

A Formal Construction for a new Veterinary Hospital

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Master of Architecture

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ABSTRACT

Architecture, as the art of making a building, consists of an assemblage of elements that interact and interlock to create something whole—from an assembly of parts, emerges a unified composition. In this thesis exploration, I strive to take this simple idea, fundamental to all buildings—to the very process of building itself—and utilize it as a driving force.

This proposal was conceived both as a response to the site and program, as well as an effort to control an arrangement of parts in order to create an integrated, functioning whole that is greater than the sum of its parts. The resulting architecture derives its existence and identity from the articulation of these individual elements and the manner in which they interact and connect. Furthermore, this choreography generates a certain sequence of spaces creating moments of pause, compression, and release.

There is a certain level of complexity that results from the formal play of setting elements into motion against the site and each other. Accepting this condition, the designer's will must be exerted in an effort to gain/maintain control of this composition. As such, this architecture explores the possibilities of complexity generated through the formal arrangement of parts.

DEDICATION

This thesis is dedicated to my loving mother to whom I owe the foundation of my creative abilities. She was a mother, a mentor, and a talented artist who lived everyday to its fullest. She was taken from this earth much too soon. Her love, trust, compassion, and spirit have always inspired me. Her memory continues to enrich my life today. Thank you Mom.

Glenda Sue McPherson
October 1958-July 2006

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To My Wife:

First and foremost, I must thank my loving and lovely wife Bridget. She is a brilliant veterinarian and it is her work that inspired this project. Without her love and support, this year of thought and exploration would not have been possible. My academic indulgence was in many ways at her expense, and for that I am forever grateful. Thank you Bridget, Simon and Nanook.

To My Committee:

I would like to offer special thanks to my committee members Steve, Bill and Jim. Your guidance, challenges, and engaging conversations throughout the year have been invaluable. Thank you sincerely for allowing me the space to investigate on my own.

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To My Family:

I must always offer thanks to my family, Vera Mae, Tommy Ray, Josh, Jeffrey, and Stephanie, whose presence in my life makes my defeats tolerable and my successes richer.

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INTRODUCTION

This thesis exploration began with the seemingly simple notion to create architecture that aims to elevate the spirit of all its inhabitants. I use the word architecture versus building to emphasize the point that not all buildings achieve architecture. Too often in our society we strive only for a building or structure which aims merely to satisfy the most basic functional needs at the cheapest possible price. As such, my pursuit aims to explore ideas through a complex program in an effort to realize simply, architecture.

The program type that was chosen as a vessel through which to investigate these ideas is a veterinary hospital. This will be a four-doctor, 24-hour, small animal practice. The hospital will include waiting/reception spaces, exam spaces, surgery, lab, radiology, office space, boarding space, living space, etc. Layered upon the aforementioned formal aspirations of this thesis, there is an effort to bring a certain level of humanity and beauty into this often neglected building type - thus freeing it from the sterility of standardization.

This exploration began with an image of a beacon upon a hill. This clinic sits quietly among the landscape, autonomous and elevated above the environment below. These thoughts, simple and direct, began an intense architectural pondering. Therefore, this thesis did not begin with a program or some ground-breaking architectural idea; rather, the search began with a quality. This humane quality, which places emphasis on the living inhabitant, is too often missing from our built environment. In four distinct sections, the work that follows traces the pursuit of architecture's capacity to generate the humane quality appropriate for a veterinary hospital. Sections I and II describe the architectural proposal through both formal and pictorial means. Section III presents a brief analysis of the building. Section IV traces the construction or "stages of creation" through which the project developed.

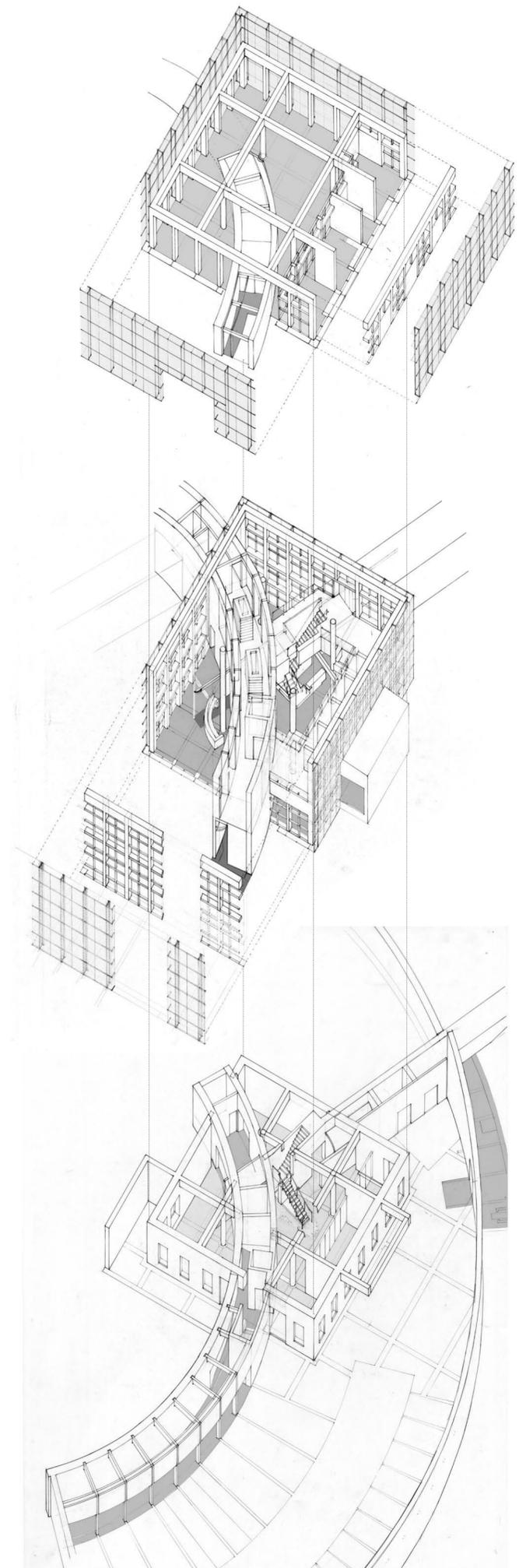
Part I

The Building Proposal a formal description

"In every case one must achieve a simultaneous solution of opposites...Nearly every design task involves tens, often hundreds, sometimes thousands of different contradictory elements, which are forced into a functional harmony only by man's will. This harmony cannot be achieved by any other means than those of art."

-Alvar Aalto

The Museum of Modern Art. Between Humanism and Materialism. New York: Distributed by Harry N. Abrams, Inc., 1998. (Page 21).

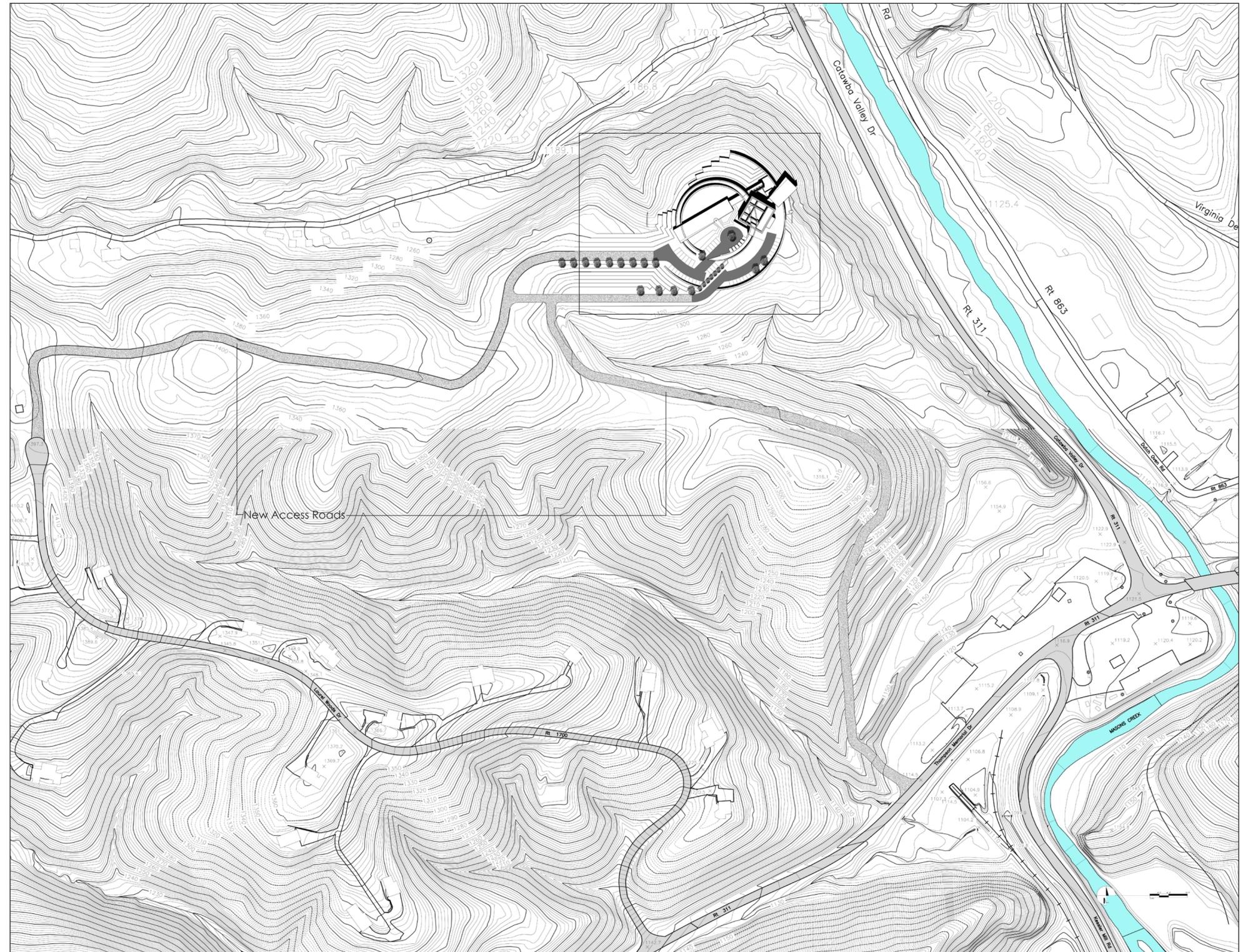


A FEW THOUGHTS ON SITE SELECTION

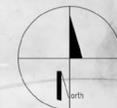
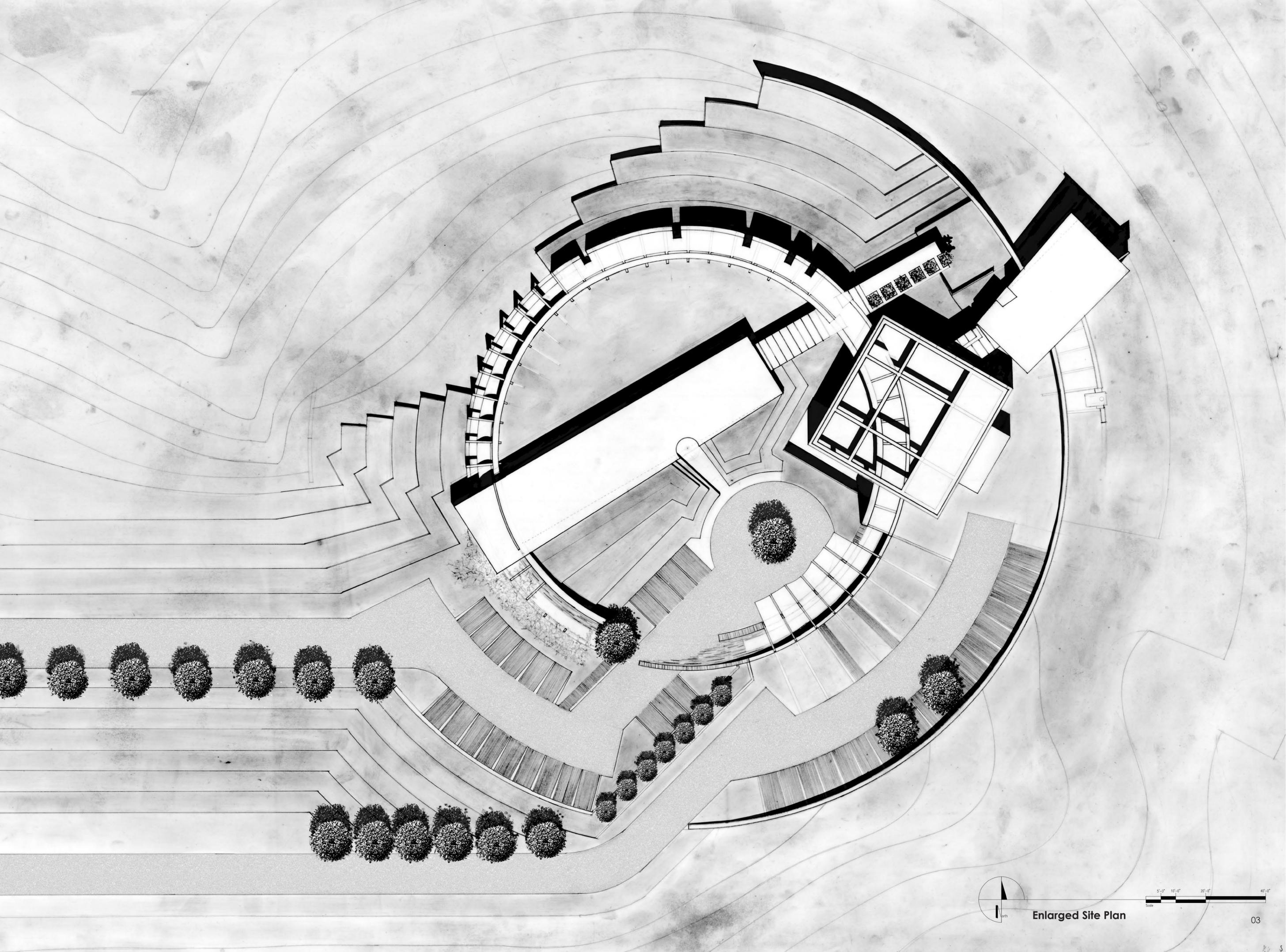
Two of the primary situational considerations in formulating this architectural thesis were the program type and the site selection. The selection of the former provided great insight into what was desirable for the latter. As the initial romanticized and idealized notions of a clinic on a hill emerged, many of the characteristics of the site began to become apparent. The location should be elevated above the surroundings, but not isolated. Another primary selection criterion was the desire to choose a local site so that it would be possible to visit, drive past, and allow the imagination to ponder the possibilities.

With the aforementioned criteria in mind, a site was chosen at a location that is in a natural bend between Salem, VA and Roanoke, VA. The property shown to the right is a small hill with a relatively flat summit currently zoned for commercial use. It is located near Interstate 81, as well as, the major intersection of VA-311 and VA-419. This site has the unique characteristic of being near these primary traffic arteries and accessible from them, yet elevated above this surrounding terrain by nearly 200 feet.

This site exists within the middle landscape as a boundary between two population centers and the natural mountainous terrain beyond. Over the following pages the constructed reality of this clinic will unfold.



Base Topographic map obtained from Roanoke County's map database: <http://eservices.roanokecountyva.gov/engineer/Topo/Topo.htm>



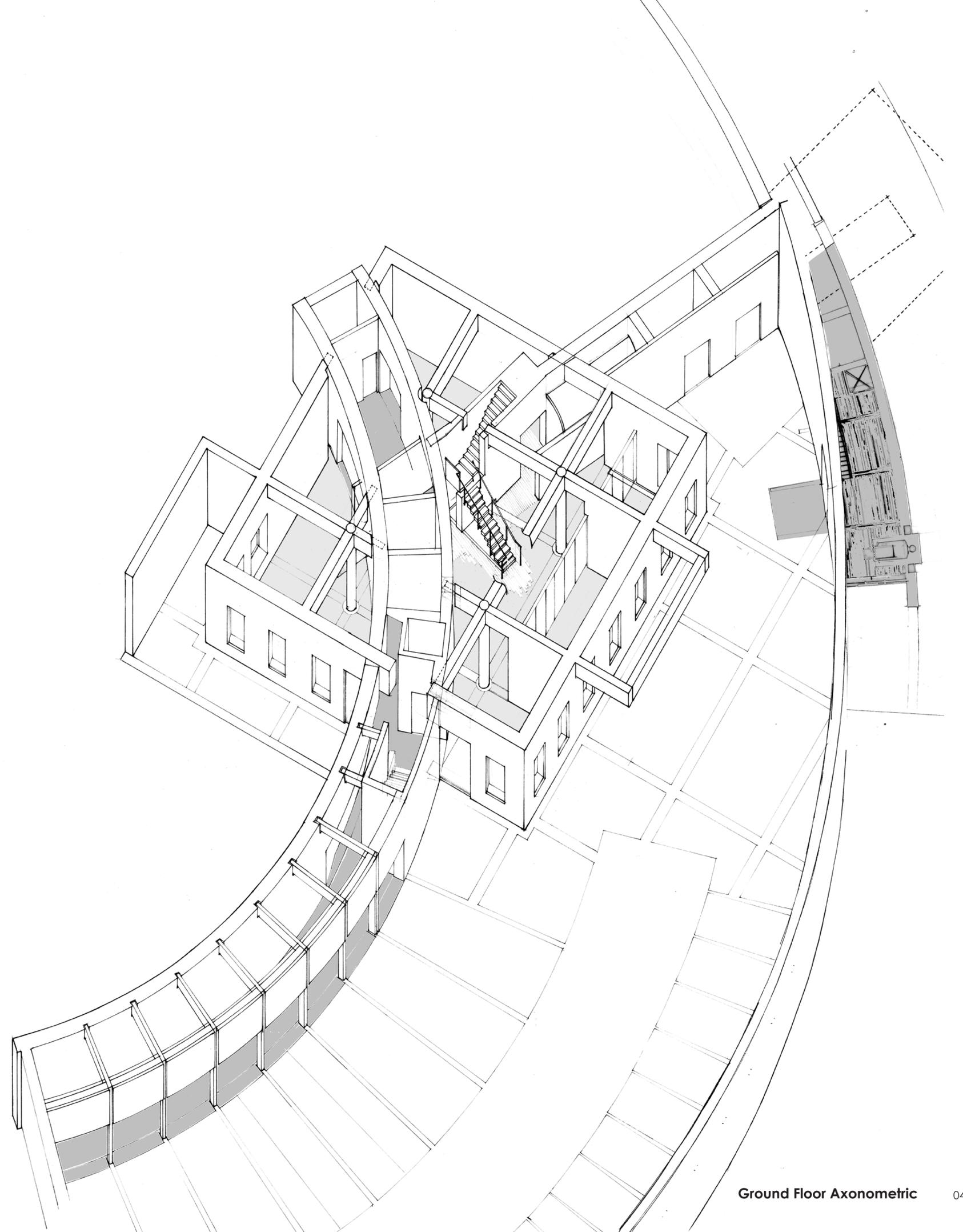
Enlarged Site Plan



THE FORMAL ARRANGEMENT OF THE BUILDING

Anthropomorphic ideas were not a conscious guiding principle of this thesis; however, in explaining the order of the building, the direct relationship between human beings and the environment they create emerges as a useful method of comparison. I emphasize the correlation between living organisms and the constructed world because this building functions very much like a living organism. It's organizational relationships arrange themselves in the following manner. There is the cube or mind, which is the primary hub of activity and decision-making, from which everything else originates. There are the appendages, or bar shaped elements, that extend away from the cube and facilitate unique functions not possible within the core. These appendages are tied to the brain with connective tissue or connecting elements. These elements unify and coordinate the operations of the building to enable the building parts to function as a whole. Finally this static organism exists in an environment on top of a hill that is sculpted by and contained within the retaining circular walls. Just as living organisms require a secure and stable environment within which to function, so too does this clinic.

Each element developed individually, with its own singular purpose and existence, but never without consideration of the whole. Consider for a moment the human arm, which is seemingly designed as an autonomous element that performs a variety of functions and has an unmistakable image all its own. However, if an arm is severed from the body, its useful, autonomous existence is extinguished; also, part of the usefulness of the whole is lost. The elements of this clinic function in a similar manner. Each element has a degree of autonomy and facilitates functions specific to the element. However, the parts, despite their autonomy, are conceived and arranged as supporting elements within a composition. The whole exists as more than the sum of its parts. To accomplish this, each element falls on the site in precise placement relative to the others in order to serve its singular function, and the function of the whole. Understanding the project in this manner establishes a framework within which to study this formal composition.



BUILDING KEY

- 01 Ultrasound
- 02 Laundry
- 03 Toilet
- 04 Bulk File Storage/Meeting Room
- 05 Courtyard
- 06 Elevator Equipment Room
- 07 Patient Waiting
- 08 Cat Isolation
- 09 Dog Isolation
- 10 Treatment Area
- 11 Mechanical
- 12 Electrical
- 13 Work Area
- 14 Crematorium
- 15 Freezer/Body Storage
- 16 Exterior Service Area
- 17 Gravel Entrance Road
- 18 Concrete-Grass Paving
- 19 Entrance Portico
- 20 Vertical Circulation
- 21 Concrete Parking Space

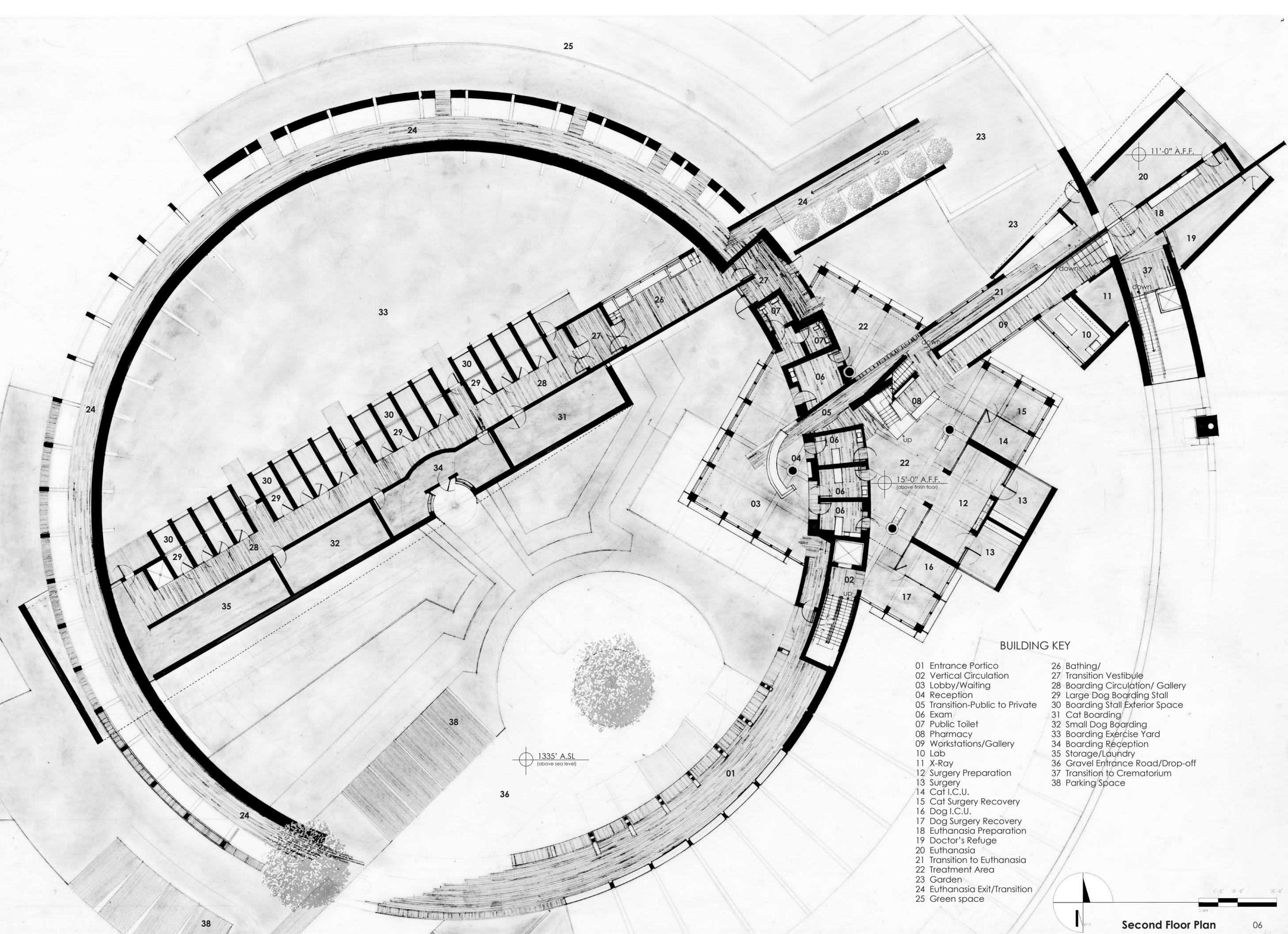


1320' ASL
(above sea level)

