, and alienated animals as unwelcome intruders. The true acceptance of plants and animals into our cities and our habitat would allow architecture to respond to plants daily, seasonal, and decadal lives. If architecture doesn't work with nature's own finely tuned scale-

18 Websters Dictionary

linking systems, we endanger the stability of life on the planet. Design should help to create a more symbiotic relationship with the biological world. As architectural context, the biological world can hold a dialogue with form through the dynamic relations to species, seasonal responses, symbiotics, consumption, water, etc.

Antecedental Context

As a parallel to the natural living environment, the next contextual dialogue to consider is the existing built environment. Antecedental literally means, "Things that came before." In this thesis this refers to the built form or the intention of built form that precedes the form in question. While existing context does not always have to be addressed because its ephemeral nature, there is still the need to respect the principle of the second man[19] That is, cities and buildings cannot develop without some sense of continuity, unity, and recognition from one design to another. It is the designer's responsibility to withhold the principles that precede it so that the larger vision of the built environment is not neglected and made impossible. As architectural context, the existing built form can hold a dialogue with new form through its dynamic proximity, size, history, type, use, exterior spatial definitions, assets, and opportunities, amenities, typologies, urban philosophies, etc.

Terrestrial Context

Stable and solid, land is the ground for us and our buildings to stand on. Without the plane of the earth's surface, we would have no place to exist and inhabit. Naturalistically, the shape of the land can inspire and inform the built environment. Half a century ago, Frank Lloyd

19 Cite Karl

Wright preached the need for architecture to grow out of site. He is quoted saying, “buildings are the strength and lightness of the spiders' spinning, buildings qualified by light, bred by native character to environment, married to the ground." Moreover, in an urban context, the land gives purpose to a city and precedent for our built core. Because of the contextual role of the land, architectural design should be conscious of site, and its subtle methods of varying. As architectural context, the land shares a dialogue with form through the dynamic relation to geology, hydrology, topography, internal forces, seismic forces, gravitational forces etc.

Celestial Context

Finally, as the ying to the yang of terrestrial context, the context of the sky is considered. This includes not only the surrounding air, but the global and planetary characteristics of space and time. The celestial context is one of the least tangible categories of context but interestingly is one of the most influential considerations in design. This may be due to the predictable and mathematical nature of celestial dynamics. The astrological cycles of the sun and earth are responsible for day and night, warm and cold, summer and winter. Weather patterns follow a definable logic and can be forecasted. Current architecture attempts to best satisfy all potential conditions of climatic and solar orientation through a single solution to meet the demands of each condition. However, a single solution that is designed for both the winter and the summer can never be as efficient as one design for each season. In a four-dimensional method of design, architecture is adaptable to different celestial situations where a building can optimize its performance under all conditions. As architectural context, the celestial context holds a dialogue with form through its dynamic solar orientation, weather, temperature, wind forces, solar energy, etc.

Chapter 3 - Graceful Architecture

Vitruvius – "*Venustas*"

> *Original Latin: "Venustatis vero cum fuerit operis species grata et elegans membrorumque commensus iustas habeat symmetriarum ratiocinationes."*
>
> *Current English: "Beauty is produced by the pleasing appearance and good taste of the whole, and by the dimensions of all the parts being duly proportioned to each other."*
>
> – *Vitruvius.* De Architectura (I. iii. 2)

Vitruvius concludes his definition of architecture with the third term, "*venustas*," literally meaning "beauty" or "attractiveness." The explanation simply outlines that architecture is as much an art as it is a science. Consequently, as an art form, it is subject to judgment and interpretation and in turn should be aware of how it is perceived. Additionally, as art, architecture should also be aware that there is also an objective aspect of beauty which is not subject to interpretation. Vitruvius subtly makes this distinction of subjective and objective beauty. Vitruvius speaks of this perceptual subjectiveness with terms such as, "pleasing," "appearance," and "good taste," and the ideal objectiveness with terms like "whole," "dimension," and "proportion."[20]

Vitruvius is not the only theorist to pick up on this distinction. Countless philosophers and poets have taken a stance on the nature of beauty and have come to similar conclusions. To the Greek Philosopher, Plotinus, beauty is intrinsic to the existential nature of all things and consequently, all things are objectively beautiful.[21] To saint and theology, Thomas Aquinas,

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[20] Vitruvius. De Architectura (I.iii. 2)

[21] Enneads, V, 8, 9.

beauty can be subjectively defined as, "that which, upon being seen, pleases."[22] The Great Russian prose writer, Fyodor Dostoevsky, said that beauty is the battlefield where God and the Devil contend with one another for the heart of man.[23] The inference is that beauty belongs to the divine and consequently, objectively unaffected be perception. The eighteen century poet, Samuel Taylor Coleridge, was more specific and meticulous with his definition of beauty. To Coleridge, the essential characteristics or integral elements recognized in beauty are: "integrity, because the intellect is pleased in fullness of Being; proportion or consonance, because the intellect is pleased in order and unity; and radiance or clarity, because the intellect is pleased in light, or in that which, emanating from things, causes intelligence to see."[24] Here beauty is divided into three elements instead of simple subjective and objective distinction. However, the point is still clear that there is an element of beauty which has to do with the objective properties of being, order and unity and there is an element of beauty which has to do with the subjective properties of perceptual radiance of what is seen.

In architecture, Vitruvius' theory of beauty was revitalized in the Renaissance as his ten books reemerged to the general body of knowledge after centuries of being lost. In 1452 the Renaissance architect, Leone Battista Alberti, wrote his own ten book architectural treatise patterned after the De architectura by Vitruvius. Alberti defines beauty as "the harmony and concord of all the parts achieved in such a manner that nothing could be taken away or altered except for the worse."[25] In the Renaissance this communication of parts and whole was most

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[22] Thomas Aquinas, Unknown Source.

[23] The Brothers Karamazov.

[24] Coleridge, Select Poetry and Prose, ed. Stephen Potter (New York: Random House 1933), p.313.

[25] Alberti, Leon Battista. On the Art of Building in Ten Books. 1452

often executed through the dimensional ratios of physical space and form. Just like Pythagoras before him, Alberti believed beauty to be a kind of spatial-temporal number, absolute and objective. To Alberti, beauty was an innate property of architecture and diffused throughout the whole while ornament was something added and fastened to provide "a kind of additional brightness and improvement to beauty." Ornament, to many, has been interpreted as the subjective beauty of taste and embellishment. In the 20th century, modernism rejected ornament claiming that its lack of function made it unnecessary. Left with only the innate and harmonic nature of beauty, simple and pure form emerged making the proportions of the parts and spaces of architecture of ultimate importance.

The discussion of the objective and subjective nature of art has been a point of debate throughout the history of art theory. At the time of the Ecole de Beaux Arts, there became a controversy over whether beauty and harmony were absolute or relative. Contrary to the belief of antiquity in the classical orders as divine, fixed, universal standards defining the correct and only way to build beautifully, Claude Perrault, the physician turned architect, suggested that harmony in architecture does not always have the unquestioned rightness which Vitruvius, Scripture, and philosophy had taken for granted. He proposed that there are different kinds of beauty. Perrault argued that in addition to the "positive beauty" demonstrated by the objective timeless principles and anthropomorphic proportions embodied in the orders, there were also varied systems of "arbitrary beauty" that were formed by subjective fashionable inclinations, different cultures, and taste. He believed that "positive beauty" should be of concern to the architect while "arbitrary beauty" should not.

University of MD – "Form"

At the University of Maryland today, the "Introduction to Art Theory" course, taught by Professor Klink, addresses this issues, referencing many of the same sources. Professor Klink concluded that beauty is one of the unavoidable properties of being. In that way, all things are beautiful.[26] He refers to this beauty as transcendental beauty; meaning that it is not physical experienced but is still knowable and apart of existence. However, since transcendental beauty is not experiential, the beauty that we are more accustomed to thinking of is called aesthetic beauty. Aesthetic beauty is when our senses, memories and our perception of a thing plays a part, and in which, as a result, not all things are beautiful. It is the confronting of the intellect and the senses.

Unavoidable, the experiential nature of architecture leaves it to be in the realm of aesthetic beauty. While the architect may strive for objective unity, proportion, and order, he inevitably is subjected to interpretation and taste. According to Guido Francescato's course notes, as is the case in most art, beauty in architecture is the object of perception in which we allow the mind to intellectually know and the senses to sensually sense the object in a dimensional reality of space and time.[27] As the counter point to function, in this sense, Vitruvius' "*venustas*" is the artfull execution of architectural "**form.**" Objectively, form can be measured and therefore defined, described, compared, and analyzed. Subjectively, form is perceived by all of us similarly, but interpreted differently. So it is in form that there is an

[26] Klink, Richard. ARTT 150 - Introduction to Art Theory.

[27] Francescato, Guido. ARCH 170 – An introduction to the Built Environment

overlap of perception and interpretation. Pedagogically, Maryland promotes the formal investigation of objective proportion and order and avoids the discussion of subjective fashions, styles, and tastes.

Vitruvius' Formulation	***Firmitas***	***Utilitas***	***Venustas***
Original English	*Firmness*	*Commodity*	*Delight*
Current English	*Soundness*	*Usefulness*	*Attractiveness*
UMD Interpretation	Technology	Function	**Form**

Figure 12 - Table of Definitions – Form

New Definition – "Grace"

While Vitruvius' theory and the theories to follow are still valid and Maryland's educational model is sound, this thesis investigates the effect of time on architecture, and with that, this thesis must explore what time means to beauty and form. As with the other terms discussed previously, "*venustas*" too is stuck in a timeless fixity and must be freed into motion. As observed before, the beauty of architecture is directly related to how it is perceived and therefore, because of the temporal nature of perception architecture can never be perceived in one moment. Instead, form is experienced sequentially. Our impressions of a form vary no only with our proximity to it, but also with the time of the day, the season, and the year as well as the length of time we have inhabited a space, and so on. Therefore, if the new vision of architectural space has mobilized it's relation to human viability and contextual dialogue, then its beauty would be something attributed over time as well.

Again the temporal shift changes the way that we classify and understand architecture. No longer considered inert functional sculpture, architecture is more appropriately placed into the genre of the performance arts like dance, music, and theater. The perfect and immobile beauty of the Greeks and later Vitruvius is therefore adjusted to include this motion as the fourth dimension of proportion and harmony. Henry Fuseli writes that it is "grace" which can be described as beauty in motion. And so, this thesis strives for "**grace**" in the performance of space.[28]

Johann Wolfgang von Goethe has described architecture as "frozen music." [29] This thesis proposes that the future of architecture must defrost its functional and formal fixity. Both choreographed and spontaneous, architecture shifts from the fixed stage and backdrop of our lives to an active participator. This new architecture performs its own symphony – the life of the building – in harmony and unity with our dynamic lives. Like a great musician able to improvise a solo while maintaining the structure, key, and timing of the larger context of a preformed piece of music, an active design process is part improvisational, part compositional, and part contextual. The active architect's role is to oversee the execution of a continuous design in the performed present and compose future designs with foresight to the future and memory of the past. The goal is to continuously innovate, evolve, and adapt the design as context changes and foresight increases.

[28] Fuseli, Henry

[29] Johann Wolfgang von Goethe

Vitruvius' Formulation	*Firmitas*	*Utilitas*	*Venustas*
Original English	*Firmness*	*Commodity*	*Delight*
Current English	*Soundness*	*Usefulness*	*Attractiveness*
UMD Interpretation	Technology	Function	Form
Dynamic interpretation	Viability	Contextuality	**Grace**

Figure 13 - Table of Definitions – Grace

Chapter 4 - Conclusions

In the design environment of the 21st Century, Vitruvius' infamous "*firmitas*," "*utilitas*," and "*venustas"* has become outdated and incomplete as an acceptable architecture framework for design in the current ecological and technological environment. At the beginning of the twentieth century, the progressive thinkers of what we now call the modernist movement came to the same conclusion as a result of the industrial society. Modernism proposed the rejection of tradition in favor of a rebuilding of architecture from its most elementary purpose – practical needs. Whether successful or not, modernism opened our eyes to the possibility that architecture must adapt to the world as it changes and it can still survive absent of familiar style and recognizable typology as long as it continues the hold these principle values. Today's digital world presents a similar revolution and therefore, in response, architecture must again be broken down and rebuilt to ensure its validity in the new world. Striped of both its modern and classical ideals, architecture is reconsidered using the Vitruvian foundations as a framework. Revised and rewriting, the new decree of Architecture is as follows:

Architecture should possess viability, contextuality, and grace. Viability is the necessity to satisfy the physiological needs of life, and to do so through the means most capable of fulfilling those needs at all times. Contextuality is the continued dialogue and careful distribution of the parts, so that their use may favorably and continually interact with the whole. Grace is produced by the pleasing performance and elegant composition of the whole, and by the movement, position, and dimensions of all the parts being properly performed.

To summarize the conclusions of this chapter, we can return to the model of the Vitruvian man as a model of how we can understand architecture. DaVinci saw the Vitruvian man as a superficial proportional study of mans relation to geometry and in turn architecture's relation to man. The Vitruvian man is related to architecture in their similar needs to stand, to do things, and to be beautiful through geometric harmony and pleasing appearances. The reinterpretation of architecture defines a new Vitruvian man; one who is defined by a model of viable internal systems and contextual external dialogue, united by motion in harmony and grace.

Part 2 – Practice

The method and execution of Architecture in Motion

Insert Picture of Architect at Work. Maybe F.L.W.

Introduction

In his ten books of Architecture, Vitruvius, was quick to divide architecture into practice and theory. He described practice as "the frequent and continued contemplation of the mode of executing any given work, or of the mere operation of the hands, for the conversion of the material in the best and readiest way." Conversely, theory was defined as "the result of that reasoning which demonstrates and explains that the material wrought has been so converted as to answer the end proposed."[30] Vitruvius saw architecture as the synthesis of the two, neither complete without the other. He said, "Wherefore the mere practical architect is not able to assign sufficient reasons for the forms he adopts; and the theoretic architect also fails, grasping the shadows instead of the substance."[31] Therefore, according to the theoretical base of this thesis, a theory alone cannot address the environmental burdens of today. If we truly are to successfully advance society with a sustained process of betterment, theories must be applied, tested, and continually reevaluated.

In the first part of this thesis, the theories of architecture and motion were outlined. In this part, architecture is explored as a practiced and applied art in both a universal and a specific application. Practice, here, is separated from theory and divided into a brief discussion of the design process in a four-dimensional design environment and then the applications of that design process on the school of Architecture. The later is the test of this thesis' theories which will be explored in rigorous and meticulous detail. The goal is to implement a framework of design that can be applied to all forms of architecture but tested through its application

[30] Vitruvius. De Architectura (I.i. 2)

[31] Ibid (I. i. 2.)

Chapter 1 – Outlining the Design Process

The Professional Design Issues

The theory chapter proposed architecture engaged with its dynamic context in a continuous dialogue of form and function. The added complexity of considering architecture in time has many implications on the methods we conceive for its delivery, design, and execution. The design process and delivery methods of contemporary practice must be evaluated and reconsidered to allow for an active environment of design.

In the professional world, while most people are familiar with the traditional design phases used to organize the design process (i.e. schematic design, design development, construction documentation, and construction administration), in reality few projects can follow such strict progression. A conflict arises when the iterative design process cannot meet the mandated checkpoints of the several other invested interests. Realities of economics, culture, politics, and schedule seem to oppose a healthy design process and contradict the artist's striving for the right making of the thing.[32] In most design schools, it is the evolution of a design and the process we enact to advance that evolution which is of primary importance. Unfortunately, unlike in school, the design process is often underdeveloped and abbreviated in a professional scenario due to the added external distraction of running business, dealing with bureaucracy, and providing a service to a client. To help avoid this fate, it is important to formally define what the design process should be so that it is less likely to be compromised by the pressures of the real-world.

[32] Professor Klink's definition of art "Art is the right making of the thing."

The Complexity of Time in Design

With the current complexities of real-world design already making it hard for the architecture to properly create, the design of a temporally dynamic architecture in a traditional mode of practice will only further complicate the process. The intricacies and interrelation of multiple design variables are already overly complex and intellectually demanding. As the architect loses control of the design process to the realities of the profession, so too does he lose sight of its responsibility to proper contextual dialogue, viability, and grace. Because of an already complex design environment, it is not surprising that the added consideration of dynamics is often overly simplified if not eliminated. The consequence is the immobility, inflexibility, and subsequently, the obsolescence and environmentally hostility of the architecture we use today. If this thesis is exploring new adaptive methods of envisioning our built environment, the question then is how will this work in an already stress design environment.

Historically, the designing architect has been limited to the two-dimensional medium of architectural drawings. Three dimensional thoughts are distilled and abstracted to isolate a two-dimensional concept like plan, section, or elevation. Even with the traditional limitations of two dimensions, architects have found plenty of methods for discussing the third dimension either literally (i.e. a physical model) or phenomenally (i.e. axonometric, perspectives, etc.) An architectural drawing is about communicating information be it a diagram, dimension, or detail. This is not to say that time, memory, and movement has not been of concern to the architects of the past, however, previous design philosophies have had proposed responses that are typically static in conception and execution. The issue is that time holds no spatial location no singularity to be captured on paper. Time is continuous and dynamic movement. Therefore,

the design tools of the architecture need to be able to express and control this movement with time.

In a static design environment, the options to represent time are either a sequential representation of different key moments at different times or locations or the simultaneous representation of multiple instances at once. Architecturally, sequential formal operations can be recorded in the buildings configuration through, color, alignment, imprints, additions, and subtractions and understood through memory. Simultaneity is a reaction to a stationary medium, using the superimposition of simultaneous instances in the same place. This method can be seen in the art work of cubist, like Duchamp and Umberto where movement is implied through overlap and gesture. In the article, "Transparency: Literal and Phenomenal," the architectural theorist and professor, Colin Rowe, uses memory and tracing of deeper phenomenal forms to imply formal and phenomenal time with operations including "Shearing," "Shifting," and "Rotating."[33] Although these methods have value as design and representational tools, with a static model of our abstract space of design, architecture design is still

Figure 14 - Duchamp's Nude Decending

[33] Rowe, Colin. Transparency: Literal and Phenomenal.

conceived as a part of an ideal neutral space of Cartesian coordinates and not a continuous flow of relativity. To avoid this fault, the conceptual design process must use tools that actively participate in a continuous dialog with the physical form over the life of the form.

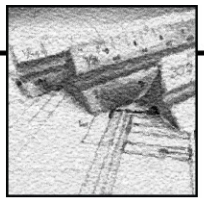
If the goal is to create architecture conscious and responsive to the continuous and differential nature of time and context, the virtual space of architectural conceptualization must also be mobilized with the constant movement and changing relativities of the temporal environment. If architecture is to approach this more complex concept of design, its technologies should also incorporate factors of time and motion. Throughout the history of architecture, descriptive techniques have impacted the way in which architectural design and construction has been practiced. With the use of computer technology to create virtual space where time and context can be considered in relative motion, the next era of active design can begin. Experimenting with several different methods, both static and dynamic, this thesis explores the representation of architecture as a continuously evolving form over time.

A continuous vision of architectural form goes against the traditional desire for a completed product. Instead, any design should thought of as only the most recent iteration of what is a continuous and never-ending process of adaptation over time. This continuously cyclical framework opposes the traditional linear path to completion that the profession observes. However, a design process that's cyclical and reiterative is far from revolutionary. In fact, it is one of the pedagogical virtues in which this school believes. However, while academic projects may not be headed for construction, there is still a culture of product which drives us to this false goal of completion. Instead, the process should be the goal of the architect and the student. The mentality is that design should not be thought of as a marathon with a finish line to be desired all the way but not seen until the end. Instead, design is a process more like a

nearsighted walk through time; always only able to focus on that which is closest, the images of design reveal themselves constantly as new images come into focus along the path of time. Therefore, in contrast to the engrained desire for product, this thesis holds the ideal that process trumps product and that the results will not be absolutes, but instead a vision of the future which can only continue to become clear as time moves forward.

A Framework for Design

The design process is analogous to the guessing game, Twenty Questions. In the game, a concealed idea is probed for with yes or no questions so that potentially the idea can be guessed – First there is the game itself, setting the foundation and framework with the rules and regulation. First, someone much think of a concealed idea to be guessed at. Then, that idea must be guessed at with increasingly insightful and informed questions. Finally there comes a time when a guess must be made to what that idea might be. Similarly, the design process begins with an evaluation of the foundation and framework available to start with; next there is an identification of what the goals are; then there is a process of trying to achieve those goals through design; and finally, a solution must be defined. Although, unlike the game of Twenty Questions, the design process begins again, as the solution itself is evaluated to identify new issues arise and new goals to be solved.



The Design Process

To formalize this process, the cycle is subdivided into categorized to be explored in turn and then repeated. The design process can be divided into the evaluation phase, the identification phase, the creation phase, and the formulation phase.

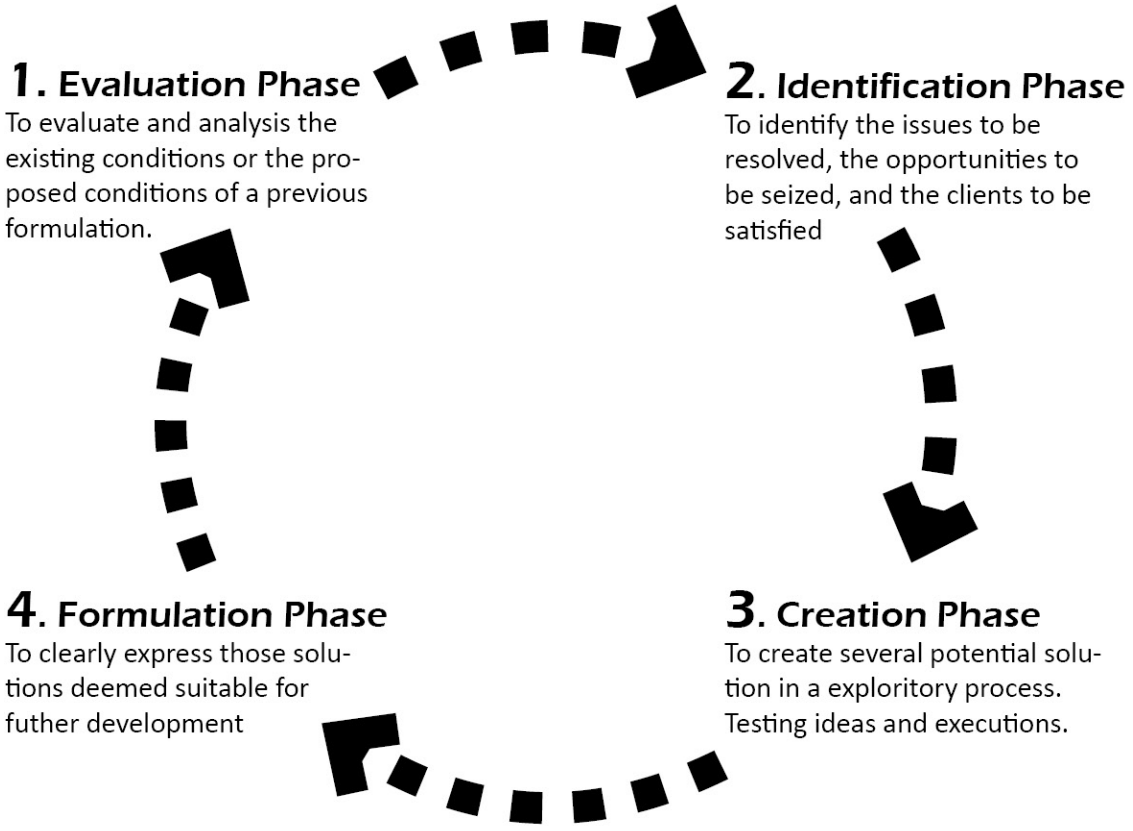


Figure 15 - The Cyclical Design Process

The Evaluation Phase

Through a close and thorough inspection of the current conditions, the design process begins with an evaluation. As seen through the contextual framework described before, an inventory and assessment of the existing serves as a gathering of knowledge so that future decisions can be educated and informed. In the first iteration of design, the evaluation is mainly external in content and consists primarily of site and cultural analysis. Future iteration may begin to evaluate the building itself as it becomes its own context for new evaluation.

The Identification Phase

Once we have the information we gathered through evaluation, the design process applies value judgments and critical analysis to produce an understanding of the demands, opportunities, issues, and subsequently solutions that the context allows. It is here that program emerges, not as mandate, but as a contextual response to a need for architectural function. The identification of the design goals can be compiled in a matrix of design solutions and the interrelation to identify the best course of action. The composite of a set of identified goals establishes a scheme.

The Creation Phase

In the most creative of the design phases, the identified need for architecture is answered in manifested form. Whether it is through diagram, dimension, or detail, the intention is to manipulate form to satisfy architecture's universal need for viability, contextuality, and grace through the specific circumstantial conditions of the physical space and time in question. This creative phase has its own internal cycle of reiteration and interplay of cause and effect. A separation of schemes occurs when there are divergent solutions to identified issues.

The Formulation Phase

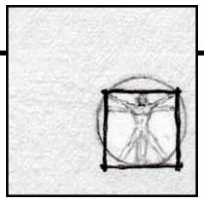
While proper communication is essential throughout all of the phases of design, there is an emphasis here for the carefully and calculated communication of intent. The objective is to remove doubt and propose definitive solutions. The goal is to communicate the current solution thought to be the best solution so that there is sufficient information of appropriate clarity as to be openly criticized and reevaluate so that the cycle can start over again.

Repeat…

Through critical analyze and reevaluate, the process can begin again as the circumstances have changes as a result of the proposed architectural intervention and the effect it would have on its context. Active design redefines the role of the architect to be an active participant in the life of a building. Similar to the operation and maintenance of a building, an architect's role should never be complete as the future of a building should be something that is constantly redesigned, refined, redefined, and reconsidered at future points in time. This model acknowledges that a building is never something to simply design, construct, and walk away from.

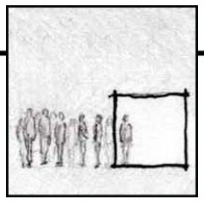
Chapter 2 – Evaluating the Existing

The School of Architecture, Planning, and Preservation, is an ideal architectural environment to apply the prescriptive theories of active design. The experiment is supported by the dedication, ambition, and motivation to constantly push the development and innovation of the school's educational environment and the current decrepit and anemic state of the building and the growing demand for more space validates the exploration. Therefore, as the first step, the existing conditions must be evaluated. This chapter makes a detailed analysis of where the school is today. Since at the beginning of any design, everything is the context to the yet to be conceived, information is organized into its contextual category: Personal, Communal, Antecedental, Biological, Terrestrial, and Celestial.



The Personal Context

The evaluation of the human context includes a description of the people, views of the site, a diagram of other visual axes, a diagram showing access to the site, and a diagram of the circulation within the building

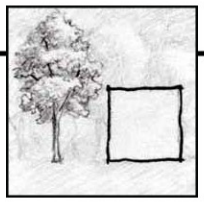


The Communal Context

The evaluation of the community as context includes a summary of the Facilities Master Plan, a break down of the demographic, a diagram of current land use, a diagram of the masterplan land use, and a diagram showing the historic value of the surrounding context.

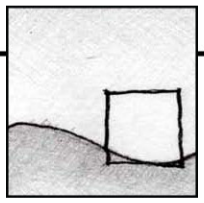
The Antcedental Context

The evaluation of the the built context includes a diagram of surrounding building heights, typologies and styles, construction chronology, open spaces, design axes, floor plans of the existing building, sections of the existing building, and elevations of the existing buildings



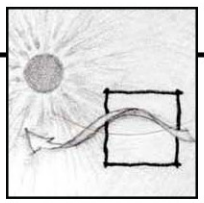
The Biological Context

The evaluation of the surrounding biological life as context includes a diagram of tree locations, grass surface, and a survey of plant and animal species surrounding the site.



The Terrestrial Context

The evaluation of the ground as context includes a diagrams of the topography, the hydrology, geology, and site sections.



The Celestial Context

The evaluation of air and space as context includes sun diagrams of different solar exposures, a wind rose, and an analyse of the local weather and tempature conditions.

Figure 16 - The Context of the School of Architecture

The Personal Context

Views and Aspects

The photographs show the existing surrounding from the perspective of the observer.

Figure 17 - Personal Context - Views and Aspects

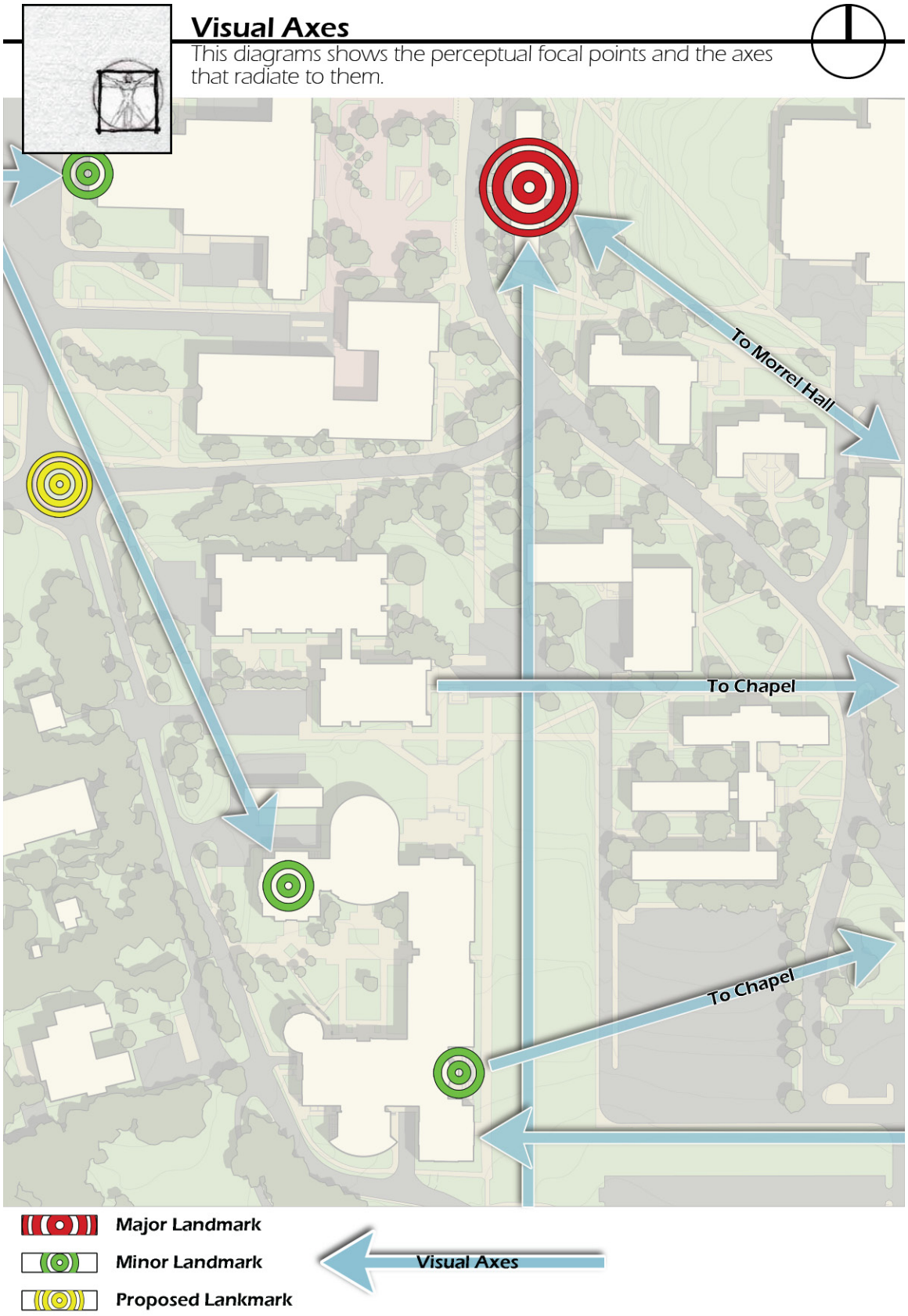


Figure 18 - Personal Context - Visual Axes

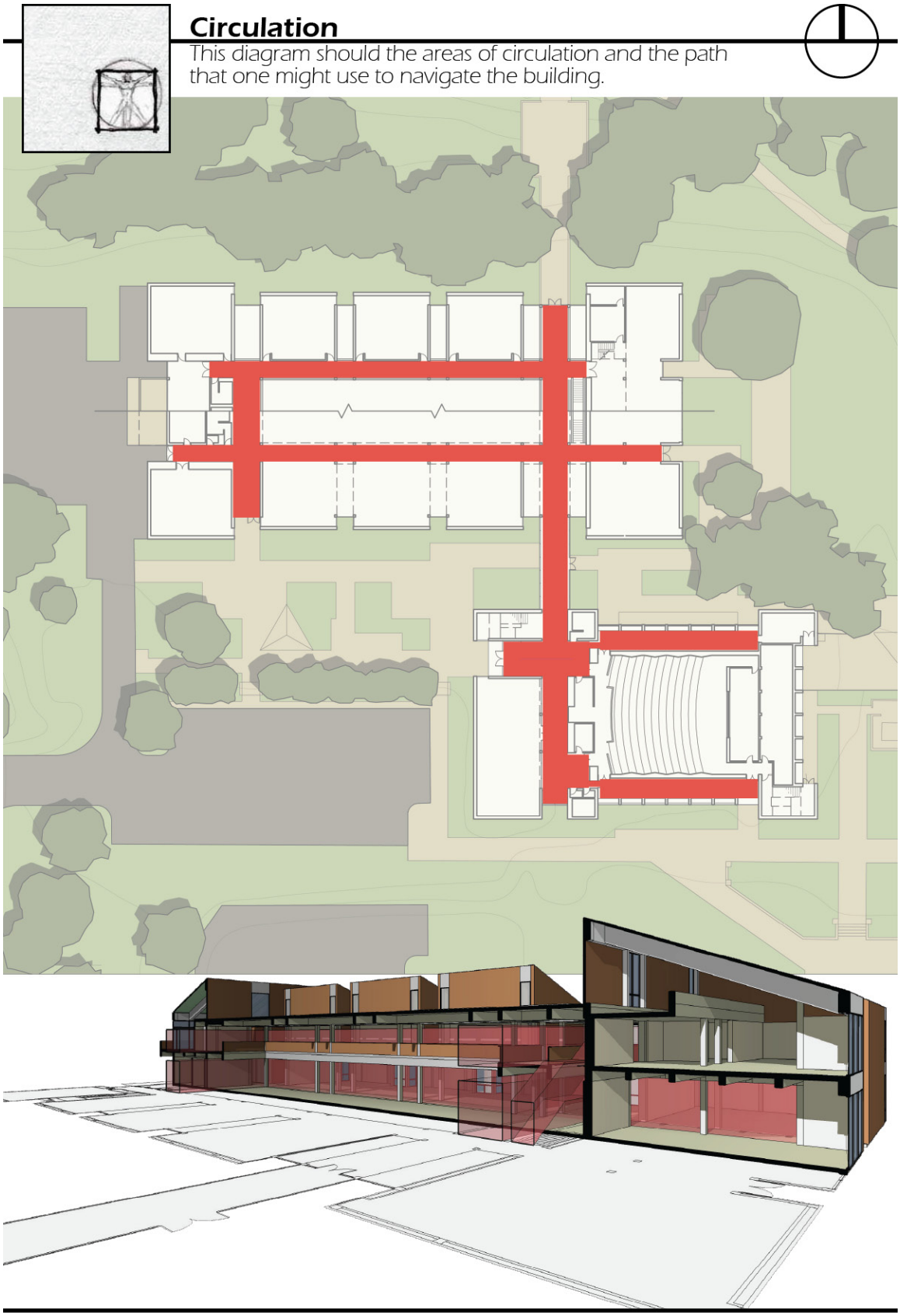


Figure 19 - Personal Context - Internal Circulation

The Communal Context

Studios	Typical		2007-2008	
Undergrad	**Fall**	**Spring**	**Fall**	**Spring**
400	54		57	
401		54		57
402	54		60	
403		54		60
Totals	**108**	**108**	**117**	**117**
Graduate	**Fall**	**Spring**	**Fall**	**Spring**
400	12		13	
401		12		13
402	12		10	
403		12		10
600	24		24	
601		24		24
700	12		15	
799	12	12	13	15
Totals	**180**	**168**	**192**	**179**

Figure 20 – Communal Context – Student Population Demographic

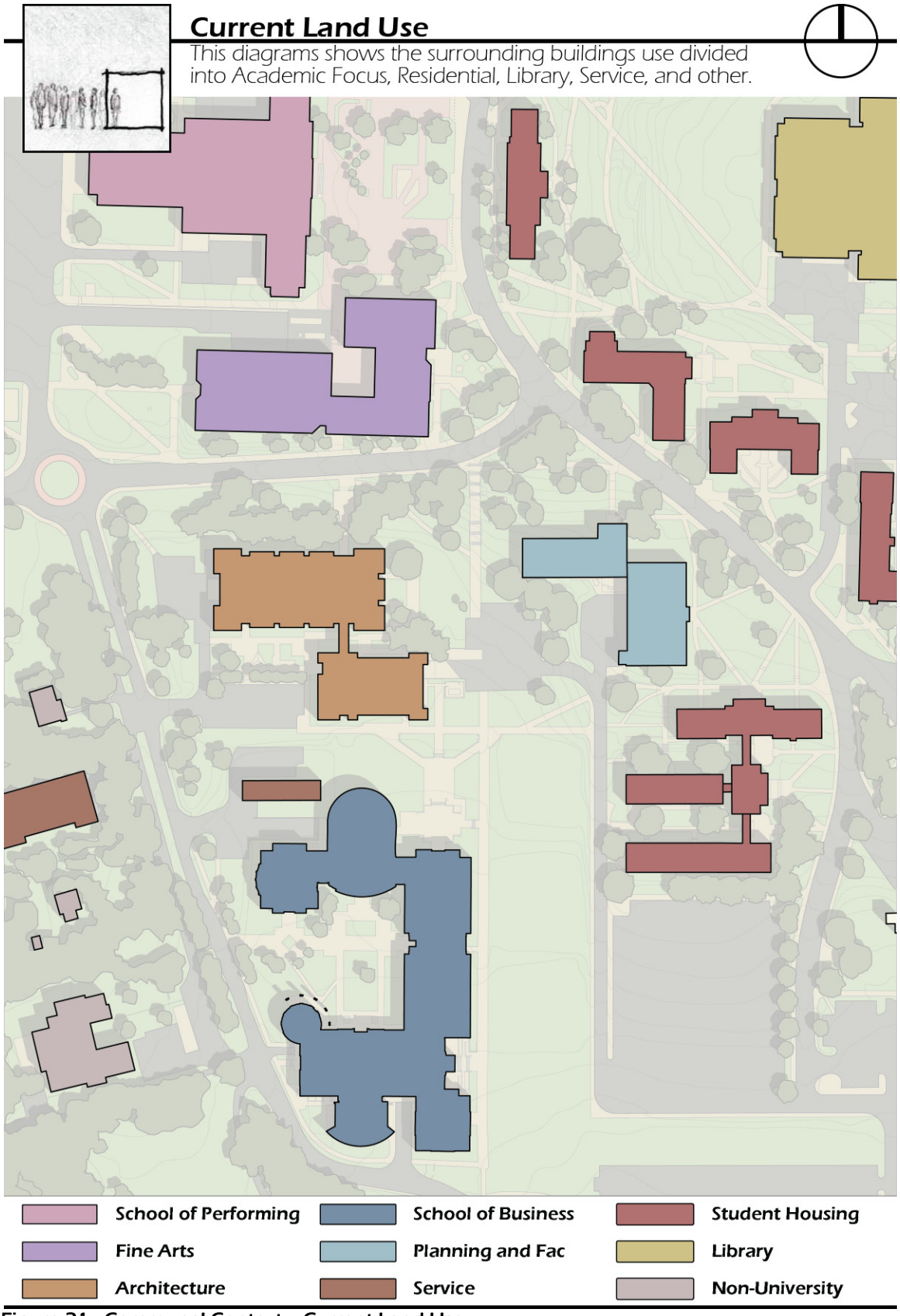
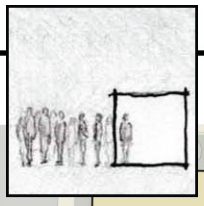


Figure 21 - Communal Context - Current Land Use



Master Plan Land Use

This Diagrams shows the location of future buildings. They are divded into their projected construction schedule.