0'-0" F.F.
(finish floor)



Ground Floor Plan



BUILDING KEY

- | | |
|---------------------------------|----------------------------------|
| 01 Entrance Portico | 26 Bathing/ |
| 02 Vertical Circulation | 27 Transition Vestibule |
| 03 Lobby/Waiting | 28 Boarding Circulation/ Gallery |
| 04 Reception | 29 Large Dog Boarding Stall |
| 05 Transition-Public to Private | 30 Boarding Stall Exterior Space |
| 06 Exam | 31 Cat Boarding |
| 07 Public Toilet | 32 Small Dog Boarding |
| 08 Pharmacy | 33 Boarding Exercise Yard |
| 09 Workstations/Gallery | 34 Boarding Reception |
| 10 Lab | 35 Storage/Laundry |
| 11 X-Ray | 36 Gravel Entrance Road/Drop-off |
| 12 Surgery Preparation | 37 Transition to Crematorium |
| 13 Surgery | 38 Parking Space |
| 14 Cat I.C.U. | |
| 15 Cat Surgery Recovery | |
| 16 Dog I.C.U. | |
| 17 Dog Surgery Recovery | |
| 18 Euthanasia Preparation | |
| 19 Doctor's Refuge | |
| 20 Euthanasia | |
| 21 Transition to Euthanasia | |
| 22 Treatment Area | |
| 23 Garden | |
| 24 Euthanasia Exit/Transition | |
| 25 Green space | |

1335' A.S.L.
(above sea level)

15'-0" A.F.F.
(above finish floor)

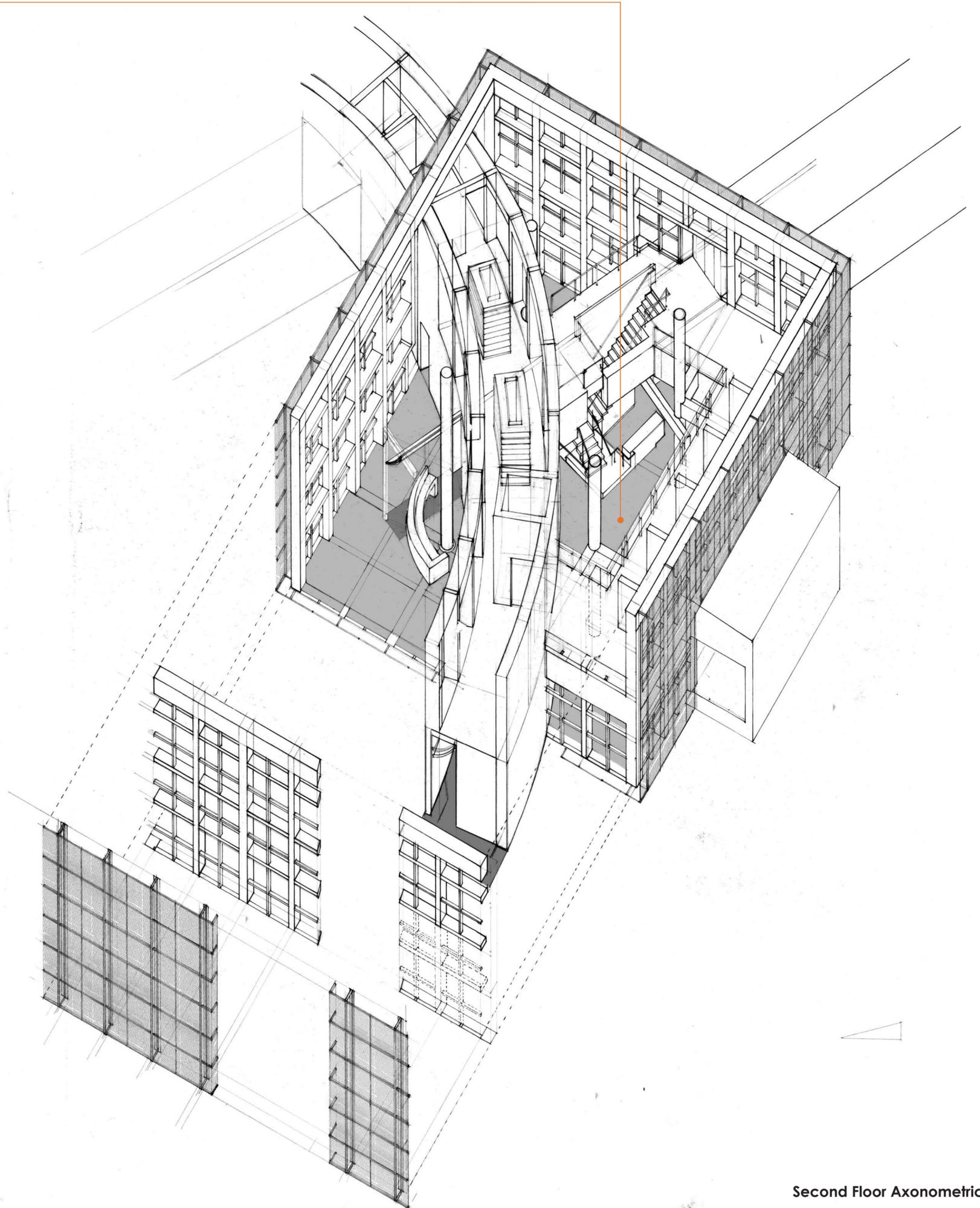
11'-0" A.F.F.



SPATIAL COMPLEXITY

There is a certain undeniable complexity that exists within the formal synthesis of this composition. For example, the cube is sliced by a double circular wall; additionally, both the cube and the double wall are penetrated by a rectilinear connecting element. These individual elements are structured within themselves, both physically and formally. Each component contains programmatic elements specific to themselves. Each has characteristics that are unique. However, each of these parts also serve to connect and unify the assembly; each part contains vital elements without which the whole would be merely a fragment that can not function. Therefore the assemblage of these fragments results in a complexity that is uniquely created from the characteristics of each part as it is forced into a composition seeking some form of dynamic equilibrium. The characteristic of the whole then, is derived from the articulation of the pieces as they relate to themselves as well as to the whole. The cube, for example, cannot be experienced in its entirety on the interior; rather the cube is identified only as it relates to the elements that exist within it.

The space where the complexity of these intersecting elements is most evident, indicated to the right, programmatically serves as the treatment area. In this arrangement, the program and the form interlock. For example, the most dynamic and chaotic programmatic element, the treatment space, occupies the most dynamic space formally. All spaces that require quiet and repose, such as surgery and exam, are separated from this chaos to a degree that depends on its function. For example, the surgery space which requires extreme concentration, is several times removed from the treatment area and, in fact, exists within the framework of the cube but in isolation outside of the primary volume.

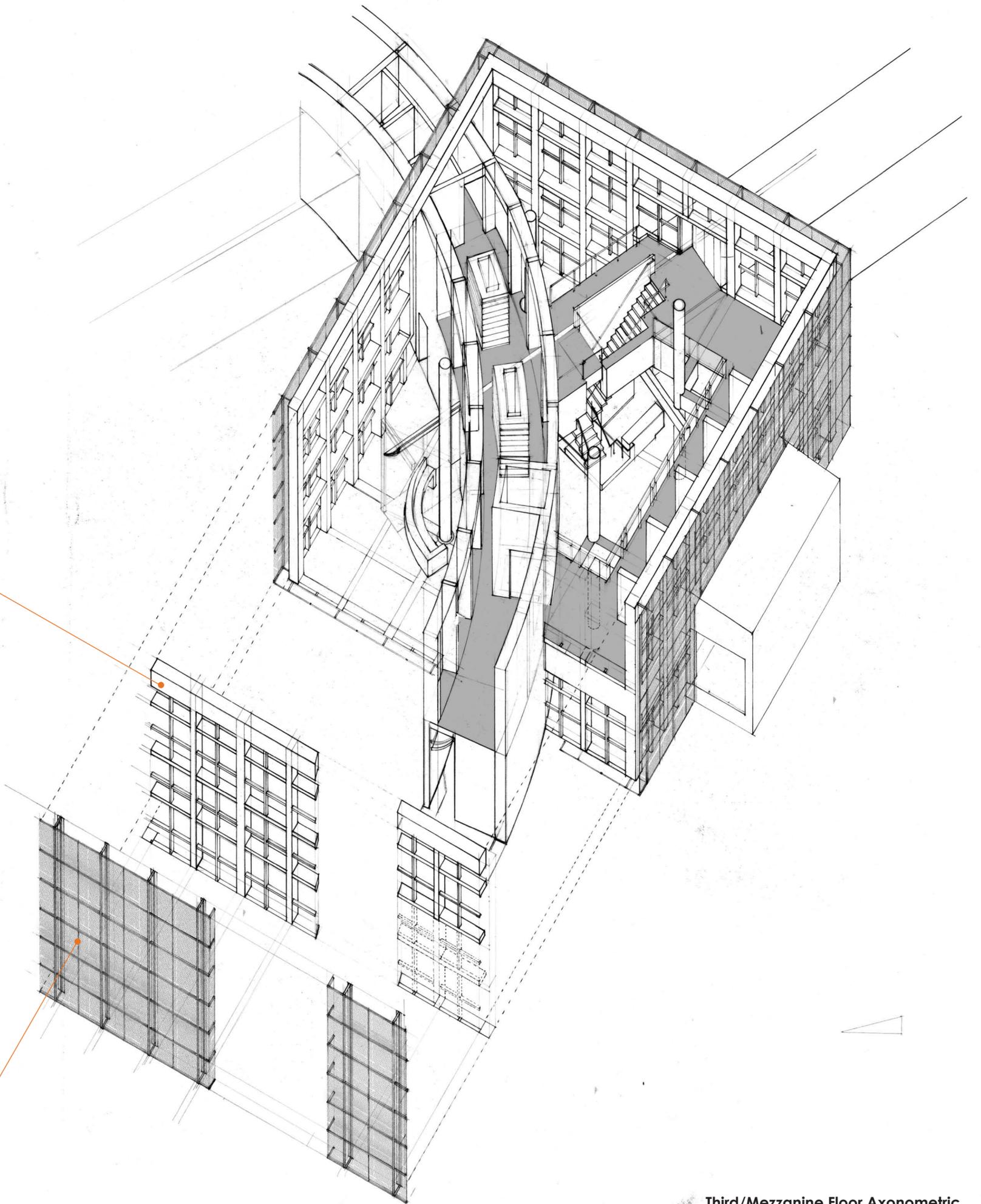


THE FRAME AND THE MASK

In order for the multiple elements to interact within the cube, they must first penetrate two layers of the cube which are the exterior frame and the mask. Both the frame and the mask are formally and physically associated with the cube. However, their purpose relates to a bigger idea concerned with the overall composition. This idea deals with the cube as an autonomous entity, but more importantly, it deals with the cube's compositional role to accommodate insertions while maintaining an intelligible image.

In order to deal with the formal and constructive issues associated with the intersecting elements, redundancy was built into the exterior frame of the cube. Constructively, the redundancy better facilitates the insertion of the circular walls and the rectilinear elements. The additional framing also corresponds to and provides support for the mask.

The idea of the mask is two-fold. Initially and primarily, the mask is a formal attempt to retain the cube's image while allowing the structure behind to accommodate the insertions, the program, and the human dimension. Secondly, the mask was envisioned as a container to screen and conceal the internal complexity while presenting a formal sense of orderliness and stability.



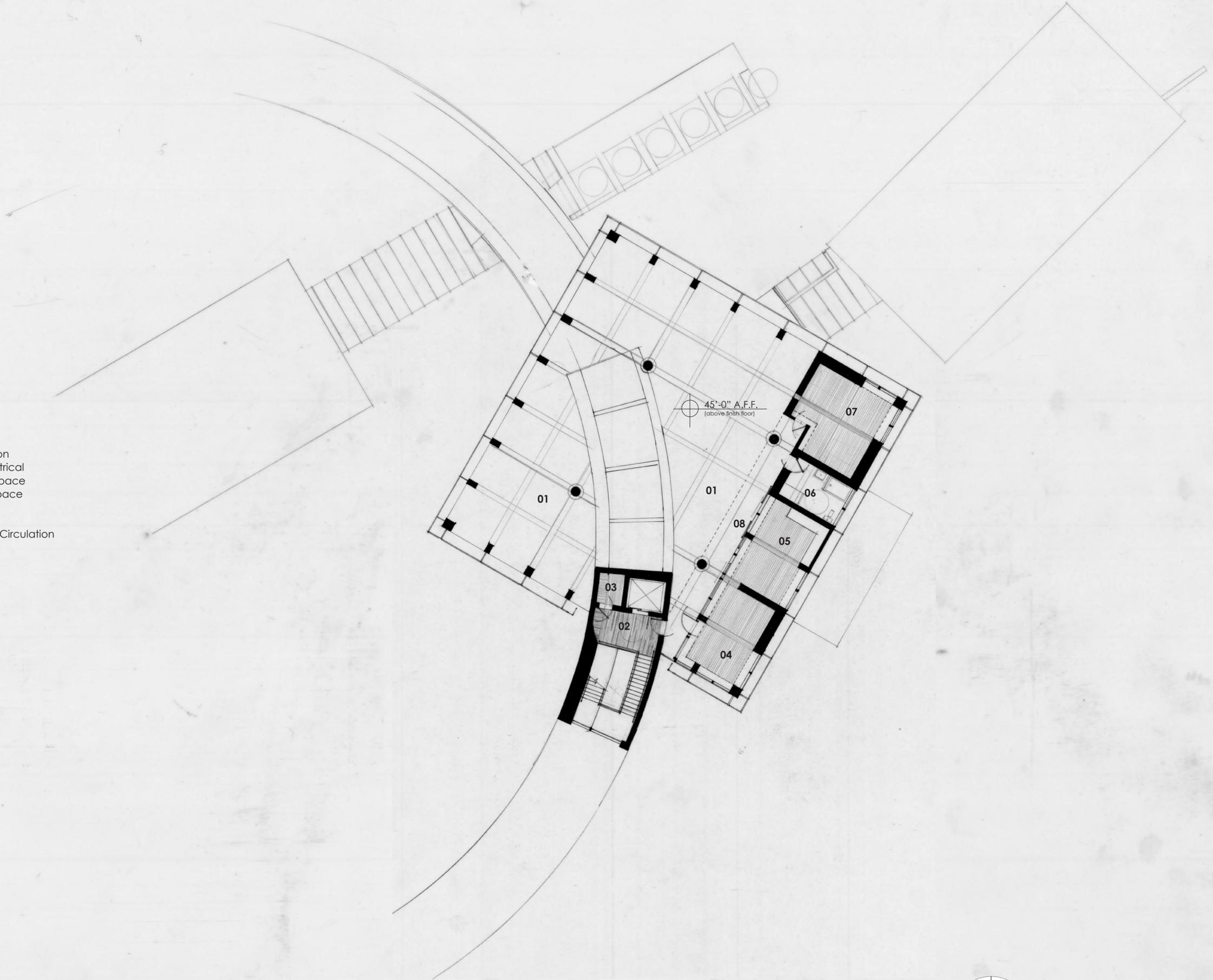
BUILDING KEY

- 01 Reference Library
- 02 Vertical Circulation
- 03 Breakroom
- 04 Toilet
- 05 Offices
- 06 Meeting Space



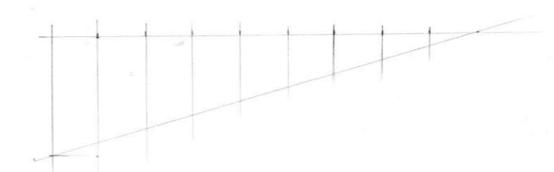
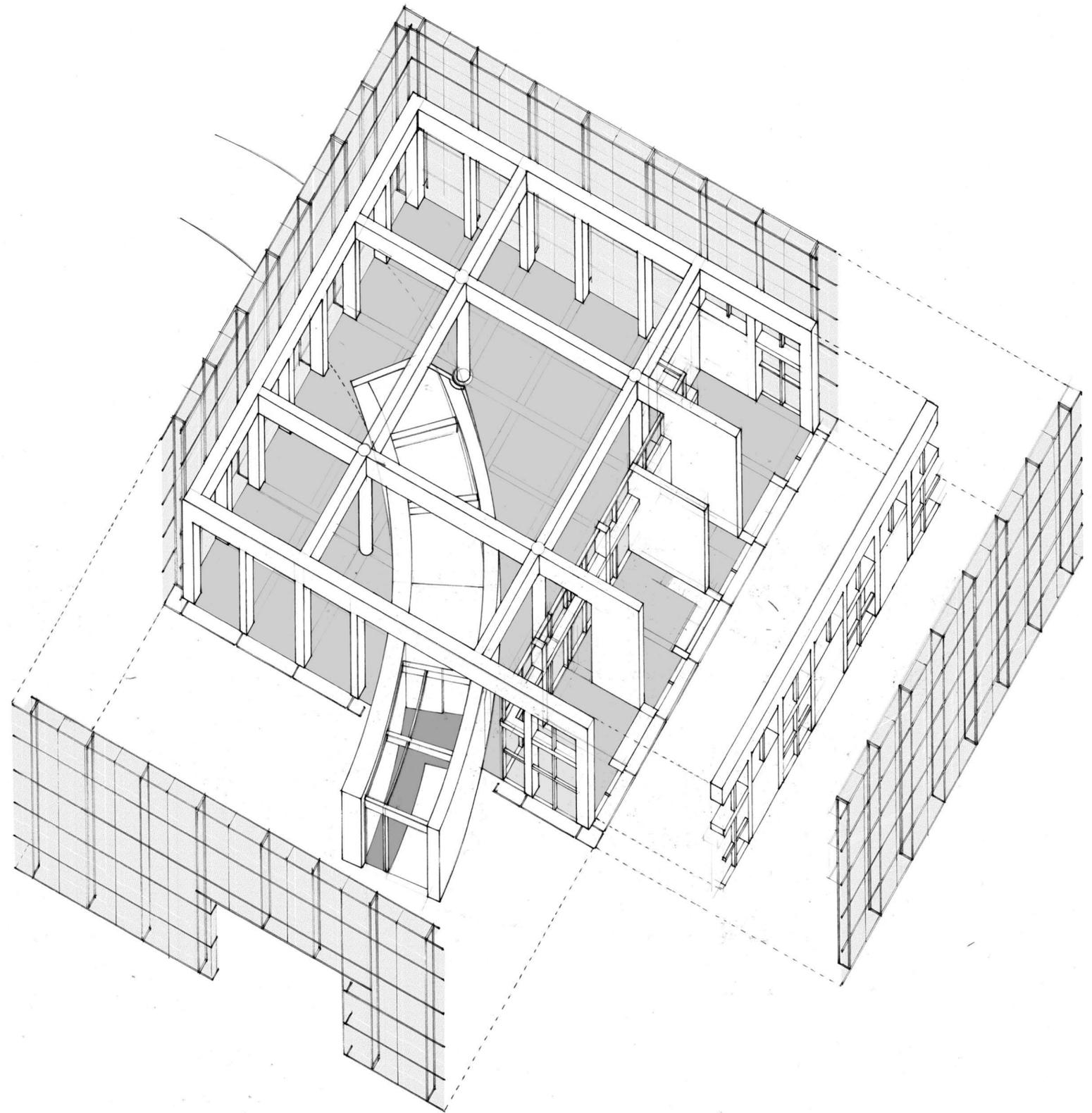
BUILDING KEY

- 01 Roof Terrace
- 02 Vertical Circulation
- 03 Mechanical/Electrical
- 04 Living/Multi-use Space
- 05 Kitchen/Dining Space
- 06 Toilet/Bathroom
- 07 Bedroom
- 08 Covered Exterior Circulation

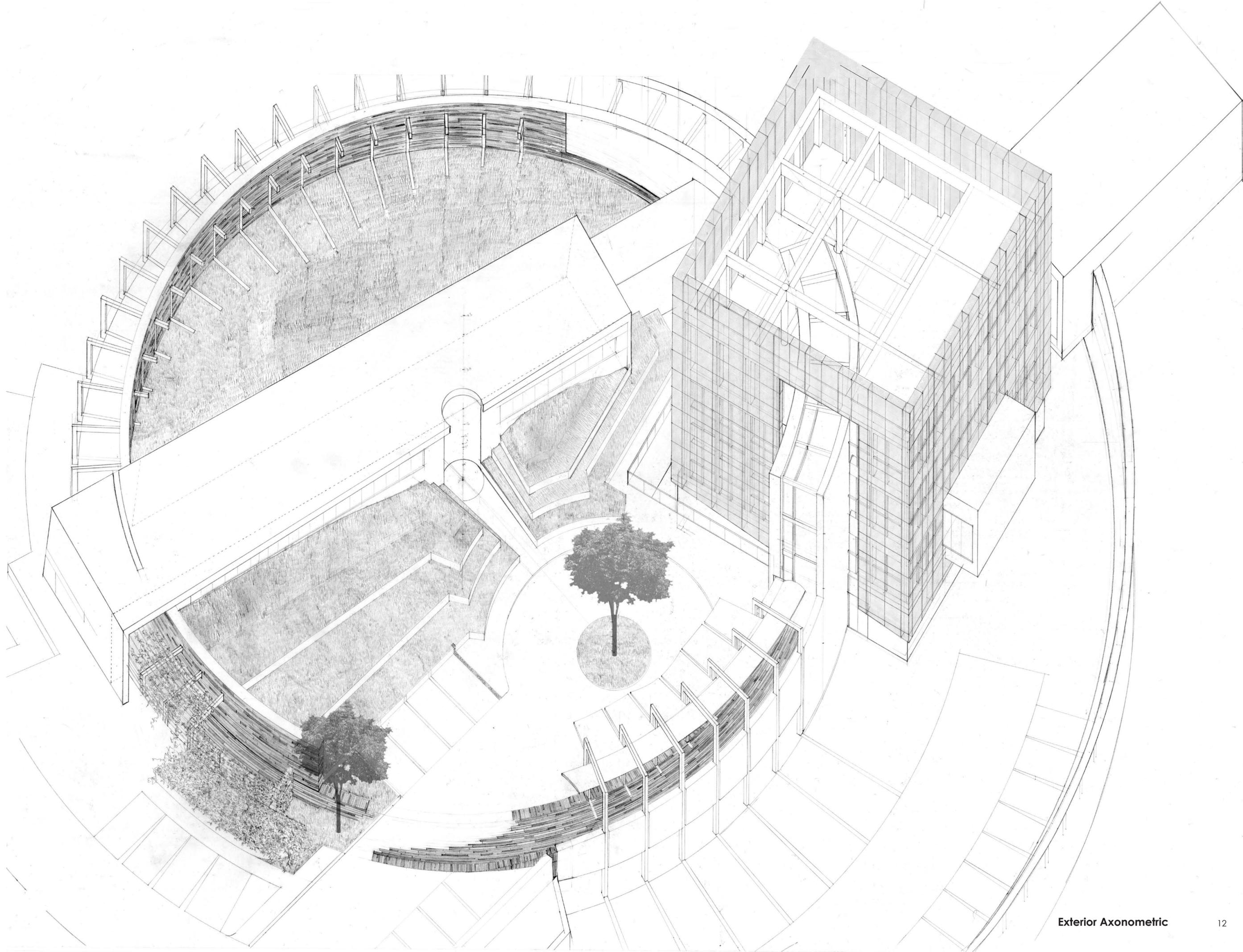


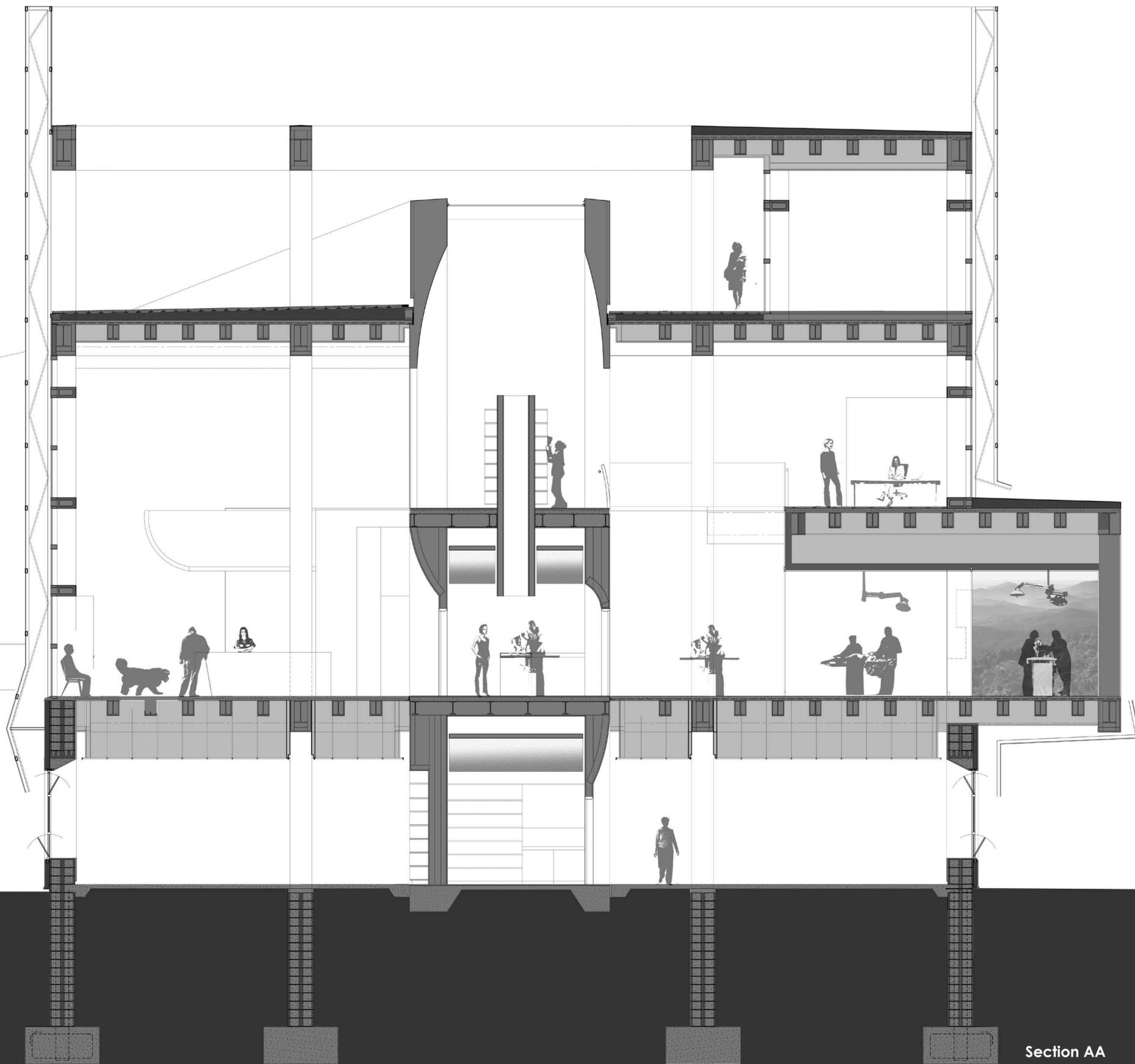
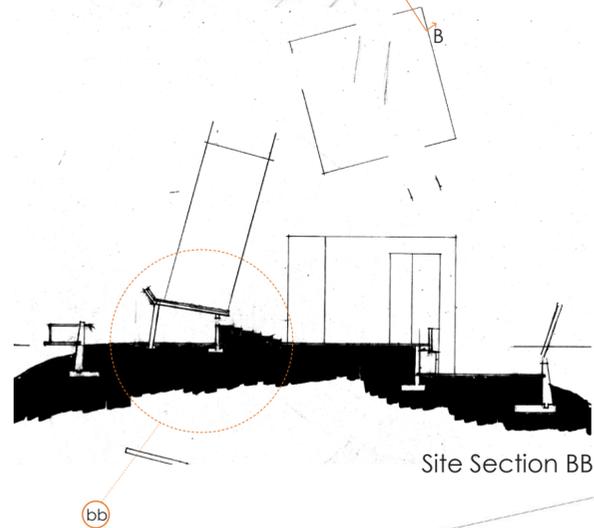
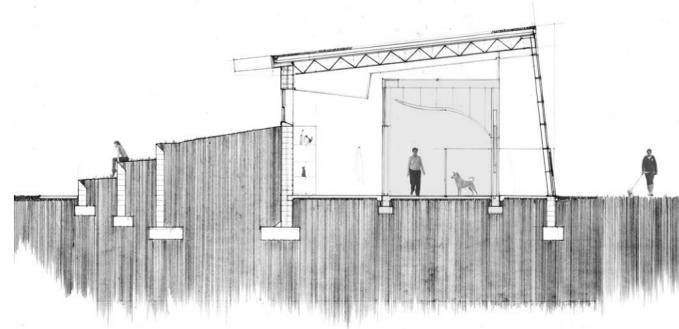
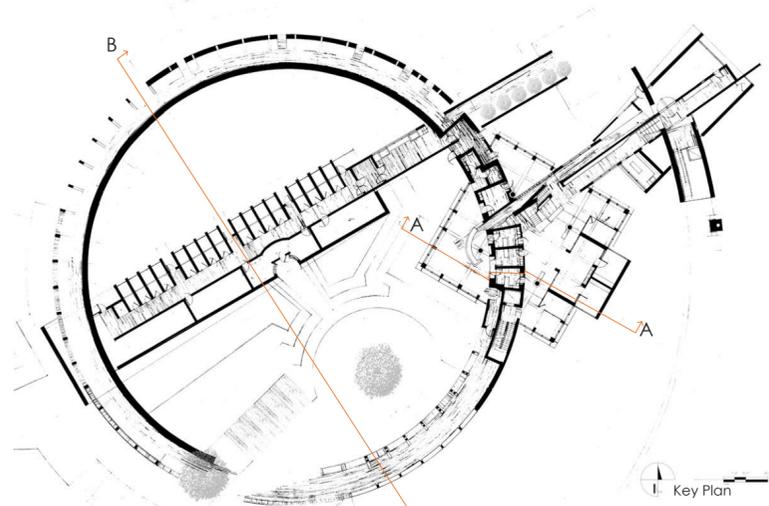
THE AUTONOMY OF THE CUBE

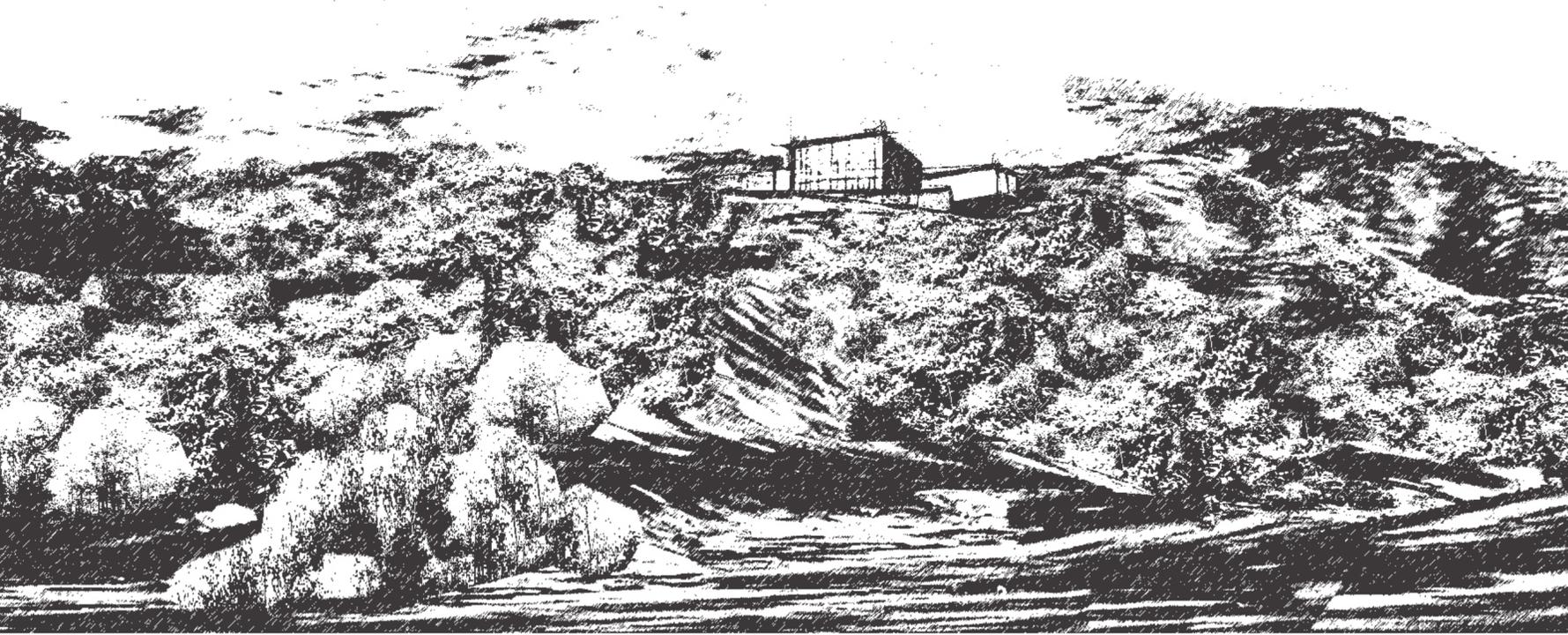
The cube is given closure on the fourth floor/roof. On this level, which consists of a small apartment and a roof terrace, the cube's frame is experienced in its entirety. At this elevation, the double wall is the only thing that intersects the cube. This double wall brings vertical circulation to the roof as well as provides natural light to the treatment area below. However, the double wall does not penetrate the full height of the cube; this allows the uppermost frame to be uninterrupted. This completion is important as an idea because it further illustrates the autonomy of the individual elements. The cube on the fourth floor, as one looks to the sky, is allowed a moment of autonomy, free from all intersecting/interlocking elements.



Fourth Floor/Roof Axonometric



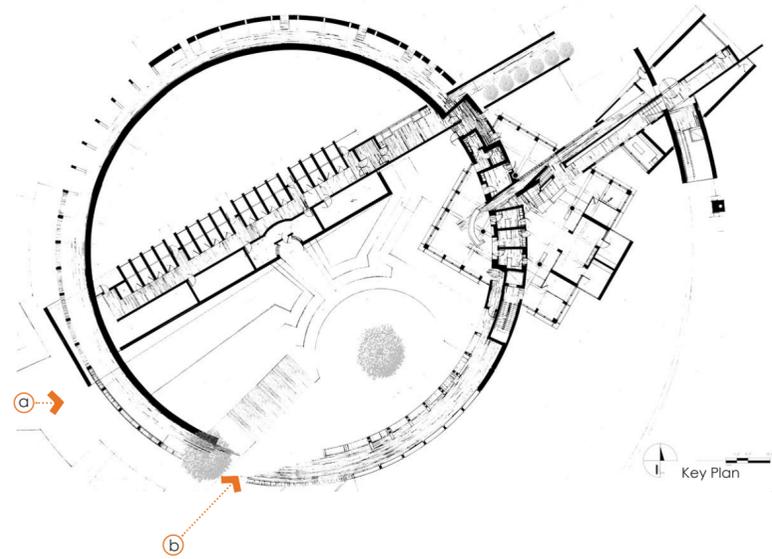




Part II

The Building Proposal a pictorial description





Key Plan

This early sketch explores the patient approach sequence.

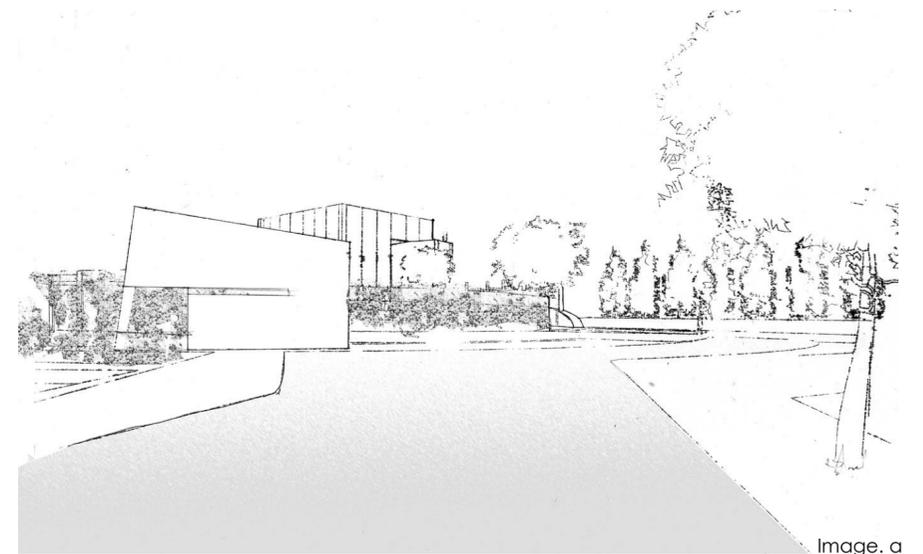
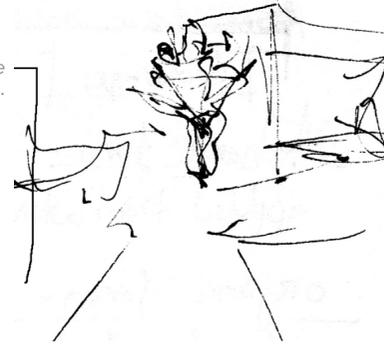


Image. a

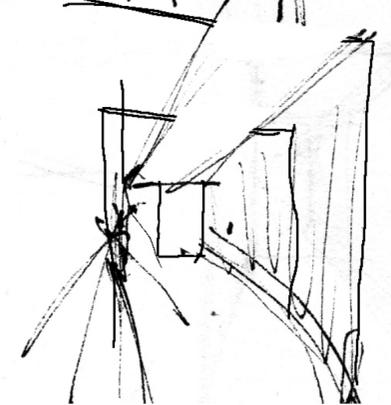
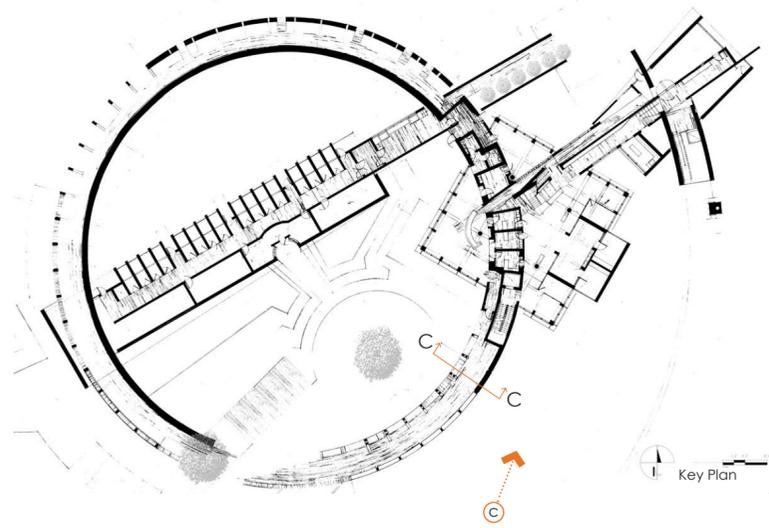
Patient Entry Sequence



This early sketch explores the spatial qualities of the entry courtyard.



Image. b



The image above is an early perspectival sketch investigating the possibilities of the entrance portico.

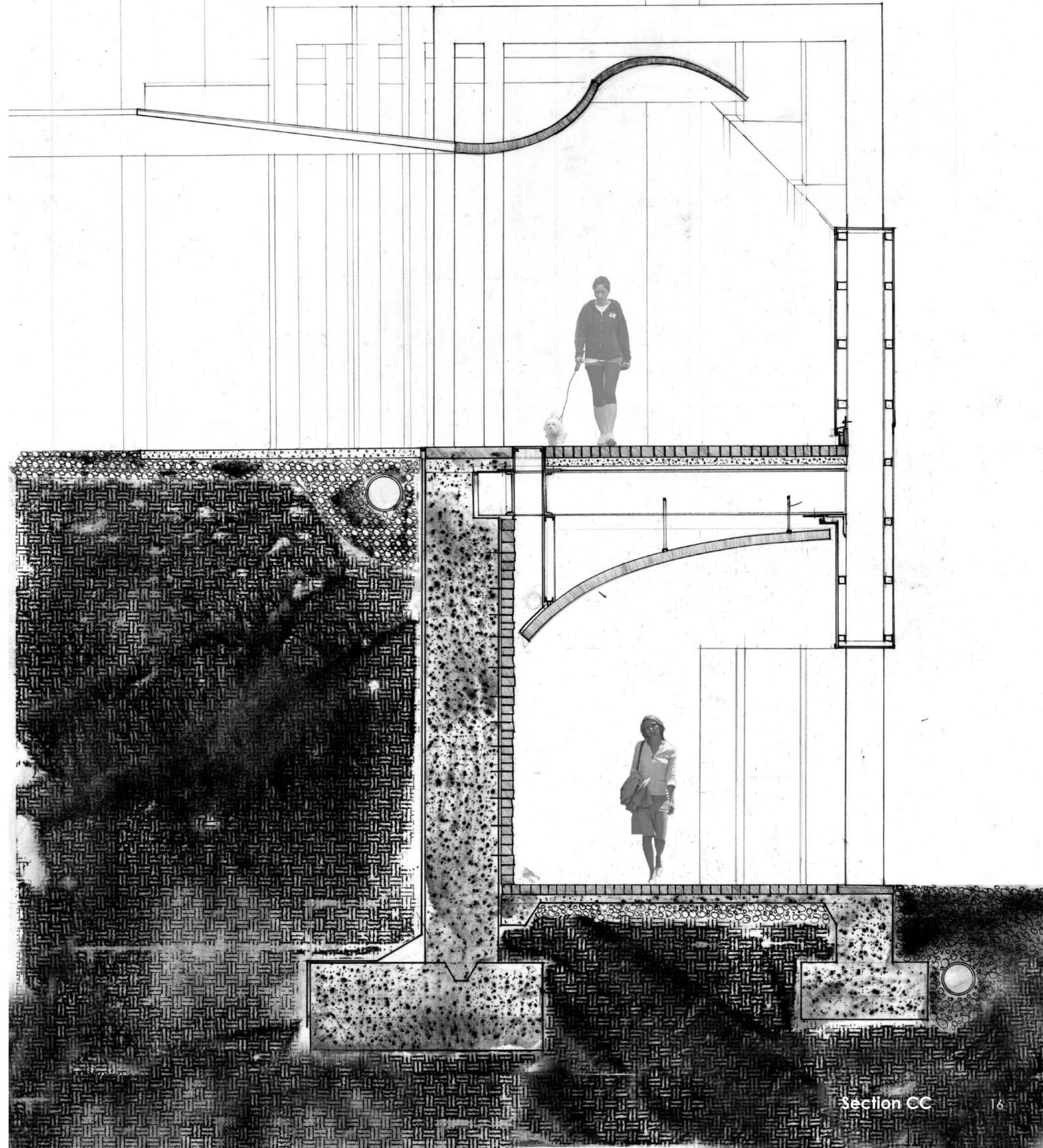


Image.c

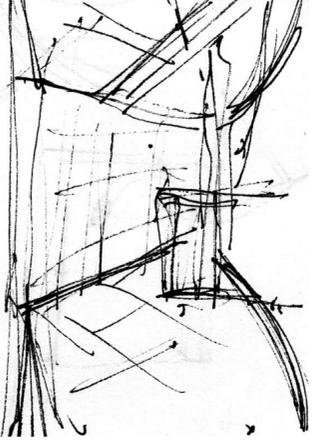
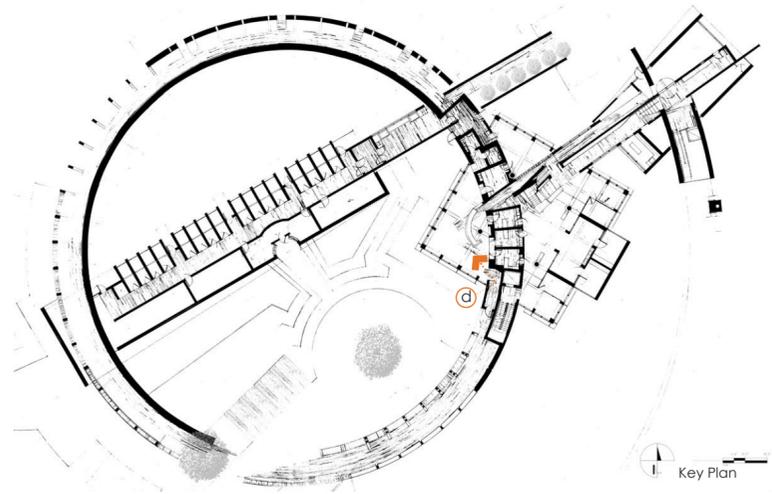
THE ENTRANCE

With such a complex assembly of parts, none of which present a clear front or back, the idea of how one enters becomes very important. As complex as it may seem, there is an effort to make this sequence straightforward. The initial approach is dealt with through the paths of vehicular circulation. As illustrated on the previous page, once the approaching car enters the outer circle, it is redirected along the circular wall and then turned again to face the primary entrance into the cube. The car may either park and the patient may walk to the entrance, or the car may drive through the inner circle into the drop-off/turnaround area. All entrance into and exit from the cube, as well as vertical circulation, is facilitated within the connecting elements and circular walls that penetrate the cube. As such, the entrance is created as the circular double wall penetrates the side of the cube facing the parking area. As the double wall exits the cube, its framing reveals itself and creates an open-air, covered walk through which one enters. In addition to the formal act of reaching out to provide shelter for the approaching patients, the floor material between the circular walls also extend into the parking area in an inviting gesture.

The section to the right illustrates that the entrance for the patients and the entrance for the staff occupy the same space one over the other. The entrance into the hospital for staff and doctors occurs on the lowest level and penetrates the cube in a similar manner.



Section CC



The image above is an early perspective study of the entrance lobby.