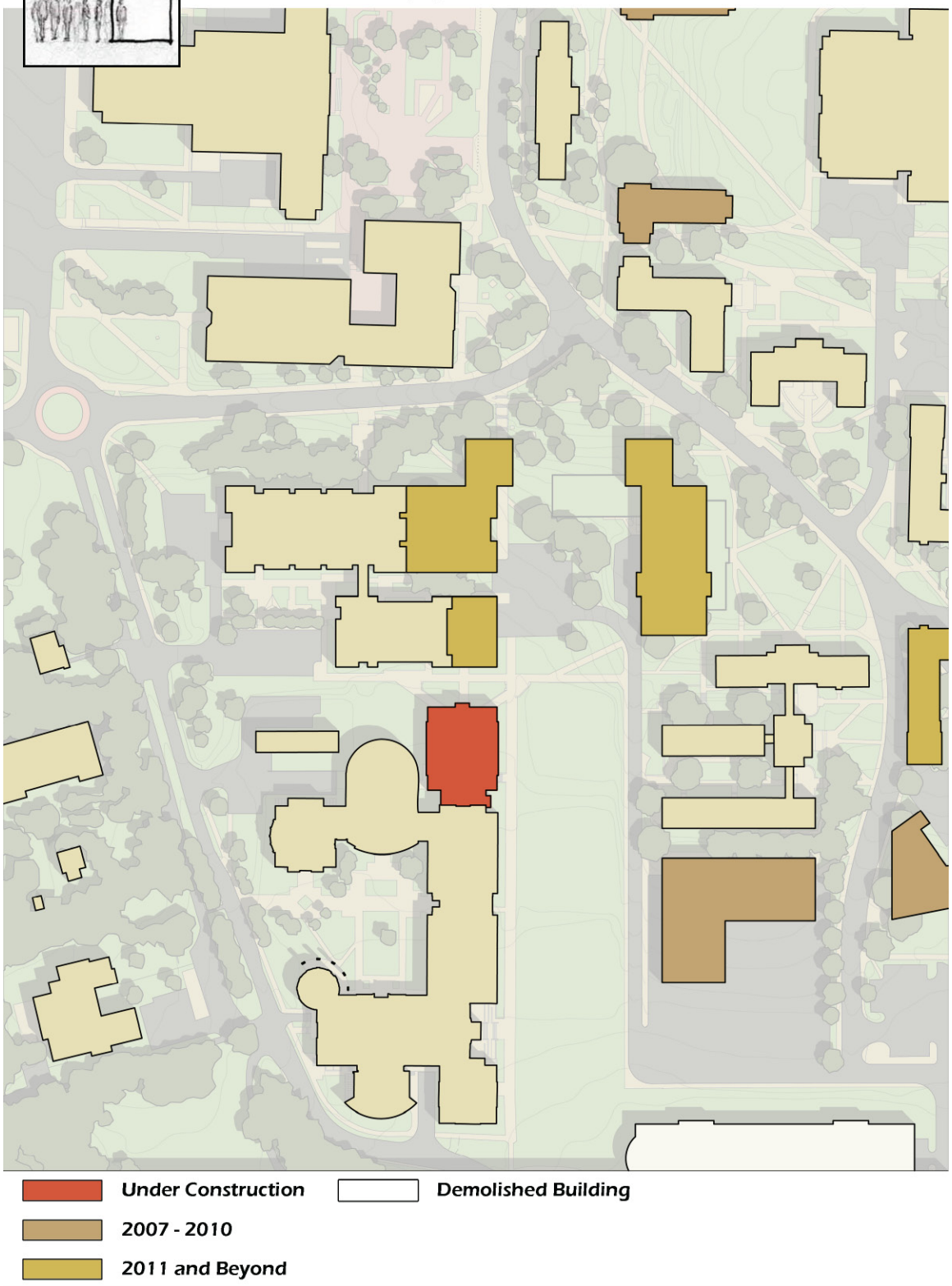
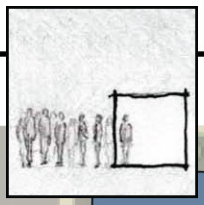
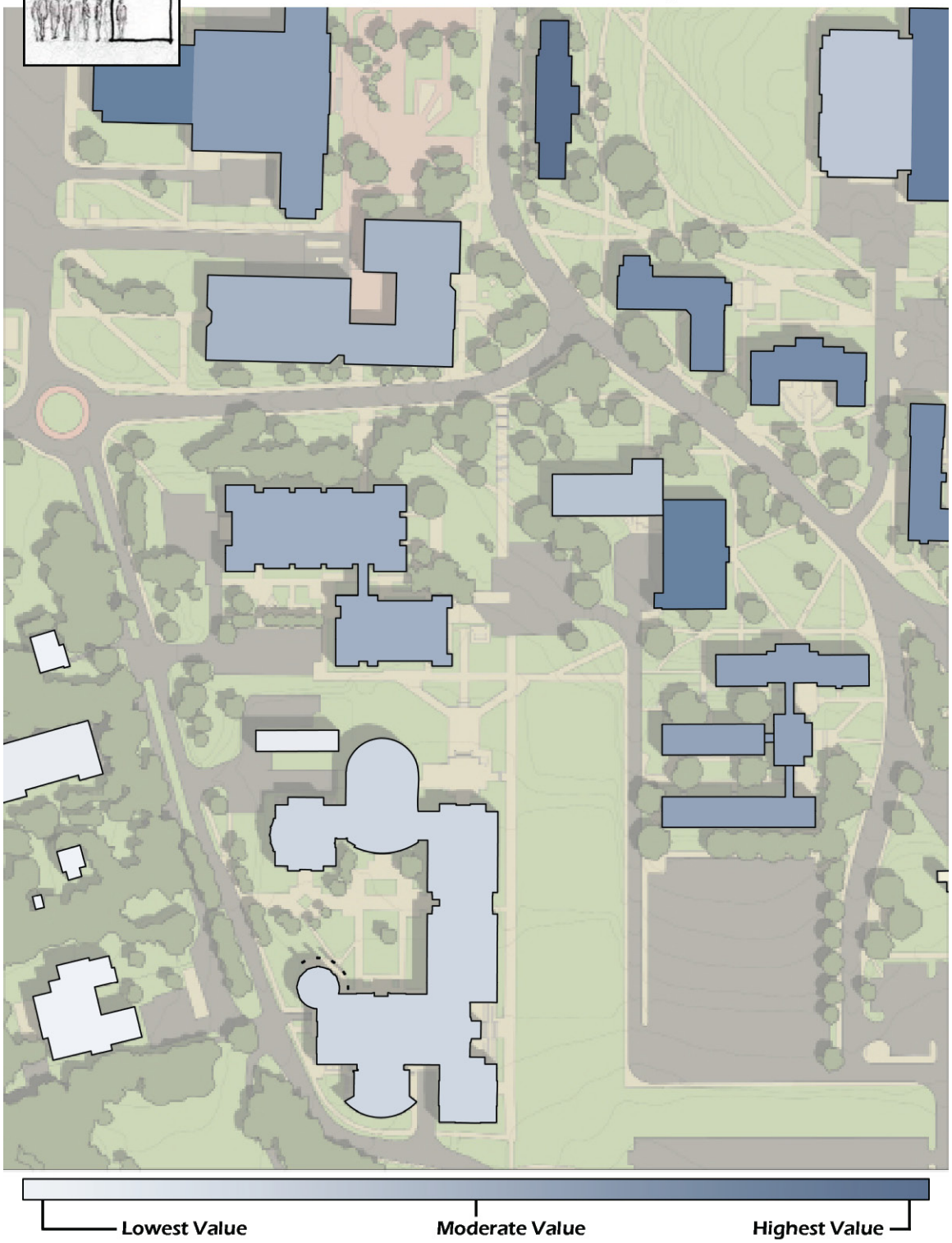


Figure 22 - Communal Context - Master Plan Land Use



Historic Value

This diagrams shows the relative historic values as a judgement based on age, aesthetics, and historical significance.



The Antecedental Context

The Antecedental Context takes a look at the history and origins of the surrounding site. The scope of analysis spans from the regional to the site specific. Analysis of the History is necessary to be able to envision the future.

The University of Maryland is located in the city of College Park, within Prince George's County. The campus is 30 miles west of Annapolis, 25 miles southwest of Baltimore, and 5 miles north of the border to Washington, D.C. The land where the University of Maryland stands was purchased in 1858 by a descendant of the Barons Baltimore and future Congressman Charles Benedict Calvert. The University began operations two years later under the name of Maryland Agricultural College (MAC). Its first class, composed by 34 students, including four of Calvert's sons, graduated in 1862.[34] During the years of the Civil War, the campus was utilized in several occasions to provide camping for soldiers in their march to combat. Eventually, problems related to the war and a decline of student enrollment sent the Maryland Agricultural College to bankruptcy. In 1866, the Maryland Legislature helped the college getting out of bankruptcy by assuming half of the ownership of the school. In October of 1867, the school open again, but this time only 11 students enrolled. This situation changed in the next years, as the college reputation grew as a research facility, many more students made the Maryland Agricultural College their Alma Mater. By 1951, more than 10,000 students were enrolled, from which 4,000 were women.[35] By 1985 the University reached an enrollment of 38,679, the highest in its history. In 1988, the school was designated as the flagship campus of the newly formed

[34] University of Maryland, College Park, from Wikipedia, www.wikipedia.org

[35] Ibid.

University System of Maryland and was formally named University of Maryland, College Park. Today the University of Maryland is considered by many to be the fastest rising research university in the United States.[36] However, its physical facilities have not kept pace with this fast ascent. An inventory of facilities made by the University's Facilities Master Plan Steering Committee reveals that according to the State of Maryland's Space Planning Guidelines, the University faces a current total deficit of approximately 1.2 million net assignable square feet.[37]

In fall of 2000, The University's President, C. Daniel Mote Jr., created a committee to develop a Master Plan. The plan was to aimed to address the current campus needs, and define the principles that lay the foundation for further development and growth over the next twenty years. As part of their mission, the Committee published a document titled Facilities Master Plan 2001-2020, which presents an overview of the current facilities, proposes possible new sites and buildings that could satisfy the space requirements of the campus, and establishes principles and guidelines for future development.[38] Goals of the Master Plan include:

- Realize Institutional Vision
- Create a Coherent Campus Design
- Practice Good Environmental Stewardship
- Increase the Access and Appeal of the Campus for Pedestrians
- Encourage and Facilitate Use of Transportation other than Personal Vehicles
- Strengthen Community Relations
- Embrace Campus Traditions and Heritage
- Emphasize the Importance of Open Spaces

[36] University of Maryland, Facilities Master Plan, p.3

[37] ibid, p.3

[38] ibid, p.1

- Achieve Appropriate Development Densities
- Ensure Greater Sustainability
- Enhance Campus Security

Figure 23 - Antecedental Context - Master Plan Planning Principles

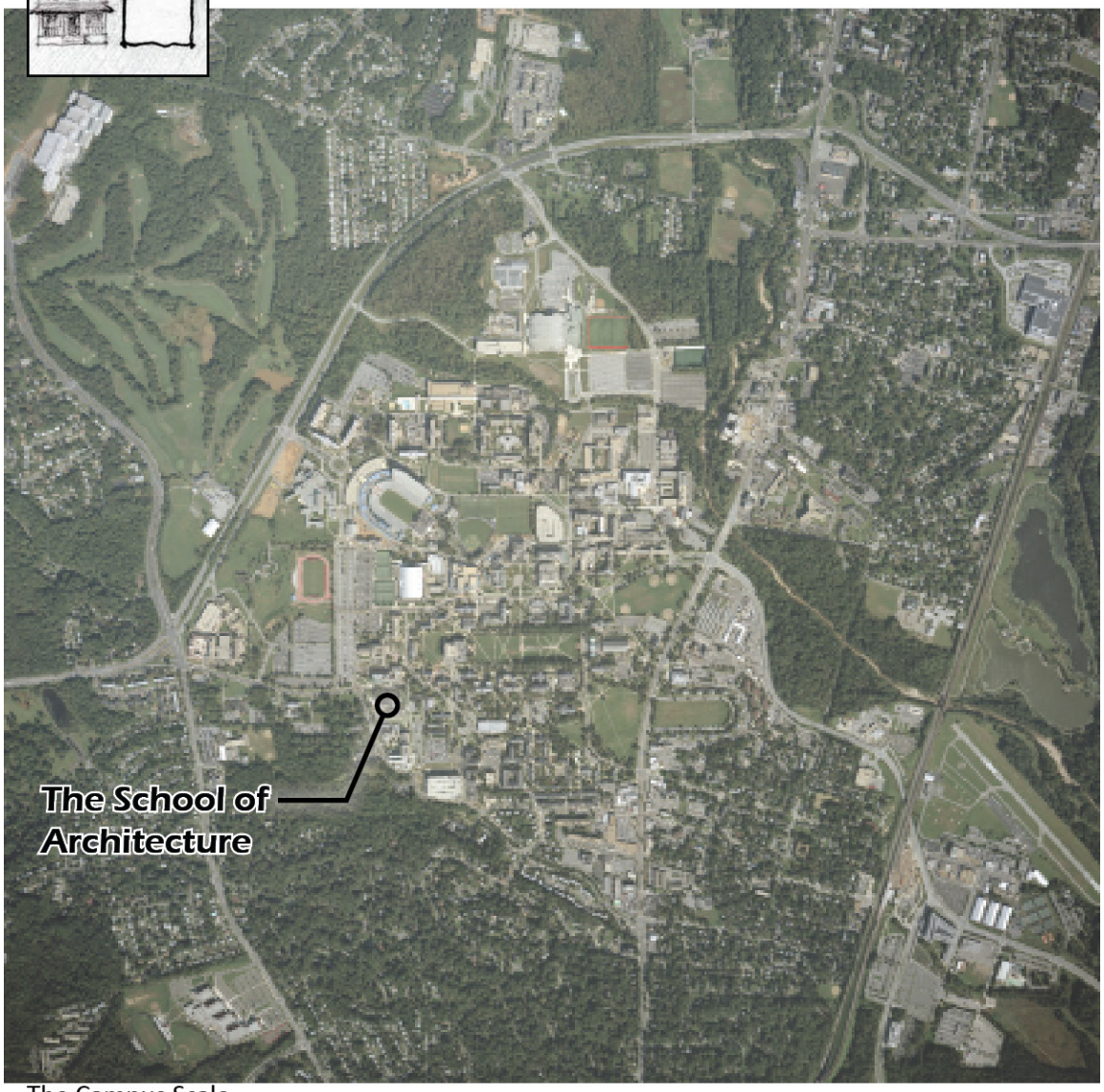
The Facilities Master Plan outlines Projects for the Arch. Building and the Replacement of Prienkert Field House.

Project	NASF	GSF	Cost*	Potential Fund Source
Architecture Building Addition	48,074	84,300	$22,800	State
New School of Public Affairs Building	40,000	72,700	$22,500	State

Figure 24 - Antecedental Context - Master Plan Proposed Additions at Site

Overview

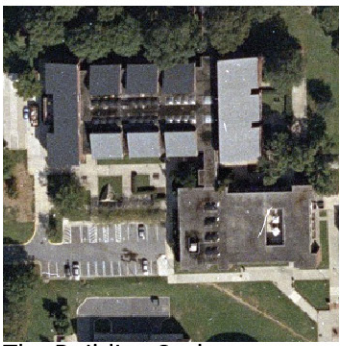
These aerial photographs show the location of the school of architecture at four different scales.



The Campus Scale

The Neighborhood Scale

The Site Scale



The Building Scale

Figure 25 - Antecedental Context - Overview

Building Heights

This diagrams shows the average building heights. This not take into account changes in height due to topography.

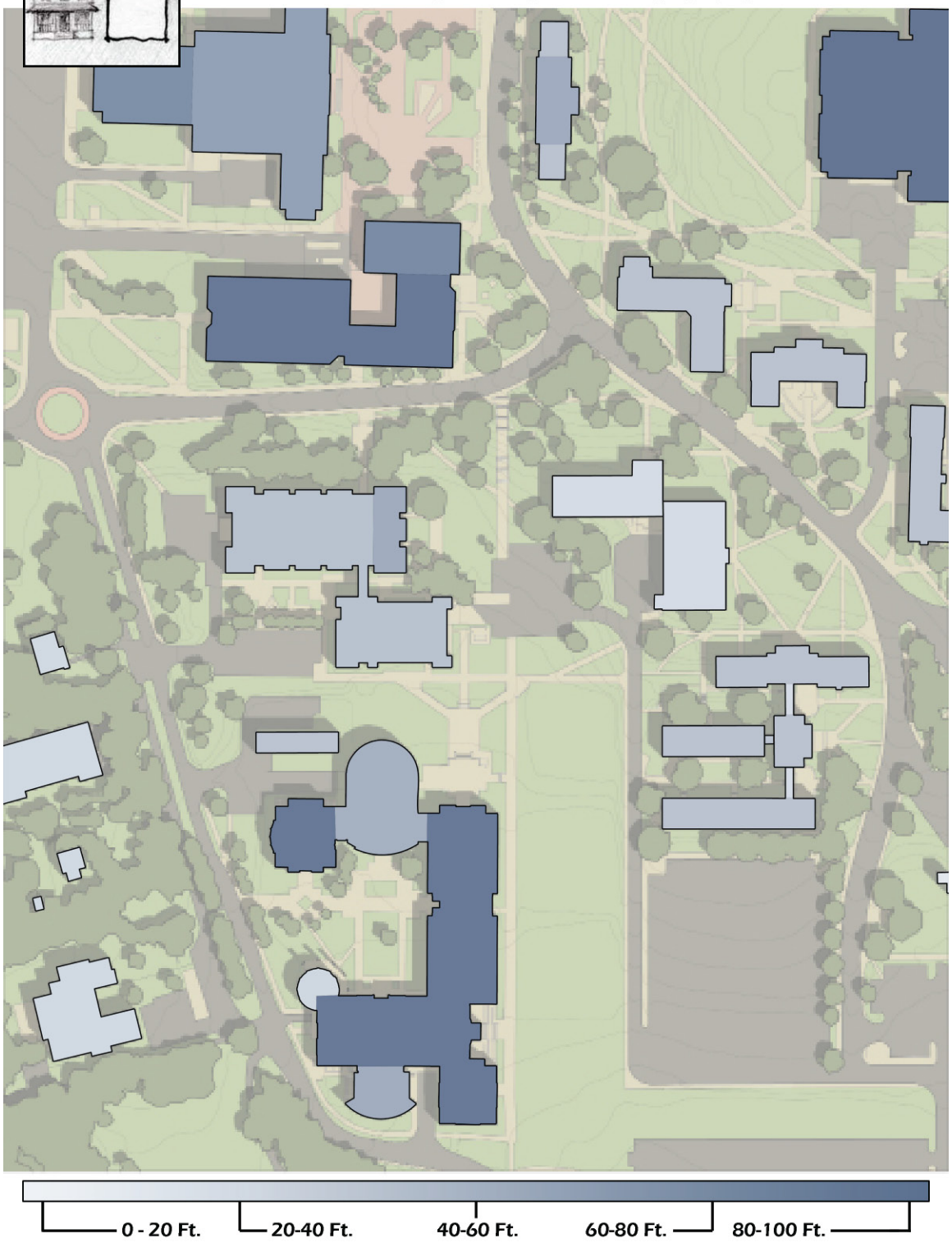


Figure 26 - Antecedental Context - Building Heights

Typologies and Styles

This diagram shows surrounding typologies and styles.It shows a mix of modern and traditional but always brick.

Residential - Georgian

Residential - Georgian

Residential - Georgian

Recreational - Post Modern

Cultural - Georgian

Academic - Burtalist

Academic - Brutalist

Academic - Shed

Institutional - Post modern

Residential - Crappy contemporary

Academic - Courtyard

Academic - Urban

Figure 27 - Antecedental Context - Typologies and Styles

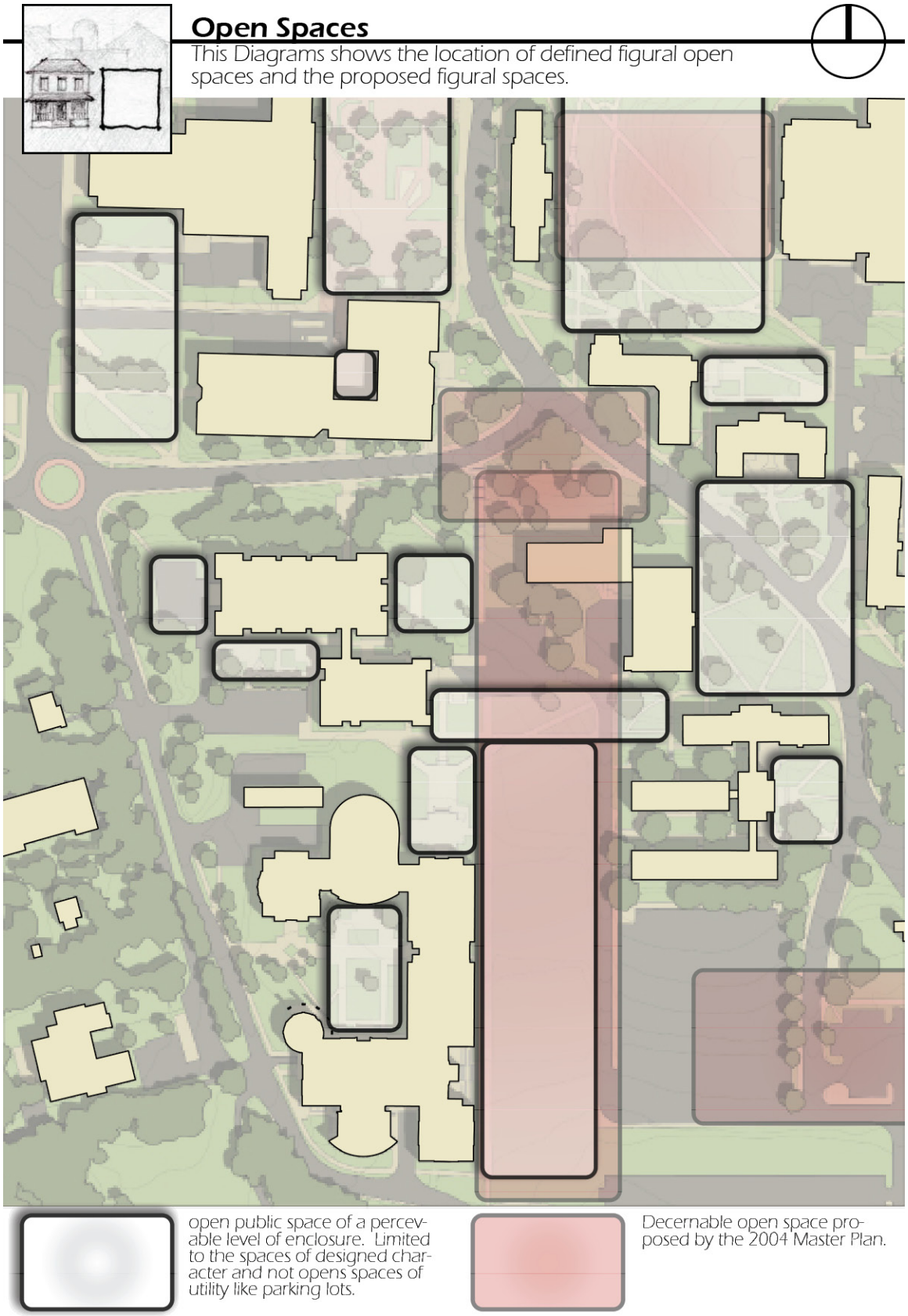
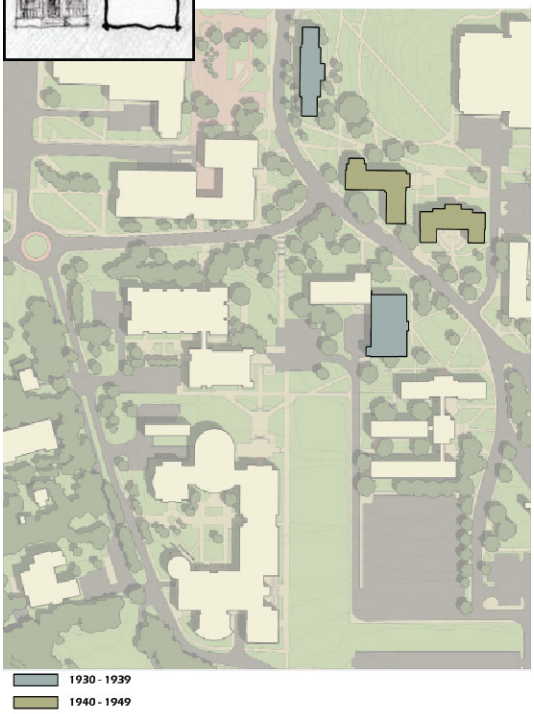


Figure 28 - Antecedental Context - Open Spaces

Construction Chronology

The timeline of when specific building were built showing the slow growth of the campus over the last century.



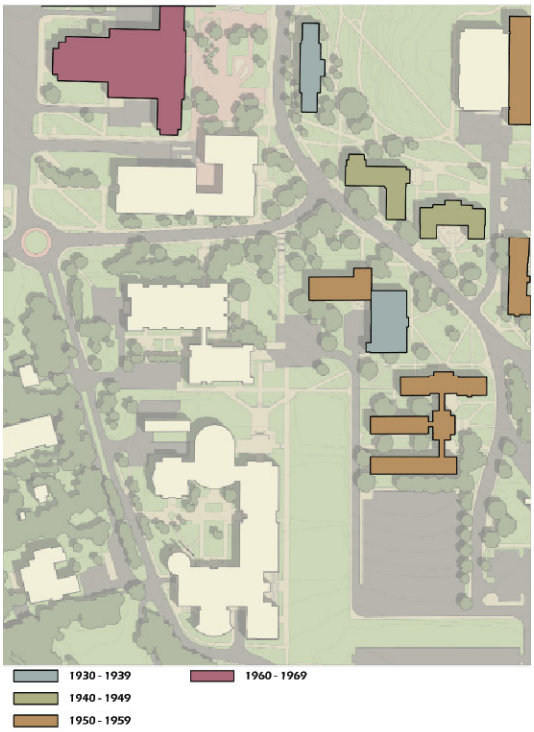
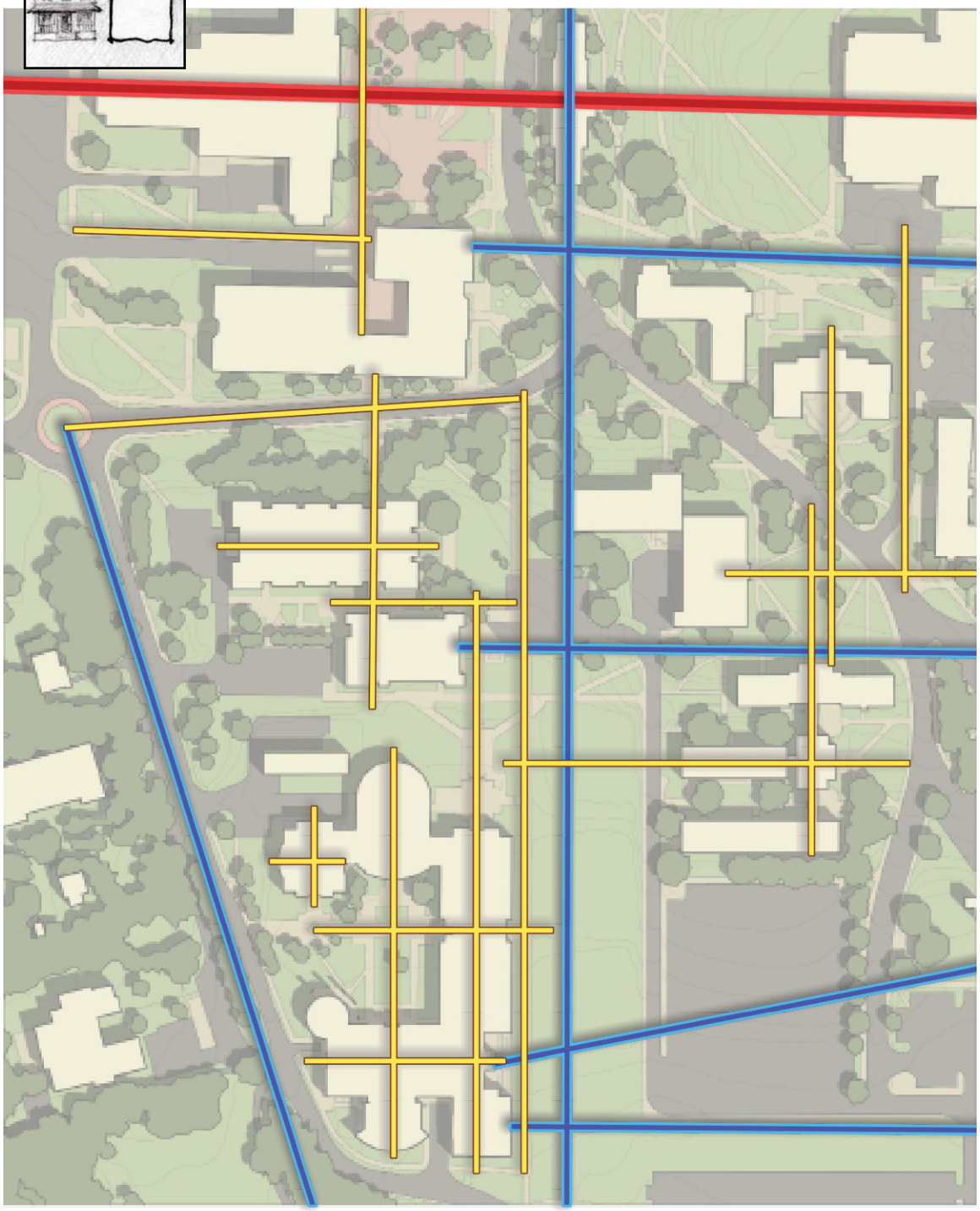


Figure 29 - Antecedental Context - Construction Chronology

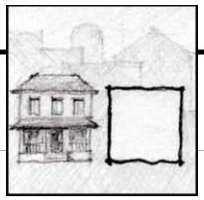
Design Axes

This diagrams shows the relation of orthogonal axes whether related to building axes or site axes.



The most noticable observation is that most of the building's internal design axes do not interrelate between buildings. There is the occational exception like the continuation of the primary cirulation axes in the architecture building extending to the entry to the Art-Soc Building.