LOBBY/WAITING

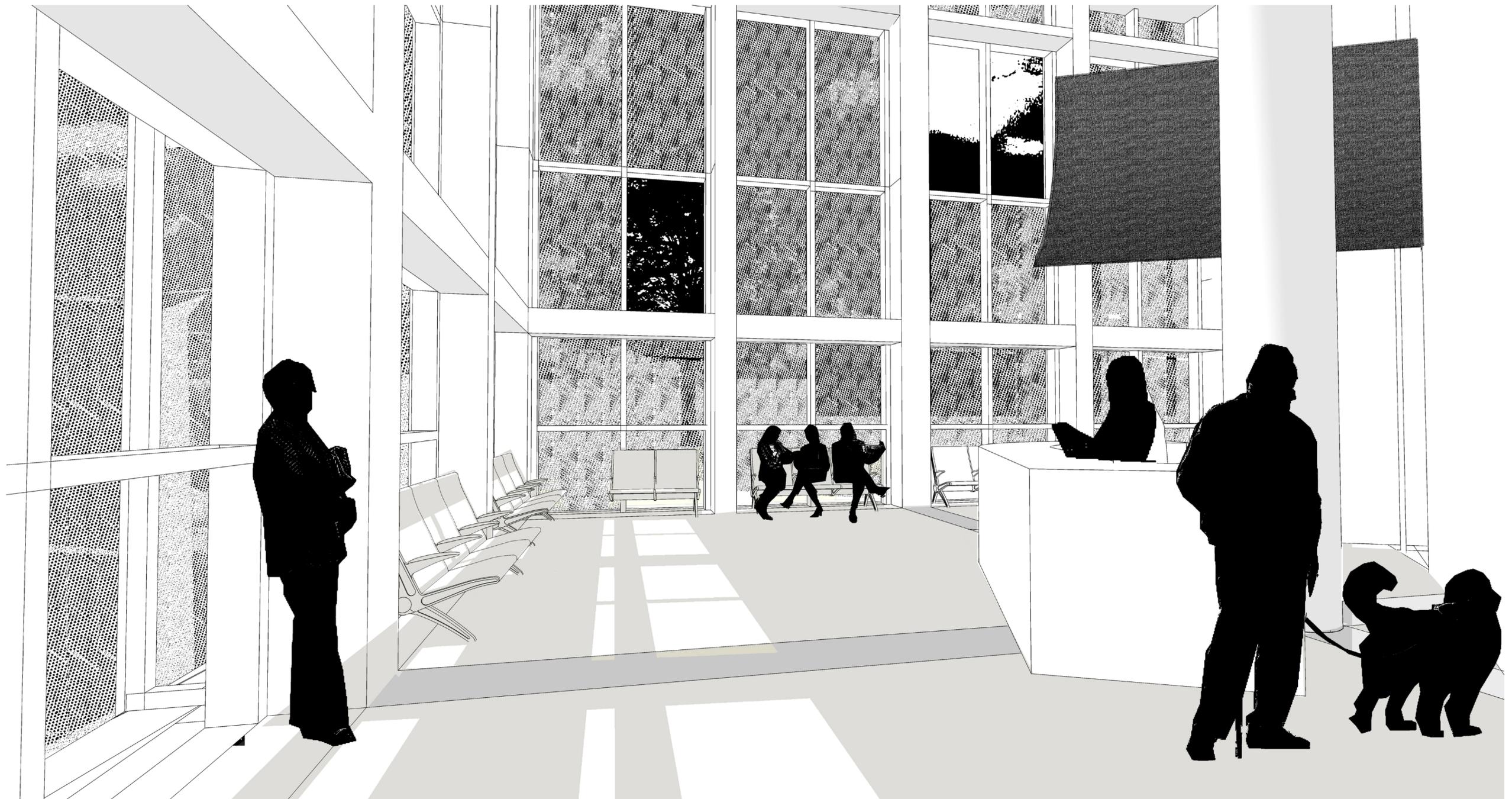
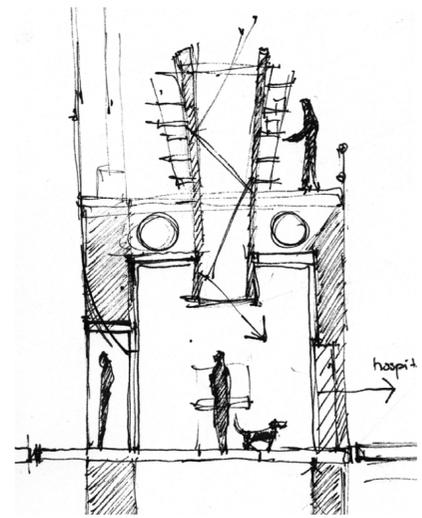
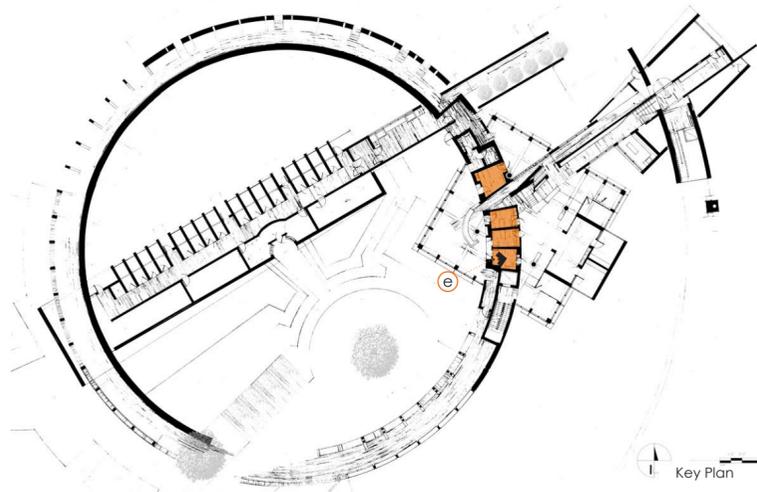
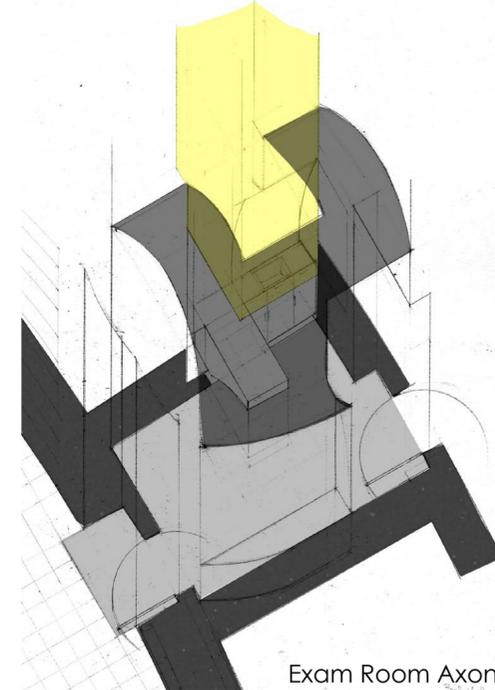


Image. d



Exam Room Sketch



Exam Room Axon

THE EXAM ROOM

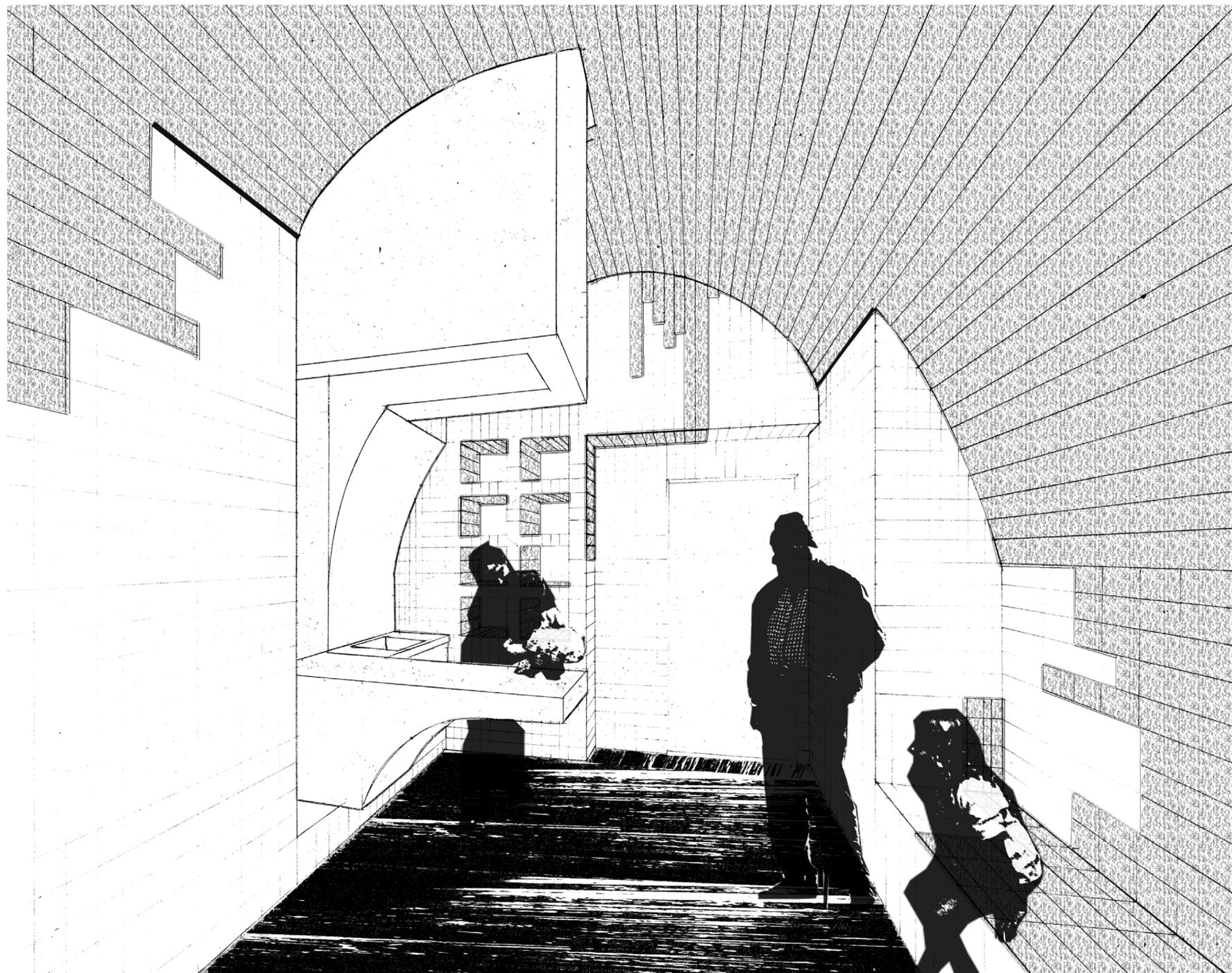
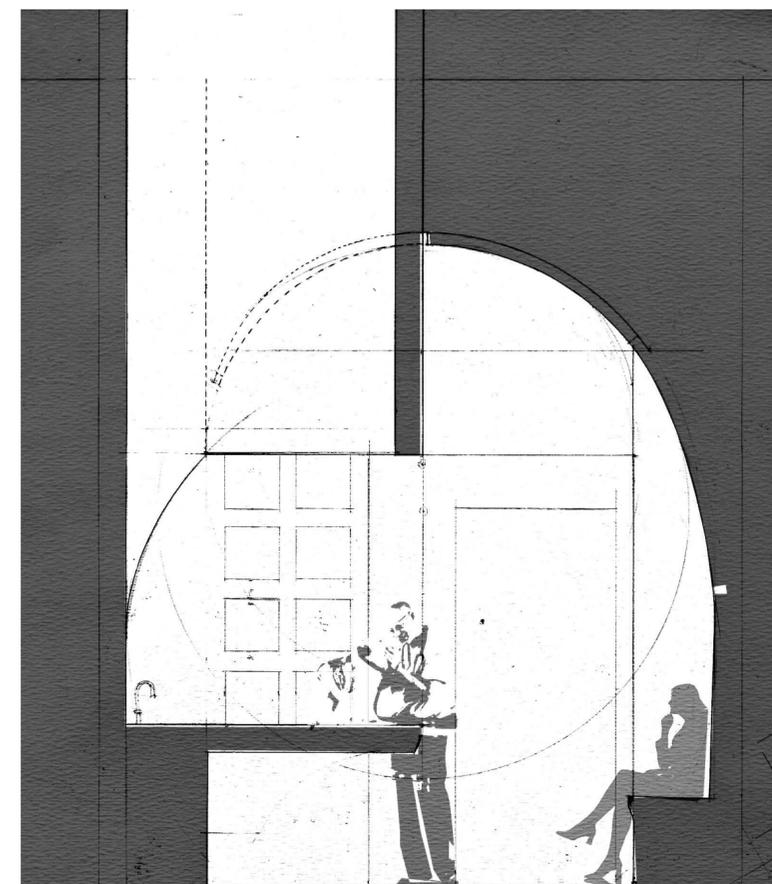


Image. e

There are four exam rooms, each of which exist within the boundaries of the cube, but inside the space between the double circular walls. As such, the exam rooms are to some degree isolated from the cube. In general, within the cube there is an effort to homogenize the environment by making all of the materials the same. Therefore, spatial differentiation is derived from the formal juxtaposition of the interacting elements. The exceptions to this rule are the floor materials and the ceiling materials. For example, the exam rooms are distinguishable from the surrounding areas primarily by their form and secondarily by the differentiated ceilings and floors.

The ceilings within the connecting element are rounded or arched; this is in stark contrast to the very rigid, rectilinear nature of the cube. This contrast is intended to provide a calming and inviting quality within these high-stress spaces. Another spatial and formal idea that is evident in the exam room deals with hierarchy and orientation. When an owner and patient are inside an exam room, there is no effort to orient them within the larger composition. This space exists for a very particular purpose which is entirely contained within itself in a non-referential manner. The exam room is the primary interface in which the paths of doctors and patients overlap. The exam room is also the point beyond which most patients do not move. Only if euthanasia or some other professional service is required do patients move further into the building.



Exam Room Section

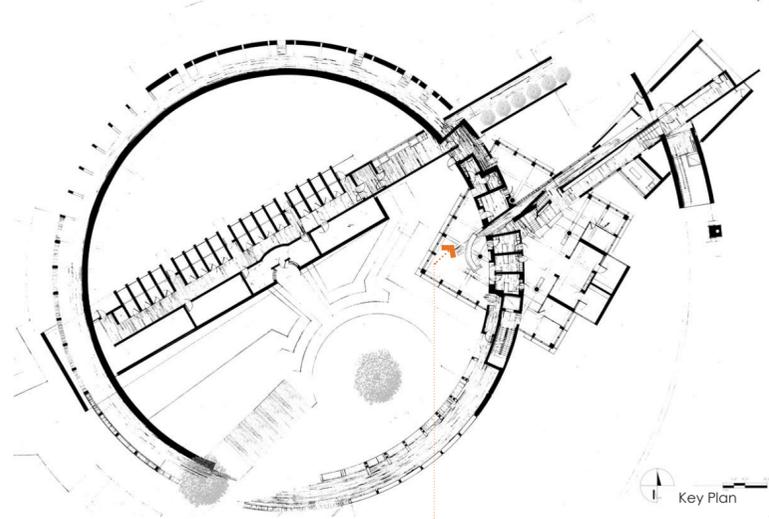
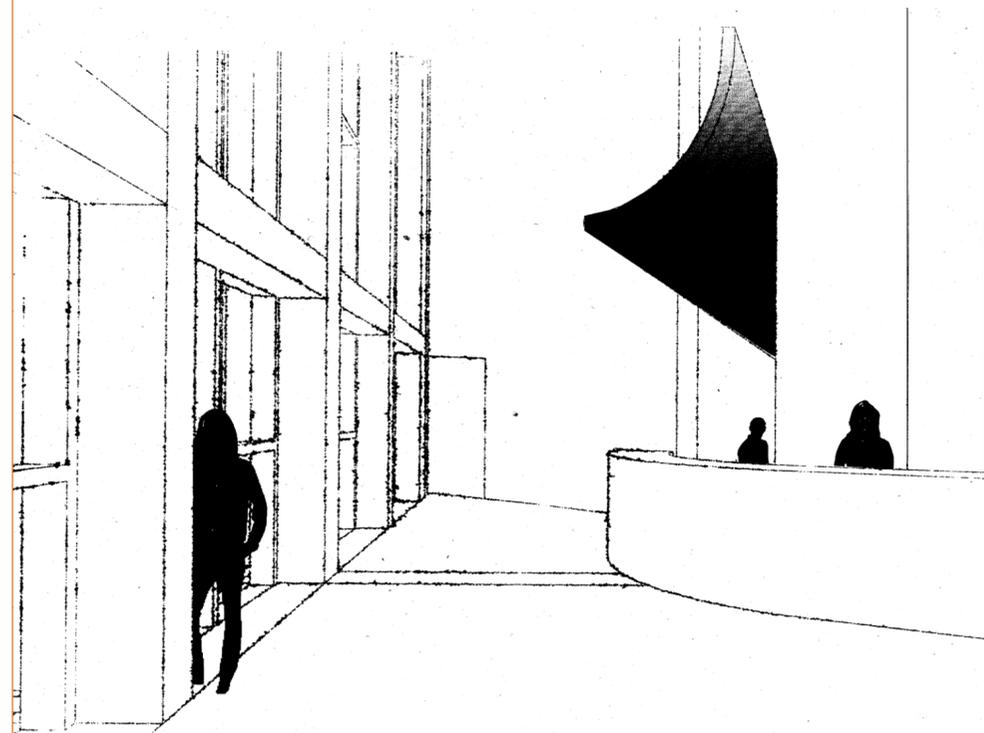


Image. f

THE SEQUENCE OF EUTHANASIA

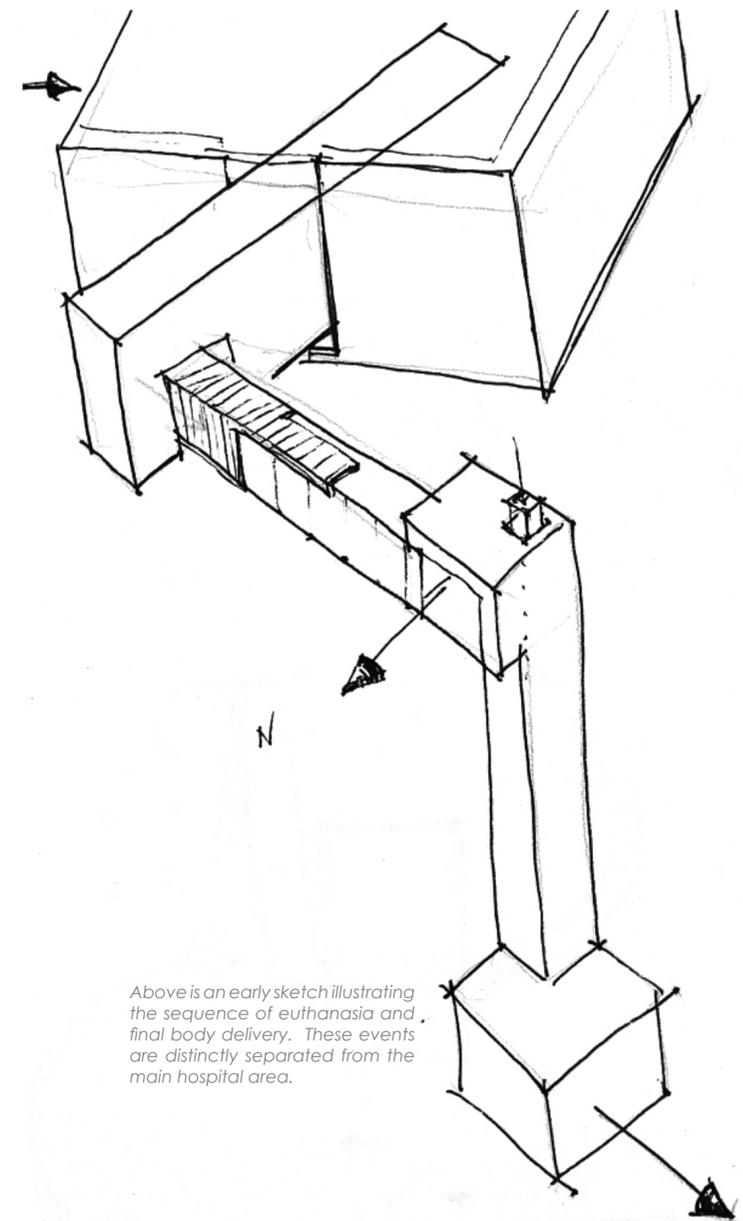


Euthanasia: Greek root
 "eu" – good
 "thanatos" – death
 "good death"

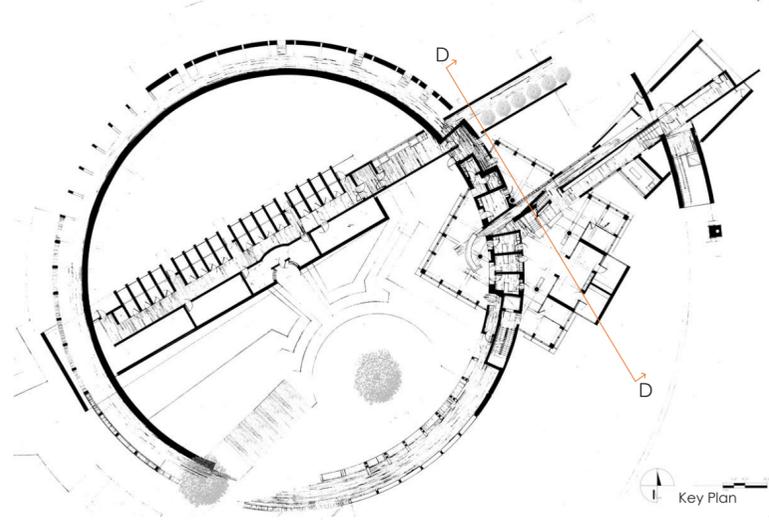
THOUGHTS ON EUTHANASIA

Only individuals who must accompany their animal companions to the end of their physical relationship encounter this complex and extensive spatial sequence. This sad and inevitable process tests the limits of our compassion and humanity and therefore is deserving of an elevated level of importance. As such, the space where the human-animal bond is broken does not belong inside of the cube with the rest of the hospital functions. Rather, this space and its supporting areas are separated from the inner workings of the clinic and terminate in an appendage overlooking a serene mountain view. Providing a separate space for euthanasia creates the need for a passage or path to connect the main public areas of the hospital and exam rooms with this euthanasia space. The euthanasia space also requires a separate exit directly to the parking area so that the grieving owners need not retrace their steps through the clinic.

When euthanasia is required, an owner with his/her pet enter through the opening under the projecting ceiling, as shown to the left, to begin passage through the clinic toward their final destination.



Above is an early sketch illustrating the sequence of euthanasia and final body delivery. These events are distinctly separated from the main hospital area.

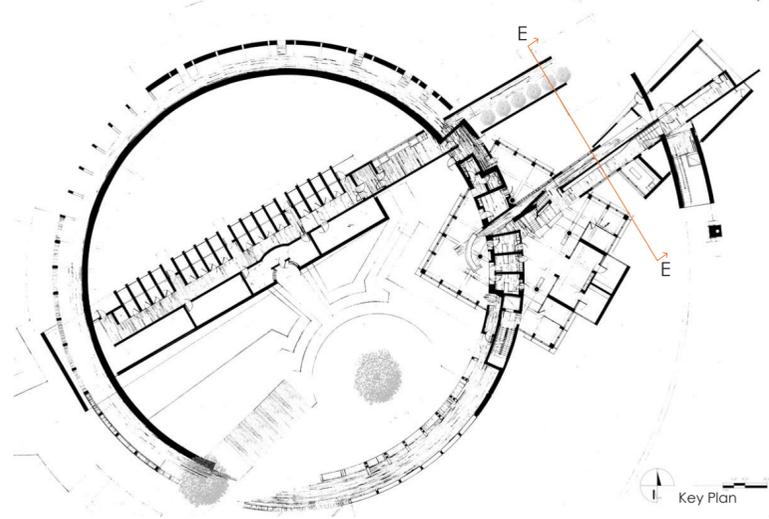


THOUGHTS ON EUTHANASIA: the path

The path is conceived as a passage with enough length to properly transition the owner with his/her pet from the waiting room or exam room to the euthanasia space. The connecting element- which within the cube is differentiated primarily by form, a change in floor material, and a curvilinear ceiling- is the vessel through which this progression takes place.

This image illustrates the beginning of the path; at the point illustrated, the connecting element exists within the cube. In addition to the relationship of the euthanasia path to the cube, this section also illustrates the relationship of the euthanasia entry path to the euthanasia exit path.



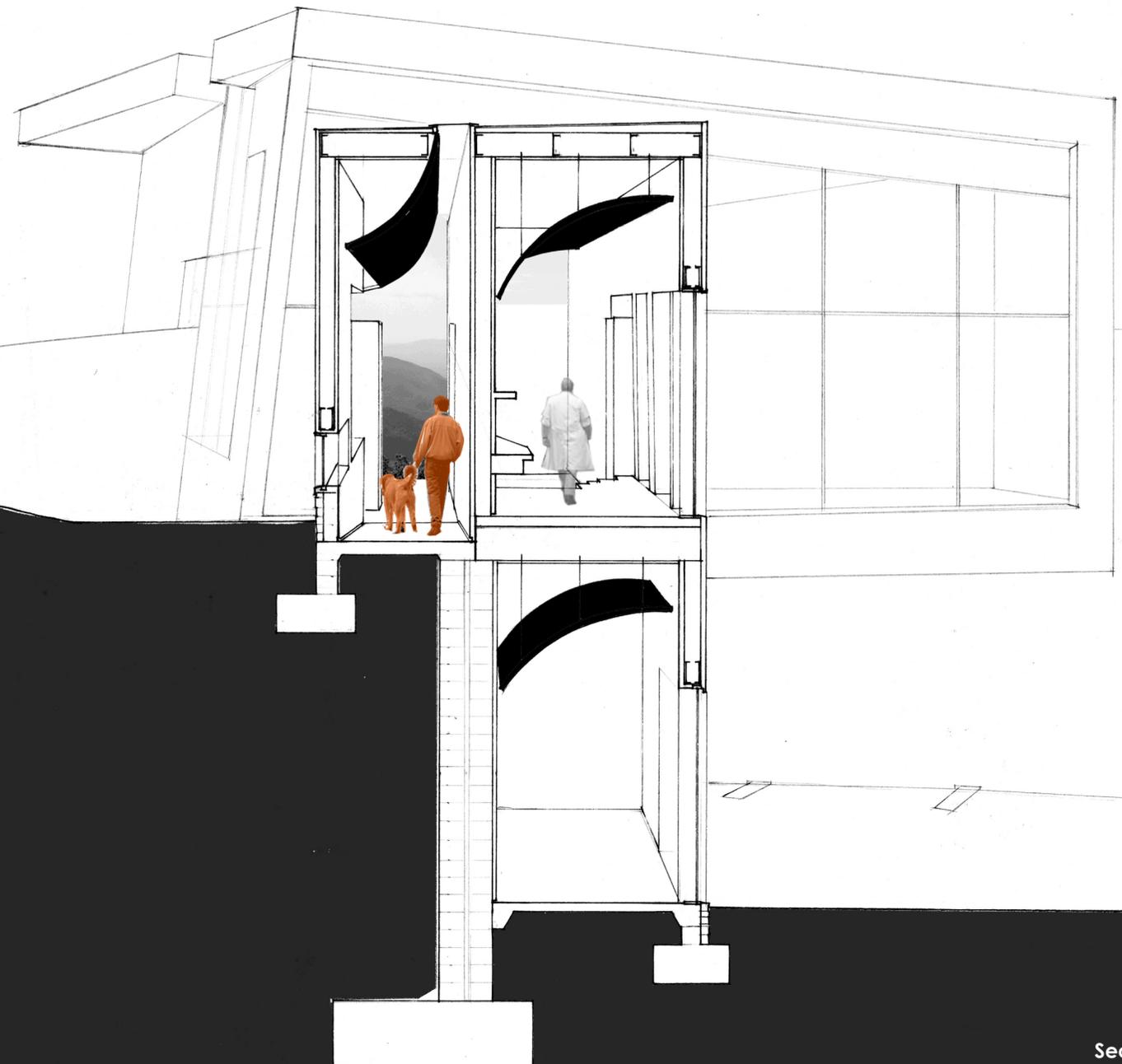
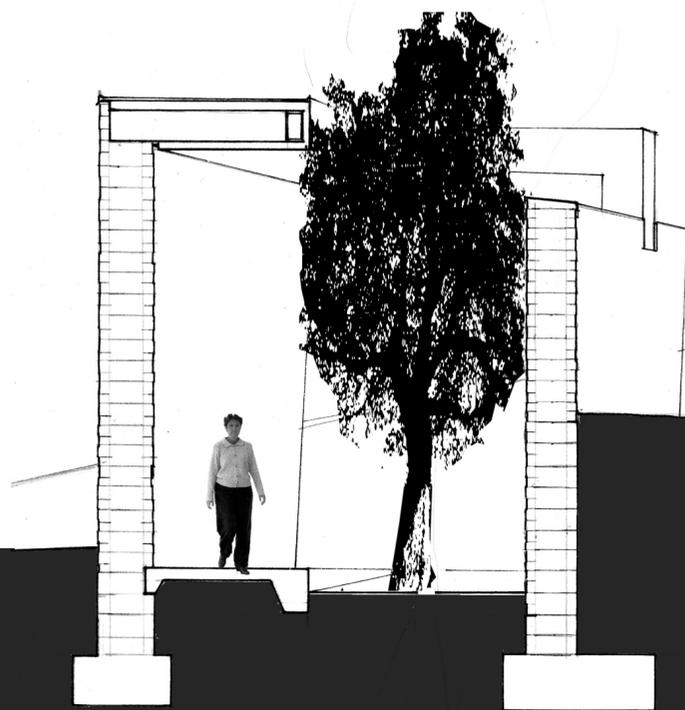


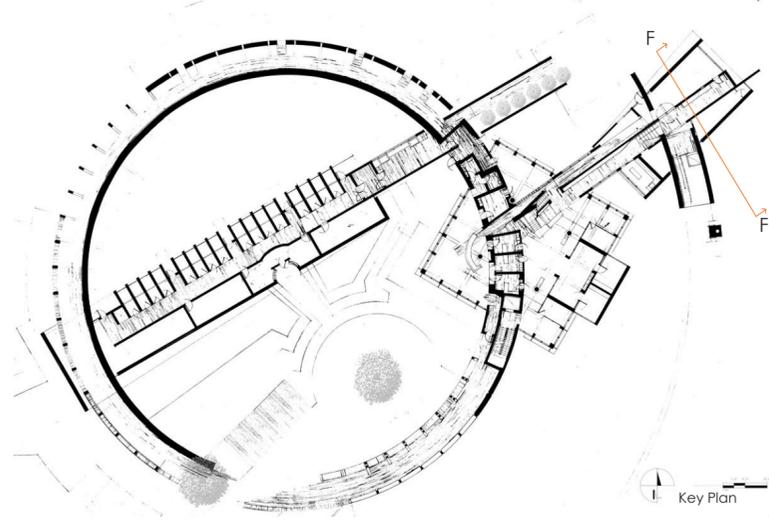
Above is an early sketch exploring the possibilities of entry to and exit from the euthanasia space. Some of the ideas present in the drawing below can be traced to this image.

THOUGHTS ON EUTHANASIA: the path

As one continues along the path, the connecting element moves the patient from the dynamic environment of the cube with all of its interactions to a quieter environment defined entirely by the connecting element and then, finally, into an isolated environment defined by the interlocking of the connecting element and the bar-shaped appendage.

The section below captures the moment of transition between the cube and the bar-shaped appendage where the connecting element within which the patient is travelling is autonomous. The transition provides natural light and the patient becomes aware that the floor gently slopes downward descending towards the euthanasia space. In this section, the parallel relationship between the euthanasia entry path and exit path is again apparent.



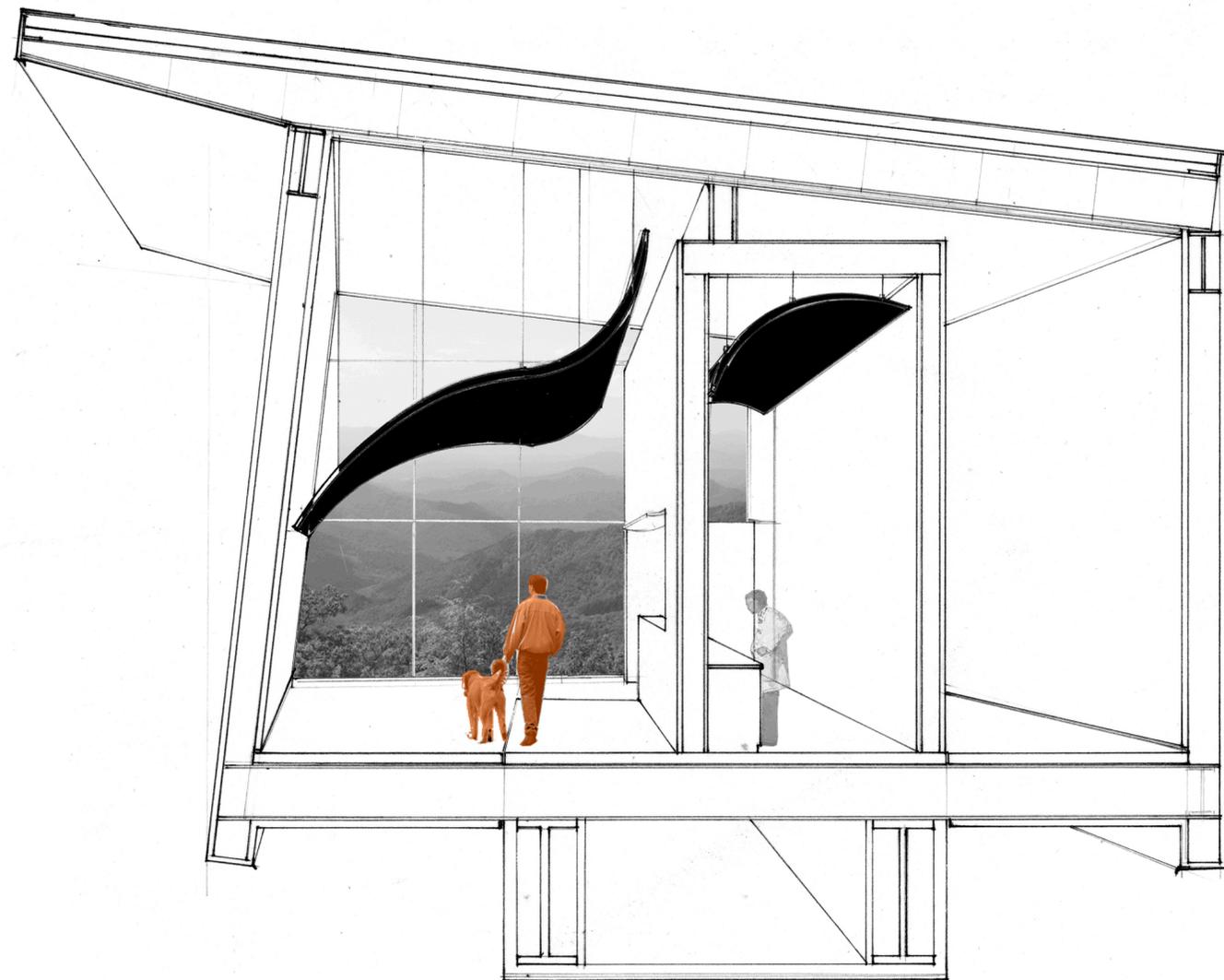


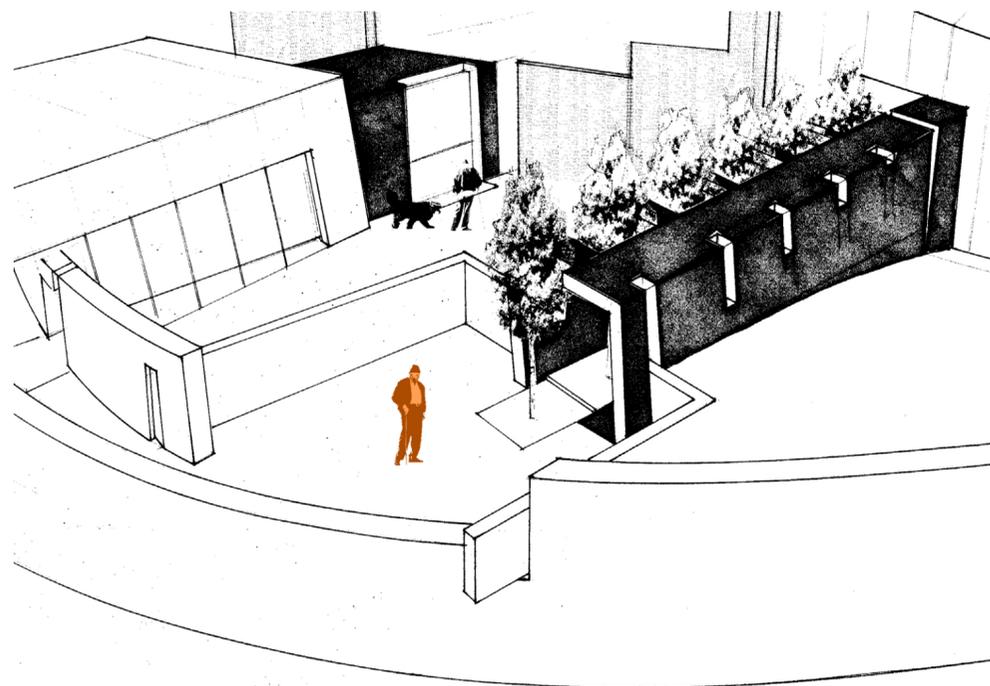
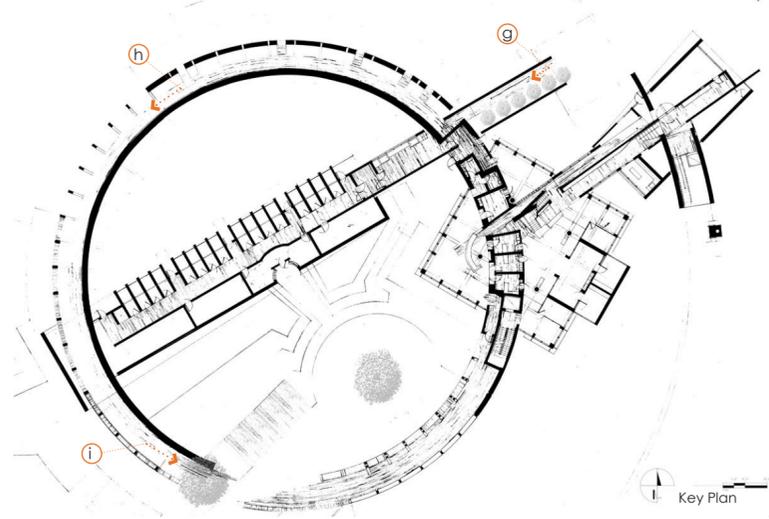
THOUGHTS ON EUTHANASIA: the termination

The space for euthanasia is a termination in more than one sense. In the architectural sense, it marks the end of a primary spatial sequence through the building—a terminus at which progression is redirected outside of the building along the outer circular wall. Biologically, this is a life-ending space and the termination of the human-animal bond that exists between an owner and his/her pet.

Once the owner and his/her pet arrive at this space, they have the opportunity to pause and properly say good-bye either inside or in the adjacent garden. Meanwhile, as you can see in this section as well as the previous section, the doctor's path to the euthanasia space originates in the treatment area within the cube and parallels the path of the owner and patient. Once the patient is ready, the doctor enters the euthanasia space and guides them through the process.

When the euthanasia is complete, the owner exits along the outer circular wall through the garden while the remains of the deceased are moved along the same wall in the opposite direction and down into the crematorium.





This axon explores the relationship between the exit passage and gardens.

THOUGHTS ON EUTHANASIA: the exit path

Once outside of the building in the garden, the owner, at their leisure, may begin the process of exiting. The garden is envisioned as a dual-purpose space. When first encountered, the garden is a space to enjoy with your pet in his/her final moments. After euthanasia, this same garden serves as a space to pause for a moment, to grieve, or to await the remains of one's pet before proceeding along the exit path. From this garden a passage leads the owner away from the euthanasia space towards the inner circular double wall (image left and top right).

The images to the right attempt to visually convey this path from entry into the exit passage through exit/reentry into the parking area. Formally, the path completes the sequence began when the owner and patient entered the building. This sequence literally leads full circle. Since the sequence of euthanasia is so complex, only when the owner exits the path does he/she realize that they are back where they began.

Experientially, the path is intended to provide the grieving owner with time and space for closure. It is not intended to heal the broken heart, no architecture can do that. It is merely an attempt to provide support for a grieving process. Early in the path there are places to pause where the owner may exit the path onto grassy overlooks. However, the further along the path an owner travels, the areas for pause begin to reduce and then vanish altogether. This serves to encourage the owner to move along with less hesitation.



Image. g

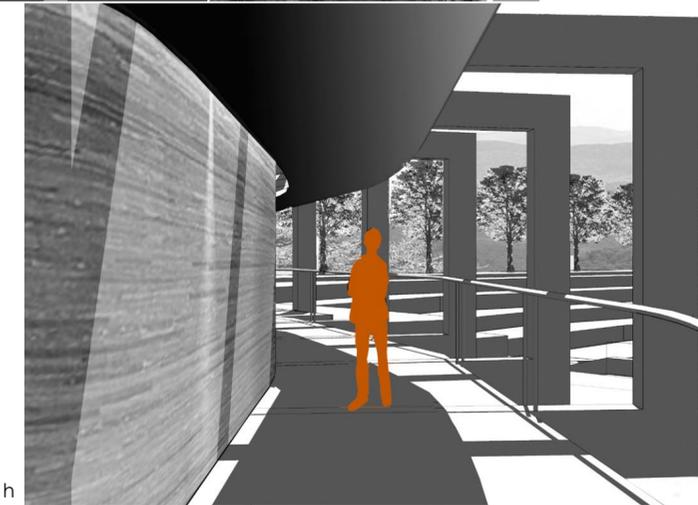


Image. h

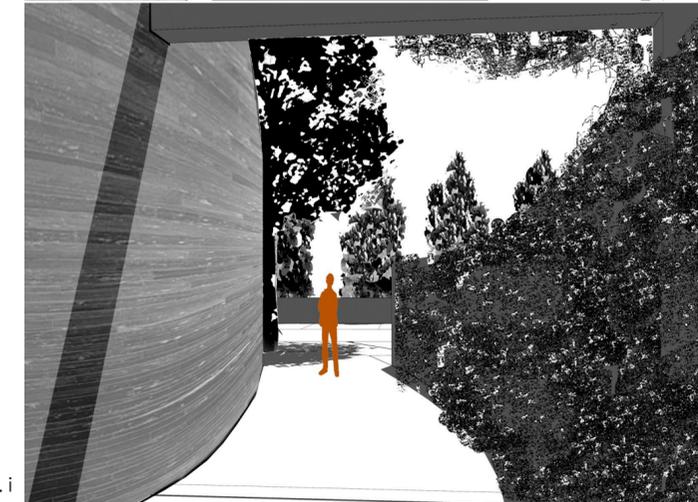


Image. i



This axon illustrates the relationship between the exit from euthanasia and the other building elements.

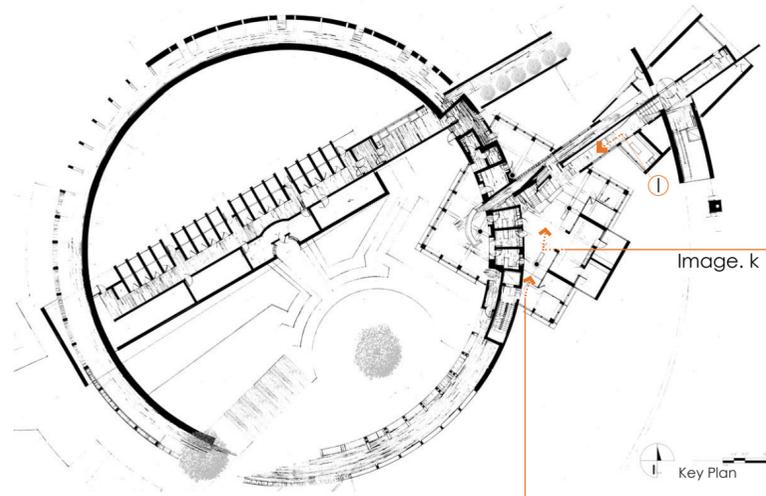
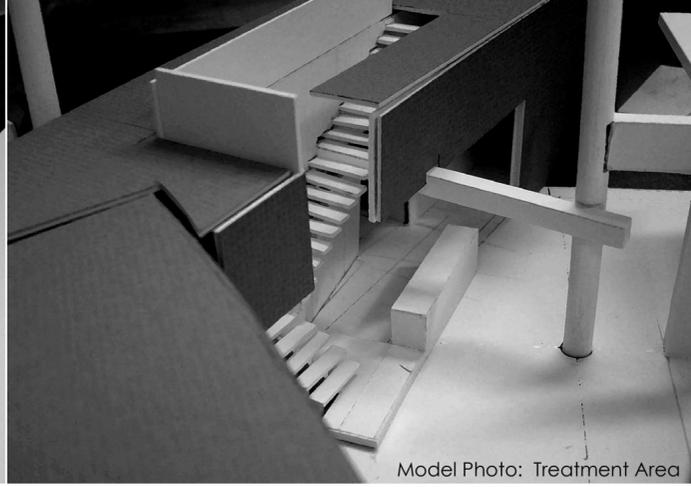
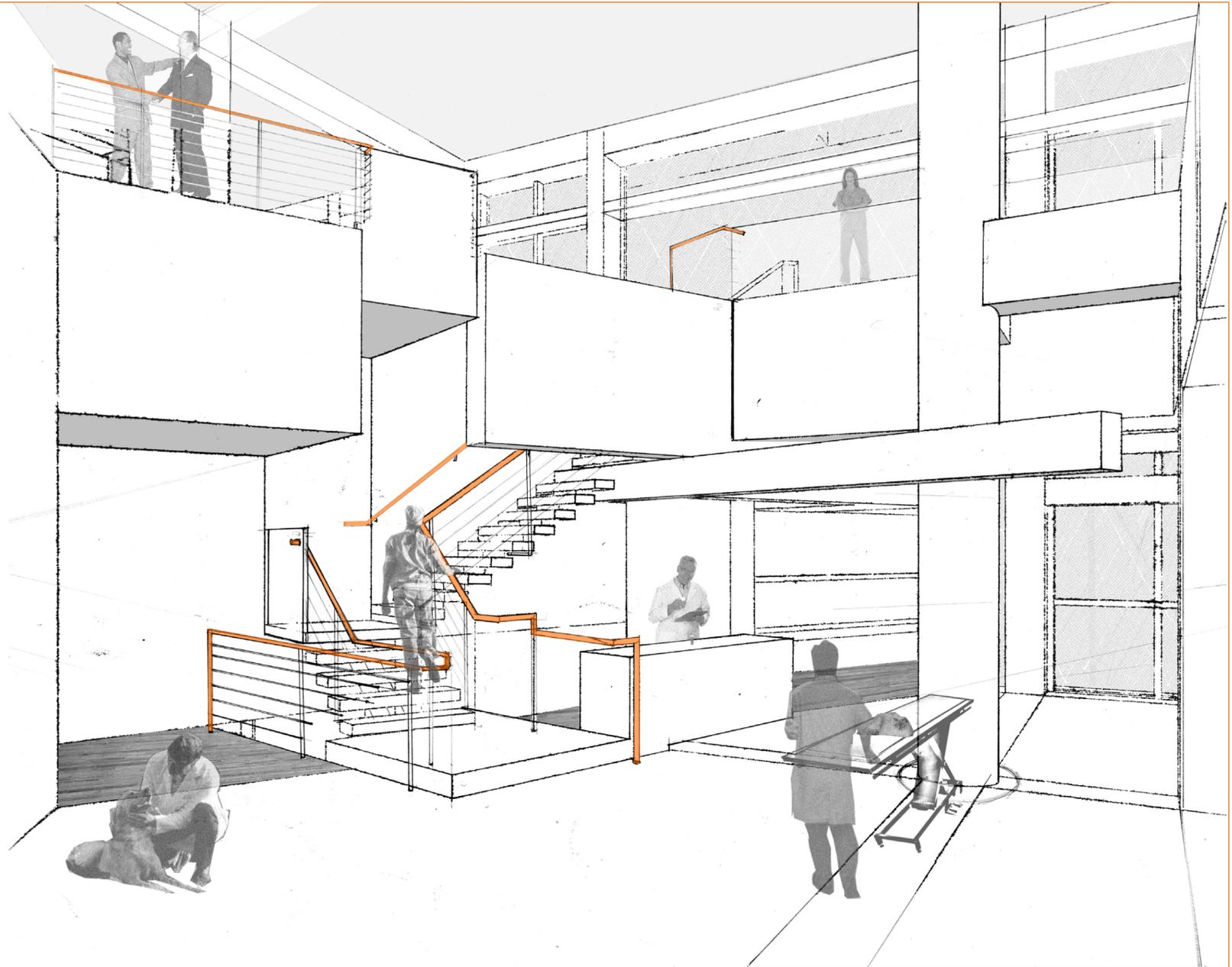
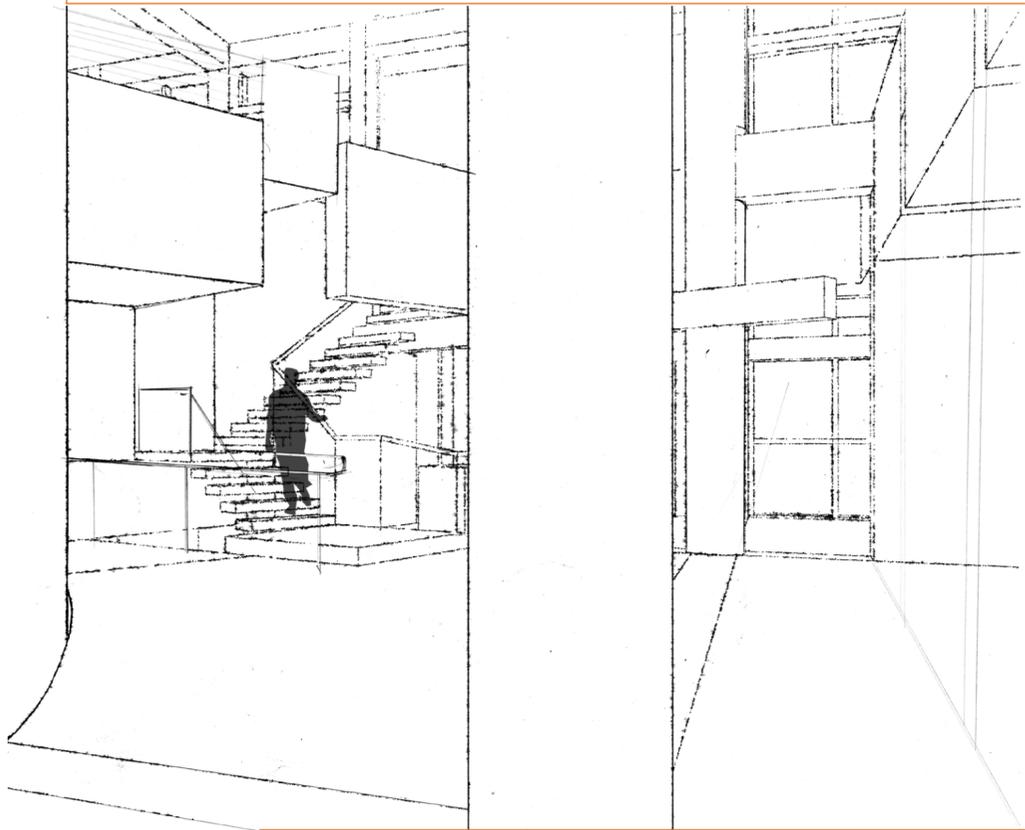