Figure 30 - Antecedental Context - Design Axes



First Floor Plan 1

The drawing shows the first floor plan of the North Building.

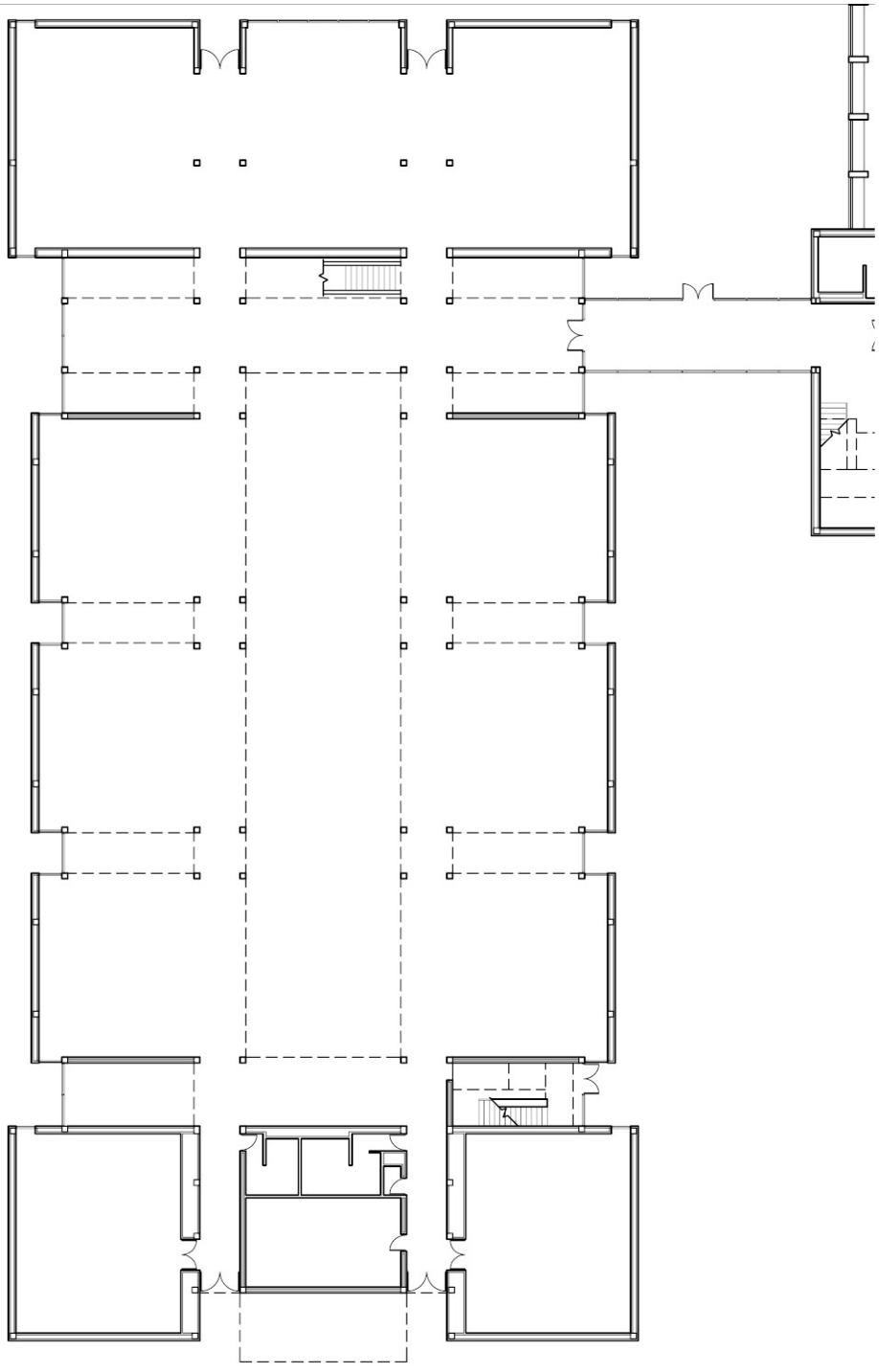
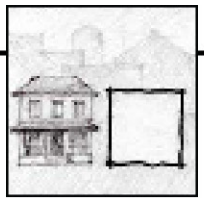


Figure 31 - Antecedental Context - First Floor Plan - Part 1



First Floor Plan 2

The drawing shows the first floor plan of the South Building.

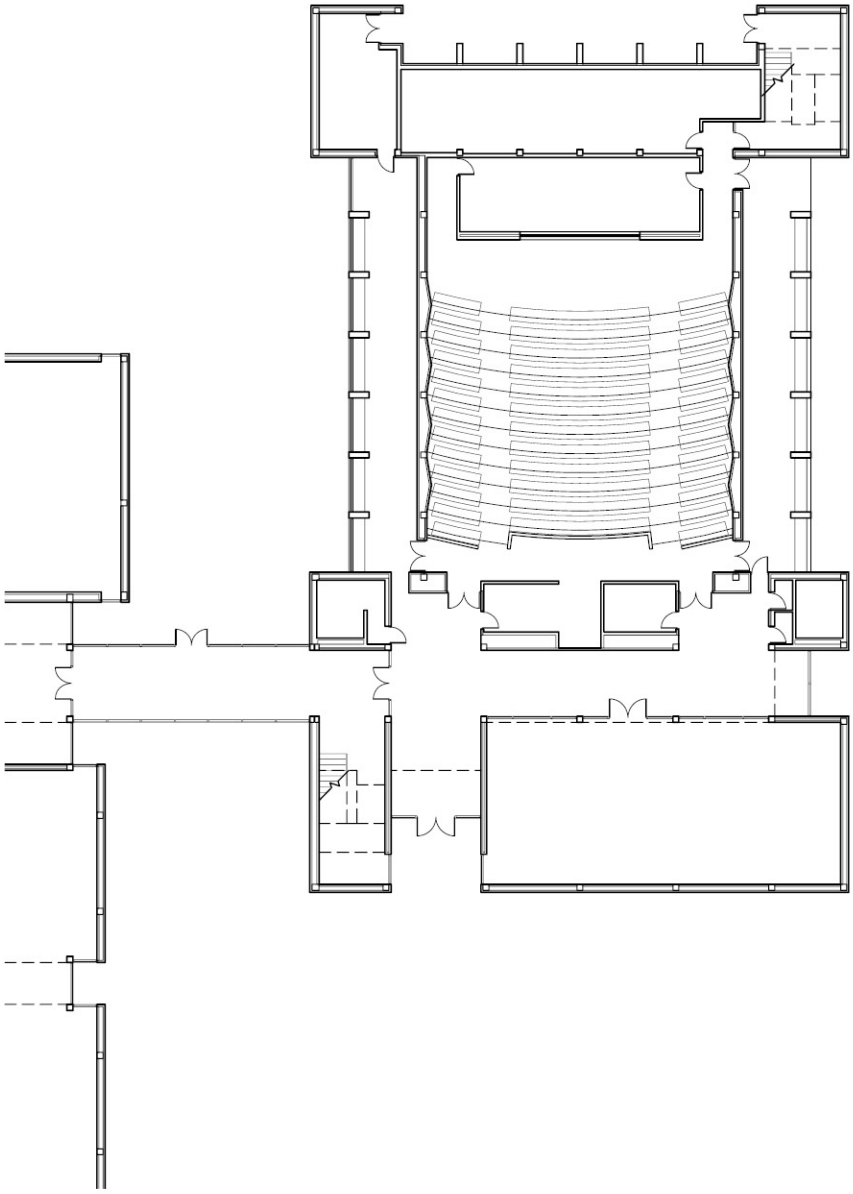


Figure 32 - Antecedental Context - First Floor Plan - Part 2

Second Floor Plan 1

The drawing shows the second floor plan of the North Building.

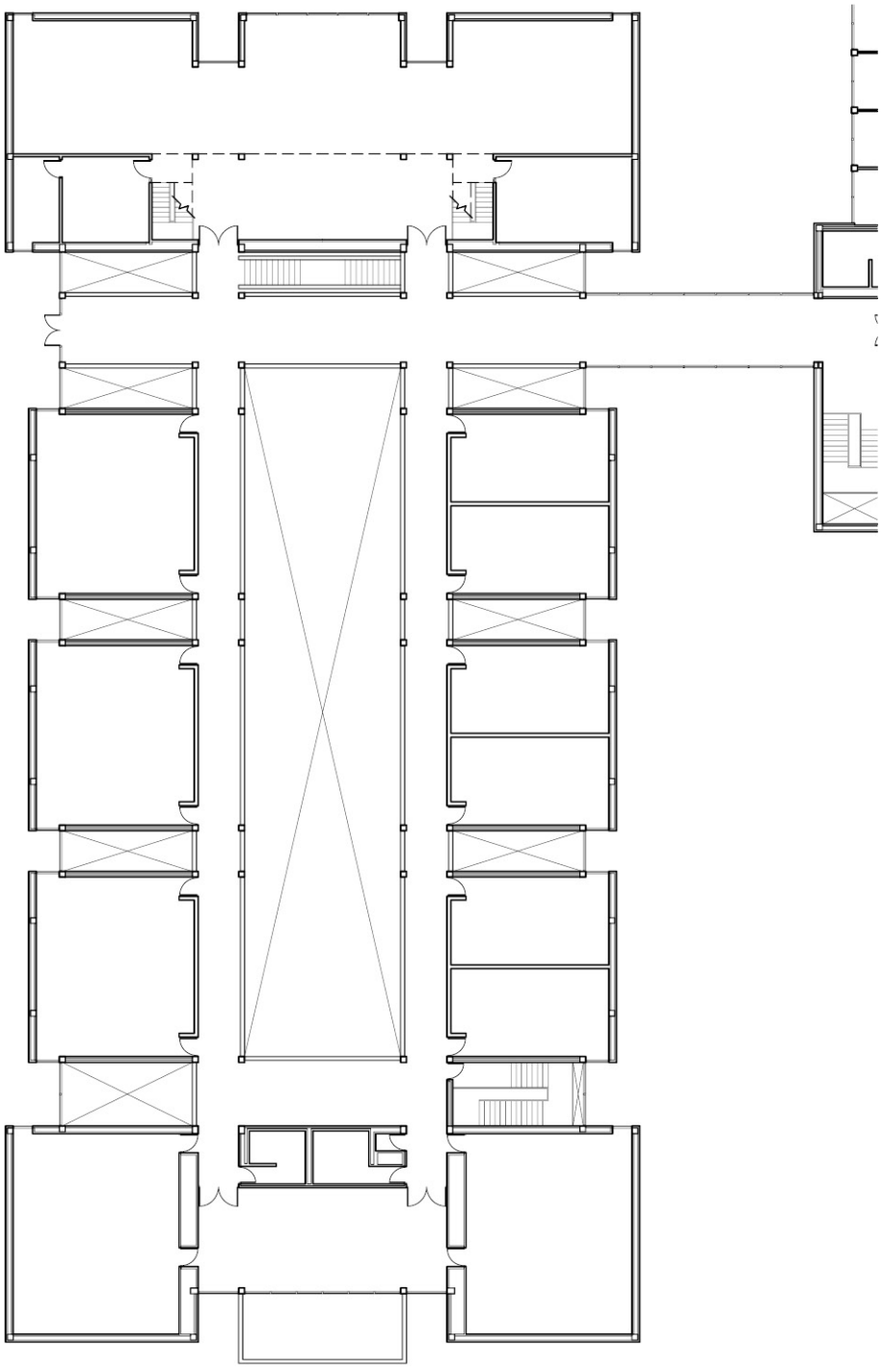
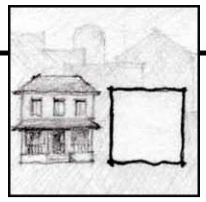


Figure 33 - Antecedental Context - Second Floor Plan - Part 1



Second Floor Plan 2

The drawing shows the second floor plan of the South Building.

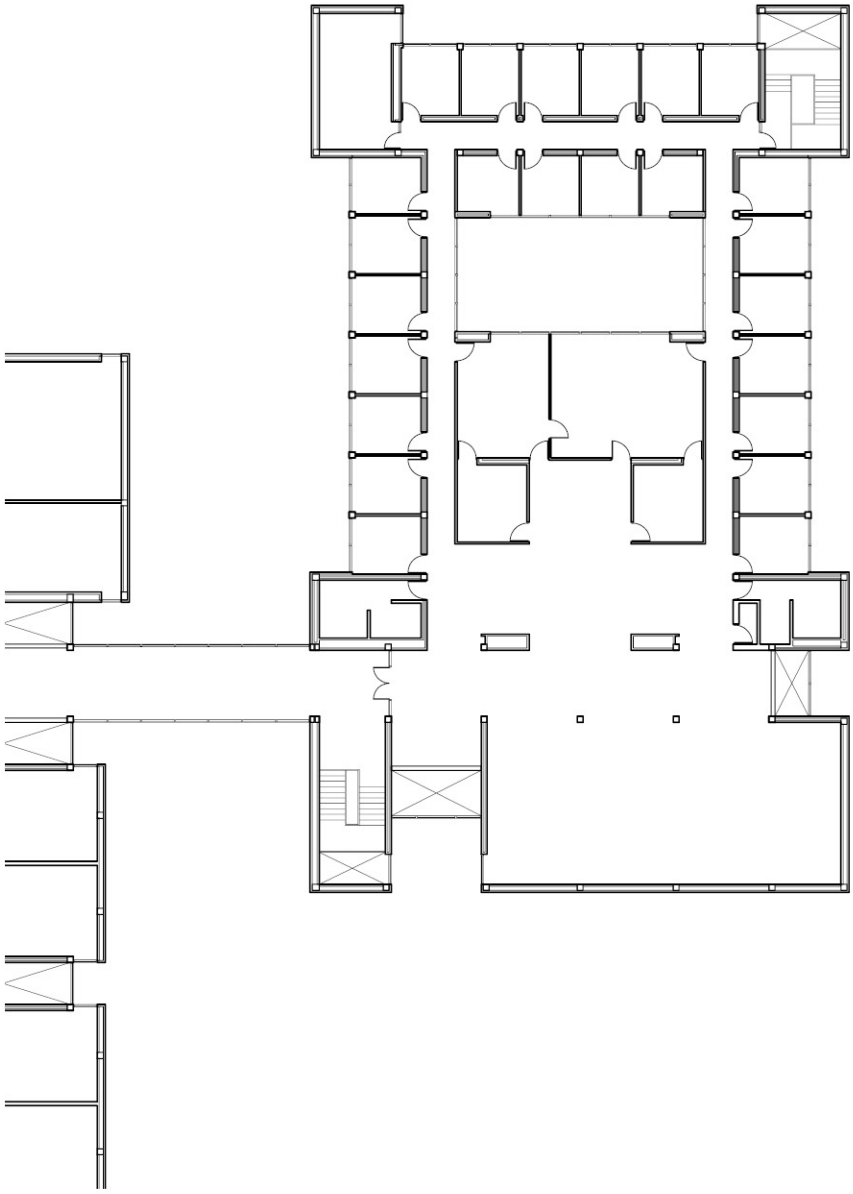


Figure 34 - Antecedental Context - Second Floor Plan - Part 2

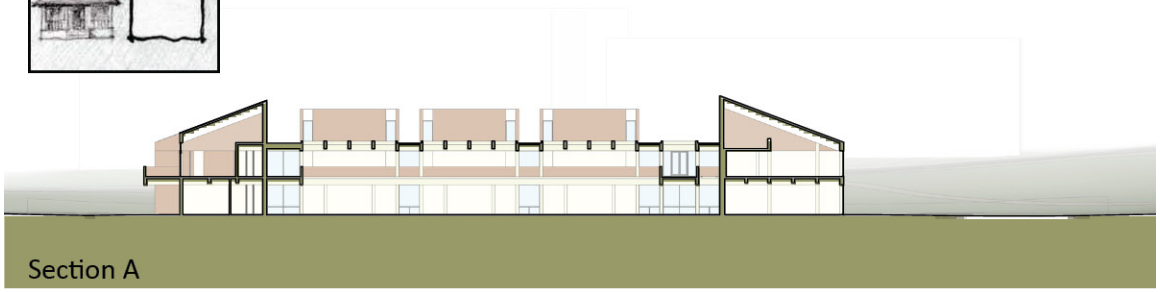
Elevations

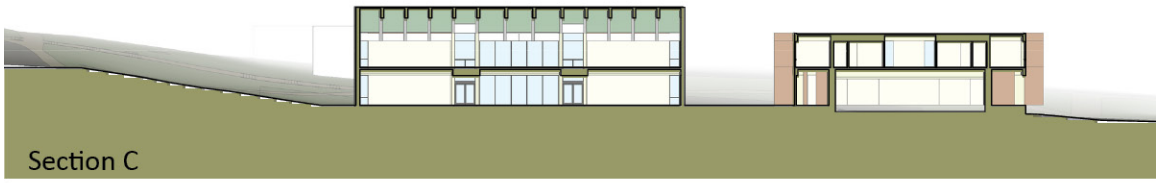
These drawings show the elevational views of the existing building.

Figure 35 - Antecedental Context - Elevations

Sections

These drawings show the primary sectional conditions within the building.





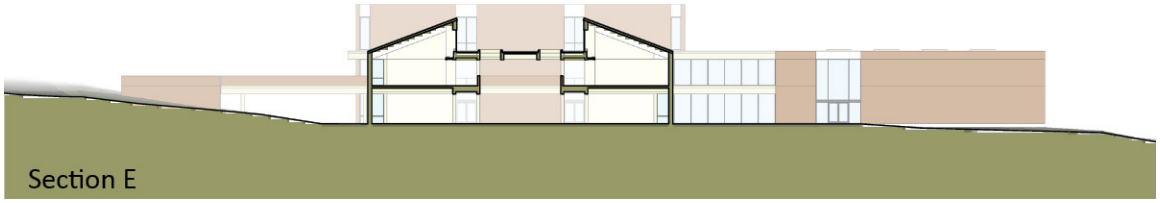


Figure 36 - Antecedental Context - Sections

The Biological Context

The Biological Context serves as an integral part of the ecological balance of the ecosystem and should be seriously considered to sustain the symbiotic relationship of man and nature. The Master Plan sets up some guidelines for the preservation and betterment of the biological context:

Preserve and reinforce regional ecological connections.

- Establish greenways.
- Manage invasive species.
- Protect streams and wetlands.
- Protect existing specimen trees.
- Restore and enhance forest cover.

Restore the natural hydrologic cycle.

- Manage storm water run-off more effectively.
- Improve water quality.

Foster ecological stewardship.

- Develop specific policies and goals to reduce consumption of non-renewable resources.
- Minimize hazardous and toxic materials.
- Promote environmentally responsible procurement of goods and services.
- Adopt a waste reduction goal for the campus.
- Incorporate energy conservation measures and renewable energy production.
- Implement "green" architecture.

Develop specific policies and goals to reduce consumption of non-renewable resources.

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- Promote environmentally responsible procurement of goods and services.

- Adopt a waste reduction goal for the campus.
- Incorporate energy conservation measures and renewable energy production.
- Implement "green" architecture.

Figure 37 - Biological Context - Master Plan Principles

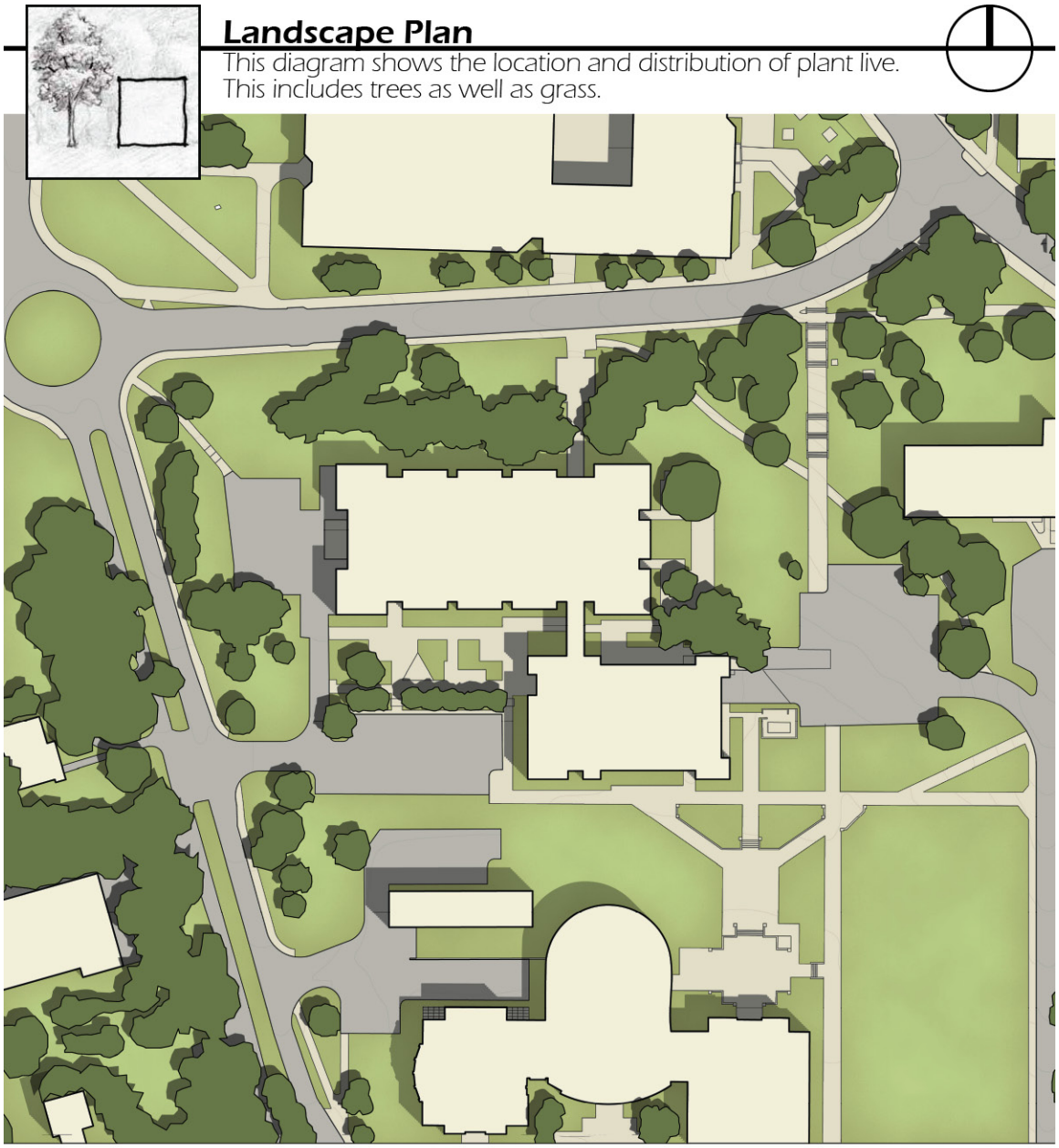


Figure 38 - Biological Context - Landscape Plan (incomplete)

The Terrestrial Context

The most notable characteristic of the terrestrial context is the steep grade change from the North side of the Site to the South. The architecture building has been described as being sunken into a hole. This is due to the fact that is it surrounded by higher grade and steep slopes on the north and northeast side which corresponds with the direction that connects the building to the main campus.

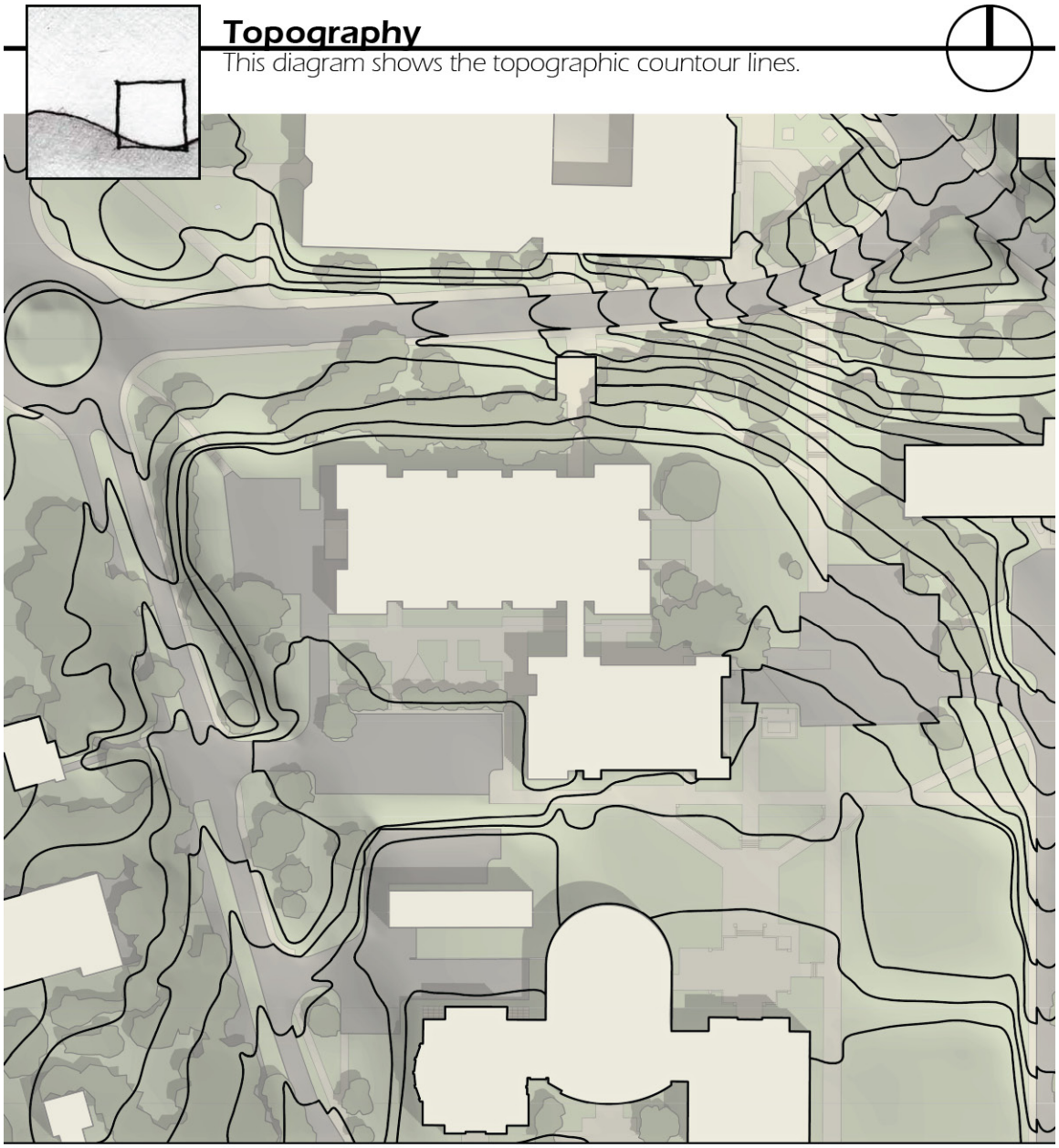


Figure 39 - Terrestrial Context - Topography (incomplete)

The Celestial Context

The state of Maryland is located in the eastern coast of the United States between longitudes 75 degrees and 79 degrees W. This area is affected with a semi permanent Atlantic High that due to its motion provokes prevailing winds from the northwest from October through June and southwest winds from July through September. These winds can show a speed of 9 mph in the summer and from 10 to 12 mph in winter and early spring.

Temperatures for the Maryland area range from about 48 degreeș F in the Garrett County area to 58 degrees F in the lower Chesapeake Bay area. Average frost penetration ranges from about 5 inches or less in southern portions of Maryland to more than 18 inches on the Allegheny Plateau. Frost penetration may be double the average depth in conditions of severe cold winters. Average annual snowfall ranges from a minimum of 8 to 10 inches in areas near the Southern Eastern coast, and a maximum of over 80 inches in Garrett County. Summers on the contrary are considerably warmer weather including several hot, humid periods. Extreme temperatures in Maryland range from 109 degreeș to minus 40 degreeș F.

The average annual precipitation ranges from as much as 48 inches at places in the Allegheny Plateau and southern Eastern Shore area, at extreme ends of the State, to as little as 37 inches in the Cumberland area located in the “rain shadow” to the east of the Allegheny Plateau. Elsewhere over the State, the annual precipitation generally ranges between 40 and 46 inches.[39]

[39] Soto, Eduardo. Thesis: The University of Maryland Center For Visual Arts. 2006

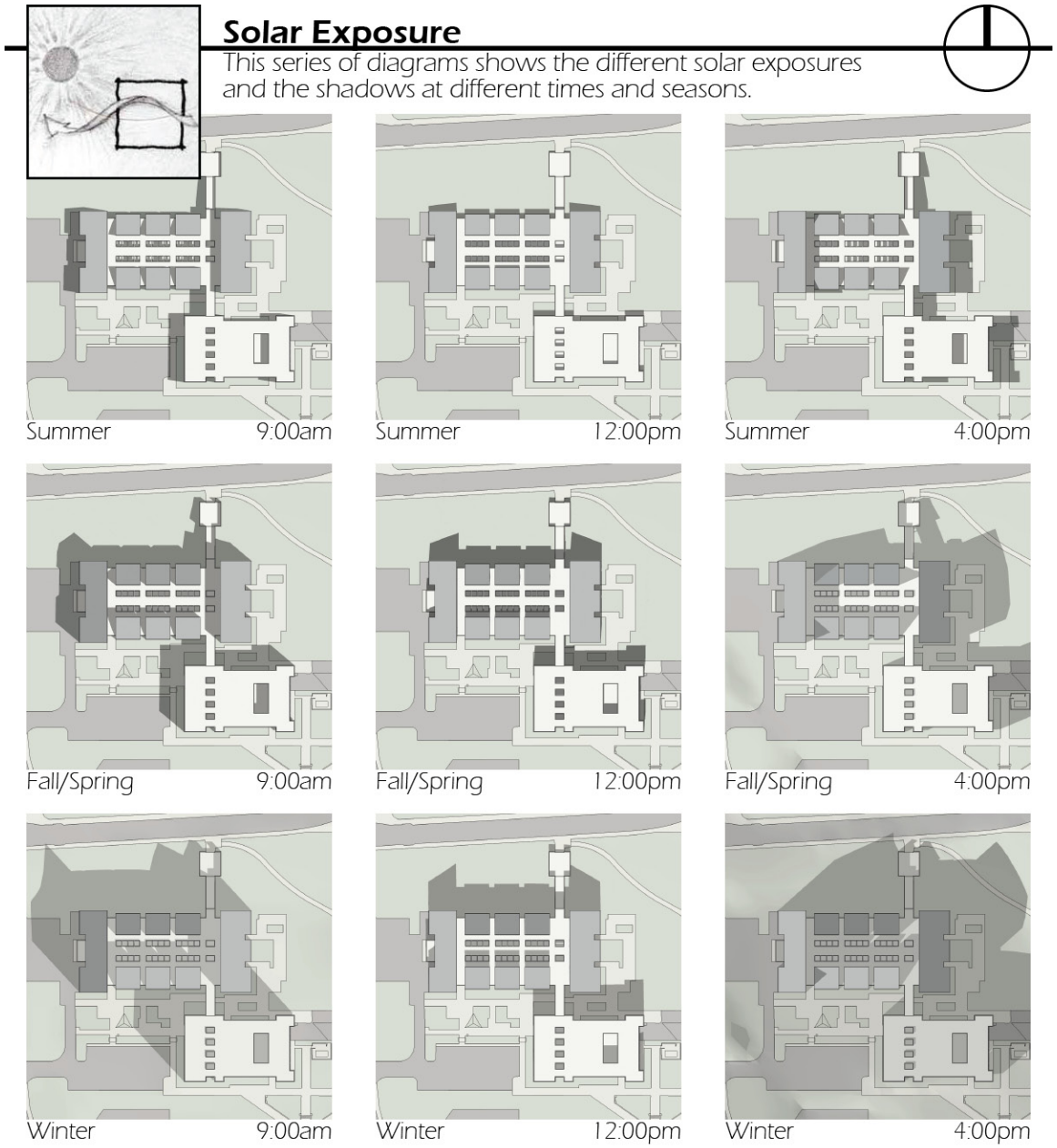


Figure 40 - Celestial Context - Solar Exposure

Chapter 3 – Identifying the Goals

Introduction

With the evaluation of the context complete, the next step is to identify the issues to be resolved, the opportunities to be seized, and the clients to be satisfied. Collectively the result is a list of goals for the project. Within these goals, assumptions are made to what program spaces might be required to achieve them. As opposed to the superficial quantified break down of a traditional program, expressing the program as goals first, instead of a list of rooms and functions, allows the architect to focus on intent instead of dimension. However, before the goals can be listed there must be a higher tier of consideration. As it is this thesis' topic of exploration, the time component must be factored into any list of goals, or in turn, any list of program. For this reason, the goals must be measured across time. Starting with the current conditions and looking years into the future.

The Changing World

The world of architecture is undergoing radical changes. New digital technologies in both construction and composition, are transforming the industry and restructuring roles and responsibilities of the all the parties invested in our built environment. Here at the beginning of this digital revolution, the people who will success will be the people that embrace new possibilities and challenge old traditions. This thesis looks forward in time to explore the potentials of these emerging technologies on how we design, build, and teach architecture.

There are three related developments that suggest fundamental changes in the way we might soon teach and build:

- **Digital Modeling** - The first development is the shift from linear perspective to virtual modeling and its impact on the relation between the logic of representation and the logic of construction. Systems of virtual modeling—BIM in particular—can precisely model and specify the four-dimensional construction of a building in virtual space and time. One of the seismic consequences of this digital development is the dissolution of professional or disciplinary distinctions due to the simultaneous interactivity of different disciplines that virtual modeling promotes.
- **Sustainability** - The second development is the proliferation of the ever-widening discourse on sustainability and the technologies and methods aimed to improve our environmental impact. Increasing political, commercial, and moral influences are quickly making environmental (or "green") design an important part of our responsibilities. Technology is coming to the rescue as we adapt manufacturing technologies from the automotive and aerospace industries to building construction for the creation of complex Interdependent and dynamic networks across multiple scales of production in the name of environmental salvation.
- **Dynamic Form** - The third development, as a consequence of the first two, is a shift in contemporary theory from static to dynamic form as a resolution of building composition. With the assistance of the computer, the architect can now design with a more precise understanding of time and movement. This increased temporal understanding induces a compositional transition from plane and solid geometry to morphogenesis (defined as the origin and development of an organism). With this new approach, the dynamic forces and complex changes of the surrounding environments, cultures, and individuals (context) can influence form. Complex systems effectively displace classical proportion and order as the basis of formal experimentation.

Architectural discourse has obtained a new vocabulary where: field supersedes figure, event supersedes object, and vector supersedes axis.

These developments have profound consequences on both the profession and the professional education of the architect. University of Maryland's future successes will hinge on their ability to adapt to this increasingly digital society that these developments suggest. This thesis explores the future evolution of our pedagogy here at the University of Maryland and the consequential dynamic forms necessary to embody and cultivate this evolution.

The Old Pedagogical Model

Operating for the past 35 years as a School of Architecture, the 65,000sf building we stand in embodies a pedagogical culture of creativity, technical capacity, and social responsibility. As the building suggests, the curriculum thrives on an open, collective environment of lessons by trial. Here, hierarchical attention is given to a comprehensive and studio sequence focusing on tradition, innovation, and creation at the many scales of the built environment. Tried and tested the school functions today to produce well-rounded, responsible, and capable architects. However, radical changes in the professional architectural world challenge us to re-think our educational model so that we may maintain validity in the new digital world.

The first step to the identification of new educational model is to recognize the faults of the current pedagogies. There are three curricular issues identified at the University of Maryland:

- **Outdated curricula** – At the moment our school most often withholds a traditional pedagogy of architectural education supplemented with digital media. These more traditional studio curriculums are vestiges of the Beaux Arts and Bauhaus models which teaches practical knowledge of the profession through the fundamentals of order, function, and harmony. The computer is most often used as a tool to achieve the same

results as would be done without the computer. These pedagogies are resistant to new models of the discipline and fall behind the profession as they miss out on the possibilities and opportunities allowed by digital technology that would otherwise be impossible.

- **Incomplete curricula** – Alternatively, the most adventurous of pedagogies utilize digital media to stimulate the exploration of dynamic form often stage the formal exploration within a theoretical framework heavily influenced by the contemporary avant-garde, trailed closely by popular press, which regularly showcase heterodox (or eccentric) digital composition. Consequently, fundamental lessons of professional practice (i.e. economic viability, law and policy, mechanical and structural commodity, communicative clarity, and constructability) become less and less evident.
- **Product Fixated curricula** – Modern studios often educate through the guided execution of formal solutions. Educational growth stems from internal revelation and external critique of a proposed formal solution. The result is a product oriented curricula where students cannot learn if they do not create. The issue is that the focus is wrongly placed on the solution instead of the problem. Consequently, students miss the lessons of the fundamental role and function of architecture to solve a practical need as students obsess over minutia of representation, and an uninformed need to create.

These faults primarily identify the increasing disconnect between the professional and academic environments. Today's curricula may not supply sufficient practical knowledge to sustain our authority over the relationship between composition and construction. This suggests the need for an educational mission that does not inadvertently perpetuate both social and intellectual distance between architects and builders. Therefore, the question is: how do we reformulate the curriculum in view of an increasingly time crunched professional environment where

emerging technologies allow owners, architects, contractors, and subcontractors unprecedented ability to participate in the design through the virtually manipulation of construction and composition in real time with exacting precision from conception to completion?

The New Model

A resolution between the static traditional educational models of the past and the dynamic digital models of the future can be found in the observation of and the adaptation to the dynamic environment of professional practice. The values and principles of the profession that are relevant to our pedagogy can be outlined as follows:

- **Adaptive**– Advanced digital media, sustainability, complex dynamic systems do not promote a dramatic break with mainstream practices, but rather the continuous adjustment of methodologies and techniques in response to stimuli within and beyond the university. In other words, a professional pedagogy such as architecture must constantly adapt to the changing professional environment it supports.
- **Collaborative** – Curricula should be an inclusive collaborative environment more akin to the structure of the profession. This creates a shift from the development of individual expertise to the ethos of the team. This is similar to the Charrette Model defined not as the intensive production at the end of a project but as the collaborative session in which a group of invested people work together on a design problem. This model stimulates a more inclusive environment for research, study, and practice—one more hospitable to genuine diversity.
- **Interdisciplinary** – As the professional environment continues to break disciplinary divides a school focused on the built environment will be incomplete and unbalanced if

it is not inclusive of all parties involved with its creation. This suggests the integration and addition of several different disciplines into one Non-hierarchical interdisciplinary educational environment where building technology, engineering, construction economics, and professional practice are elevated to exactly the same status in its curricular mission as composition. The result is a hybridized integrated instruction in building science and economics with intensified critical methodologies and theoretical analyses. Dissemination of research and knowledge at the intersection of architecture, construction, planning, law, manufacturing, and real estate, among other vocabularies would include such disciplines as:

  - Architecture
  - Landscape Architecture
  - Architectural Engineering (Structural, Civic, Electrical, Mechanical)
  - Urban Planning
  - Urban Studies
  - Real Estate
  - Environmental Studies
  - Construction Administration
  - Historic Preservation

- **Innovative** – By embracing and integrating new technologies, theories, and methods into our curricula, new ideas can be explored that would otherwise be impossible. By intensifying their commitment to the growing challenges of a changing AEC market, the academic environment may strengthen strategies for practice that sharpen critical discourse, further stimulate professional innovation, and create new opportunities for both artistic and economic leadership.

- **De-emphasis of Product** – Although the profession still heavily functions as a product oriented practice, digital technology is beginning to shift the industry to a more service oriented profession geared at addressing a continuous stream of design issues. Therefore, the role of studios as the hierarchical place of forced creation and production would be better thought of as the laboratory for the study of ideas, theories, and real-world problems related to architecture. By de-emphasizing the product focus of studios, curricula could be reconnect to the profession through a "case method" similar to that perfected by the Harvard school of Business and Law. In a case method, trained instructors use incomplete, open-ended narratives to stimulate the exchange of alternative conclusions, interpretations, and judgments. The value of a good case derives from the vitality of the problem, not the solution. This model renounces the jury in favor of rounds (on the medical school model). Case method interprets questions, and multiples alternative outcomes, which students examine and evaluate on the merits, in live discussion. This model Inspires activity under realistic conditions where delay is seldom an option and puts students in the habit of making decisions. This promotes a "bias for action—the courage to act in the face of uncertainty" (Garvin 2003, Friedman, 2004)
- **Cultural** – Universities in general need to rekindle their traditional cultural function. "The University becomes no longer a model of the ideal society but rather a place where the impossibility of such models can be thought—practically thought, rather than thought under ideal conditions. Here the University loses its privileged status as the model of society and does not regain it by becoming the model of the absence of models. Rather, the University becomes one site among others where the question of being-together is raised…" (Readings 1998). This suggests not only the importance of

our internal community of students and teachers but also the notion of community extending beyond the school. Therefore, curricula should look to the surrounding cultures and communities for a better connection of collective knowledge with education. Architecture schools are well positioned to reconsider the generative energies of community formation.

The New Pedagogical Vision

The efforts of this thesis focuses on how this new digital climate's contribution to the emergence of new technologies and their related developments affects how we might better build and teach architecture in the future. The thesis investigates the complex relationship of time and architecture to suggest a dynamic process and a dynamic product able to adapt to contextual changes over time. The goal is to create a more efficient, more functional, more didactic, and more beautiful architecture that counteracts obsolescence and environmental degradation.

When applied to the University of Maryland, the new pedagogical model promotes radical changes to the structure and size of the school both in terms of curriculum and physical form. The principles laid out for the future of architecture schools suggests that University of Maryland would be best to create a new College of the Built Environment (CoBE) where several varied but linked disciplines can come together for a collaborative learning environment. Unfortunately, the existing building lacks the capacity, resources, functional organization to work as an interdisciplinary school. Therefore, logically, the proposal of new building and architectural space is essential for its successful implementation. The result of this thesis is the evolutionary path of design made from now to when the pedagogical model is fulfilled. Over

the duration of the design evolution, over-arching master goals along with fundamental design principles are withheld to insure the proper unity and function of the part to the whole:

- **Master Goals**
    - Create a College of the Built Environment
    - Develop a Segmented/Phased Program for Growth
    - Respect and Fulfill the Campus Master Plan
    - Create dynamic form able to adapt and evolve with changes in context
- **Design Principles**
    - Make a statement while still fitting into its context in scale and materials.
    - Design welcoming interiors that convey warmth.
    - Create clear and efficient navigation/wayfinding
    - Ensure good acoustics for acoustical privacy
    - Ensure good HVAC for comfortable climate with as much natural ventilation as possible
    - Ensure good lighting with as much natural lighting as possible.

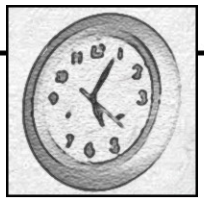
Timeline

In computer animation the concept of key-framing is used to mark “key” moments along an infinitely dividable timeline. These controlled and defined moments, or “frames,” mark what the location and properties of an object are intended to be at that specific moment. Through a process called tweening, when multiple moments are defined, the computer is able to interpolate what the object should be doing at all the undefined moments in-between. By doing this an animator can control the movement and behavior of objects without having to define its behavior at every moment and frame. This thesis uses a similar approach to make the designing

of architecture over time a more manageable task. A “key-framed” approach defines the key milestones moments of building development, indicated what goals should be achieved at what times.

It is important to note that the further away from the present, the harder it is to predict the contextual conditions of the future. Therefore, as we look further and further forward in time, the goals, and consequently the design, should be more conceptual and broad. This is done in order to not become overly specific to conditions which may or may not exist in the distant future.

With the combination of a “key-framed” or milestone approach with the intended degradation of specificity, this thesis will divide up the next eight years into 5 milestones. Those divisions can be seen in the following:



Timeline

The Design Process starts with the present time and conditions and looking forward to 7.5 years of design development. Milestones of development are set at exponential increments of one semester, one year, two years, and 4 years apart.

Period	Season/Semester	
1	Winter 2008	
2	Spring 2008	← Milestone 1 (0.0 years away)
3	Summer 2008	
4	Fall 2008	← Milestone 2 (0.5 years away)
5	Winter 2009	
6	Spring 2009	
7	Summer 2009	
8	Fall 2009	← Milestone 3 (1.5 years away)
9	Winter 2010	
10	Spring 2010	
11	Summer 2010	
12	Fall 2010	
13	Winter 2011	
14	Spring 2011	
15	Summer 2011	
16	Fall 2011	← Milestone 4 (3.5 years away)
17	Winter 2012	
18	Spring 2012	
19	Summer 2012	
20	Fall 2012	
21	Winter 2013	
22	Spring 2013	
23	Summer 2013	
24	Fall 2013	
25	Winter 2014	
26	Spring 2014	
27	Summer 2014	
28	Fall 2014	
29	Winter 2015	
30	Spring 2015	
31	Summer 2015	
32	Fall 2015	← Milestone 5 (7.5 years away)

Figure 41 - Identification - Timeline

Goals

Each milestone will contain a list of goals to be achieved by that time. Within those goals are the programmatic elements that will feed the designs. The goals expressed here are the composite of opinions including but not limited to the students, the faculty, the dean, the 2000 Facilities Master Plan, and, of course, my personal opinions for the future of the school. Although inclusive and educated, this thesis recognizes that the goals and program are the conclusion of sbjective observations and there are several alternate milestone timelines which should be explored in a real-world scenario. However, since this thesis is primarily focused on the variations of architecture and context over time, it is not necessary to thoroughly explore programmatic variations. Thus, divided by phase, the goals are as follows:

Spring 2008

- Improve the general aesthetics of the building's interior spaces by using a more cohesive and designed palette of material, color, and architectural vocabulary to create a better unity of the part to the whole.
- Restore the Diagram and design intention of the original architect by removing some of the past interventions that have been detrimental to the elements of the original building that are worth saving. As an example, the stair at the end of the great space is a sculptural element that not only orients people to how to circulate from one floor to the next but is a focal point to terminate what is otherwise a barren "great" space. The partitions in front of the stair should be removed so that it can be seen again.

- Utilize and efficiently arrange the current furniture to best suit the current uses. Because the furniture is heavy and hard to move planning will have to be for more flexible space with only occasional adjustments.

- Remove any unnecessary furniture or items that are to the detriment of the architecture. There are several elements of furniture that might be seen as unnecessary or "in the way." Identify these items and find locations for their storage or justify their disposal.

Fall 2008

- Improve the general aesthetics of the building's exterior by softening the brutal but pure brick facades by possibly re-skinning parts or all of the existing building and consider a different way for the building to allow light in and views out.

- Create more mobile, lightweight, concealable, and attractive furniture. While the current furniture functions to some extent it can be difficult to move, impossible to hide, and in some cases unpleasant to look at. If the space is to be adaptive, then the furniture needs to be able to freely and easily adapt.

- Improve the acoustical quality of the great space. Either through furniture, flooring, or ceiling treatment to create more sound-absorbing surfaces in the great space to help dampen the echoing effect and traveling conversations.

- Increase the efficiency of how spaces are used to increase usable square footage. Check studio layouts and how the great space is used to insure maximum efficiency. Reconsider how some of the rooms are programmed like the computer labs, the library, gallery, and the visual resource center.

- Alleviate some of the existing deficit of space through small scale additions and modifications to the building. For example utilizing the double height spaces between the classrooms or extending the DOC into other spaces.

Fall 2009

- Fully and comfortable accommodate all the current programmatic requirements through the construction of larger scale additions on top of the existing structure. By not extending the buildings footprint the additions increase the bulk to a more suitable urban ratio like its four and five story neighbors. The addition adds square footage to alleviate the schools needs to house some of the program off site and alleviate some of the crowding issues on site. The additions include more offices, more studio space, and more informal social space for faculty and student, and any necessary service components to support it. The intent of these additions should be not to extend the scope of the schools program but to insure that the program is able to function to the best of its capability and thrive, unrestricted by space. This is the penultimate step before the school expands its scope.

Fall 2011

- Accommodate the addition of a full Urban Design Program, the integration of Landscape architecture, and an increase in the size of the architecture program. With the existing building maxed out, the next step is to begin a new building or at least a large lateral addition to the existing building to house the new space requirements of the additional, faculty, students, and classes. Integration of the new programs and existing programs should be done through collective public spaces and shared academic spaces. The large new building accommodates the rising demand for admission to the school of

architecture and is the beginning of a design discipline diversified school. The intention is that this growth will continue and more design school program will be added as space and resources become available. This first major addition to the school should at least begin to fulfill the recommendations of the Campus Master Plan.[40]

Fall 2015

1. Complete the accommodation of all of the remaining currently desired disciplines with appropriate facilities they require. The goal is the fulfillment of what the fully mature future College of the Build Environment (COBE) will be. This mature design school can be summarized as being organized as follows:
    a. Design Schools:
        i. Architecture:
        ii. Landscape Architecture:
        iii. Interior Design:
        iv. Urban Planning:
    b. Professional Schools:
        i. Urban Studies:
        ii. Historic Preservation:
        iii. Real estate Development:

Insert Figure # - College of the Built Environment

40 See Facilities Master Plan. Sector blah blah blah.

Description of spaces and their requirements

Offices

- **Administrative offices:** For all non-faculty staff. Ideally located in close proximity to the faculty offices. All offices should have access to natural lighting.
- **Faculty offices:** Can be separated by academic program but ideally they should be integrated together to advocate interaction between the faculty. All offices should have access to natural lighting.
- **Dean's Office:** The Dean's Office should not be buried within the program, and should occupy a privileged position in the layout of the College.
- **Graduate Assistant offices:** Although technically part of the faculty, graduate assistants have a unique and lesser need for office space. The primary role of these offices is to give a place for GA's to hold office hours, to grade, and to meet with other GA's. While most studio-based Graduate Assistance would prefer to work from their studio space. The school has several programs who's assistants with not have studio space. These offices can be temporary or communal for all GA's, as no one person would need a full-time office.
- **IT Management Offices:** Offices for support and management of the digital resources of the school. These offices should be in reasonable proximity to the technologies they manage.

Studios

Most studios should be able to accommodate 25-50 students. Not all studio spaces are created equal. Interior Design might have different requirements than Architecture or Urban Design.

Additionally, different levels of seniority and the content of different studio classes will change the requirements of the space. However these differences should be accommodated on a furniture level. If all furniture is removed, one would not be able to distinguish an Urban Design studio from one on Landscape Architecture.

- **Architecture:**
- **Landscape Architecture:**
- **Interior Design:**
- **Urban Planning:**

Formal Academic Environments

- **Auditorium:** (100+400 students) to be a theater style lecture facility. To be used for all school meetings, very large classes, and the occasional public lecture.
- **Large lecture Hall:** (50-100+ students) lectures intended for class wide dissemination. These Spaces are commonly needed for beginning level classes in theory, history, and technology and continue to be used for the occasional collective lecture for upper level studios. These spaces require high-end multimedia capabilities, good acoustics, and comfortable seating. These spaces can be seen as sort of a hybrid between an auditorium and a classroom
- **Large Classroom:** (25-50 students) similar in scope to the existing classroom found on the second floor. These spaces require multimedia capabilities, acoustics quality of a reasonable standard, and no fixed seating.
- **Small Classroom:** (8-25 students) for a more intimate environment for smaller seminar or discussion classes. These spaces require multimedia capabilities, acoustics quality of

a reasonable standard, and no fixed seating. They should also provide substantial pin-up surface to be using in formal presentation and formal critique. Informal and formal critique spaces alike should be open enough so as not to discourage visitation, but not so open that the critics and students are disturbed by outside noise.

- **Exterior Classrooms:**

Informal Academic Environments

- **Critique Space:** (1-15 students) This is a places for the discussion of design work on a day to day basis. The intent is to create a comfortable environment for the free sharing of ideas, opinions, and critiques. There is a need for some pin-up surface and most likely table surface too. In the future there will be an increasing need for multimedia capabilities and a medium for the digital communication of work in these environments. It would be best to think of digital multimedia integration now instead of adding it in the future. The acoustics need to be taken into account so conversations don't feel too public and external distractions aren't overwhelming. Informal and formal critique spaces alike should be open enough so as not to discourage visitation, but not so open that the critics and students are disturbed by outside noise. This space should be located in reasonable proximity to the studios.

- **Break-out space:** (1 student) This is a space for students to work when the work is too large or it is too crowded to work at their own personal space. It is important that these spaces are used for only a temporary amount of time and not for the full-time use of a student. They serve to alleviate some of the issues that come with a higher density studio and also allow for a place for informal student discussion and gathering. This space should be located in close proximity to the studio if not integrated within.

Social/Public Spaces

- **Primary Gathering Space:** This is an undefined space for the shared collegiate identity of program overlap and interaction. There should be at least one "shared" space which is of the entire College of Design. This space could also incorporate social and exhibition functions. This space may also be, in part, a demonstration space, but there should be enough room in the space for demonstrations to occur without interrupting social functions. The space should be in close proximity if not integrated with the primary circulation and easily accessed from the primary entrances.
- **Small informal space:** Specific to each school or common to the CoD, these spaces serve as points of rest along paths of movement. They allow for spontaneous meetings and a place for students to wait for classes or friends.
- **Café:** inside the building, or adjacent
- **Large Exterior space:** There should be at least one substantial exterior area for recreation and relaxation. This space could also serve bigger functions like exterior exhibitions and receptions.
- **Gallery:** A space suitable to display traveling exhibitions, prepared shows, and student work. While some exhibits have valuable items that would need to be protected, far more of the exhibits would have information and material that would not need to be concealed in an enclosed and controlled space. Therefore, the gallery can be integrated into other public space as long as it does not interfere with the other functions of the space. Possibly a compromise of security and accessibility is to have a small percentage of the gallery allocated to a space that can be locked and monitored for security.

- **Lounge:**

Resources

- **Library:** Reading room should receive as much natural light as possible.
- **Digital Resources:** Does not require access to natural light, although staff offices should.
- **Materials Library:** Does not require access to natural light, but staff offices should have some. Work and group work areas, as well as the entrance area would benefit from access to natural light.
- **Computer Labs:** Due to glare and security, computer labs can be on lower floors or interior spaces. They do not require access to natural night, but do require good ventilation. Offices for computer staff, however, must have both.
- **Print Shop:** Does not require access to natural light, although staff offices should
- **Model Shop:** Does not require access to natural light, although staff offices should have some. Access to an outdoor workspace is key. Requires good ventilation and should be located away from major building air intake vents.

Conclusion

To summarize the quantitative goals of this chapter the following table lists all of the program spaces and an estimate of how big the spaces will be and how many of the spaces there will need to be at the 5 milestones:

Figure 42 - Identification - Program Breakdown – 1 (on following pages)
Figure 43 - Identification - Program Breakdown – 2 (on following pages)
Figure 44 - Identification - Program Breakdown – 3 (on following pages)

Program		Spring 2008		Fall 2008		Fall 2009		Fall 2011		Fall 2015	
Item	SF/Unit	Units	Total SF	Units	Total SF	Units	Total SF	Units	Total SF	Units	Total SF
Offices											
Administrative Offices	100 SF	10	1,000 SF	10	1,000 SF	14	1,400 SF	16	1,600 SF	18	1,800 SF
Standard Faculty Offices	100 SF	26	2,600 SF	30	3,000 SF	35	3,500 SF	50	5,000 SF	70	7,000 SF
Director of Program Offices	200 SF	3	600 SF	1	200 SF	6	1,200 SF	8	1,600 SF	10	2,000 SF
Dean's Office	300 SF	1	300 SF	1	300 SF	1	300 SF	1	300 SF	1	300 SF
Associate Deans Offices	200 SF	3	600 SF	3	600 SF	4	800 SF	4	800 SF	4	800 SF
Graduate Assistance Offices	50 SF	2	100 SF	4	200 SF	6	300 SF	8	400 SF	10	500 SF
IT Management Offices	200 SF	2	400 SF	4	800 SF	6	1,200 SF	8	1,600 SF	10	2,000 SF
Copy Room	100 SF	1	100 SF	1	100 SF	1	100 SF	2	200 SF	4	400 SF
Faculty Public Spaces	N/A		1,600 SF		1,600 SF		2,000 SF		4,000 SF		6,000 SF
Subtotal			**7,300 SF**		**7,800 SF**		**10,800 SF**		**15,500 SF**		**20,800 SF**
Studios											
Architecture	850 SF	11	9,350 SF	11	9,350 SF	15	12,750 SF	15	12,750 SF	15	12,750 SF
Landscape Architecture	850 SF	0	SF	0	SF	0	SF	5	4,250 SF	10	8,500 SF
Urban Planning	850 SF	0	SF	0	SF	0	SF	5	4,250 SF	10	8,500 SF
Interior Design	850 SF	0	SF	0	SF	0	SF	0	SF	5	4,250 SF
Environmental Design	850 SF	0	SF	0	SF	0	SF	0	SF	5	4,250 SF
Subtotal			**9,350 SF**		**9,350 SF**		**12,750 SF**		**21,250 SF**		**38,250 SF**
Formal Academic Environments											
Auditorium	3,500 SF	1	3,500 SF	1	3,500 SF	1	3,500 SF	2	7,000 SF	3	10,500 SF
Large lecture Hall	1,500 SF	0	SF	0	SF	0	SF	3	4,500 SF	5	7,500 SF
Large Classroom	850 SF	4	3,400 SF	4	3,400 SF	5	4,250 SF	8	6,800 SF	12	10,200 SF
Small Classroom	500 SF	8	4,000 SF	8	4,000 SF	9	4,500 SF	10	5,000 SF	12	6,000 SF
Subtotal			**10,900 SF**		**10,900 SF**		**12,250 SF**		**23,300 SF**		**34,200 SF**

Informal Academic Environments

Critique Sapce	100 SF	4	400 SF	6	600 SF	10	1,000 SF	20	2,000 SF	40	4,000 SF
Break-out Space	150 SF	2	300 SF	6	900 SF	8	1,200 SF	20	3,000 SF	40	6,000 SF
Subtotal			**700 SF**		**1,500 SF**		**2,200 SF**		**5,000 SF**		**10,000 SF**

Social/Public Spaces

Small informal Space	150 SF	4	600 SF	4	600 SF	6	900 SF	8	1,200 SF	10	1,500 SF
Café	2,000 SF	0	SF	0	SF	0	SF	1	2,000 SF	2	4,000 SF
Student Lounge	600 SF	0	SF	1	600 SF	2	1,200 SF	4	2,400 SF	6	3,600 SF
Gallery	N/A		2,100 SF		1,500 SF		2,000 SF		4,000 SF		6,000 SF
Primary Gathering Space	N/A		5,000 SF		4,000 SF		3,500 SF		10,000 SF		12,000 SF
Subtotal			**7,700 SF**		**6,700 SF**		**7,600 SF**		**19,600 SF**		**27,100 SF**

Resources

Digital Resource Library	1,000 SF	1	1,000 SF	1	1,000 SF	0	SF	0	SF	0	SF
Technology Lab	1,000 SF	0	SF	0	SF	1	1,000 SF	2	2,000 SF	4	4,000 SF
Materials Library	500 SF	0	SF	0	SF	1	500 SF	2	1,000 SF	3	1,500 SF
Computer Labs	1,000 SF	2	2,000 SF	2	2,000 SF	3	3,000 SF	5	5,000 SF	5	5,000 SF
Model Shop	1,000 SF	1	1,000 SF	1	1,000 SF	1	1,000 SF	2	2,000 SF	3	3,000 SF
Print Shop	N/A		550 SF		1,000 SF		1,500 SF		2,000 SF		3,000 SF
Library	N/A		5,600 SF		5,600 SF		6,500 SF		10,000 SF		15,000 SF
Subtotal			**10,150 SF**		**10,600 SF**		**13,500 SF**		**22,000 SF**		**31,500 SF**

Exterior Spaces

Exterior Classrooms	1,000 SF	0	SF	2	2,000 SF	4	4,000 SF	6	6,000 SF	8	8,000 SF
Parking	300 SF	70	21,000 SF	60	18,000 SF	40	12,000 SF	100	30,000 SF	150	45,000 SF
Field - Softscape	N/A		10,000 SF		15,000 SF		15,000 SF		20,000 SF		25,000 SF
Public Plaza - Hardscape	N/A		5,000 SF		5,000 SF		20,000 SF		15,000 SF		10,000 SF
Unused or Lanscaped Space	N/A		20,000 SF		18,000 SF		15,000 SF		10,000 SF		10,000 SF
Subtotal			**56,000 SF**		**58,000 SF**		**66,000 SF**		**81,000 SF**		**98,000 SF**

Non Assignable SF

Men's Restroom	150 SF	4	600 SF	4	600 SF	6	900 SF	10	1,500 SF	16	2,400 SF
Women's Restroom	150 SF	4	600 SF	4	600 SF	6	900 SF	10	1,500 SF	16	2,400 SF
Mechanical Space	N/A		3,800 SF		3,800 SF		5,000 SF		10,000 SF		15,000 SF
Storage	N/A		1,000 SF		1,500 SF		2,000 SF		5,000 SF		7,000 SF
Circulation	N/A		7,700 SF		7,700 SF		11,000 SF		18,000 SF		30,000 SF
Walls @ 2% NUSF	N/A		922 SF		937 SF		1,182 SF		2,133 SF		3,237 SF
Double Height Space	N/A		4,850 SF		4,850 SF		4,850 SF		7,000 SF		10,000 SF
Subtotal			**19,472 SF**		**19,987 SF**		**25,832 SF**		**45,133 SF**		**70,037 SF**

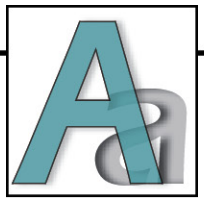
Totals

Total Assignable Area	46,100 SF	46,850 SF	59,100 SF	106,650 SF	161,850 SF
Additional Assignable Area	**0 SF**	**750 SF**	**12,250 SF**	**47,550 SF**	**55,200 SF**
Total Gross Building Area	65,572 SF	66,837 SF	84,932 SF	151,783 SF	231,887 SF
Additional Gross Building Area	**0 SF**	**1,265 SF**	**18,095 SF**	**66,851 SF**	**80,104 SF**

Chapter 4 – Creating a Design

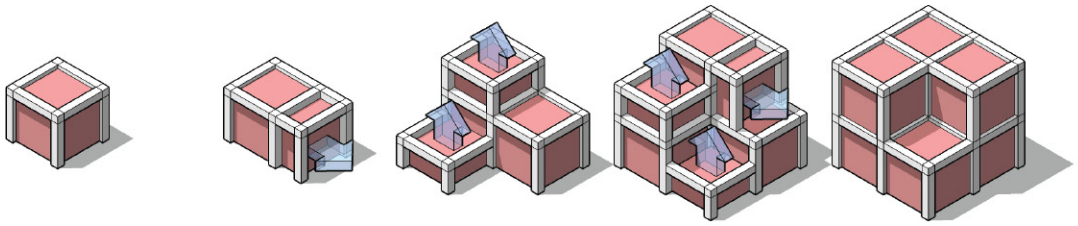
A traditional design process at this point would take the conclusions of the site analysis and combined them with a mandated program to create several potential diagrammatic solutions. Although this thesis agrees that the importance of considering many varied and alternative possibilities is essential to a healthy and inclusive design process, because the focus of this thesis is on architectures dialogue with context over time, offering lengthy and varied options for building positioning and programmatic space planning is distracting from the topic of primary investigation. By filtering out some of the variable, the primary focus of this thesis can be placed more clearly on the temporal design question that it asks.

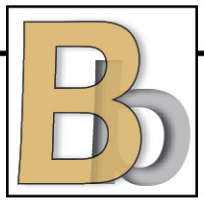
Therefore, variations among schemes are mostly isolated to the varied ways that a building can change over time. Ranging from the most extreme and unconventional to the most conservative and traditional, the three primary considerations are the following:



Scheme A - Continuous Evolution, Dynamic

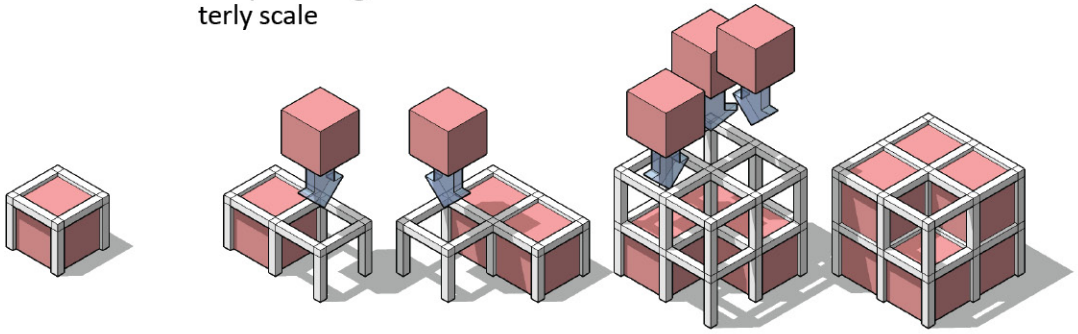
This scheme proposes the most extreme vision of evolving space. Here, the viable infrastructure expands and contracts to adapt to the changing needs of the school. This scheme will impliment high-tech solutions to achieve its goals. As the most continuously evolving scheme, the planned growth of this scheme is considered at a weekly scale.

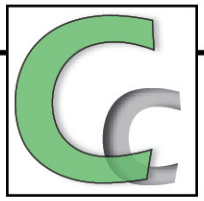




Scheme B - Incrimental Evolution, Modular

This scheme uses a more incrimental model of adaptation. Here, the infrastructure comes before the infill of spaces, This allows the infill of program spaces when it is needed. This scheme with impliment a modular system to achieve it's goals. The planned growth of this scheme is considered at a semesterly scale





Scheme C - Phased Evolution, Build & Fill

As the experimental control, this scheme serves as the closest model of conventional practice. The concept is to build the forms in large phases and then allow the program of the school to gradually grow into the form. Meanwhile, the available unsed space can be used by other University programs. The planned growth of this scheme is considered at a yearly scale.

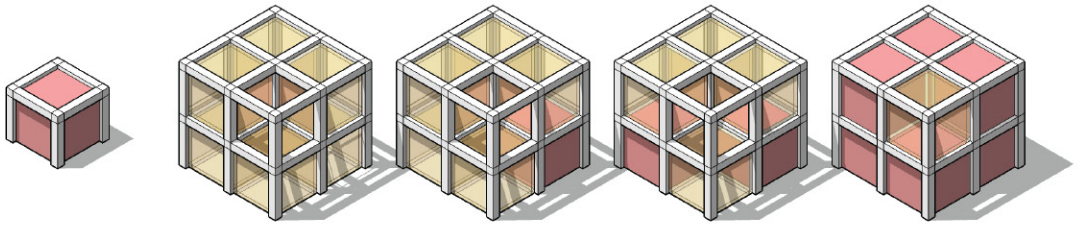


Figure 45 - Creation - Schematic Concepts

Chapter 5 – Formulating a Solution

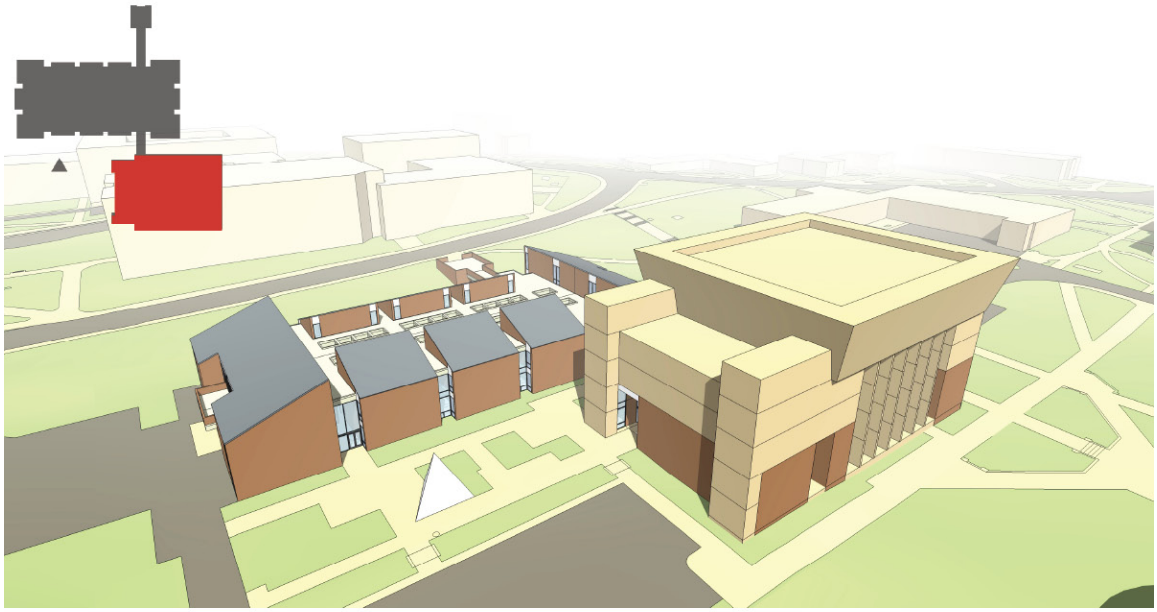
Over the course of the semester there were several major meetings were a design was formulated and proposed as to be analyzed and then reconsidered. This chapter includes a summary of the work produced. The work is separated by the different meetings that occurred over the course of the semester.

Meeting 1

Renovations and Additions

These images show what the scheme will look like after the school of completely renovated and the current programatic demands are satisfied.