Image.j



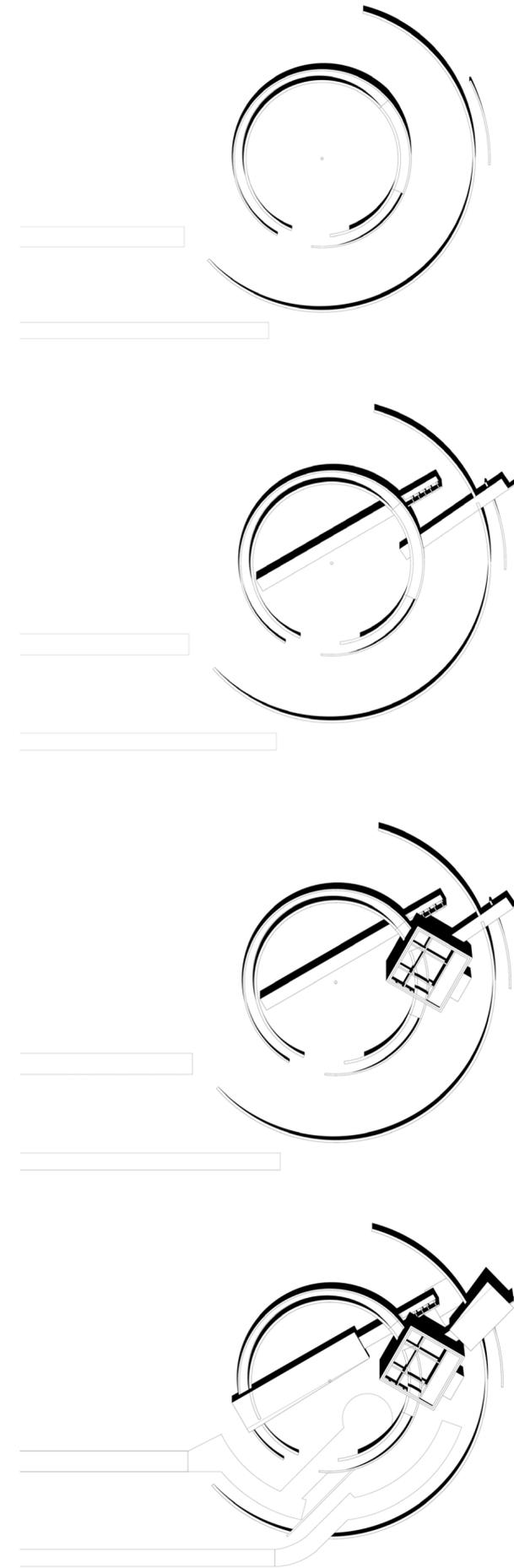
From a Doctor's Point of View: The Treatment Area

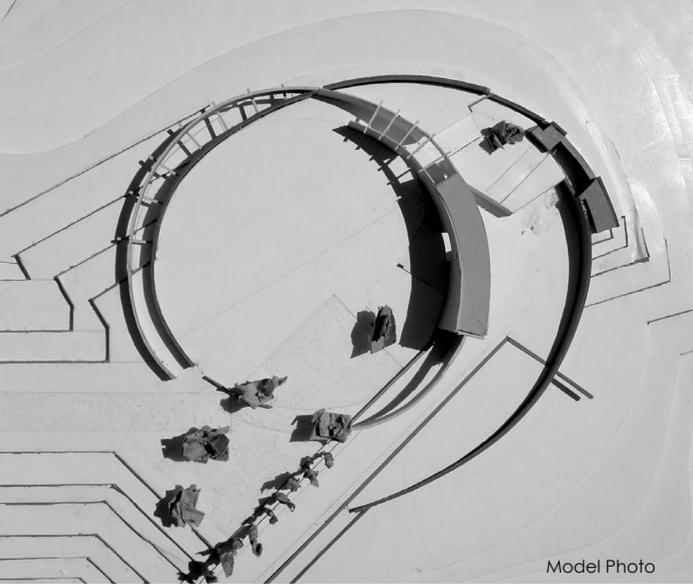


Part III

Anatomy of the Building an analytical description

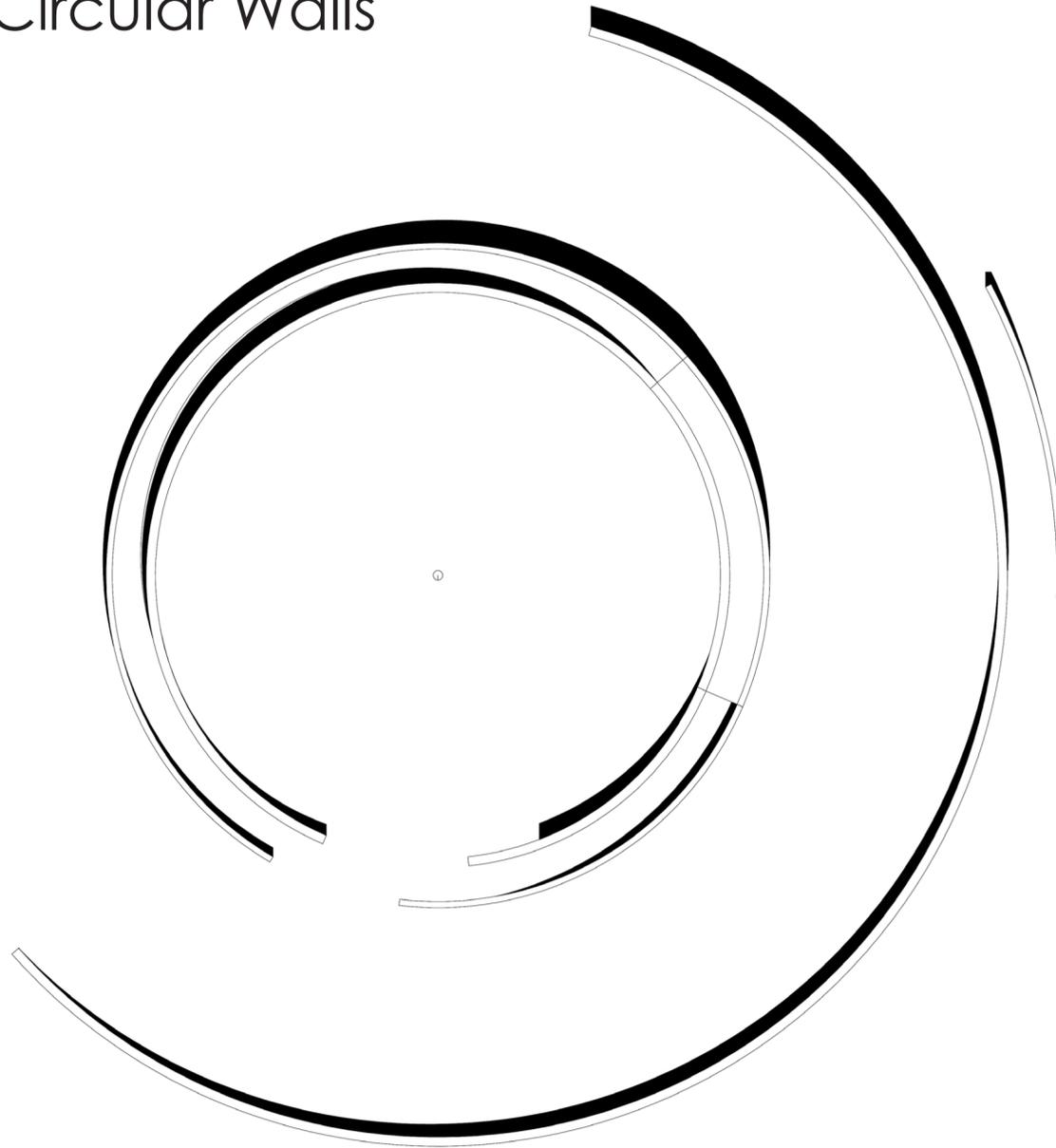
A primary focus of this thesis is synthesis, which is the putting together of a complex array of disparate parts to form a unified, interdependent composition. As such, in an effort to analyze the composition in more detail, the process of resolution must be undertaken. By separating the whole into its component parts, aspects of the whole can be studied in a simpler form. The pages that follow attempt to provide clarity to this proposal by resolving the composition in this manner. The four primary parts that will be discussed are the circular walls, the connecting elements, the cube, and the bar shaped elements.





Model Photo

Circular Walls

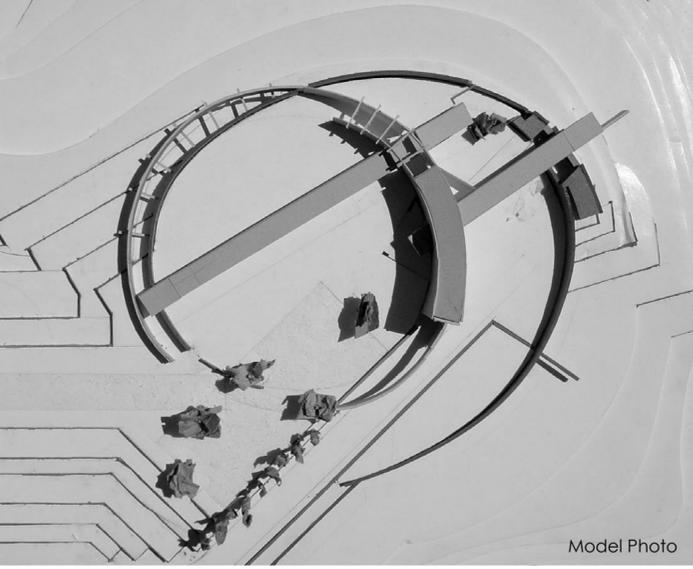


THE CIRCULAR WALLS AS A CONTAINER:

The Circular Walls are exactly as their name suggest, a series of circular walls of varying purpose and materiality that share a common center point. Conceptually, these walls appear first and mark the initial traces on the site. Their primary purpose is to sculpt the hill. To again embrace the biological metaphor, these walls create and contain the environment within which this mechanical organism exists. The notion of sculpting exists as both an idea and as a physical necessity. The idea was present from the first verbal descriptions and imaginings of this clinic on a hill. This image was grounded in an idea that the hill as a landform was incomplete without the clinic. Physically, the circular walls are retaining elements partially conforming to the natural topography of the site while also establishing a geometric order that clearly distinguishes the built from the natural.

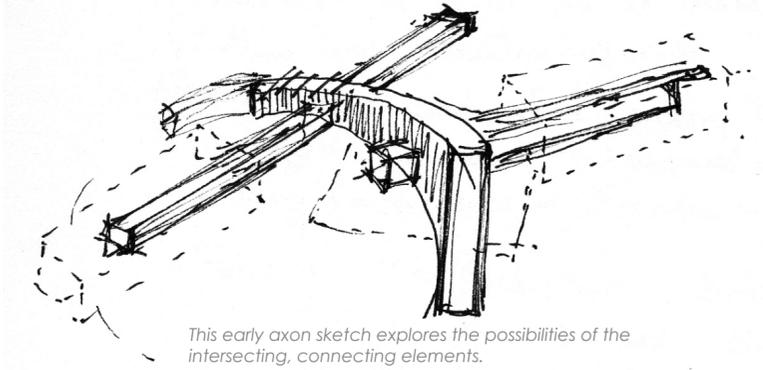
In addition to retention, the circular walls also begin to create spaces that can be occupied, moved along, and passed through. The in-between spaces form entrances, transitions, paths, and rooms that are essential to the overall composition. Therefore, these walls not only define the field within which the organism exists, they also participate and interact as an integral part of the whole.

The circular walls are constructed from a combination of materials. The retaining elements are reinforced concrete masonry with a stone veneer. The elements not essential for retaining need only support themselves and are therefore constructed with a series of steel frames - metal clad where necessary for enclosure. This combination of materials allows the walls to be solid and authoritative where necessary, as well as very skeletal and open in other instances.



Model Photo

Connecting Elements

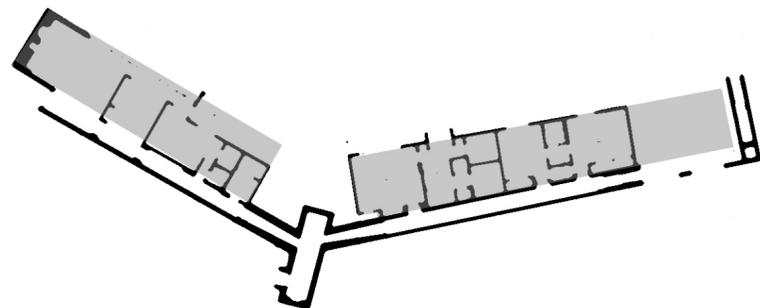
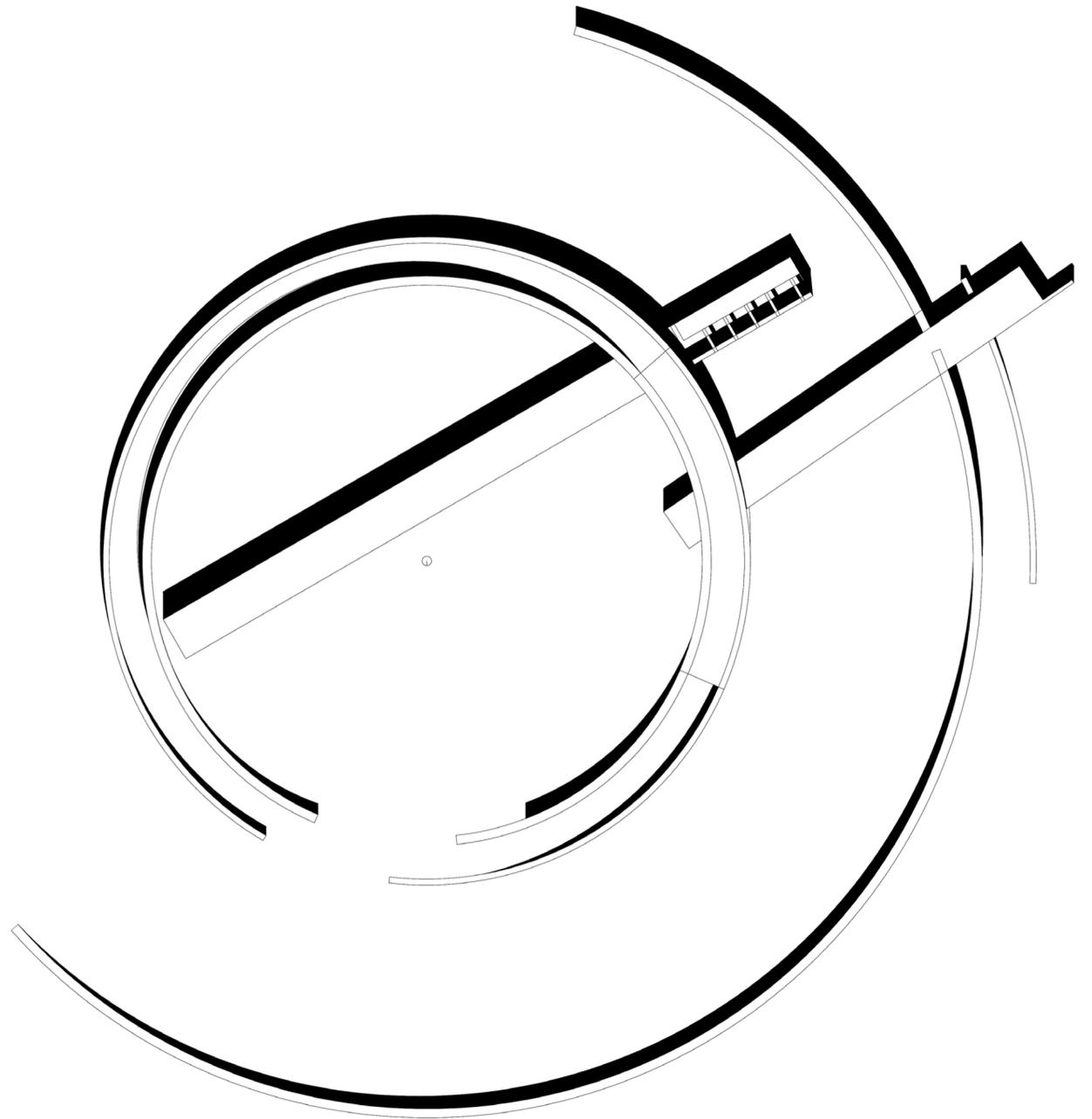
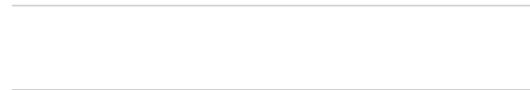


This early axon sketch explores the possibilities of the intersecting, connecting elements.

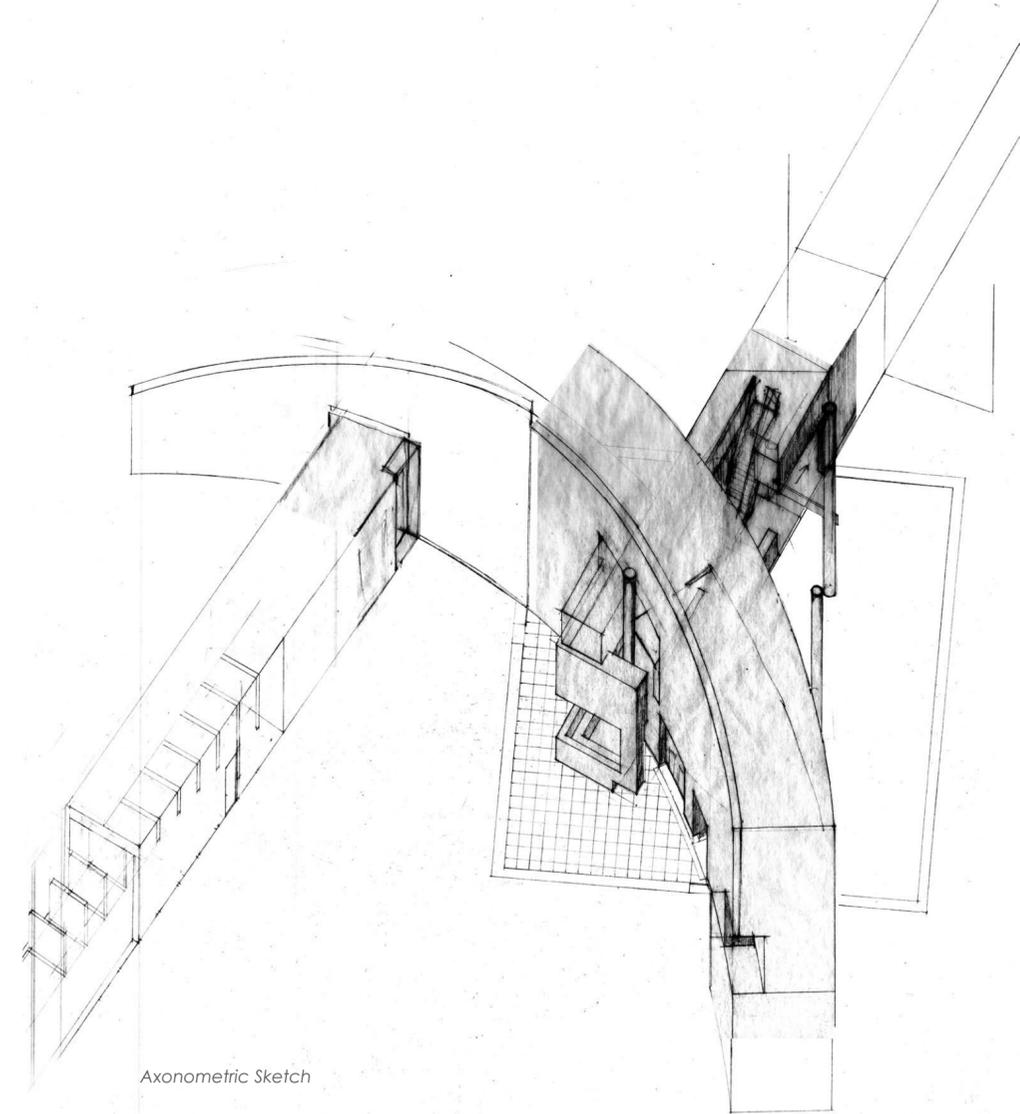
THE CONNECTIVE TISSUE

Again, there is no effort to provide an elusive name for the component parts of this clinic. As such, the connecting elements derive their name from the very function and idea from which they originate. These elements include the two rectilinear volumes as well as the inner, double-wall that was previously discussed. These elements are conceived as a solution to a problem that this thesis faced from the beginning: how can a connection be created between autonomous and distinct architectural elements that are physically separated, yet function together? These connecting elements developed as the solution to this query.

These elements developed from two primary sources, one of which is conceptual and the other practical. Conceptually, these elements developed from the model of the functioning human body. Just as the human body requires various levels of connective tissue to allow its disparate parts to function as a unit, so too does this clinic require such connective ability. In order to achieve this level of connection, a physical strategy needed to be developed. In fact, the idea for this method to achieve unity came by chance while performing research for a Graduate Teaching Assistantship. While researching the firm Mockbee-Coker, the Barton House (sketched below) emerged. This house consists of two rectilinear volumes that connect through an entrance volume. While the conception and realization of this house is dissimilar in almost every way to the architecture being investigated in this thesis, it possesses a clear diagram of a possible method of connection.