Milestone 2 - Fall 2008

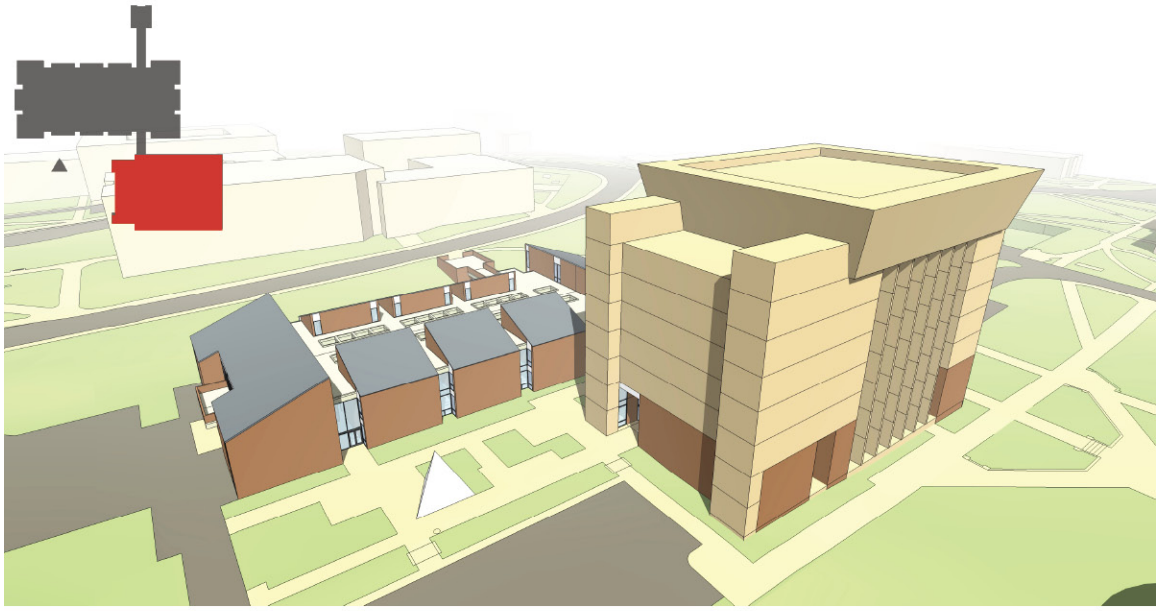


Milestone 3 - Fall 2009

Figure 46 – Meeting 1 - Scheme A - Renovations and Additions

New Design School

These images show what the scheme will look like during the development of the new design school



Milestone 3 - Fall 2011

Milestone 5 - Fall 2015

Figure 47 - Meeting 1 - Scheme A - New Design School

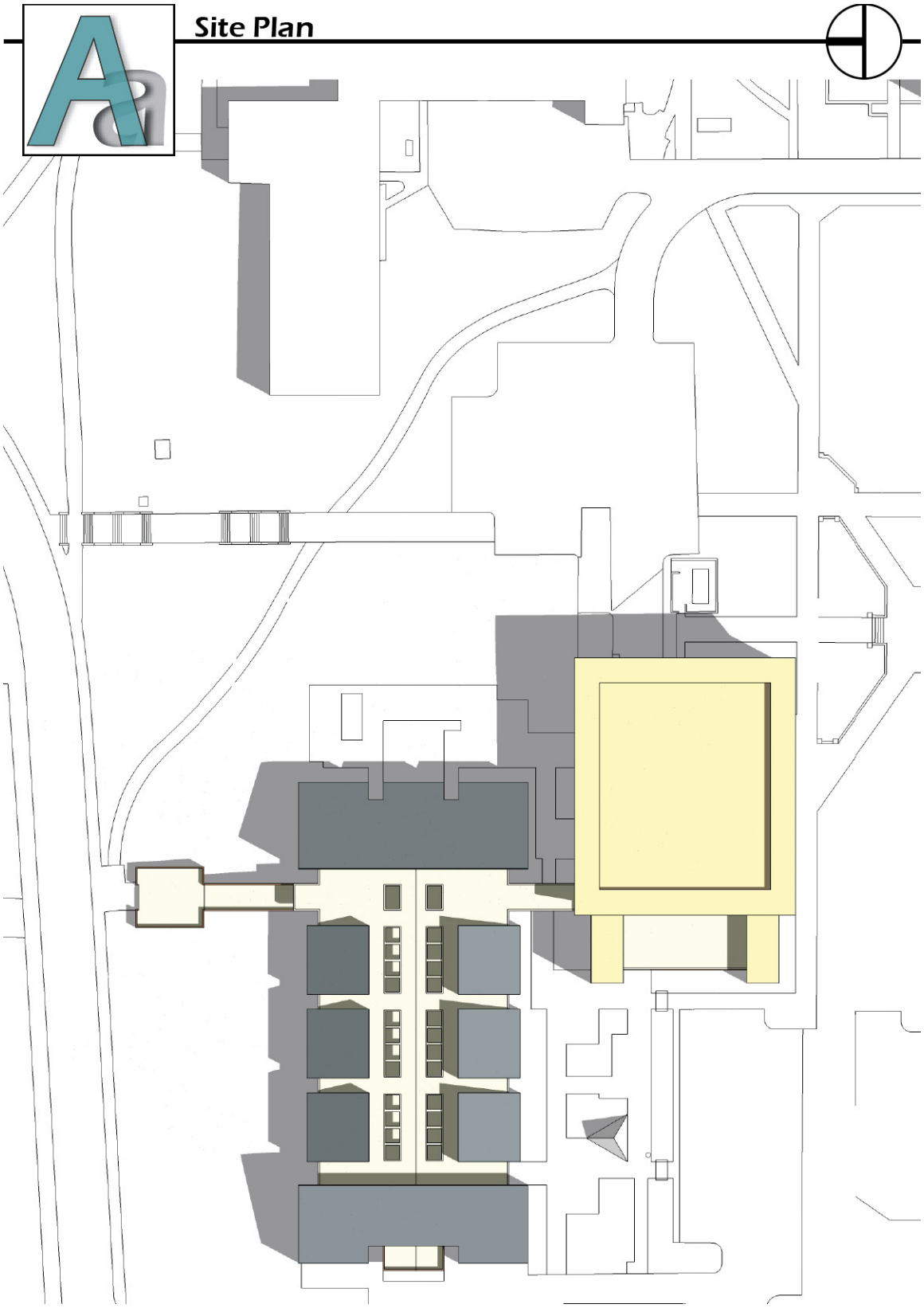
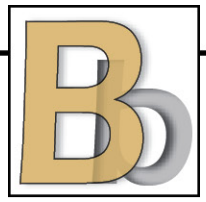
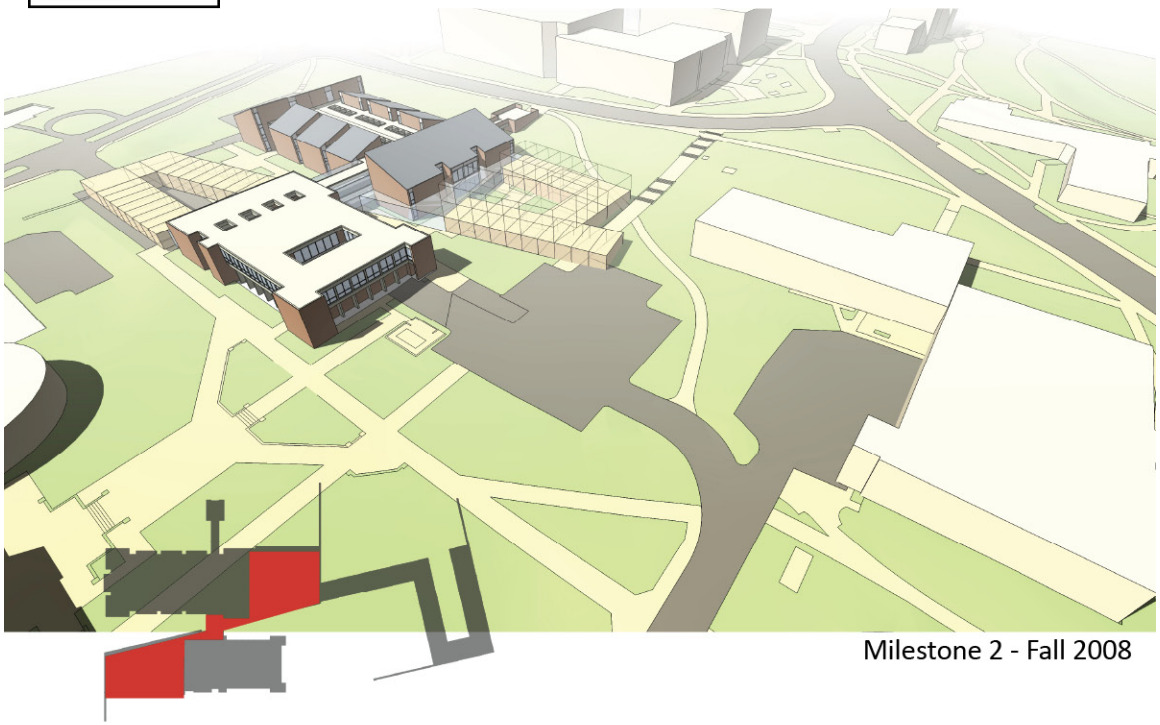


Figure 48 - Meeting 1 - Scheme A - Site Plan

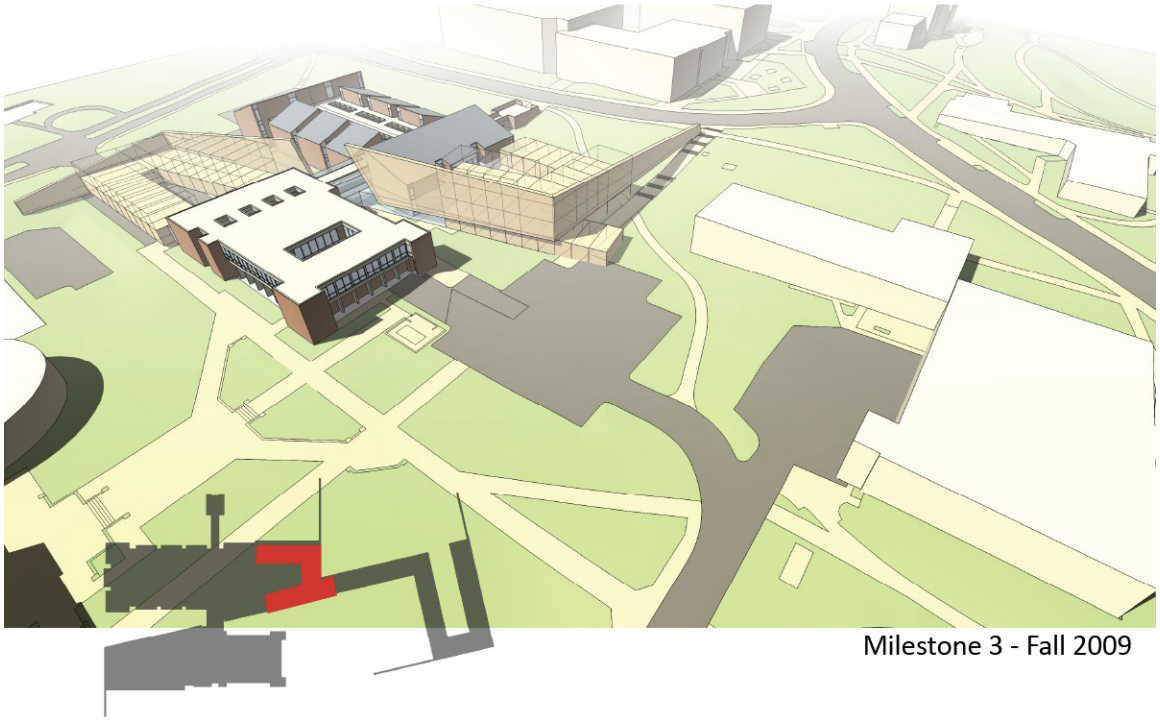


Renovations and Additions

These images show what the scheme will look like after the school of completely renovated and the current programatic demands are satisfied.



Milestone 2 - Fall 2008



Milestone 3 - Fall 2009

Figure 49 - Meeting 1 - Scheme B - Renovations and Additions

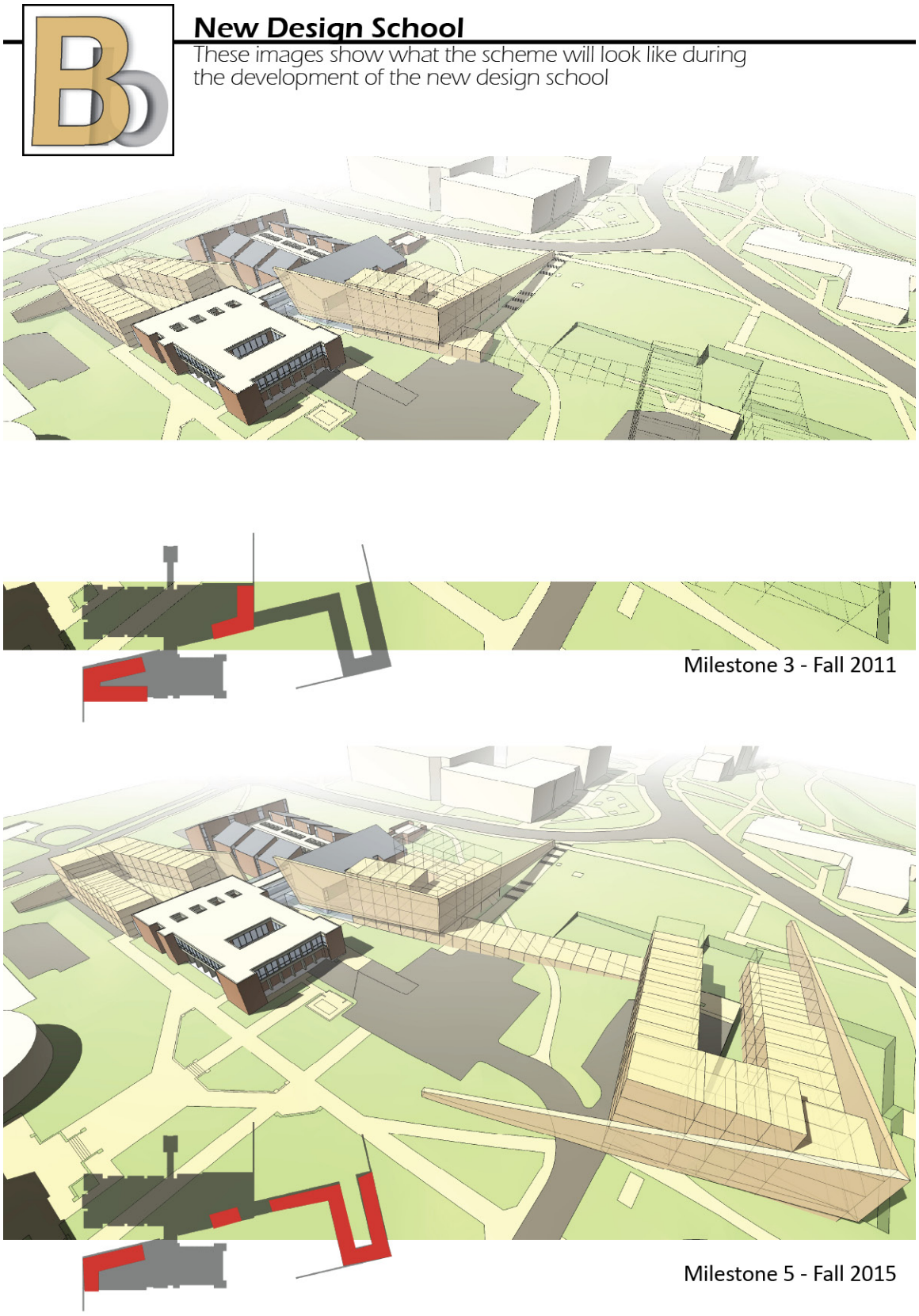


Figure 50 - Meeting 1 - Scheme B - New Design School

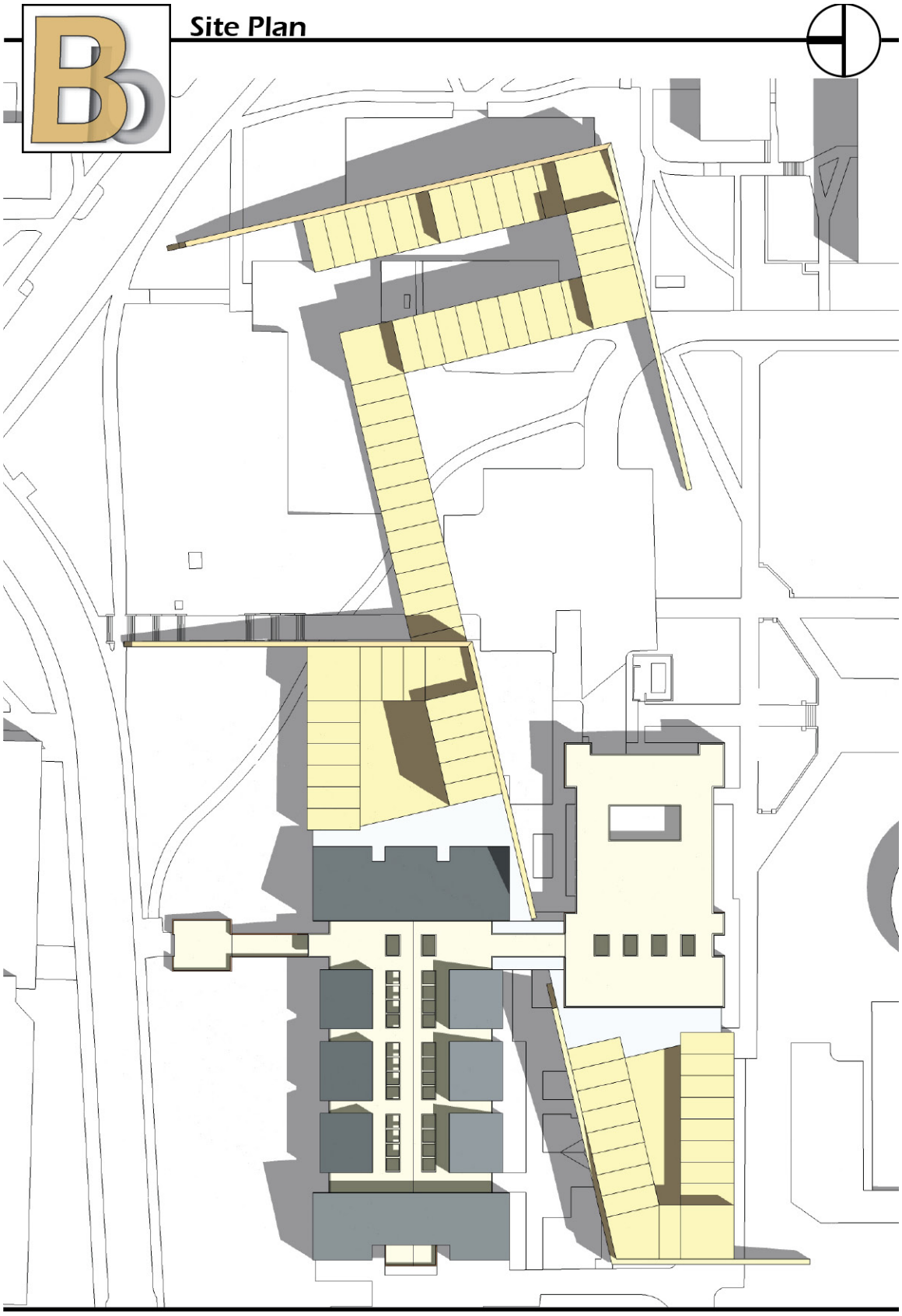


Figure 51 - Meeting 1 - Scheme B - Site Plan

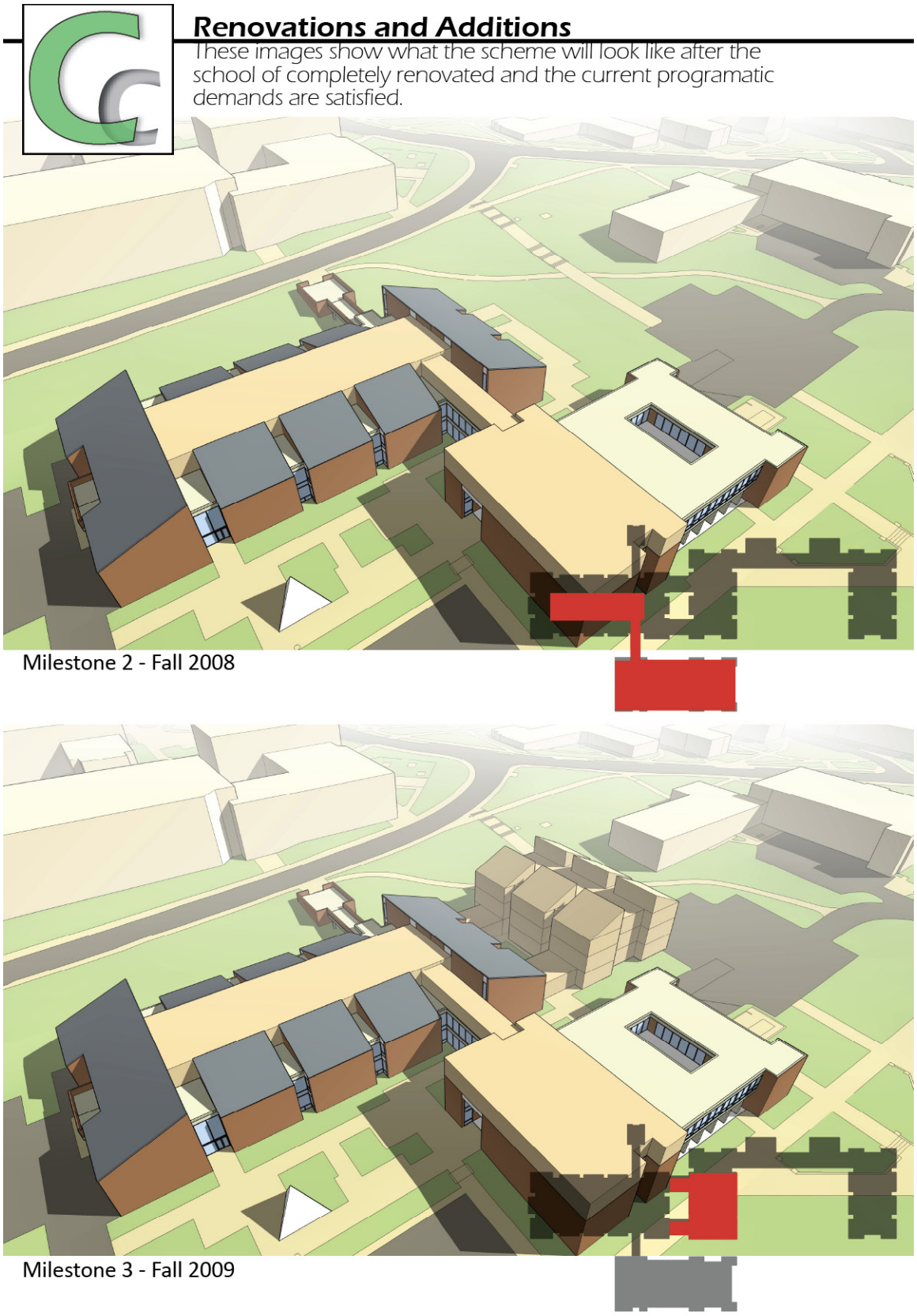


Figure 52 - Meeting 1 - Scheme C - Renovations and Additions

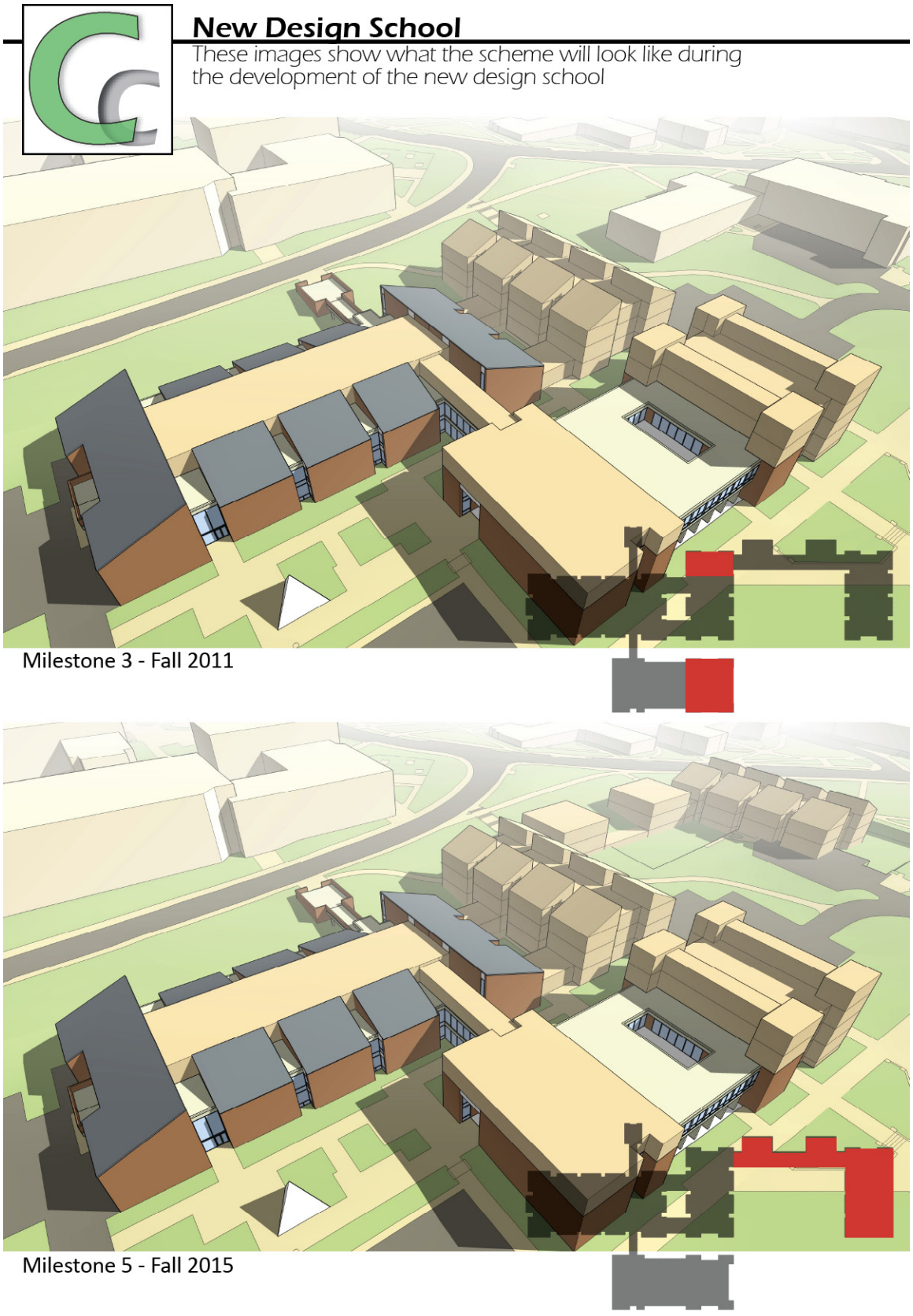


Figure 53 - Meeting 1 - Scheme C - New Design School

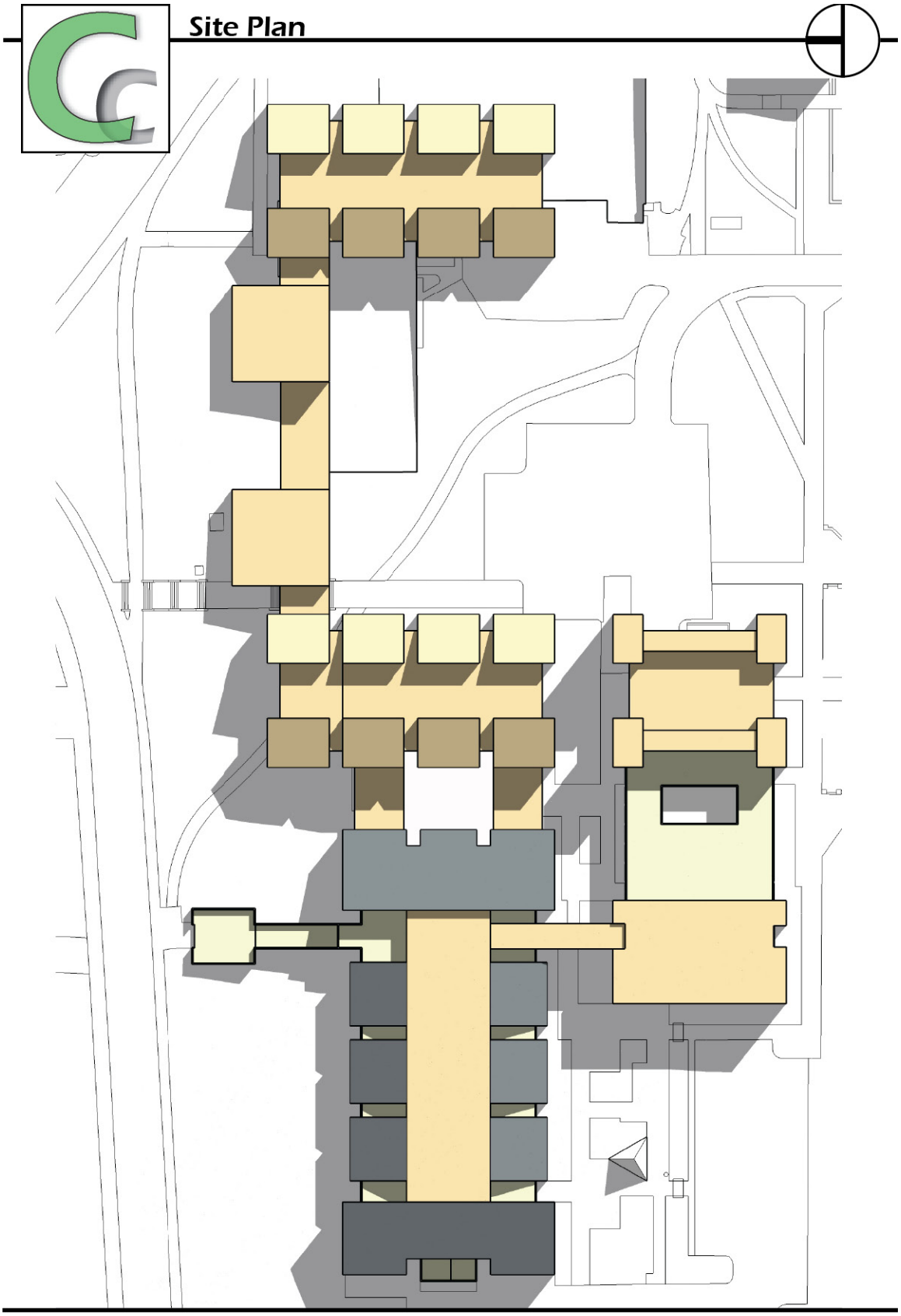


Figure 54 - Meeting 1 - Scheme C - Site Plan

Meeting 2

Figure 55 - Meeting 2 – Interior Photos

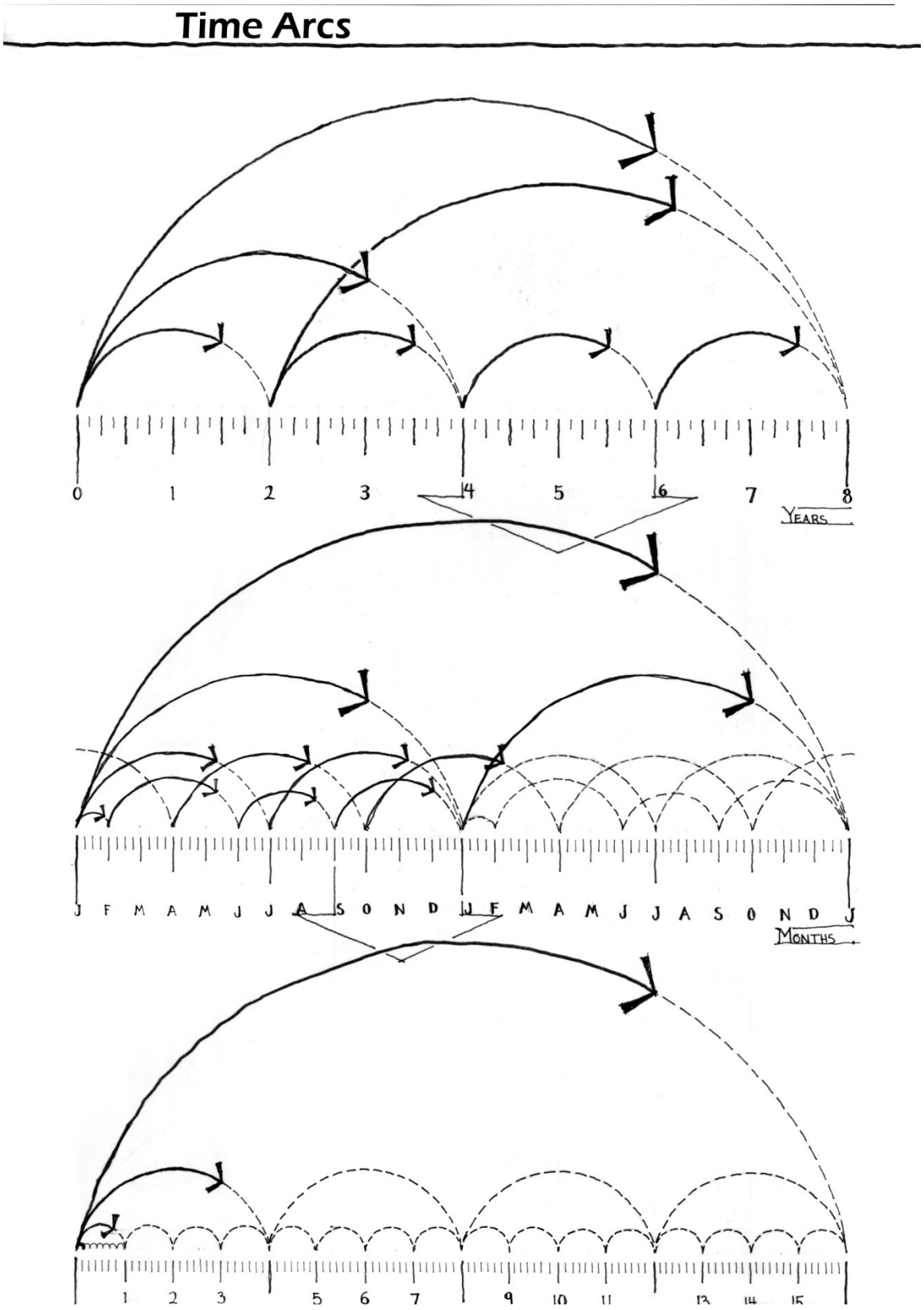


Figure 56 - Meeting 2 – Time Arcs 1

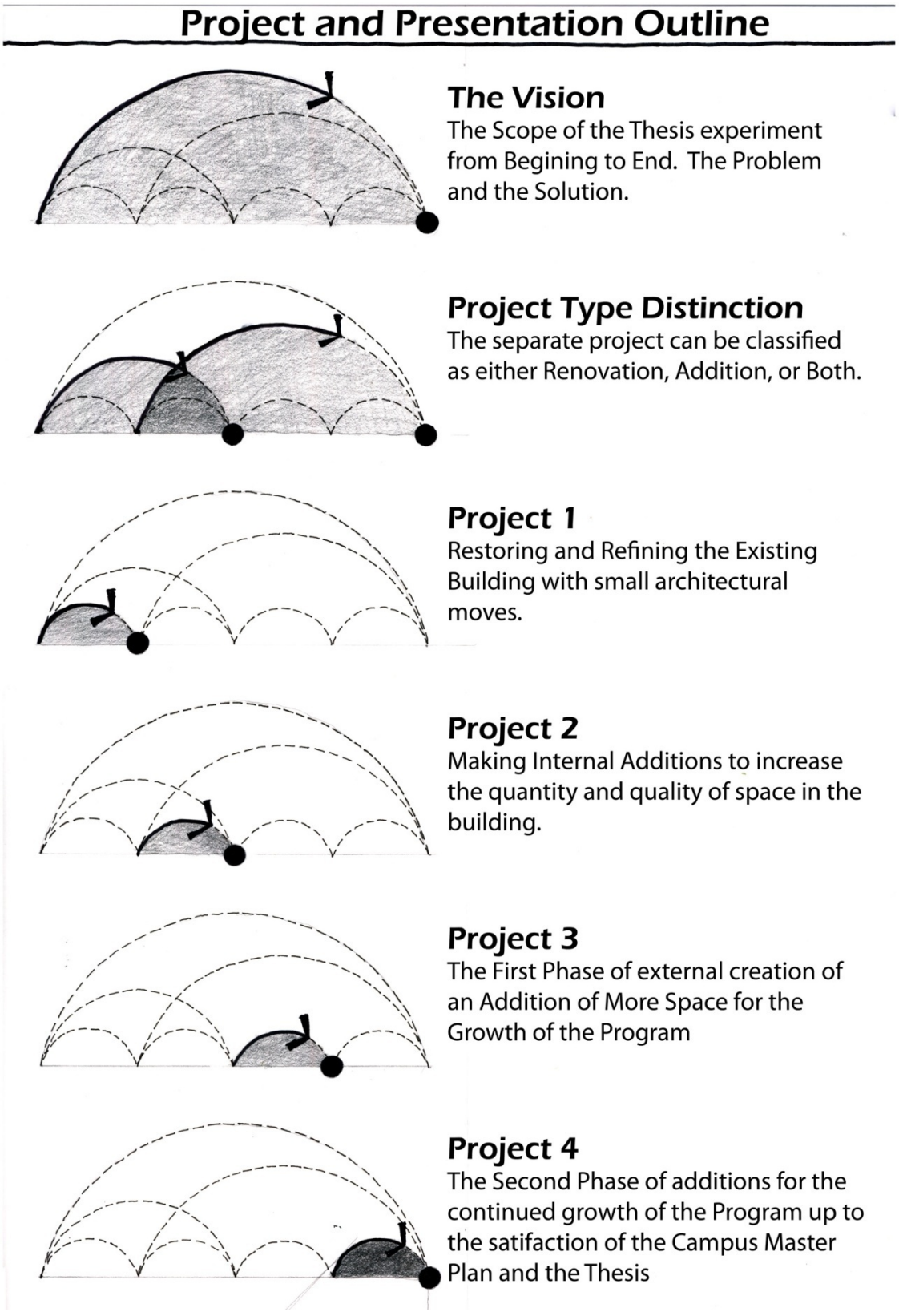
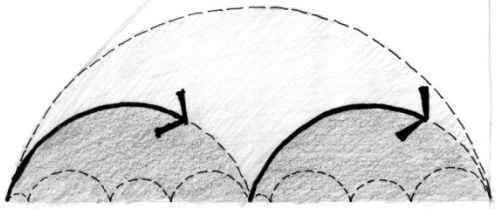


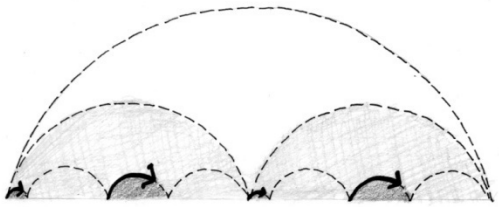
Figure 57 - Meeting 2 – Time Arcs 2

Project and Presentation Outline



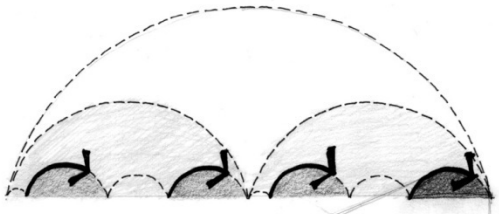
Annual Scale

Demonstrate how the building adapts and grows and a year to year scale



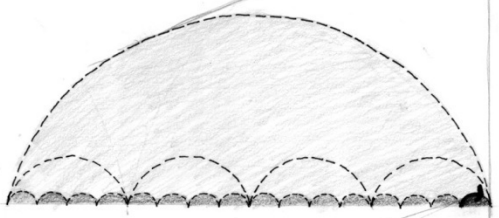
Semestral Scale - Sum. Win.

Demonstrate how the building adapts and grows when the majority of classes are out of session and students are away.



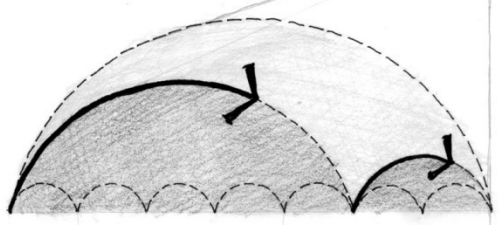
Semestral Scale - Spr. Fall.

Demonstrate how the building adapts and grows when the majority of classes are in session and students are there.



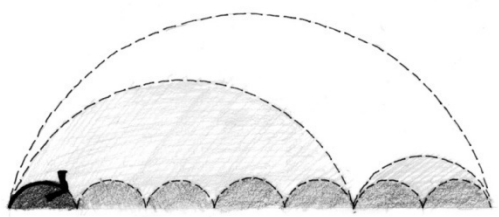
Weekly Scale

Demonstrate how the building adapts and grows on a week to week scale.



Day Types

Demonstrate how the building adapts and grows differently during the school week as opposed to during the Week-end.



Daily Scale

Demonstrate how the building adapts and grows on a day to day scale.

Figure 58 - Meeting 2 – Time Arcs 3

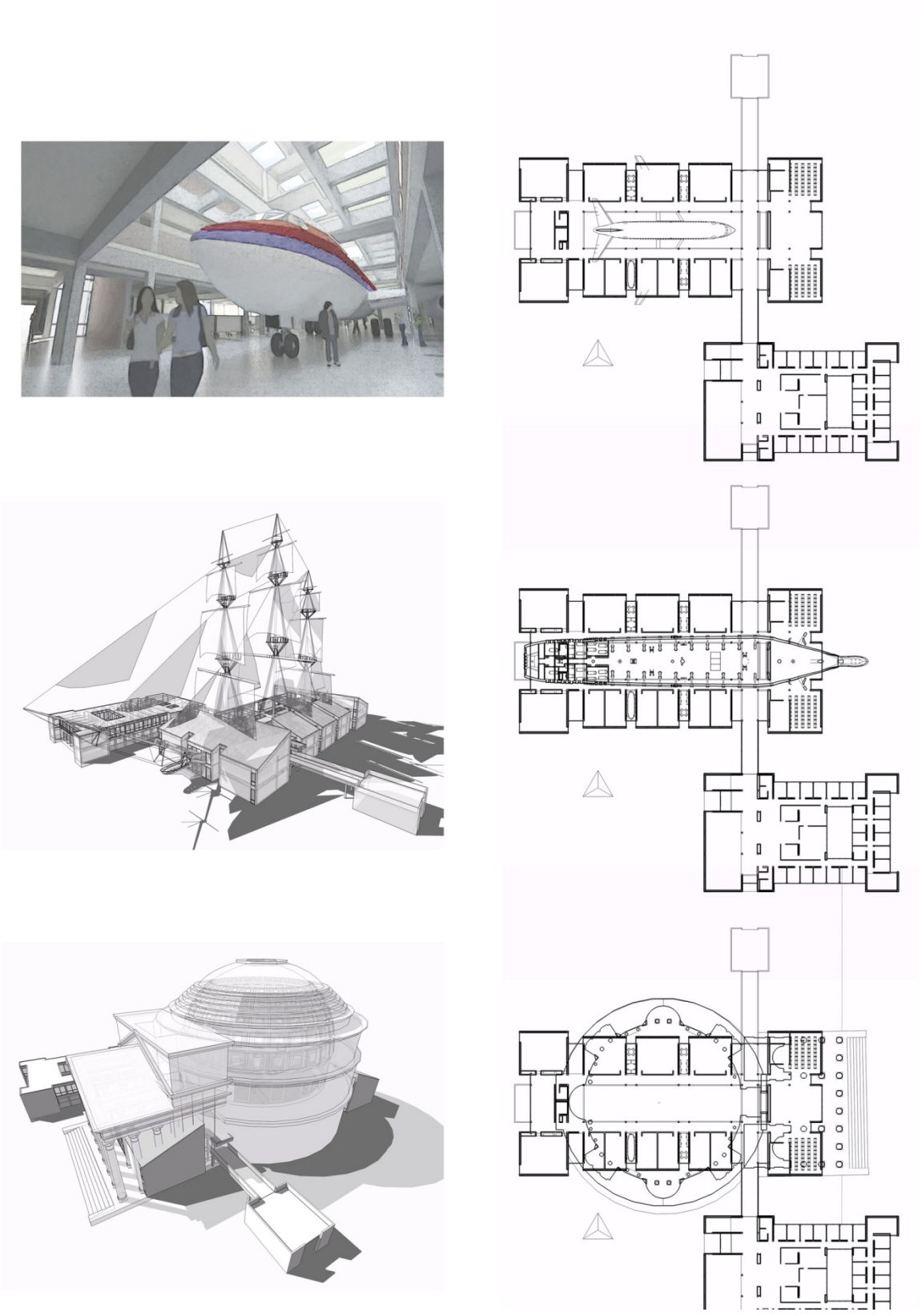


Figure 59 - Meeting 2 – Comparision

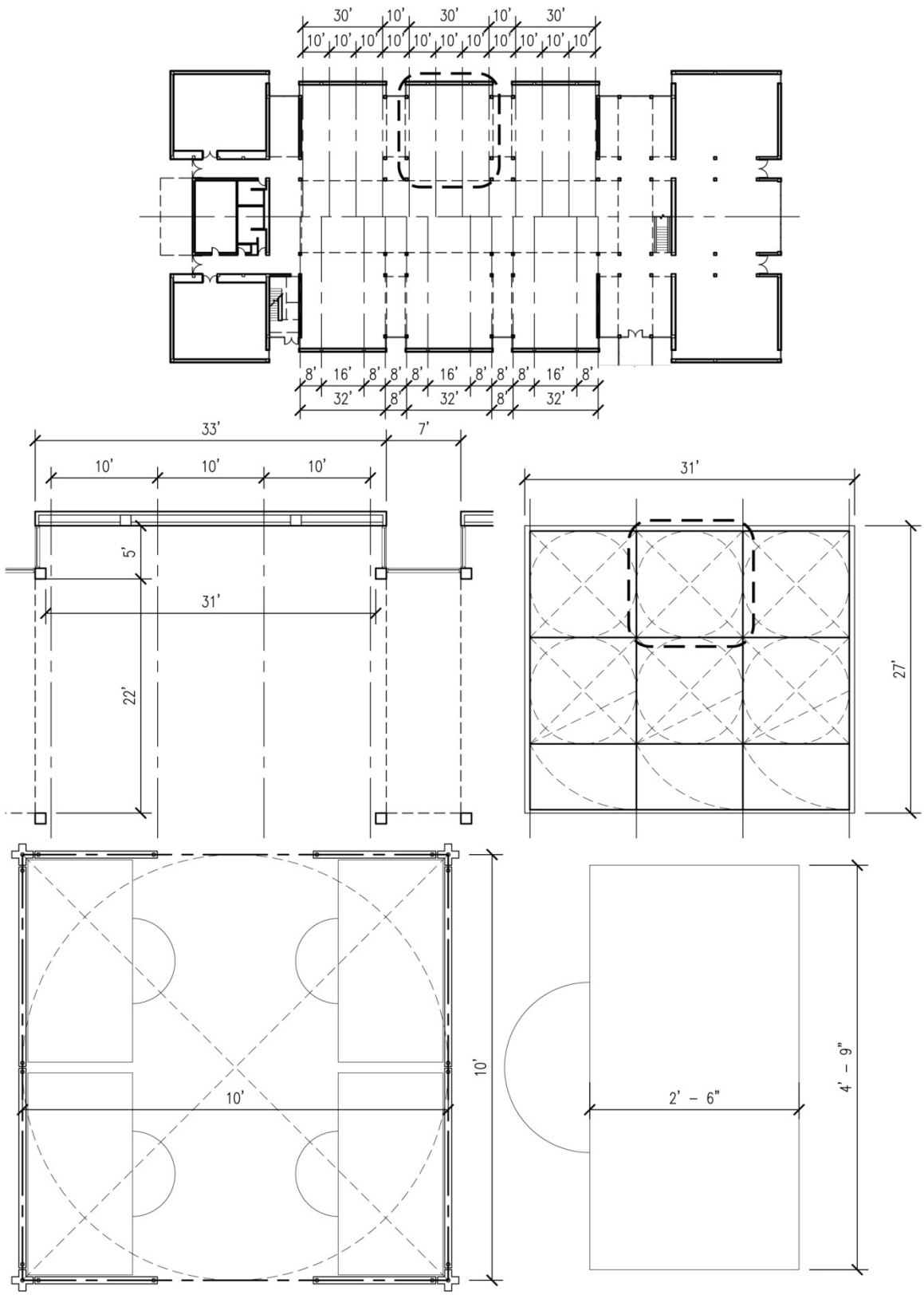


Figure 60 - Meeting 2 – Furniture Grid

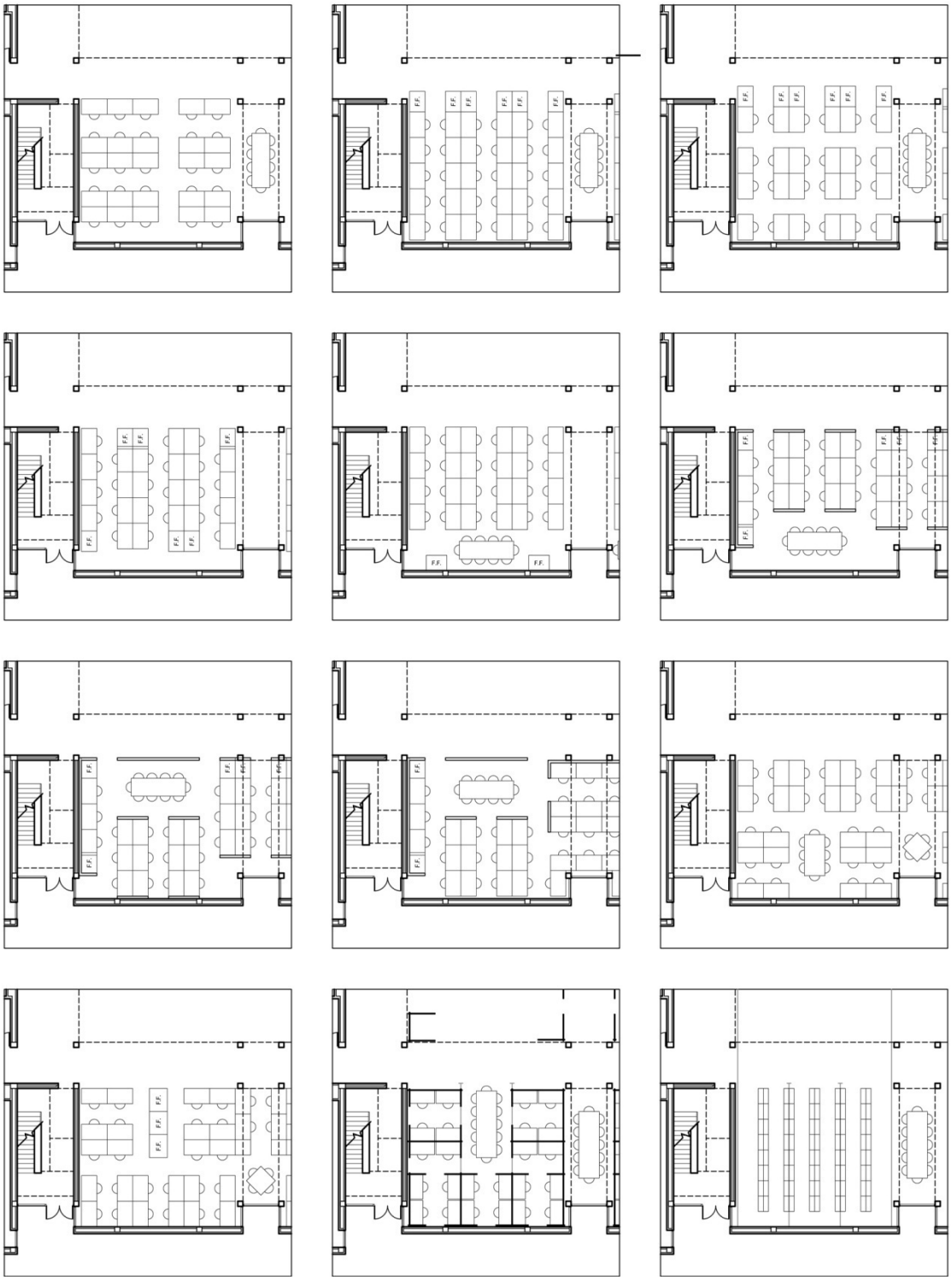


Figure 61 - Meeting 2 – Studio Layouts

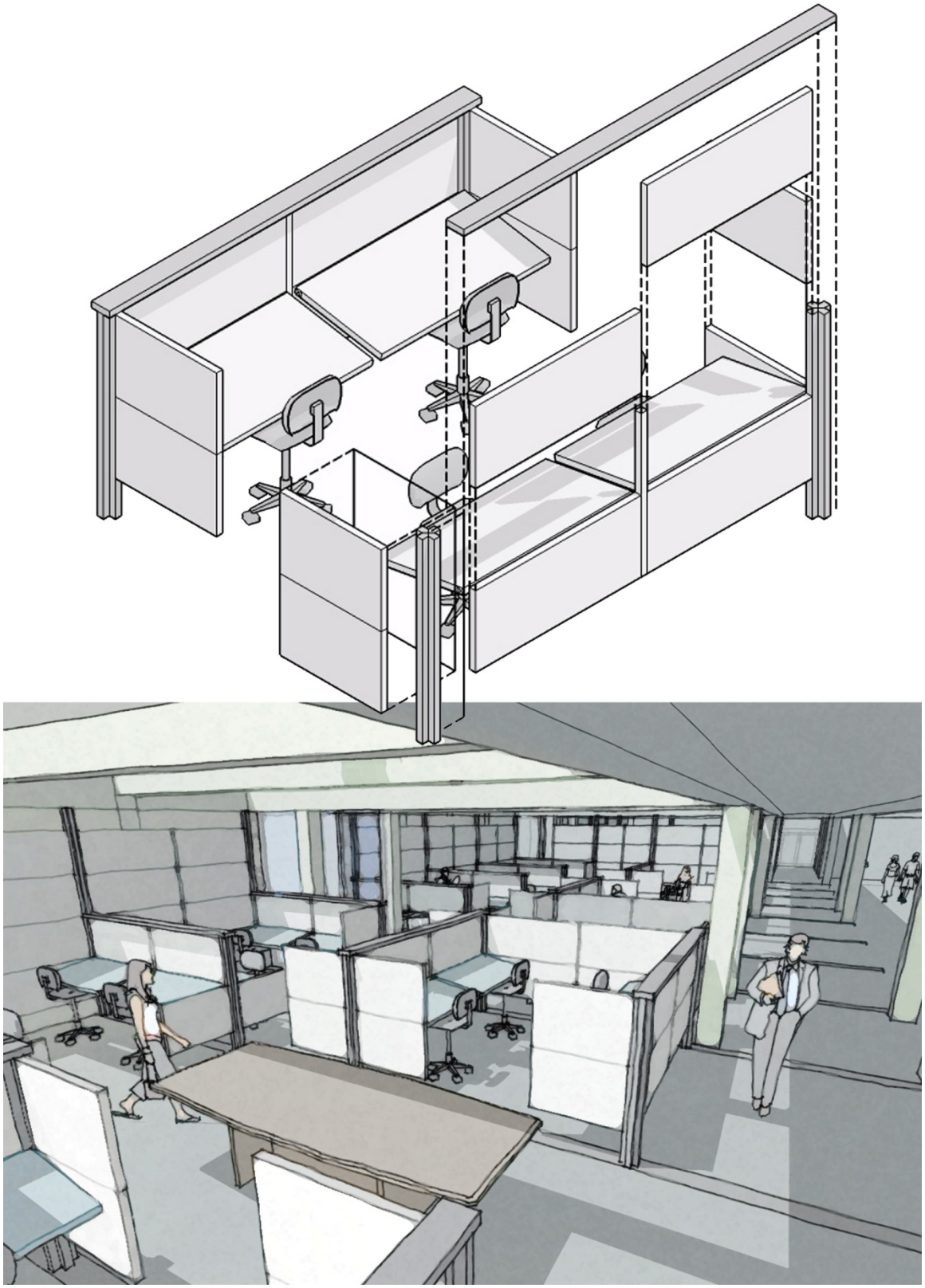


Figure 62 - Meeting 2 – Studio Furniture

Meeting 3

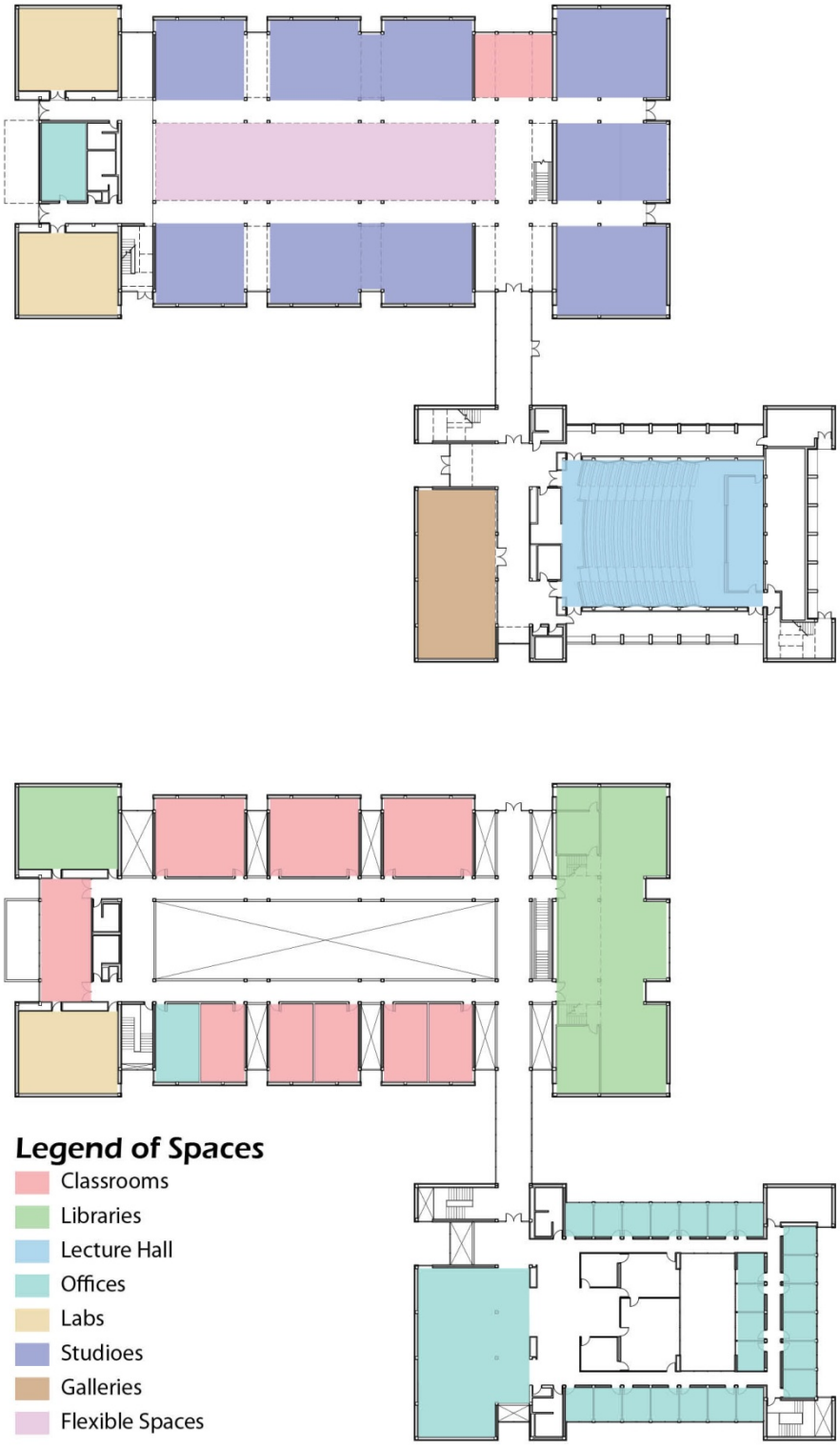