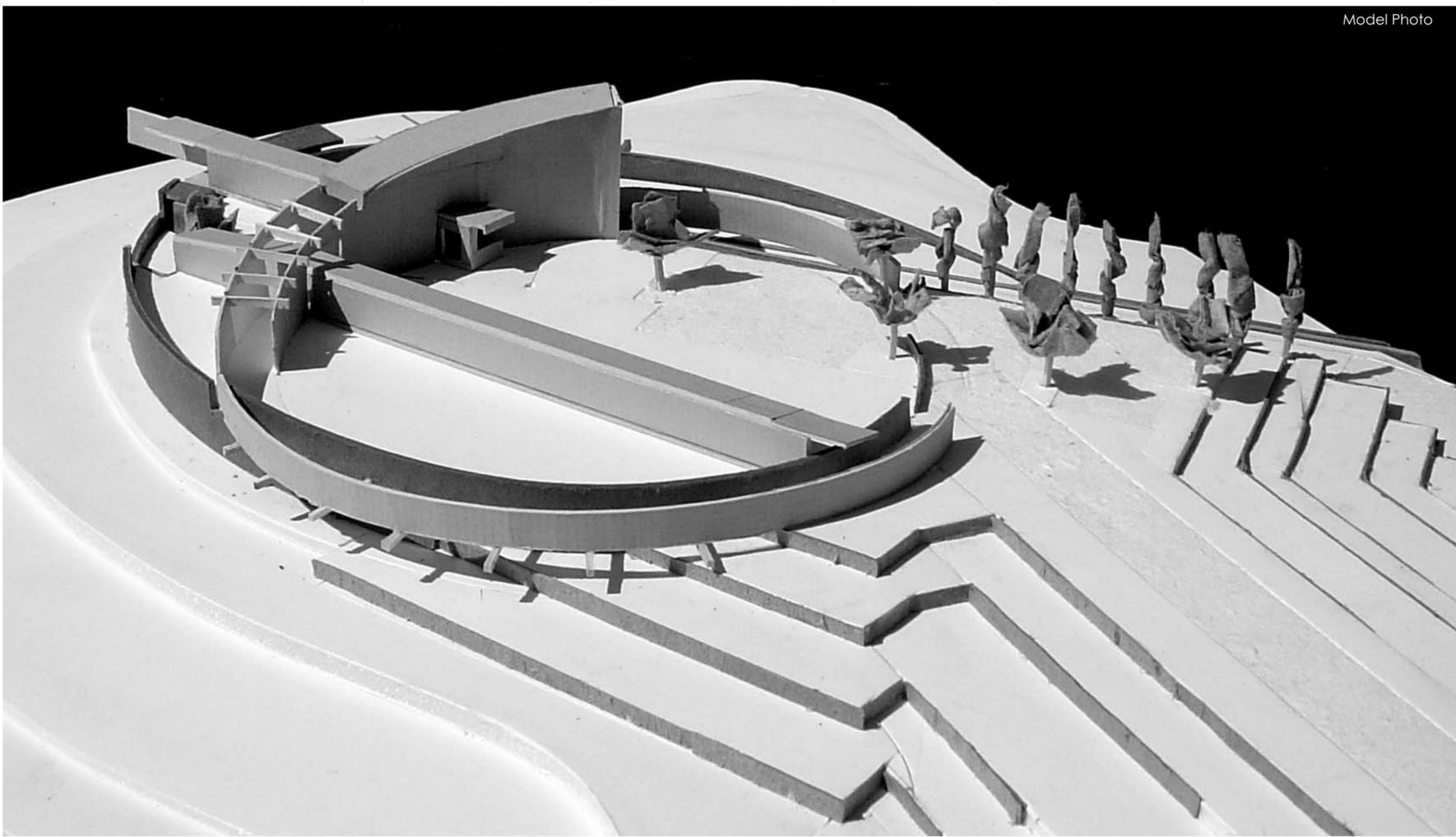
A sketch of the Barton House Floor Plan: a house by Mockbee-Coker Architects



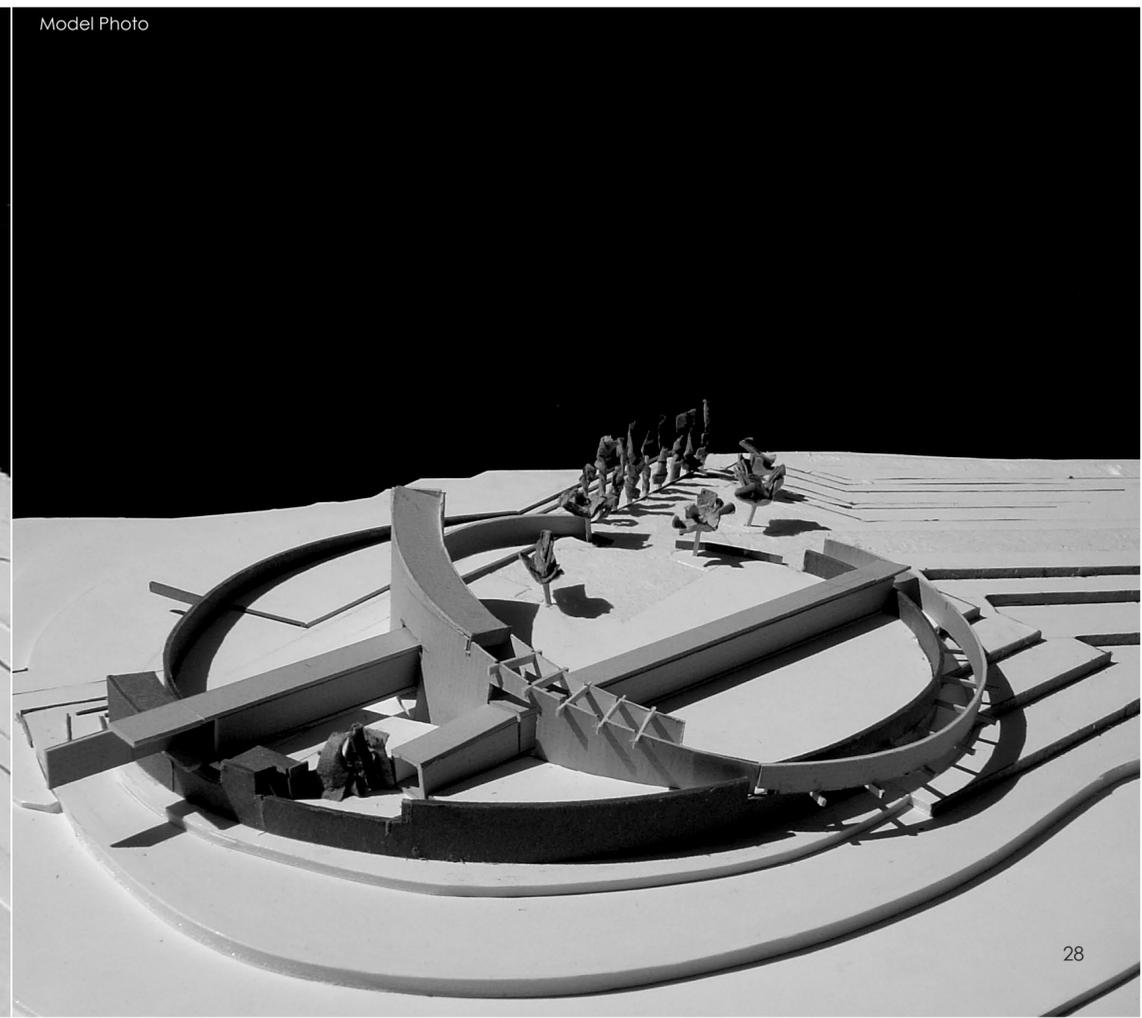
Axonometric Sketch

Similar to the circular walls, the connecting elements form rooms, spaces for pause, and spaces for movement. In fact, all vertical circulation and transitions within and between the disparate volumes are achieved through these element.

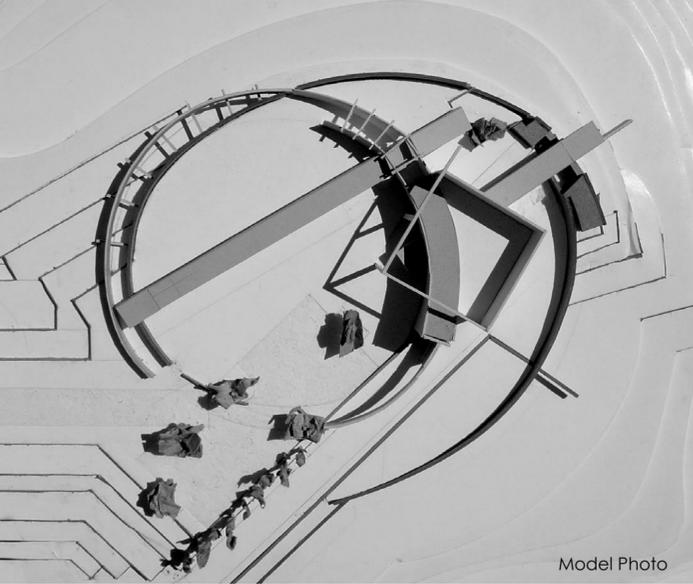
Materially, these elements are very much like the circular walls. They consist of a combination of reinforced concrete masonry and steel framed structure with cladding of horizontal stone veneer or metal, depending on the use. These materials and methods were selected in order for the elements to possess the versatility necessary to accommodate the different conditions that may be encountered. Essentially, the material and structural selections in this thesis embrace the notion of "frame and skin."



Model Photo



Model Photo



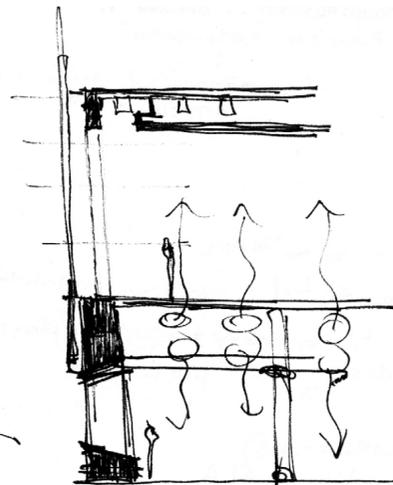
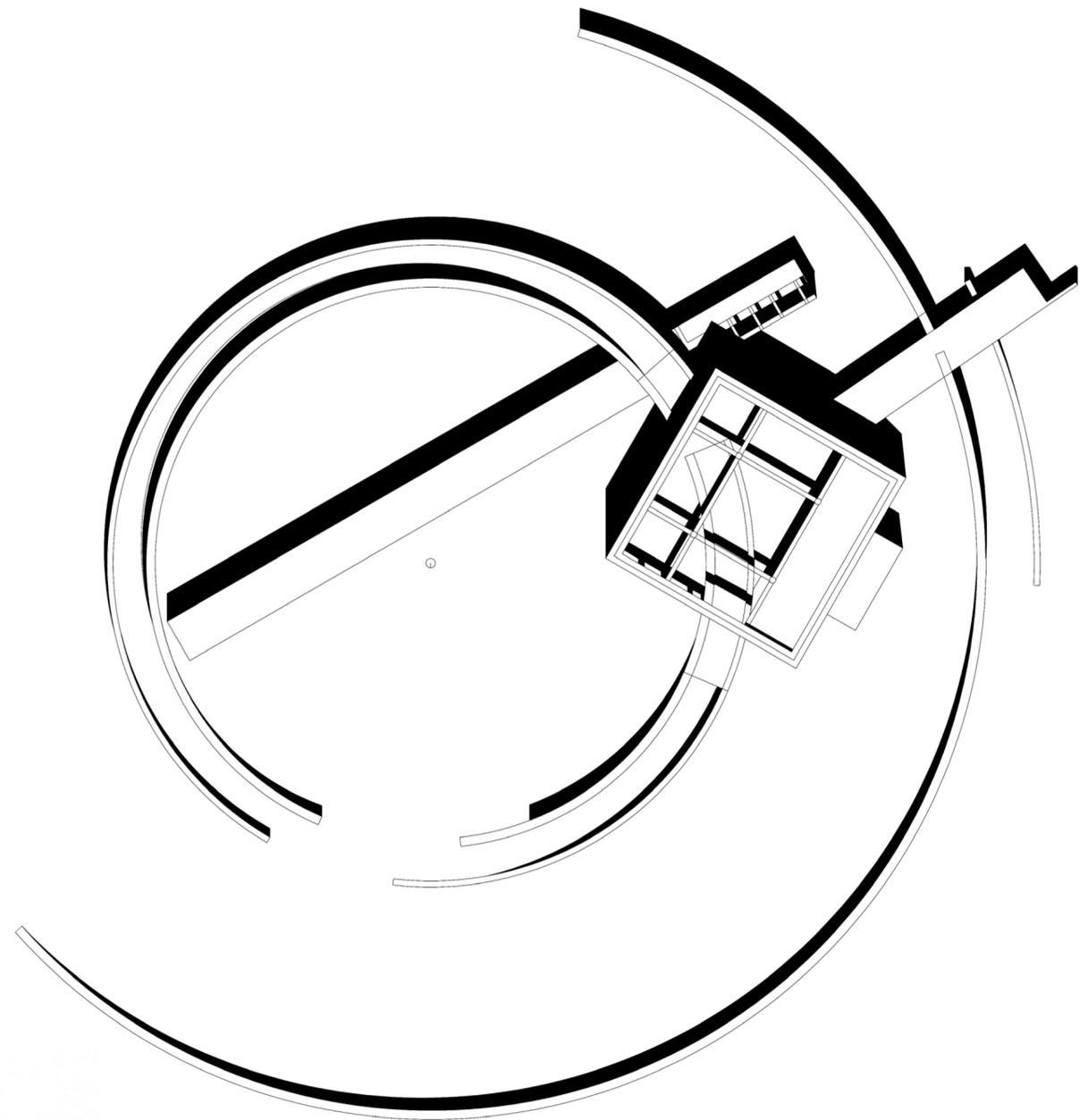
The Cube

THE CUBE AS THE COMPOSITIONAL MIND:

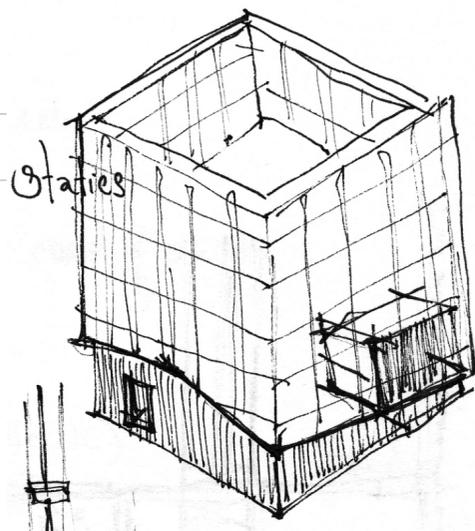
To again refer to the biological analogy, the cube is the central spine or mind of the clinic. Within the confines of the cube, the primary hospital functions originate, the interface with the public occurs, the doctors and staff interact, surgeries take place, etc.

The cube also serves as the symbol or image of the hospital. This element is the largest, most dominant component visible from the terrain below or from the site itself. In fact, the arrangement of entry is designed to obscure other pieces of the composition from the public and present the cube to view.

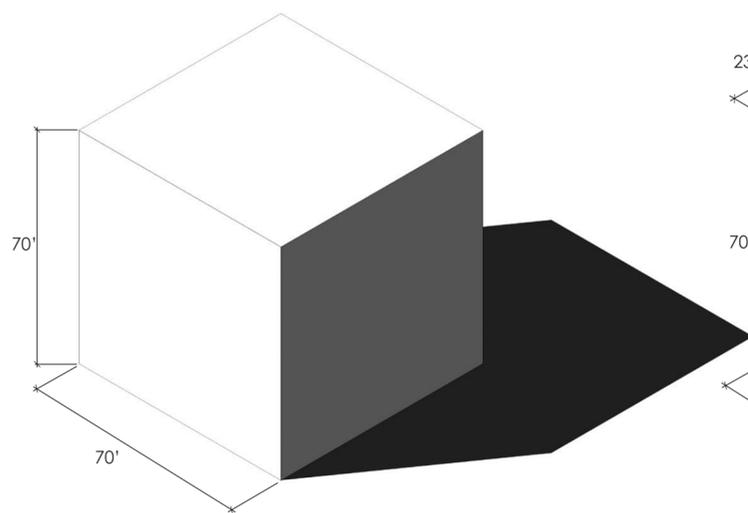
Materially, the cube is constructed of concrete masonry walls and columns with an interior and exterior plaster applied. The horizontal framing consists of structural steel and composite decks. The steel structure is concealed and plastered. The mask is framed with vertical steel trusses corresponding to and supported by the vertical structure of the cube. The screen extends the boundary of the cube, but it is not separate. Rather, the form of the two are interrelated and interdependent.



This sectional sketch explores methods of air circulation within the cube. The idea is to heat and cool the cube from the base level to allow the two-story main level to be as flexible and open as possible.

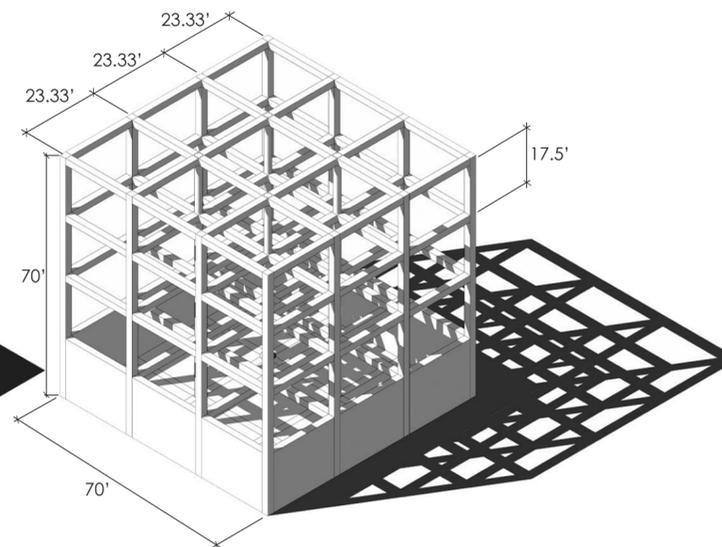


This sketch explores the image of the cube with regard to the relationship of the screen to the base.



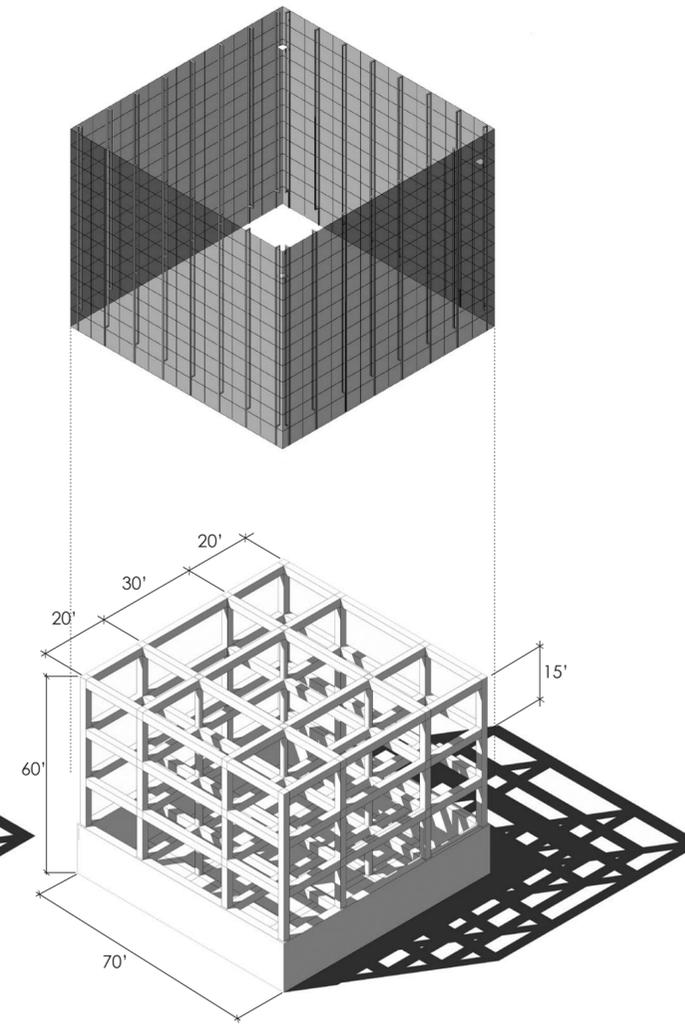
The Idea of the Cube

As discussed previously, the cube is the primary form and component of the composition and therefore serves as the image of the clinic. The selection of the cube is in part to convey a sense of orderliness and constancy that is appropriate for a place of healing. Furthermore, as this clinic quietly exists on top of the hill, its visibility will be obscured from below by viewing angles and vegetation. As such, it is important to provide a form that will stand in contrast to the surroundings while existing within them.



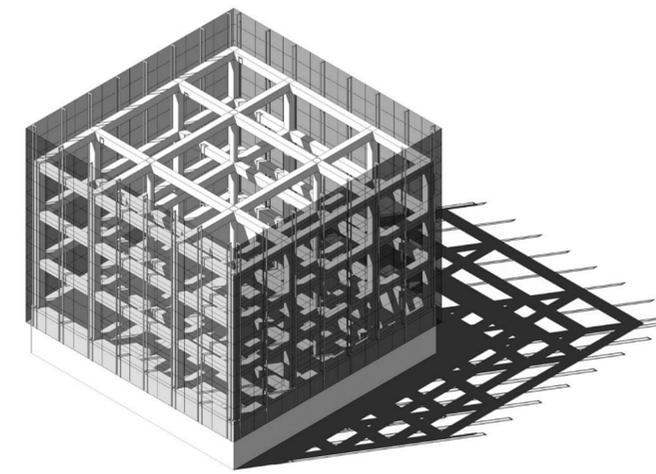
Reducing the Cube to a Frame

In order for a geometric volume to provide architectural space, voids must exist within which human activity may occur. Therefore, the first step in transforming the platonic form of a cube into architectural space is to select a spatial division. The division appropriate for this project is a 9-square division in plan and 12-square division in elevation.



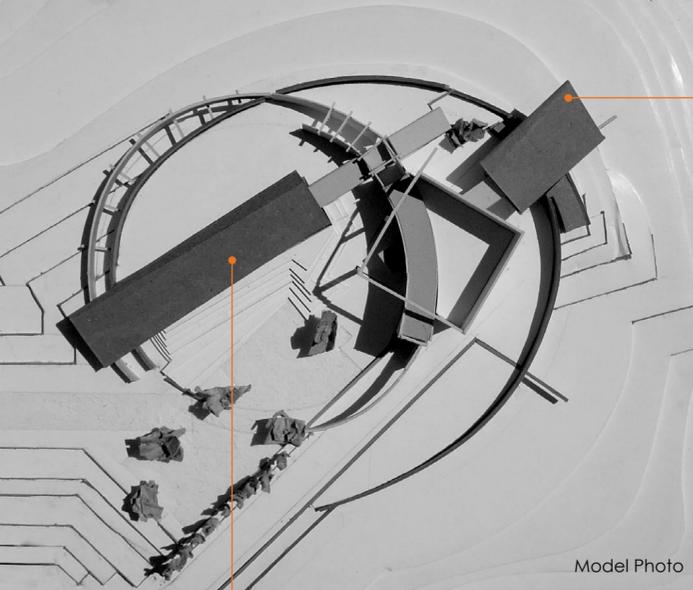
Adjusting the Frame to Accept Program

Human beings are not geometrically determined by mathematical divisions of a cube. Therefore to create an environment appropriate for human interaction and to accommodate the program, the frame is adjusted as shown above. The plan division remains 9-square, but the center bay becomes larger, altering the proportions slightly. Also, as the floor to floor heights are considered in terms of constructability and appropriateness, the overall height is reduced by 10 feet. The result of this alteration leaves the plan dimensions out of alignment with the vertical dimensions, thus losing the volume and therefore the essence of the cube.



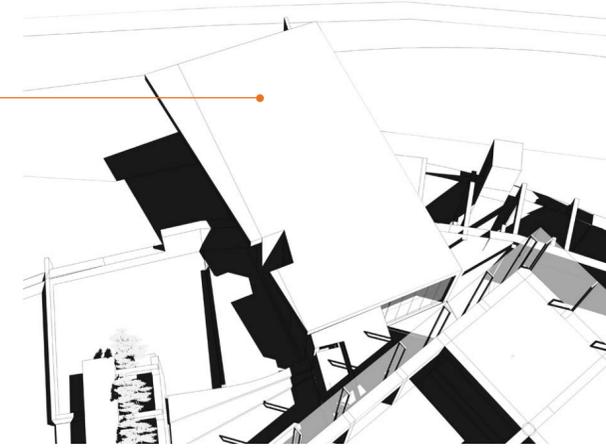
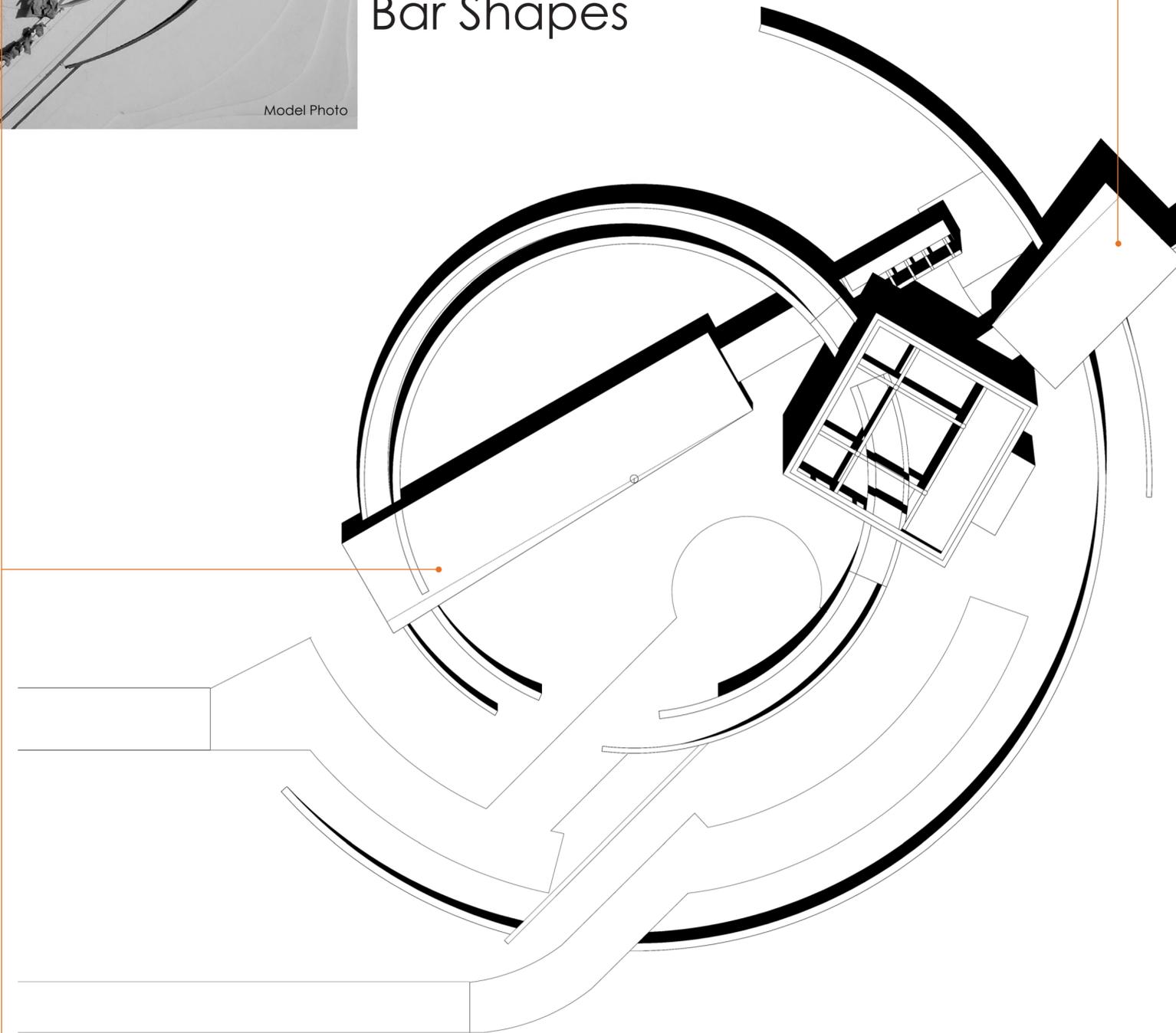
The Mask: Regaining the Cube

The adjustments made to accommodate human dimensions and constructability resulted in a non-uniform vertical presence. In order for the volume as perceived from the outside to retain the image of a cube, these alterations to the vertical proportions must be compensated for. Therefore, an exterior mask is introduced in order to resolve these dimensional discrepancies and present the image of an uniform cube with mathematically accurate divisions.