Figure 63 - Meeting 3 – Existing Space Plan

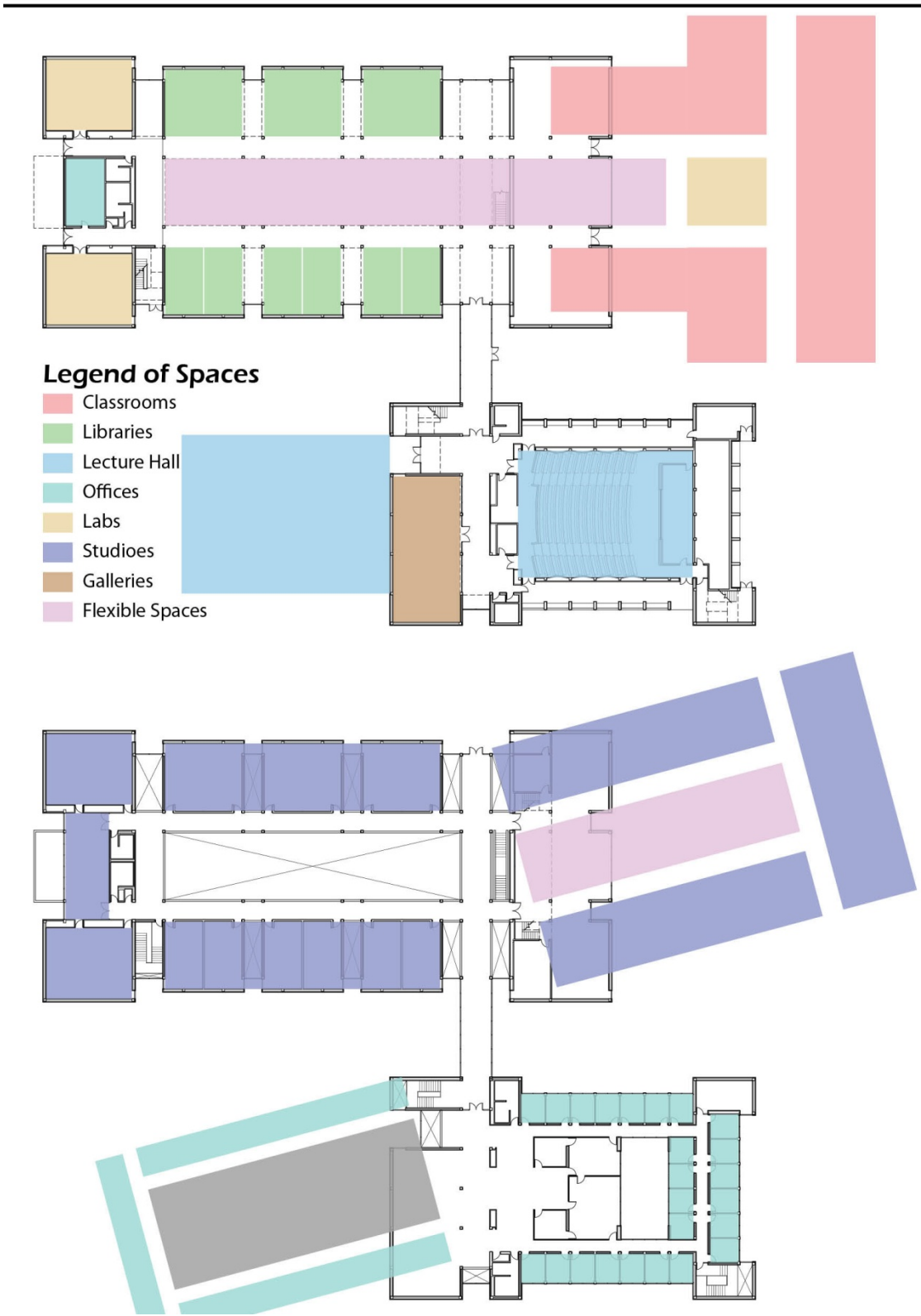


Figure 64 - Meeting 3 – Proposed Space Plan

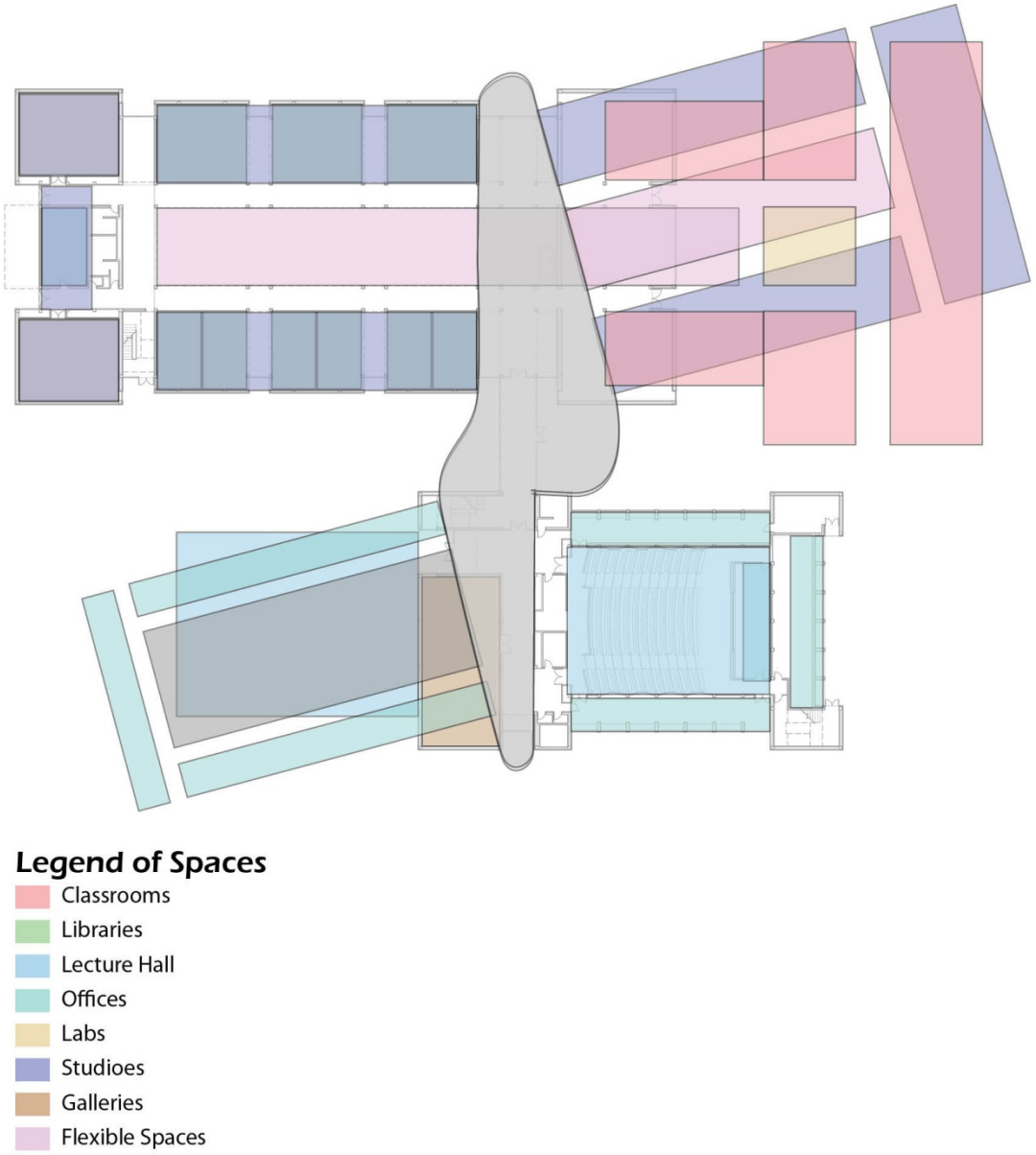


Figure 65 - Meeting 3 – Composite Space Plan

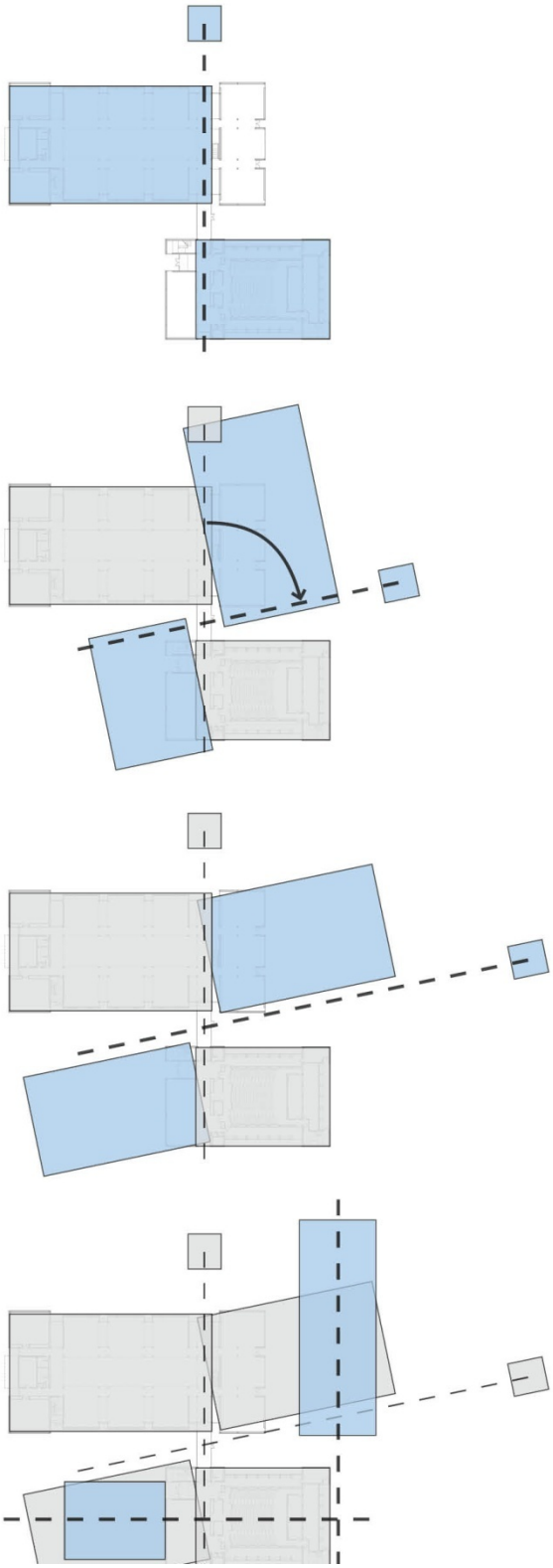


Figure 66 - Meeting 3 – Parti Diagram

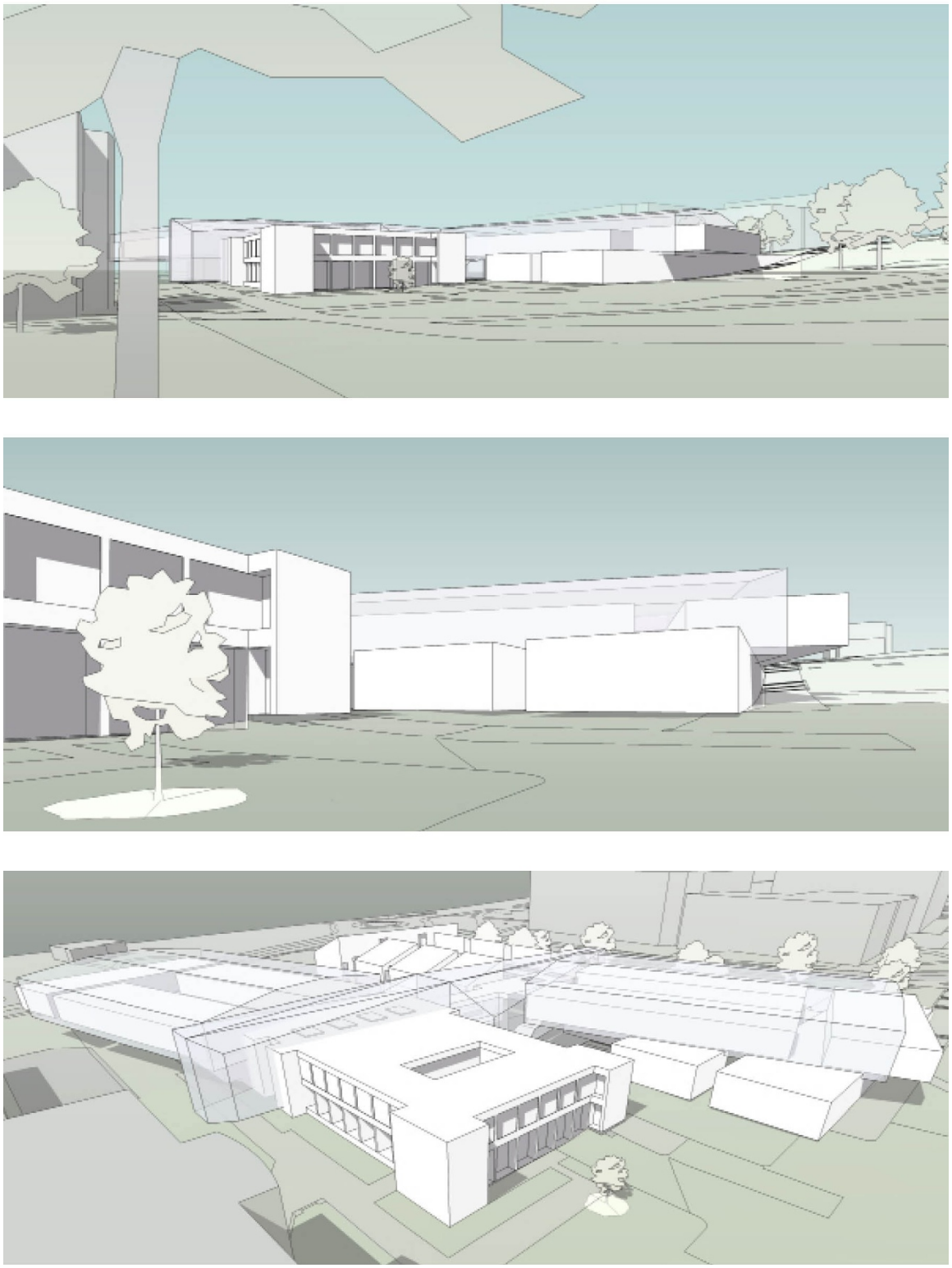


Figure 67 - Meeting 3 – Views

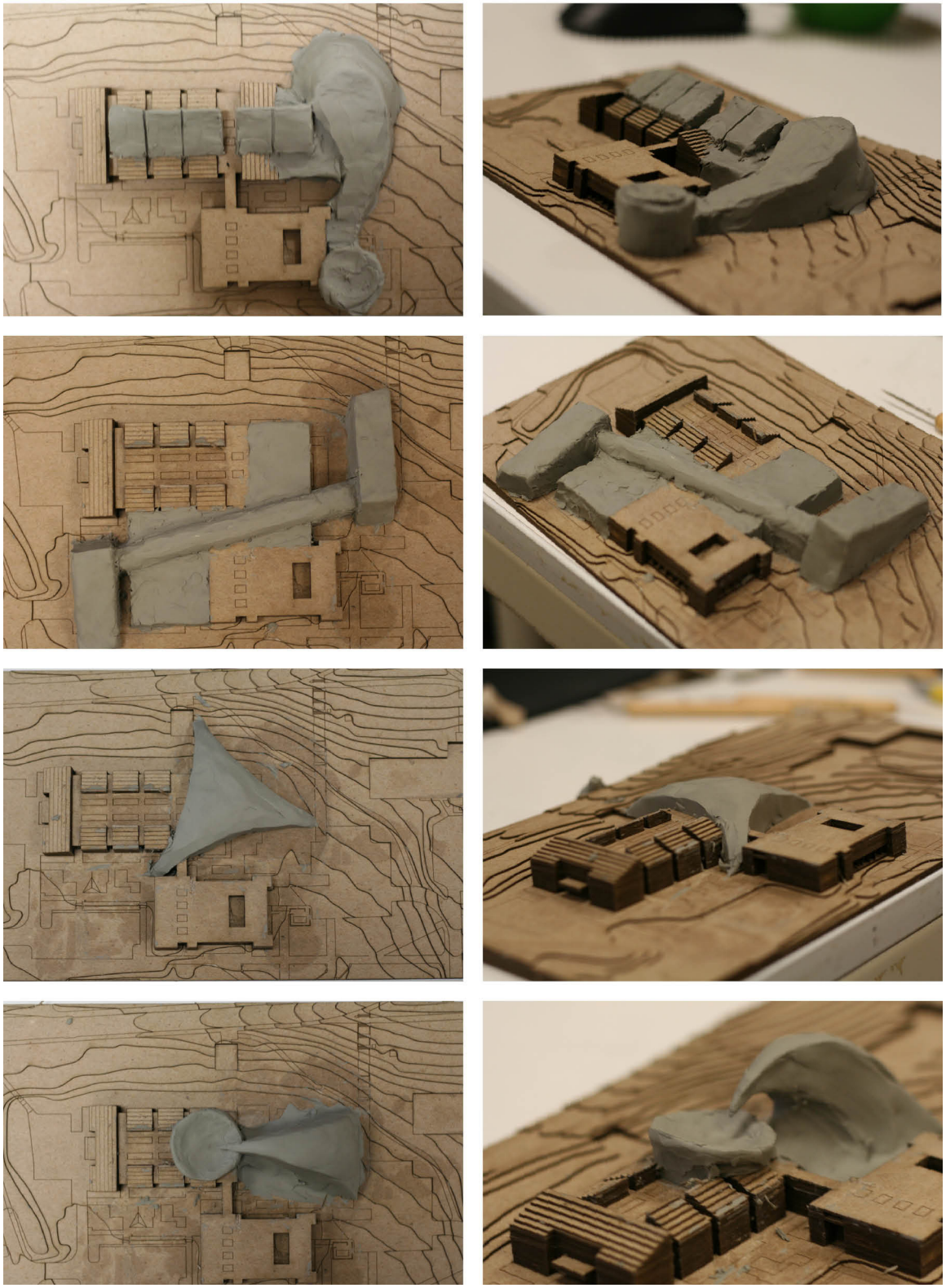


Figure 68 - Meeting 3 – Clay Studies 1

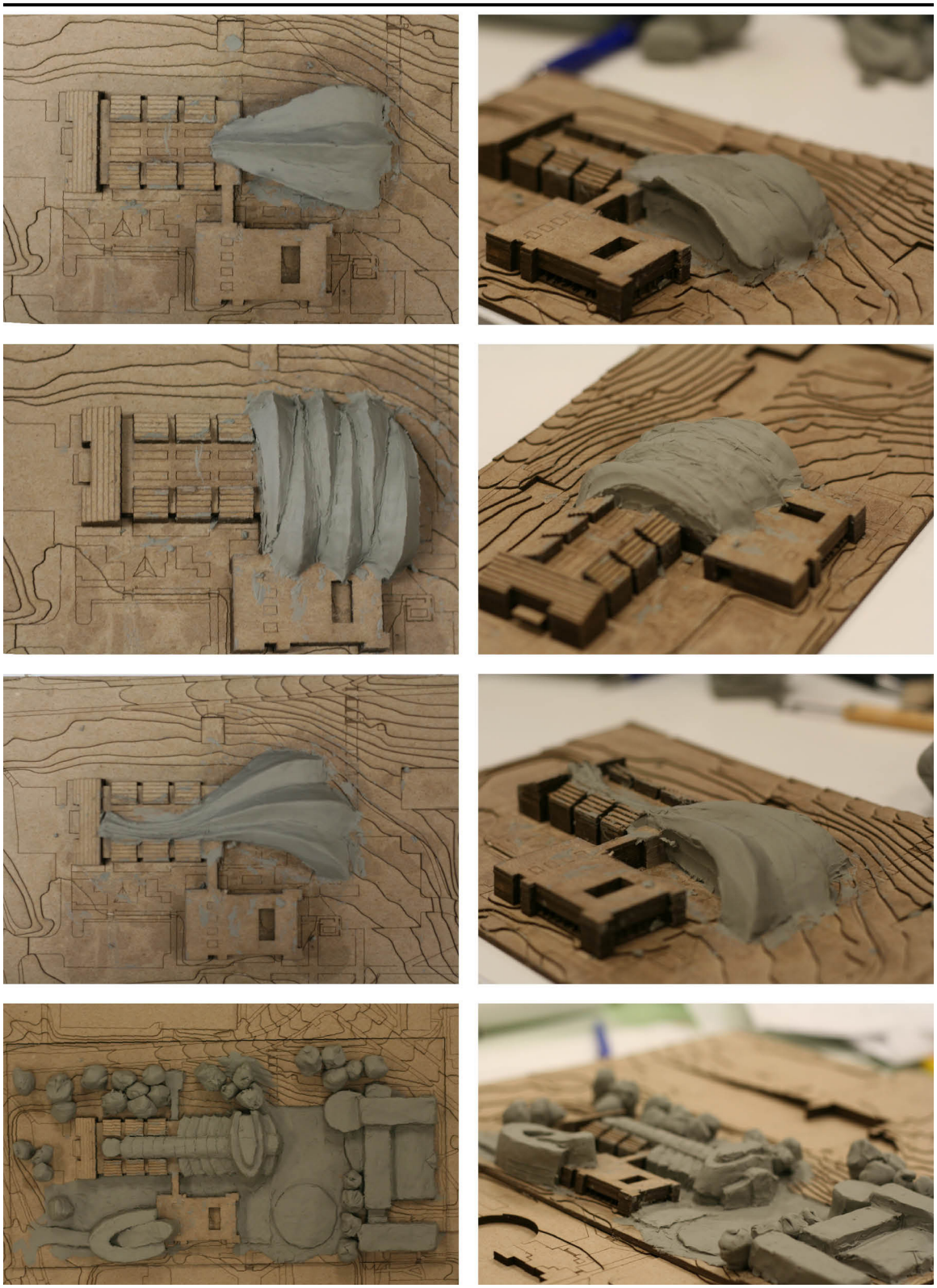


Figure 69 - Meeting 3 – Clay Studies 2

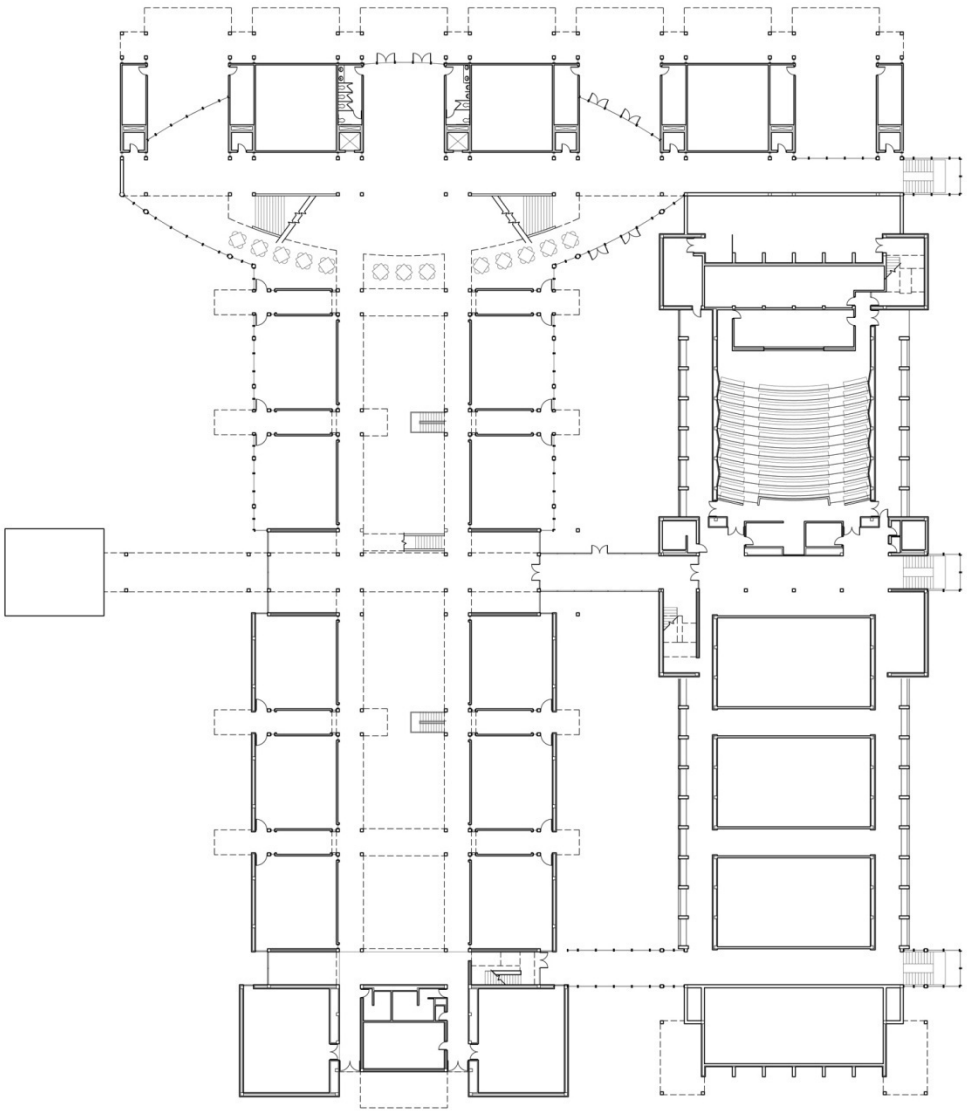


Figure 70 - Meeting 3 – First Floor Plan

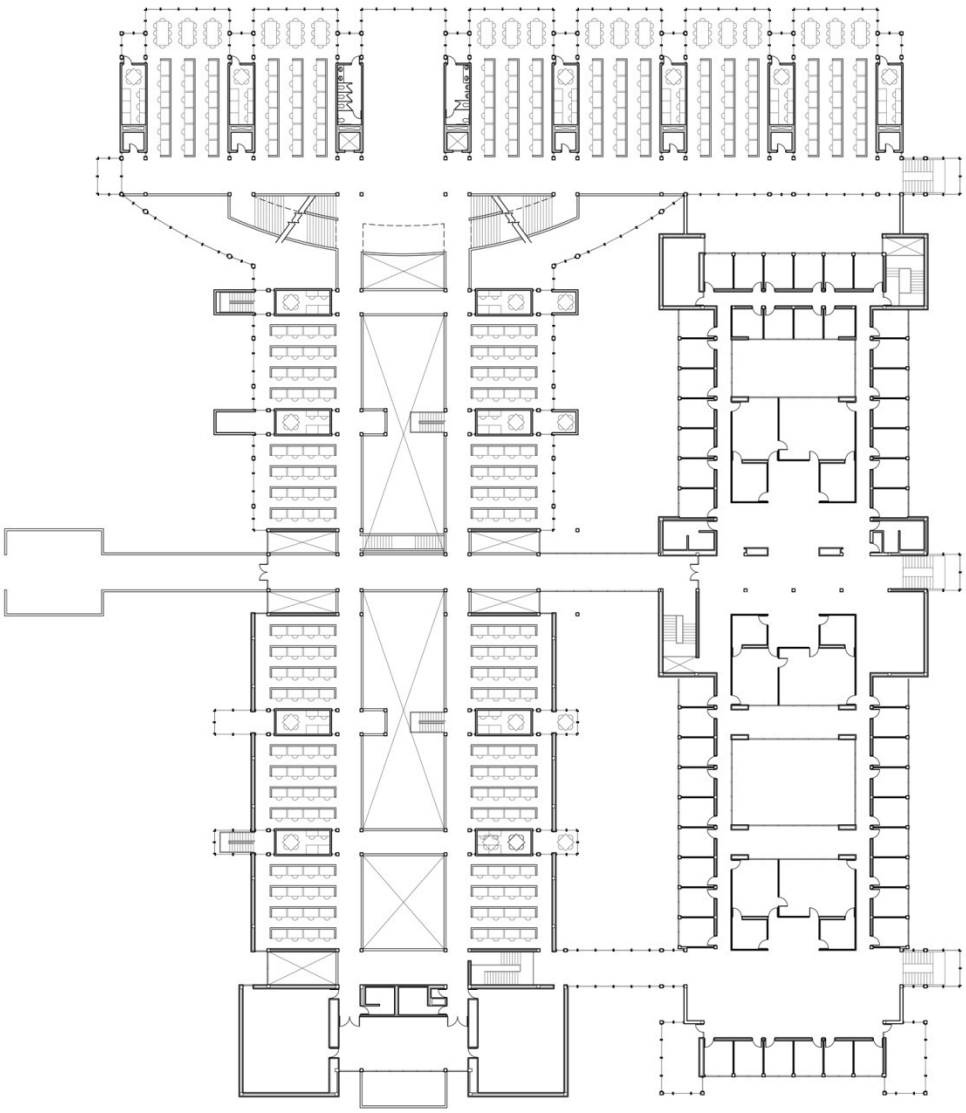


Figure 71 - Meeting 3 – Second Floor Plan

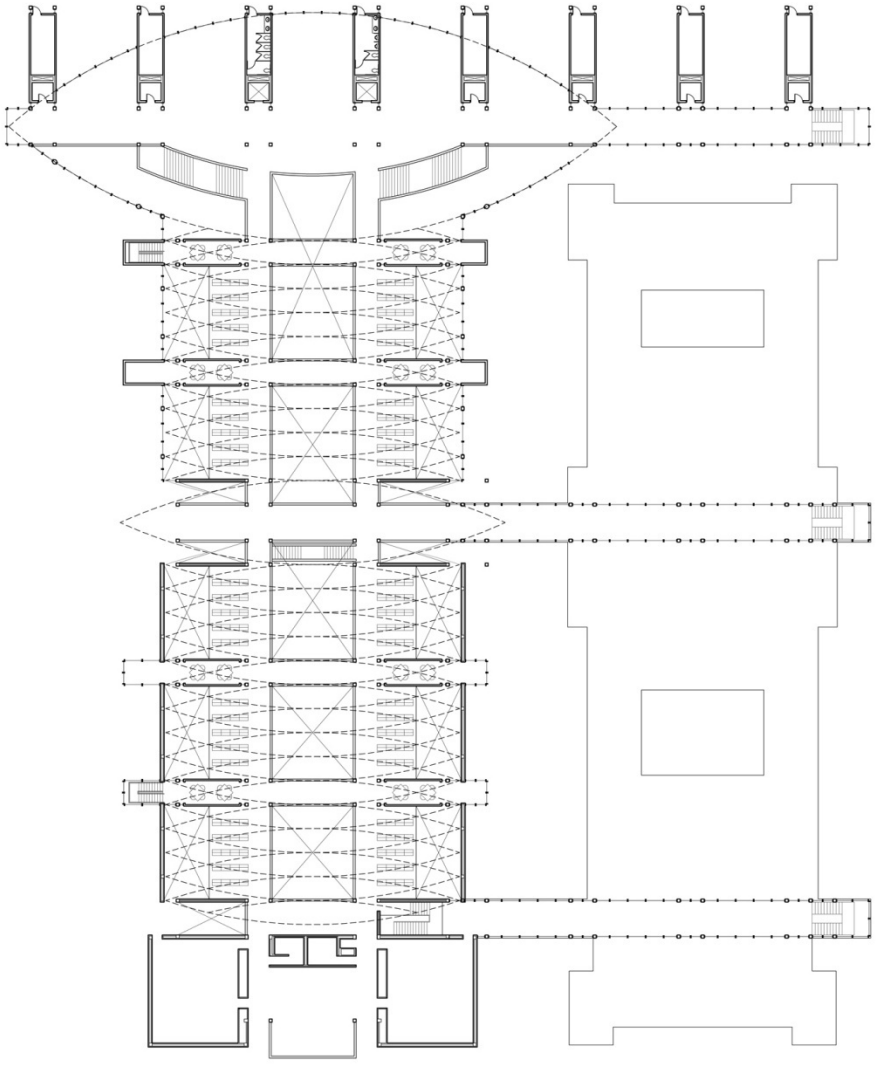


Figure 72 - Meeting 3 – Third Floor Plan

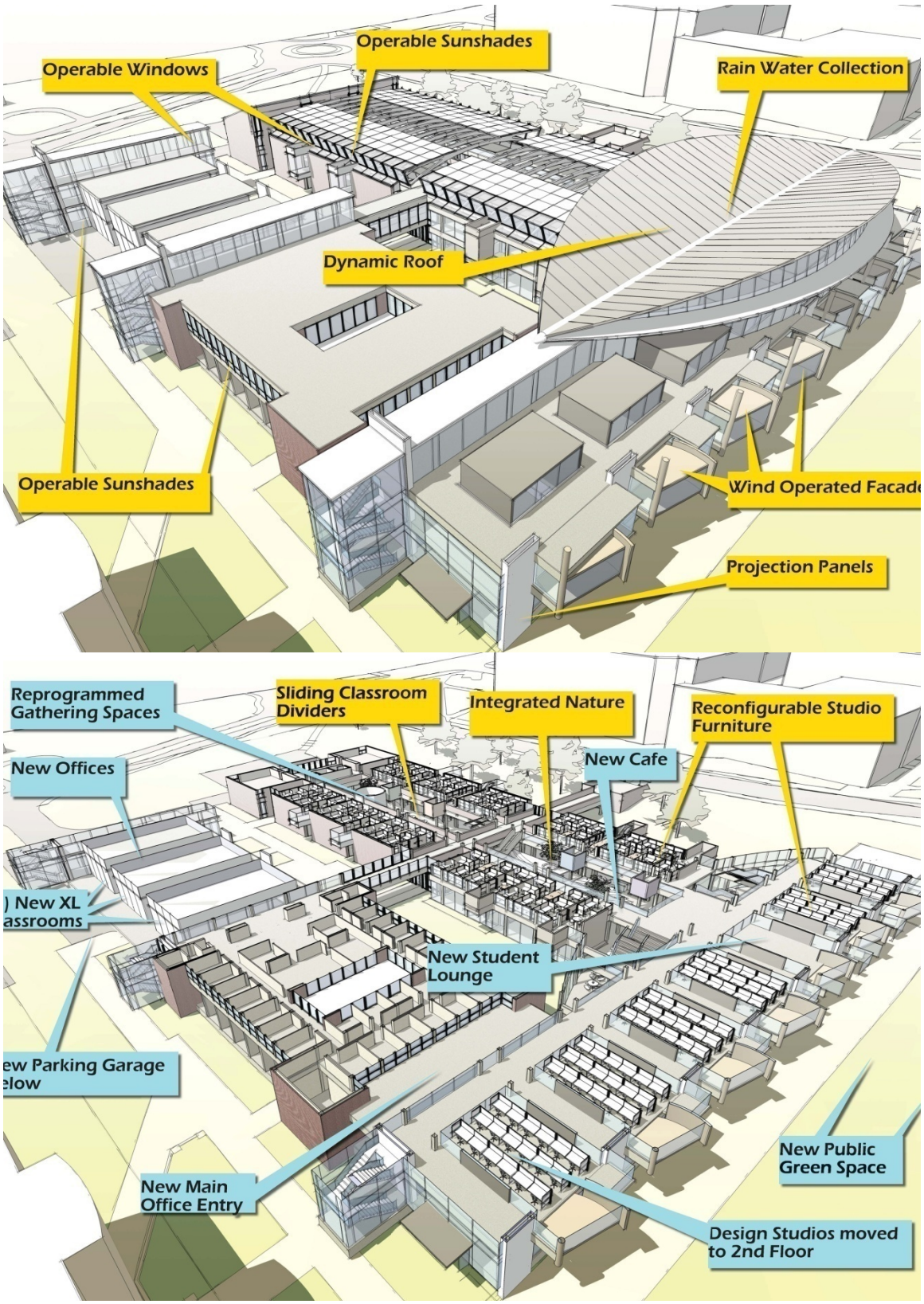


Figure 73 - Meeting 3 – Aerial Views

Meeting 4

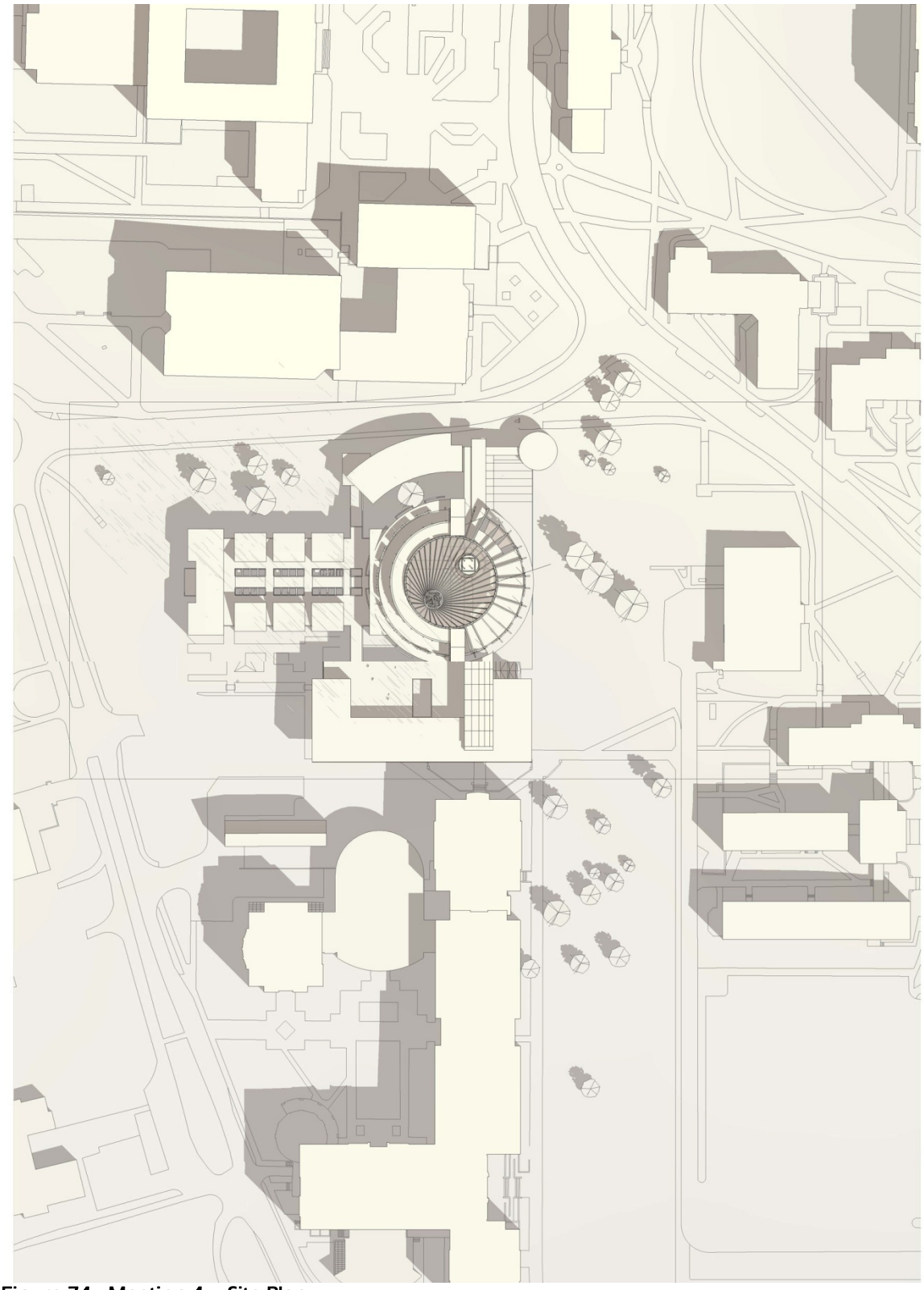


Figure 74 - Meeting 4 – Site Plan

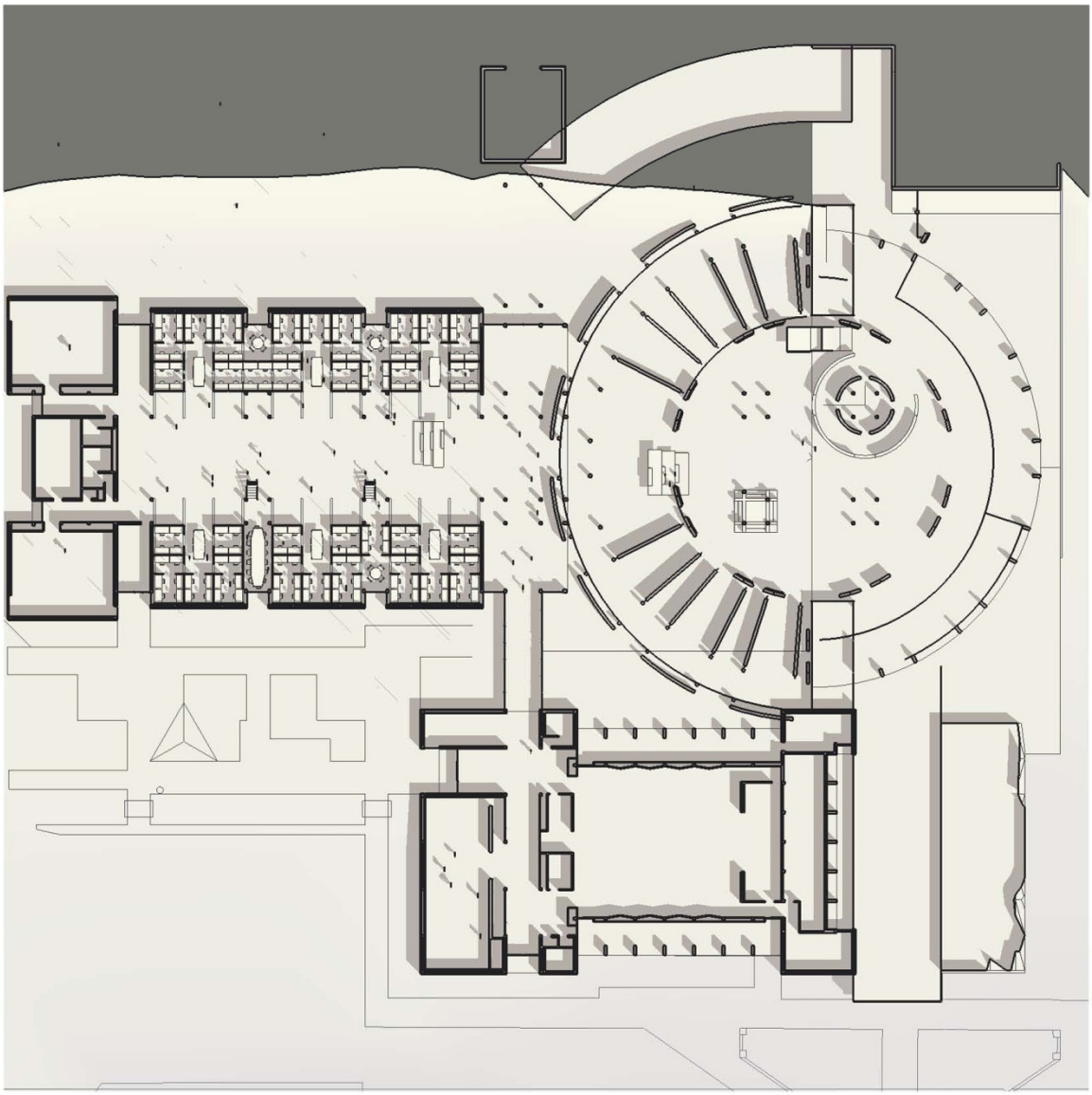


Figure 75 - Meeting 4 – First Floor Plan

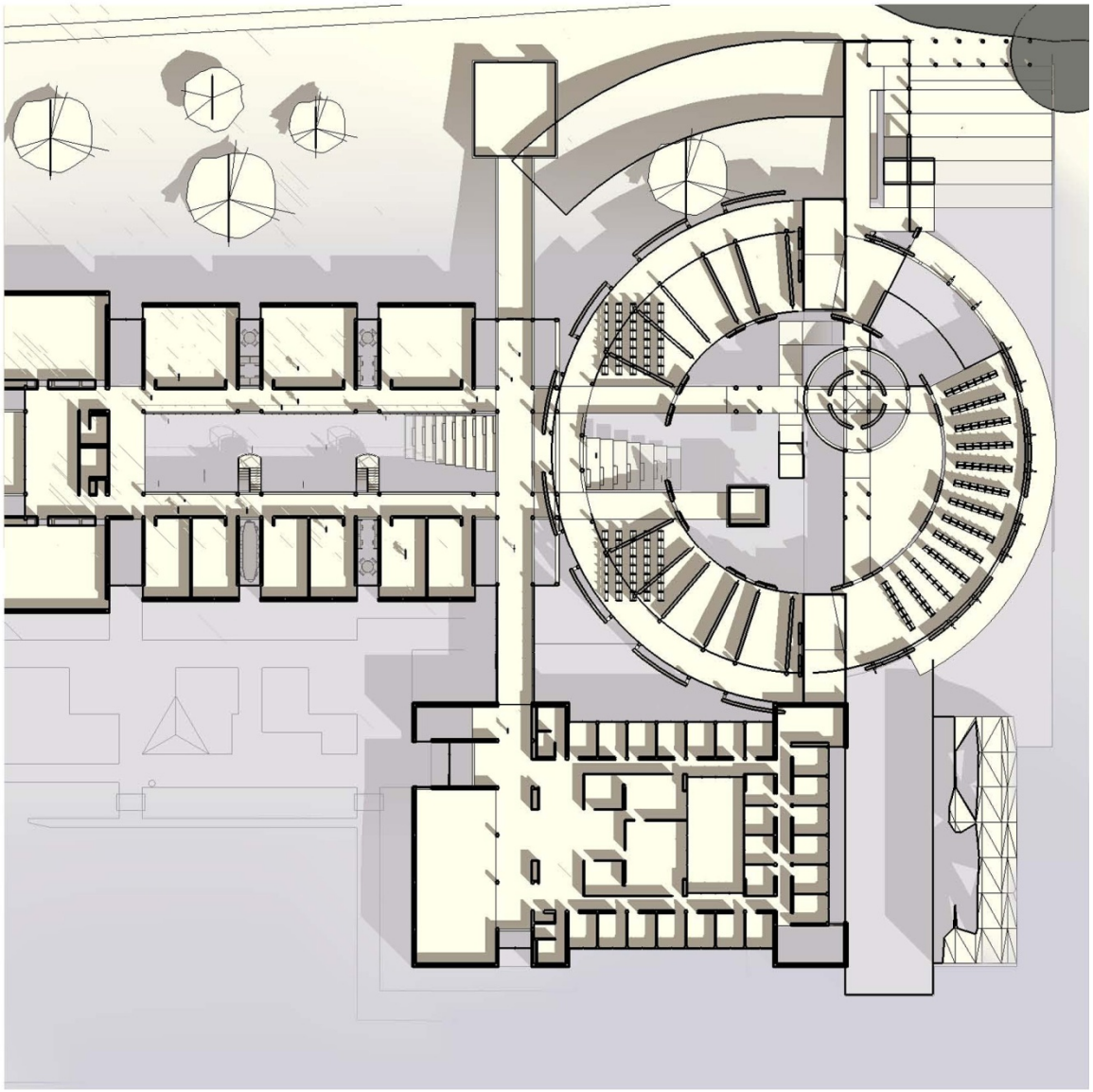


Figure 76 - Meeting 4 – Second Floor Plan

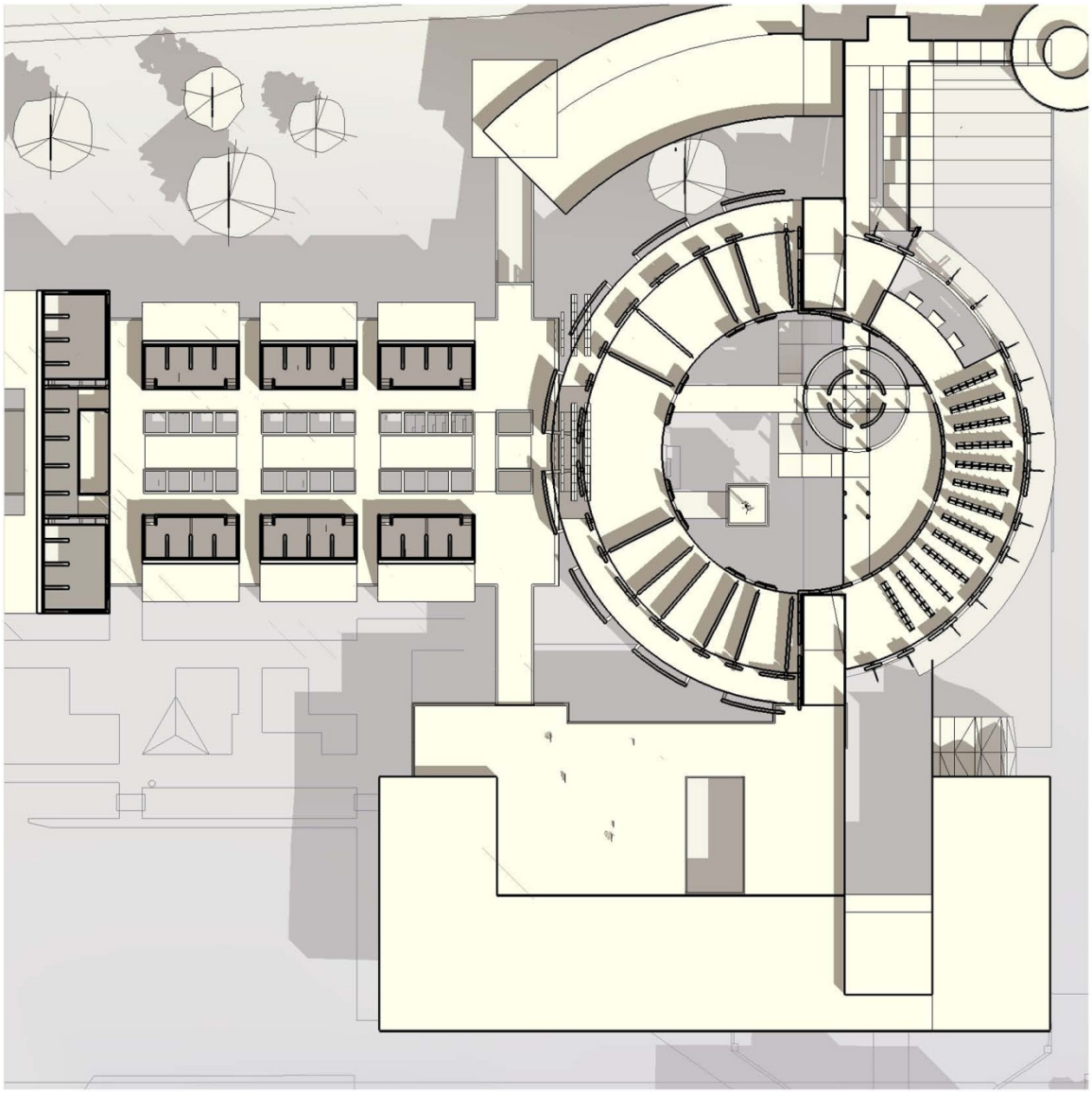


Figure 77 - Meeting 4 – Third Floor Plan

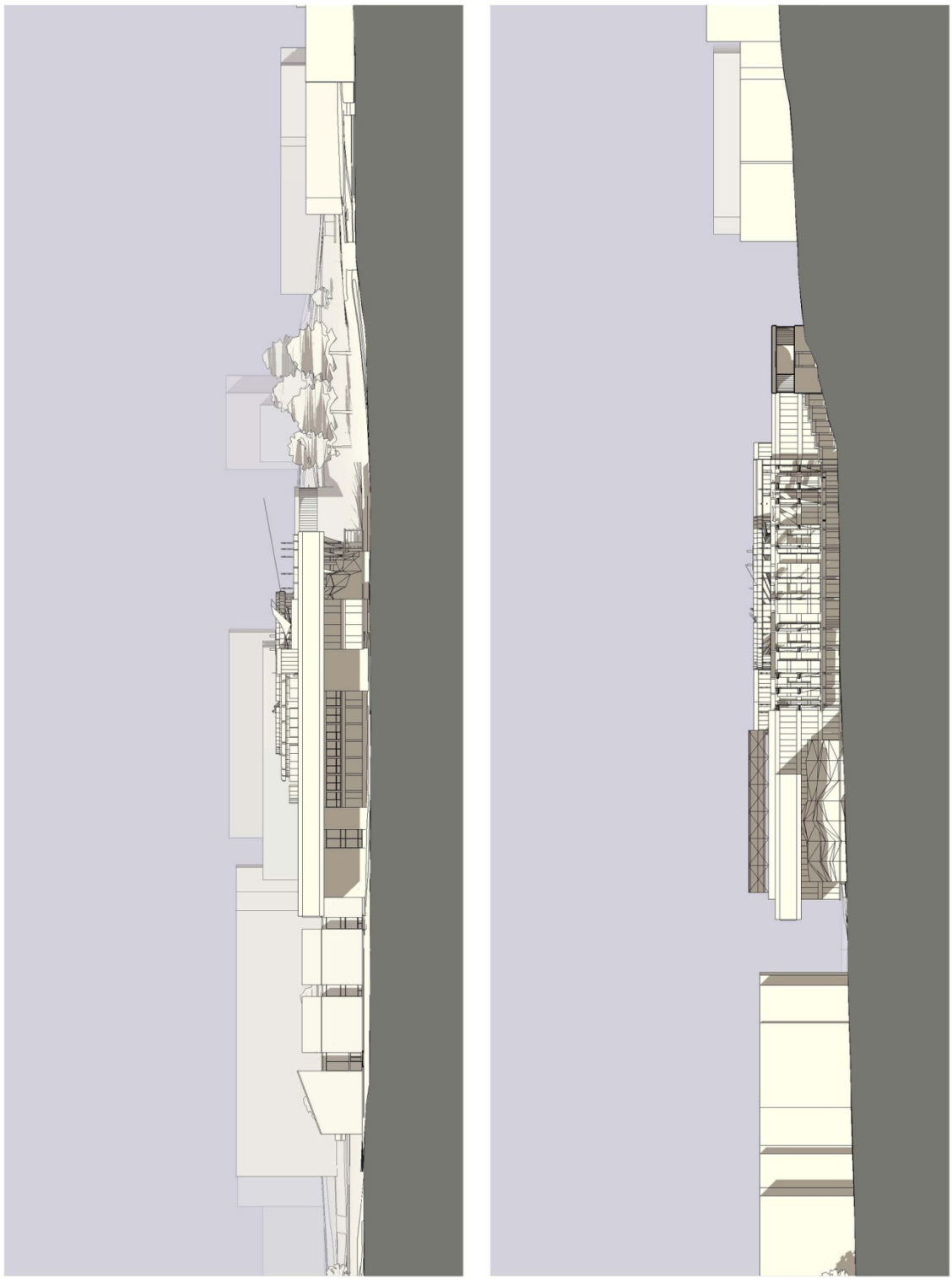


Figure 78 - Meeting 4 – Elevations

Figure 79 - Meeting 4 – Sections

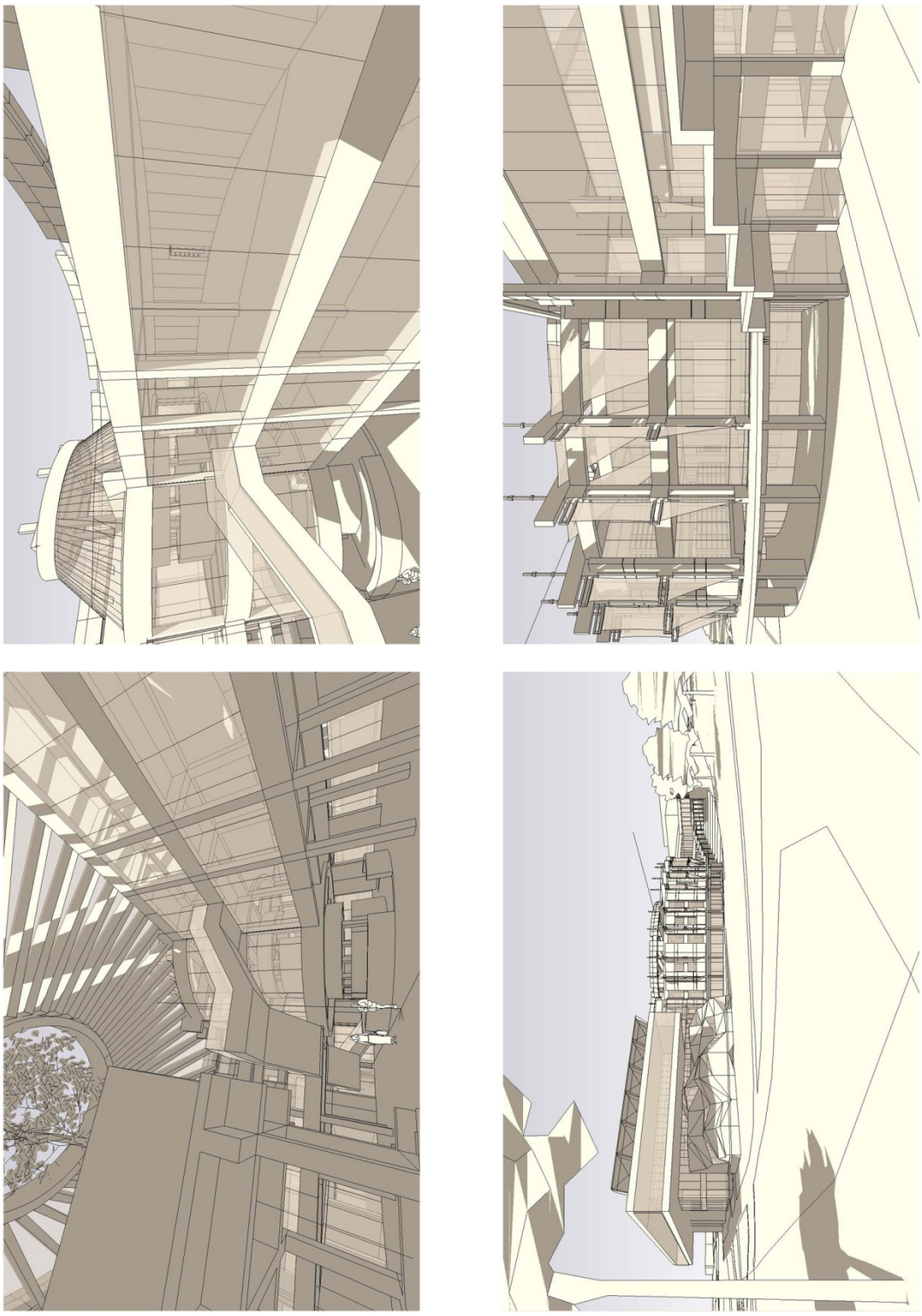


Figure 80 - Meeting 4 – Views 1

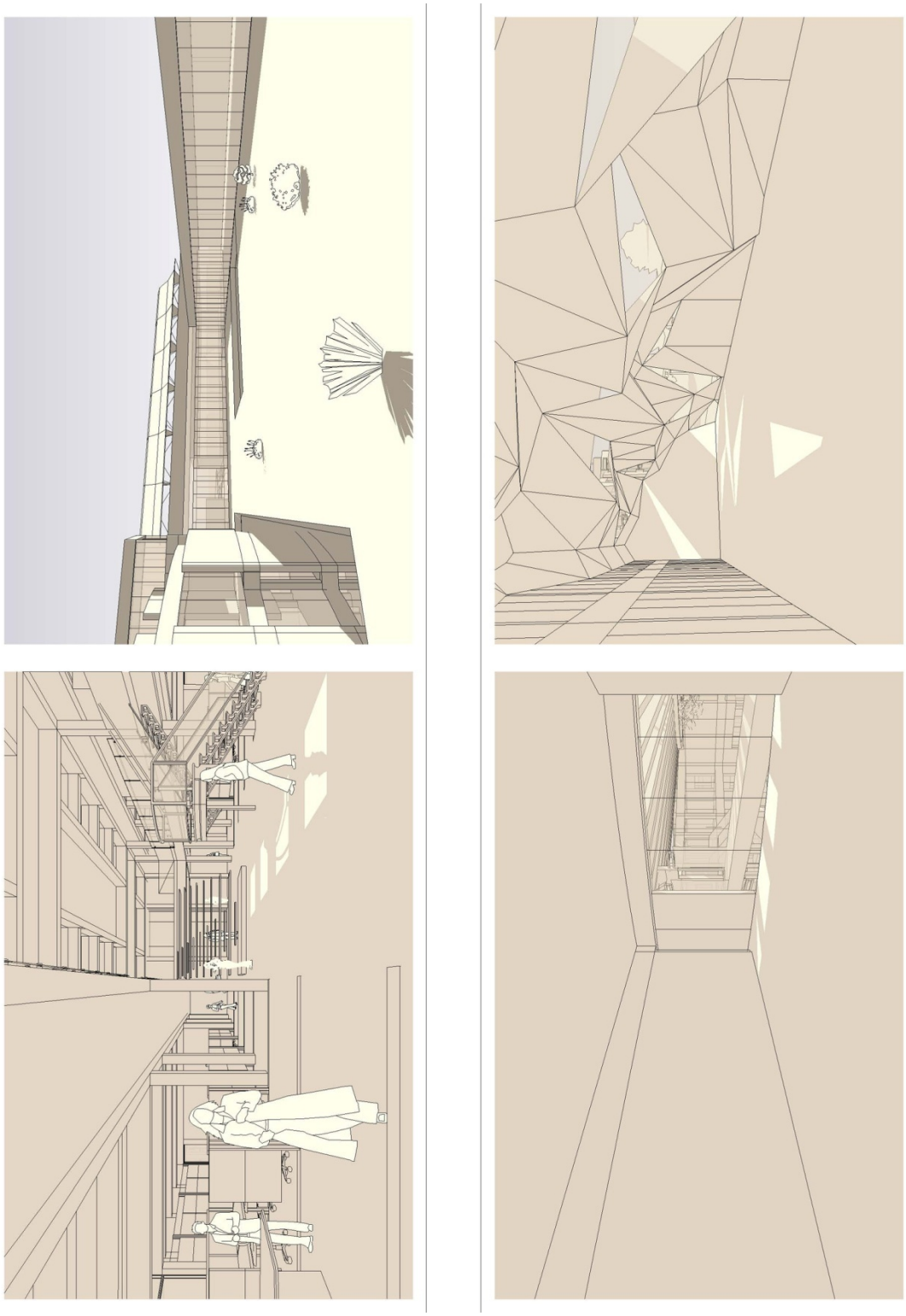


Figure 81 - Meeting 4 – Views 2

Meeting 5 – Final Presentation

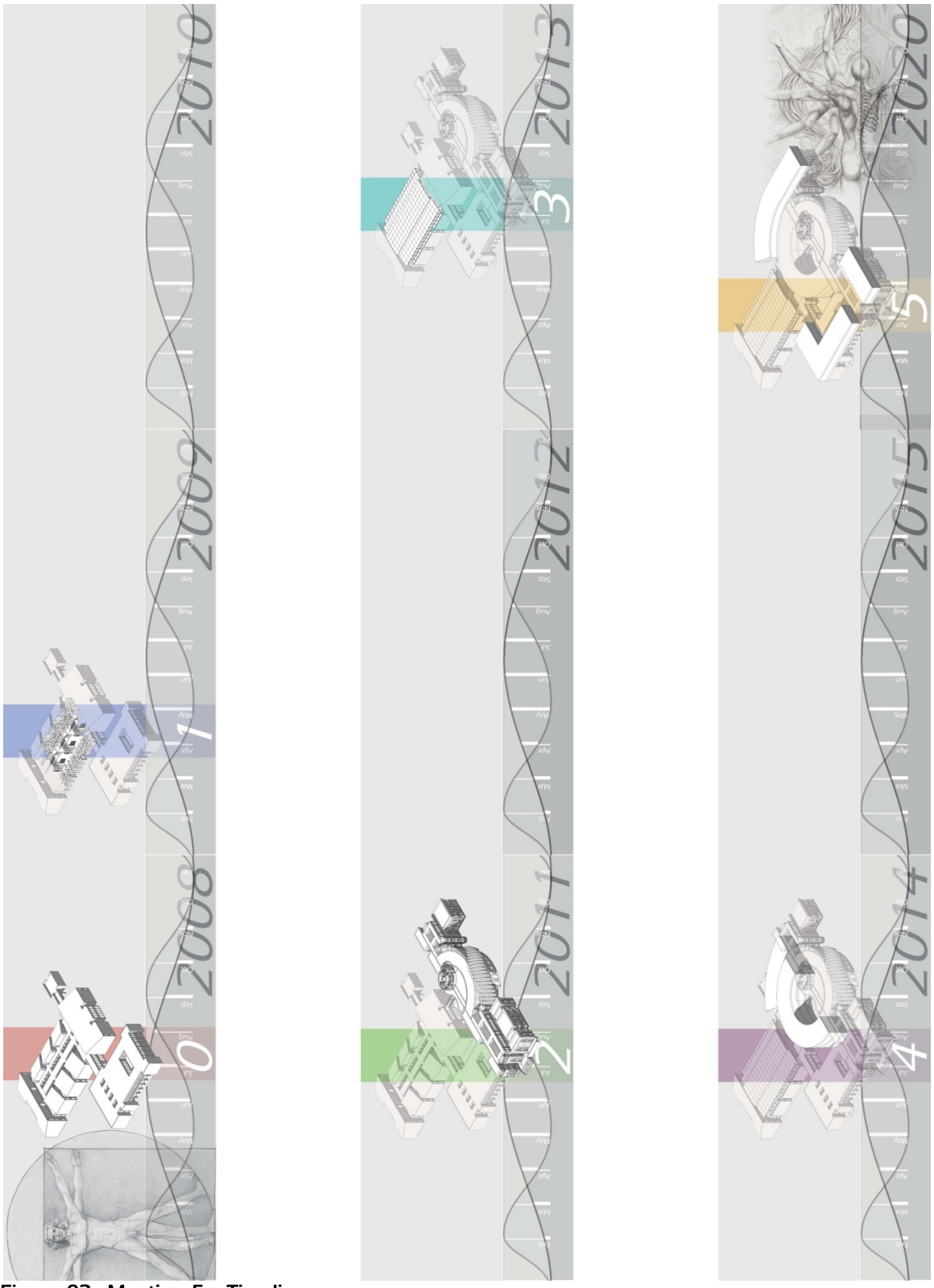


Figure 82 - Meeting 5 – Timeline

Figure 83 - Meeting 5 – Panel 1

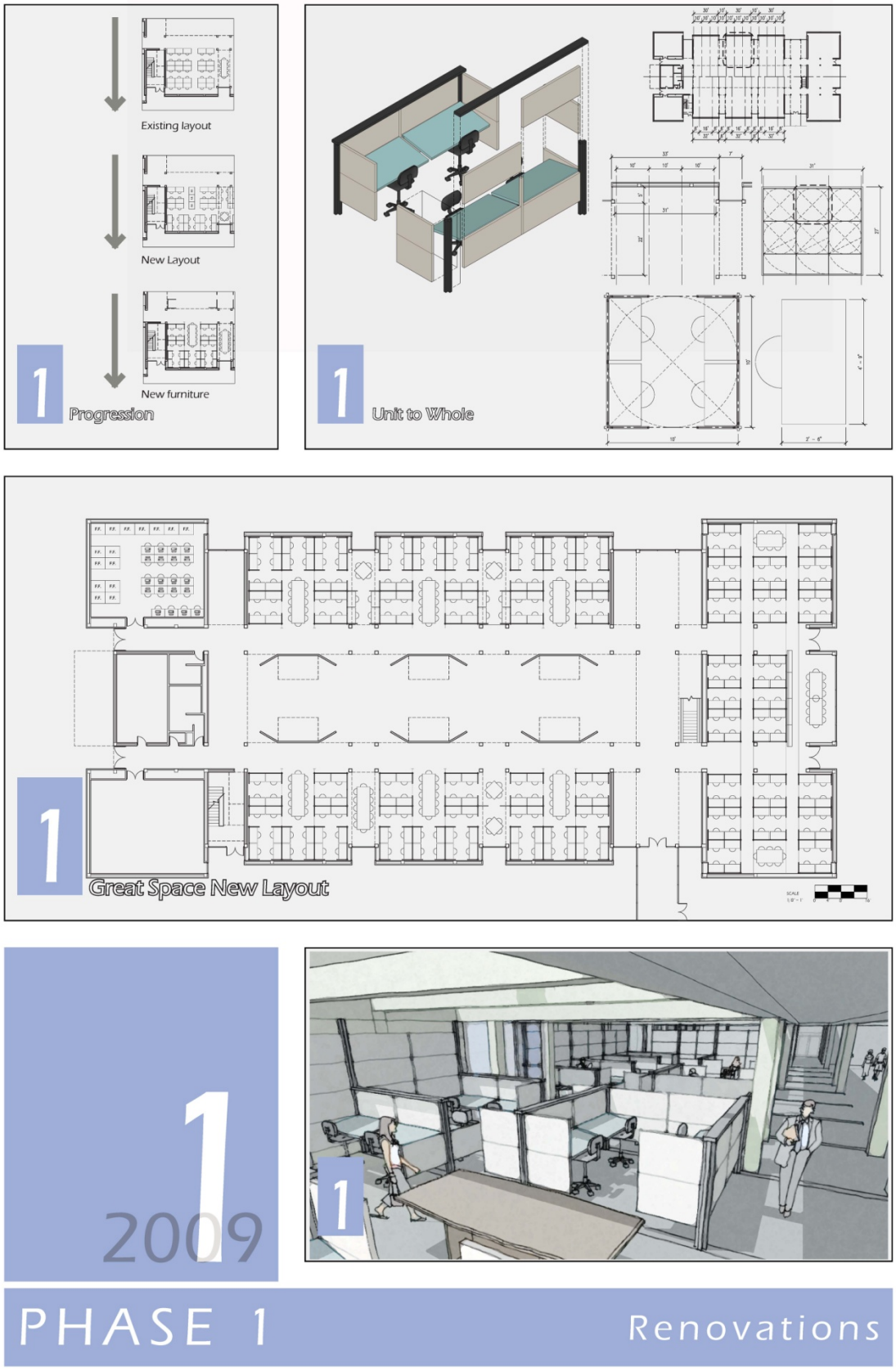


Figure 84 - Meeting 5 – Panel 2

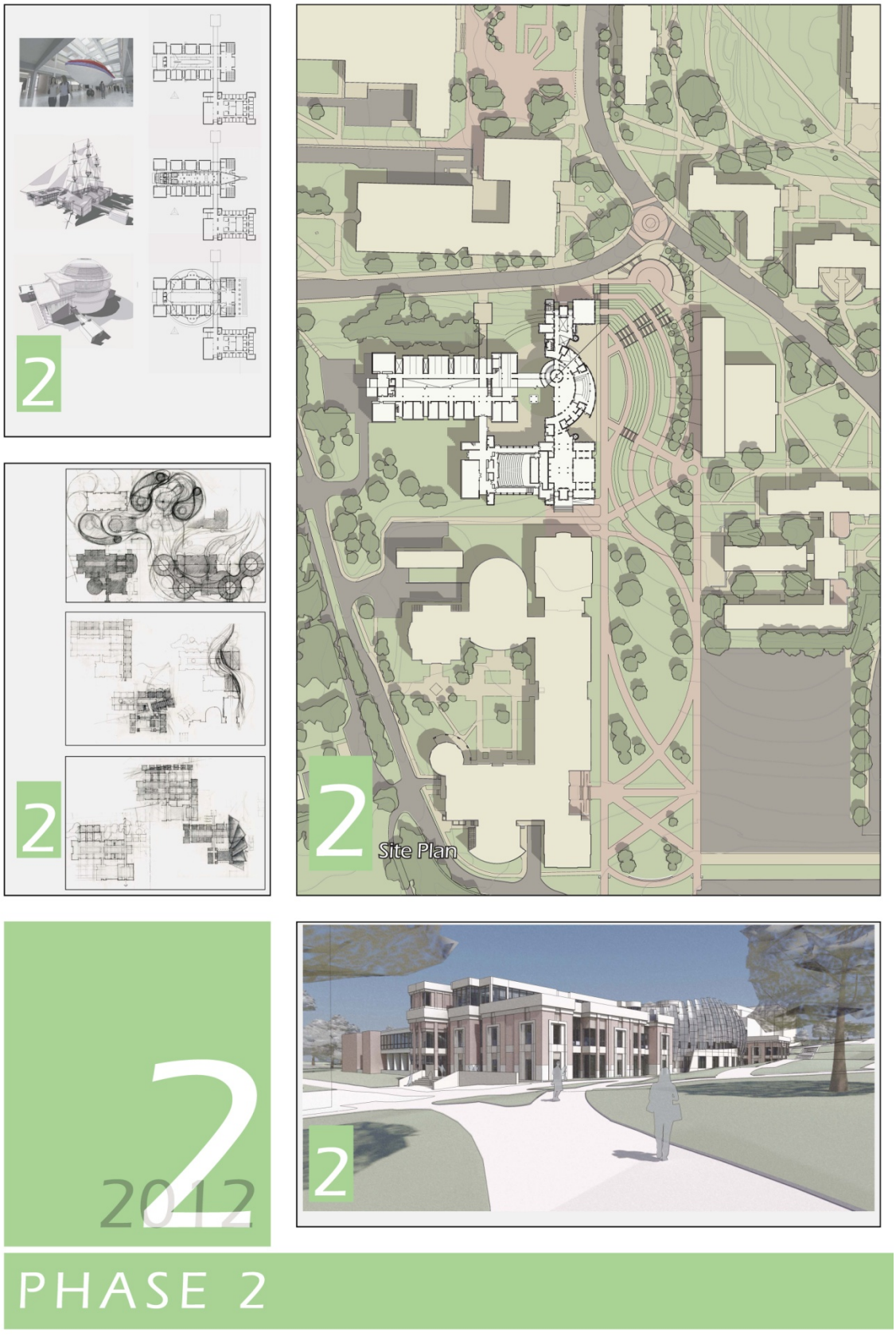


Figure 85 - Meeting 5 – Panel 3

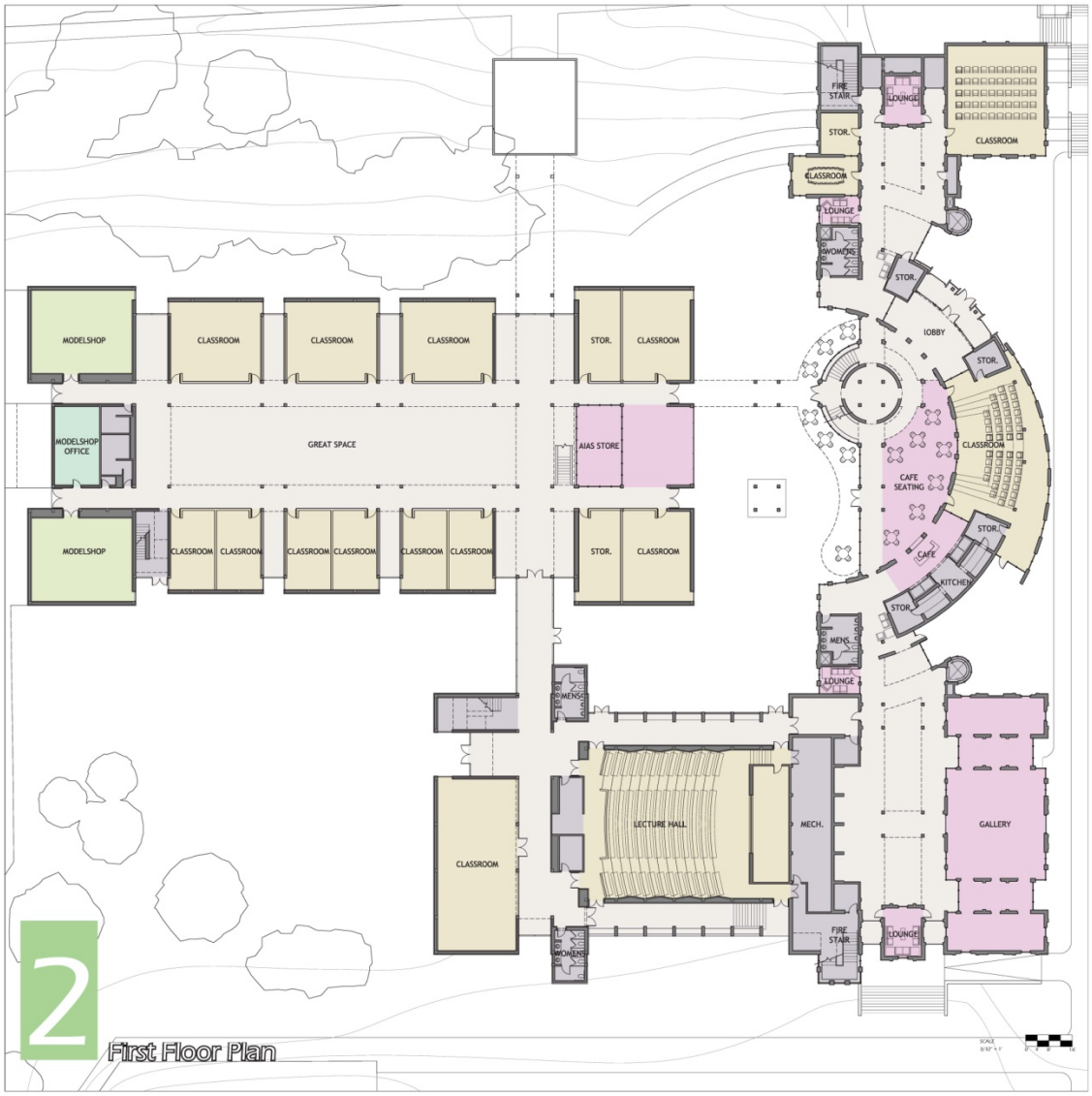
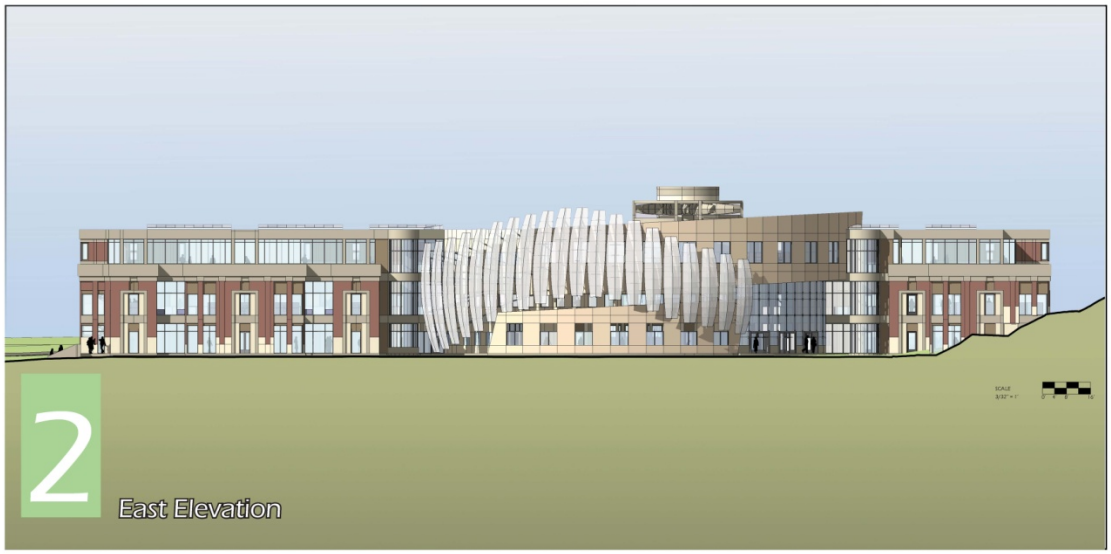
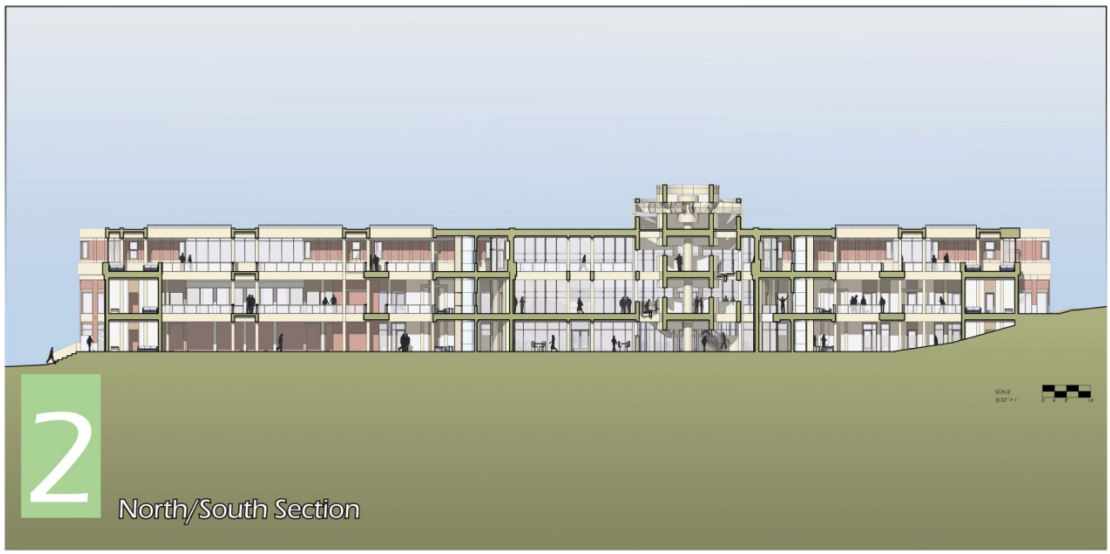


Figure 86 - Meeting 5 – Panel 4

Figure 87 - Meeting 5 – Panel 5





New Library

Figure 88 - Meeting 5 – Panel 6

Figure 89 - Meeting 5 – Panel 7

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