Model Photo

Bar Shapes

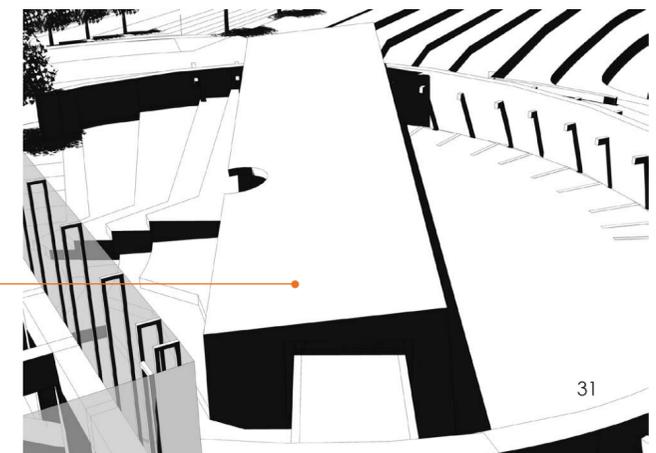


THE APPENDAGES

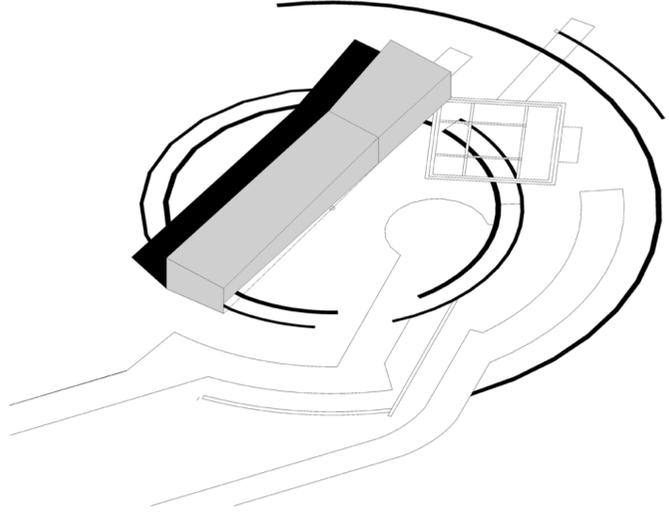
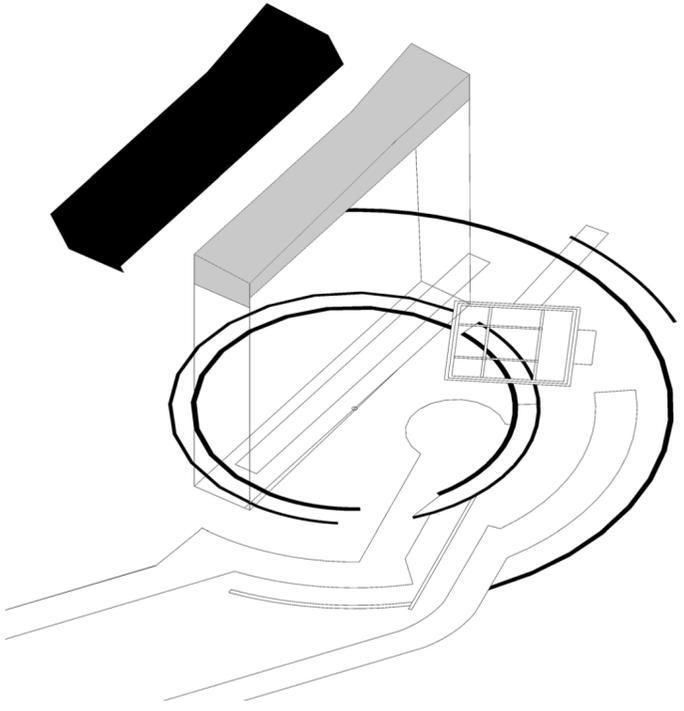
The bar-shaped volumes, or appendages, are conceived as exactly that, external elements distinct from the core. These elements perform functions that do not belong within the core, but are vital to the operation of the whole. The two primary functions which take place within these volumes are euthanasia and boarding, both of which require separation from the operations of the primary clinic.

The longer of the two volumes, which contains the boarding facilities, also serves the formal function of defining the entrance space. This space derives its quality from the circular entrance walls on one side, and the terraced landscape against the boarding volume on the other. In fact, the primary role of this boarding volume in the entry sequence is to create an exterior enclosure that quietly focuses attention not on itself, but on the cube and entrance. The smaller volume contains the facilities necessary for euthanasia. This volume is obscured from the owner in all instances except when one exits the euthanasia space. At that moment, the appendage's relationship to the cube becomes apparent.

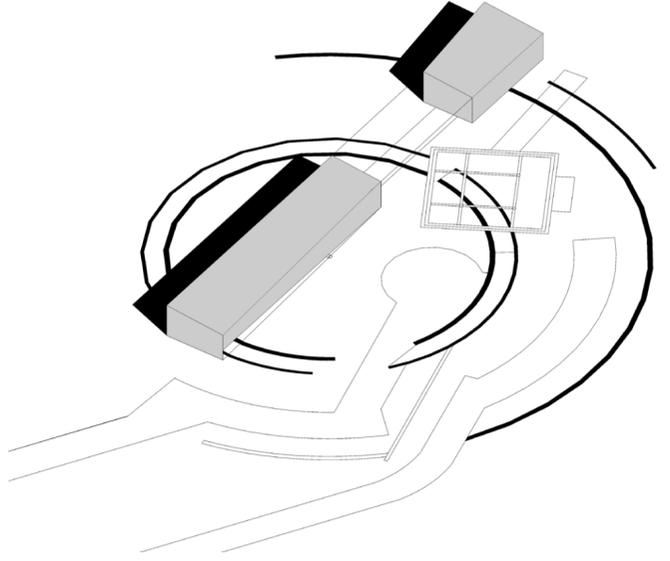
Materially, the bar shaped volumes are very much like the cube. The primary vertical structure is reinforced concrete masonry and the horizontal framing is structural steel. All interior and exterior surfaces are covered with plaster.



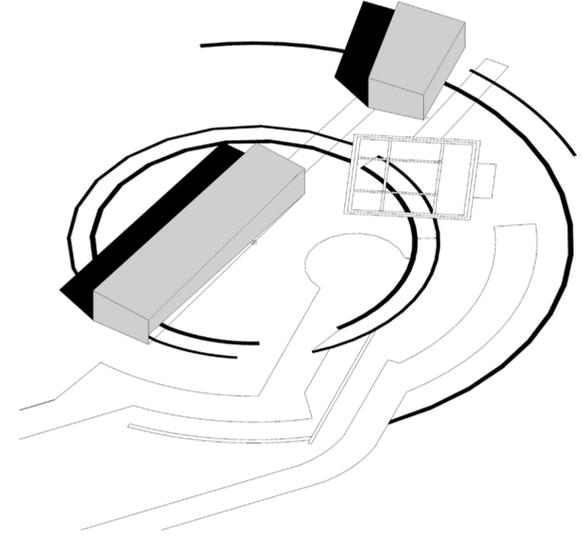
Order of Operations for the Geometric Construction of the Bar-Shaped Appendages



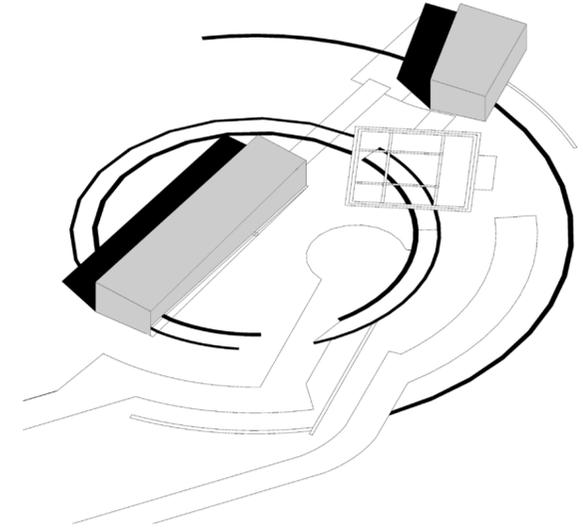
Insertion of a Single Rectilinear Volume



Division and Extension



Rotation



Sliding into place

Part IV

Anatomy of a Construction an intuitive investigation

This final section traces the development of this thesis from conception to completion. As was previously mentioned, this exploration began with the pursuit of a quality. Once this search for a certain quality was combined with a specific program and site, it began to develop into an architectural idea envisioning a place that existed only in the imagination. An architectural vision can only be given a proper reality through an intuitive, iterative, artistic process of making. Through primarily visual means, the following pages attempt to provide insight into this thesis proposal by presenting the traces left as the physical reality of this veterinary hospital was formally constructed.

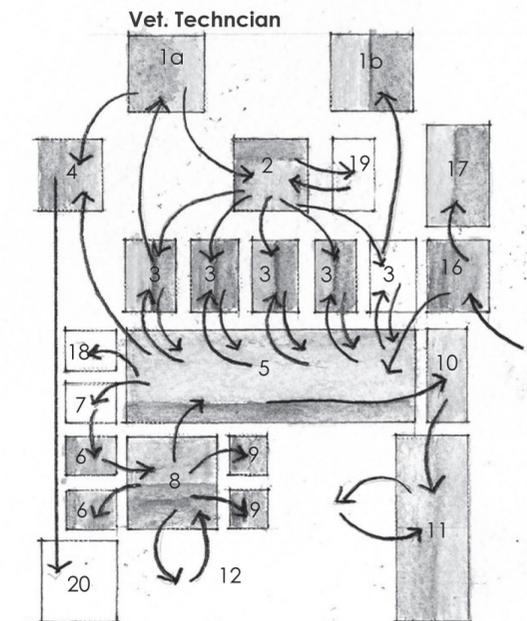
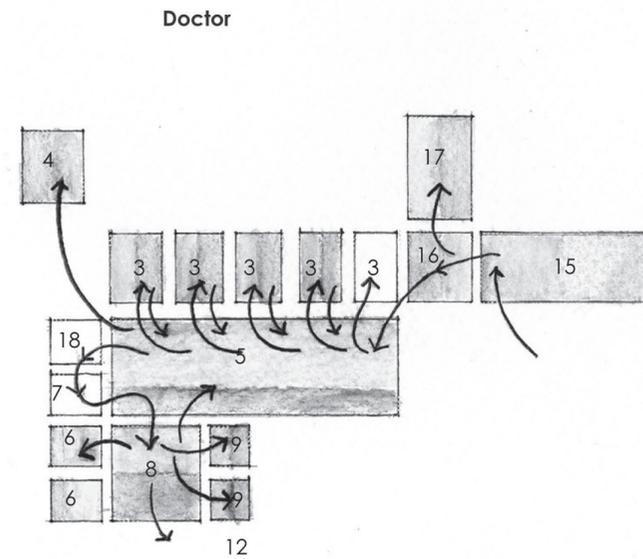
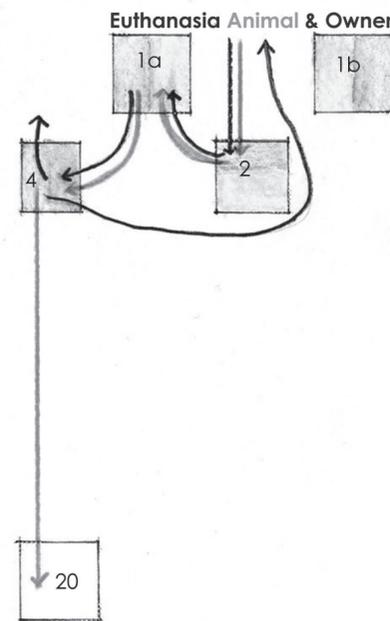
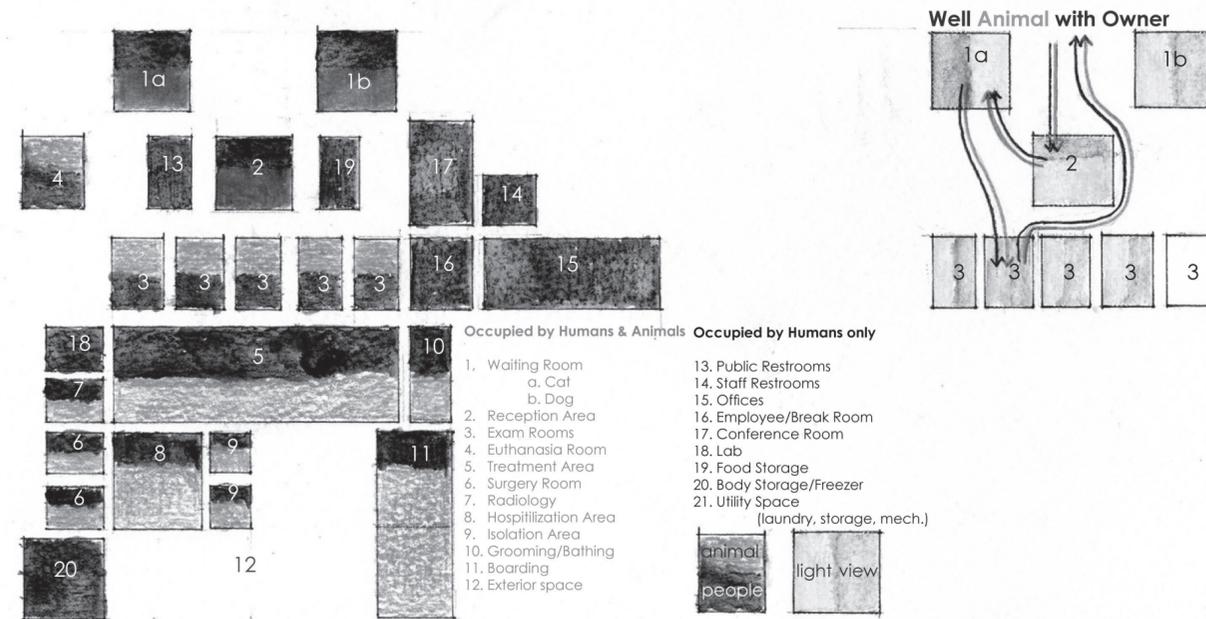
Understanding the Problem: the program and the site
October 2008

The Program and the Site:

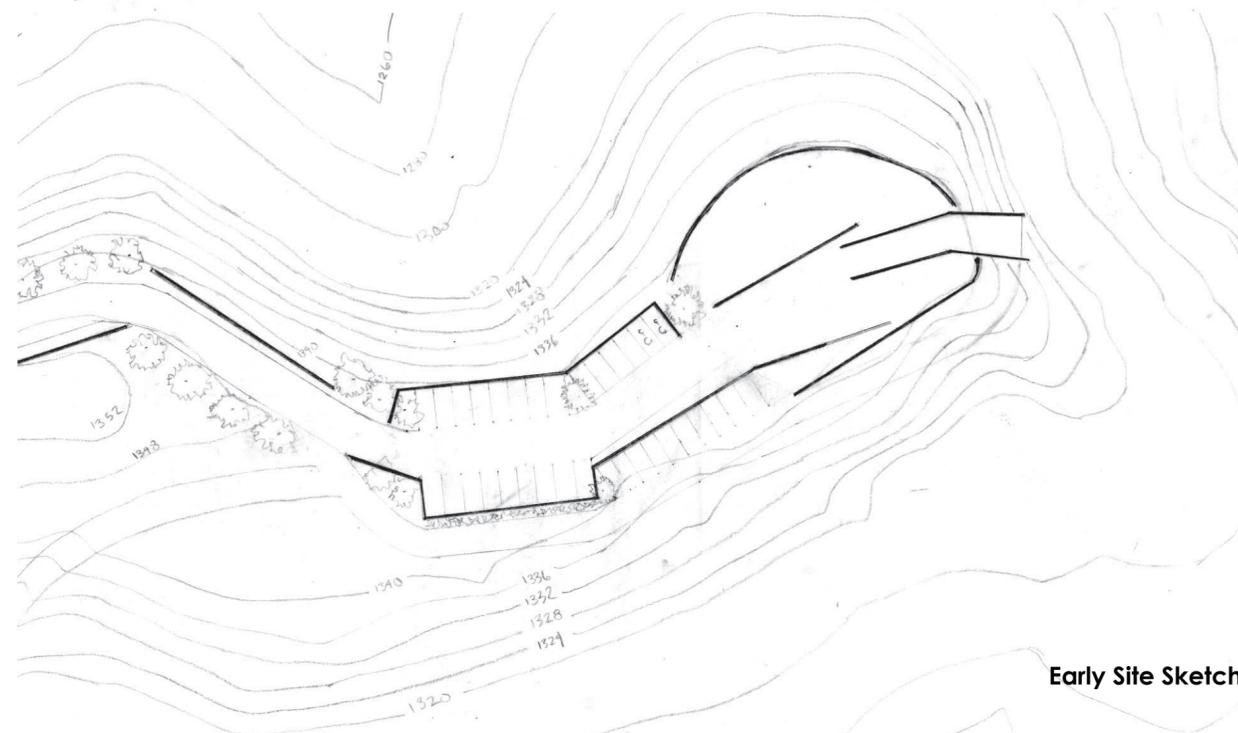
The purpose of a program is to establish the priority of spaces as well as the hierarchy of functions and spaces. Furthermore a program studies the manner in which these building functions relate to the specific users.

The programming diagram to the right was generated early in the project. The purpose of this diagram is to gain insight into the required spaces, the necessary adjacencies, and how various users move within the building throughout the day. This diagram was produced, studied, and then filed away before intense design work began. This is not a schematic design, it is a functional diagram. By gaining a firm understanding of the programmatic requirements initially, I was free as a designer to explore the architectural possibilities and not be paralyzed by the complexities of functional relationships.

Architecture is a creative endeavor searching for a method of synthesis. With this in mind, the formal construction of this clinic began intuitively, thinking first of a clinic in abstract terms. The mind began to search for a quality of this clinic which then began to take root in the imagination. At the same time, the specific program requirements were developed and studied, but kept separate from the architectural ideas for the building. Finally, based on this qualitative idea of a place (a clinic on a hill), a site was chosen in order to provide this search with physical boundaries. An initial sketch studying the form and limits of this site is shown to the right. These intuitive explorations developed independent of the programming studies. The challenge then, was to synthesize the program, the site, and the architectural ideas into a unified, functioning, beautiful composition. The formal construction of this pursuit is illustrated throughout the remainder of this section.



Programming Diagram



Giving Form to an Idea: initial traces
November 2008

Key ideas:

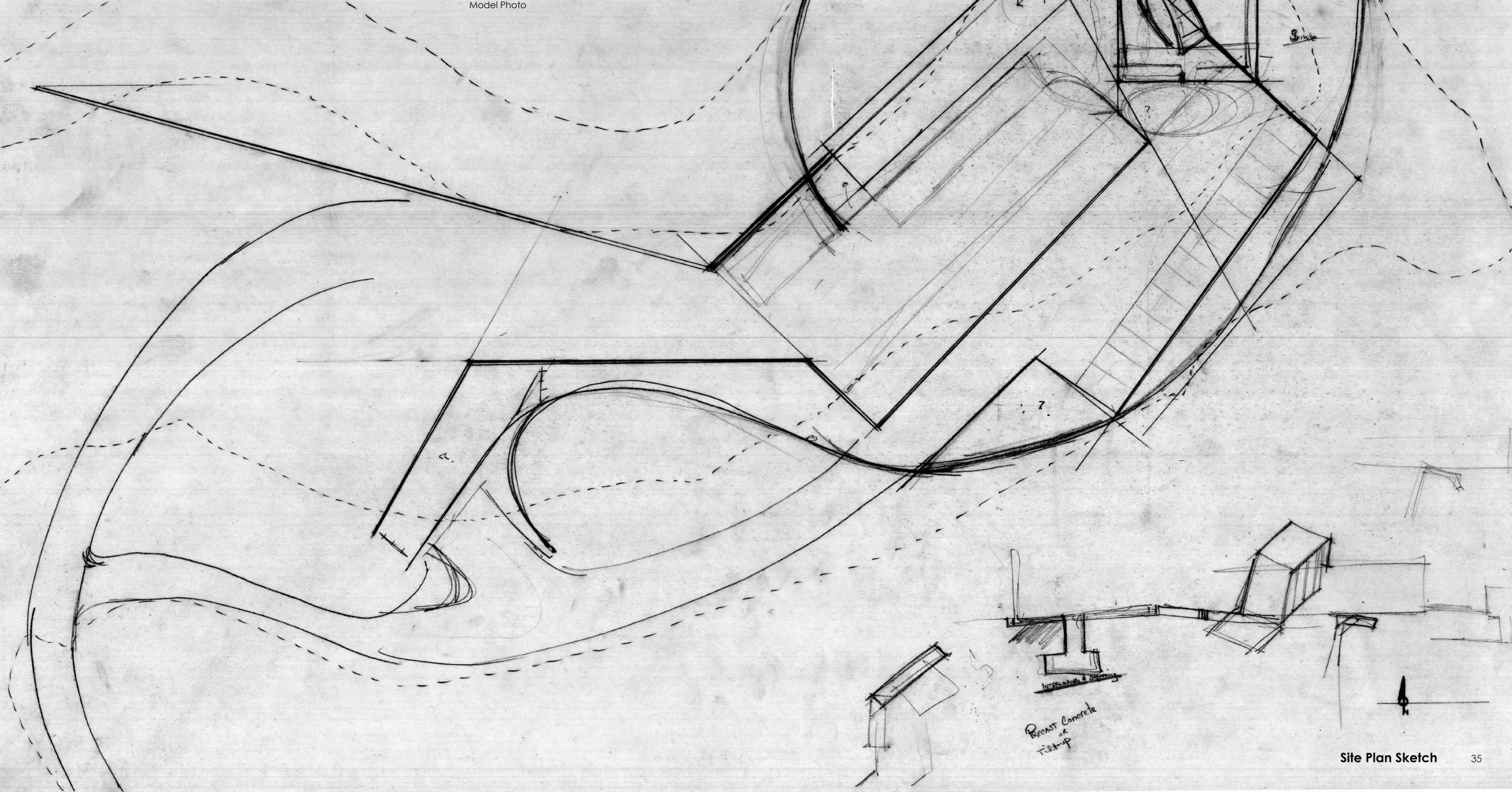
-From the beginning, the landscape gesture of the curvilinear retaining wall was present.

-As can be seen on this page, from the earliest sketches and models, there was an interest in the idea of separate parts interacting.

-The development of an entry courtyard can be traced to these early sketches.

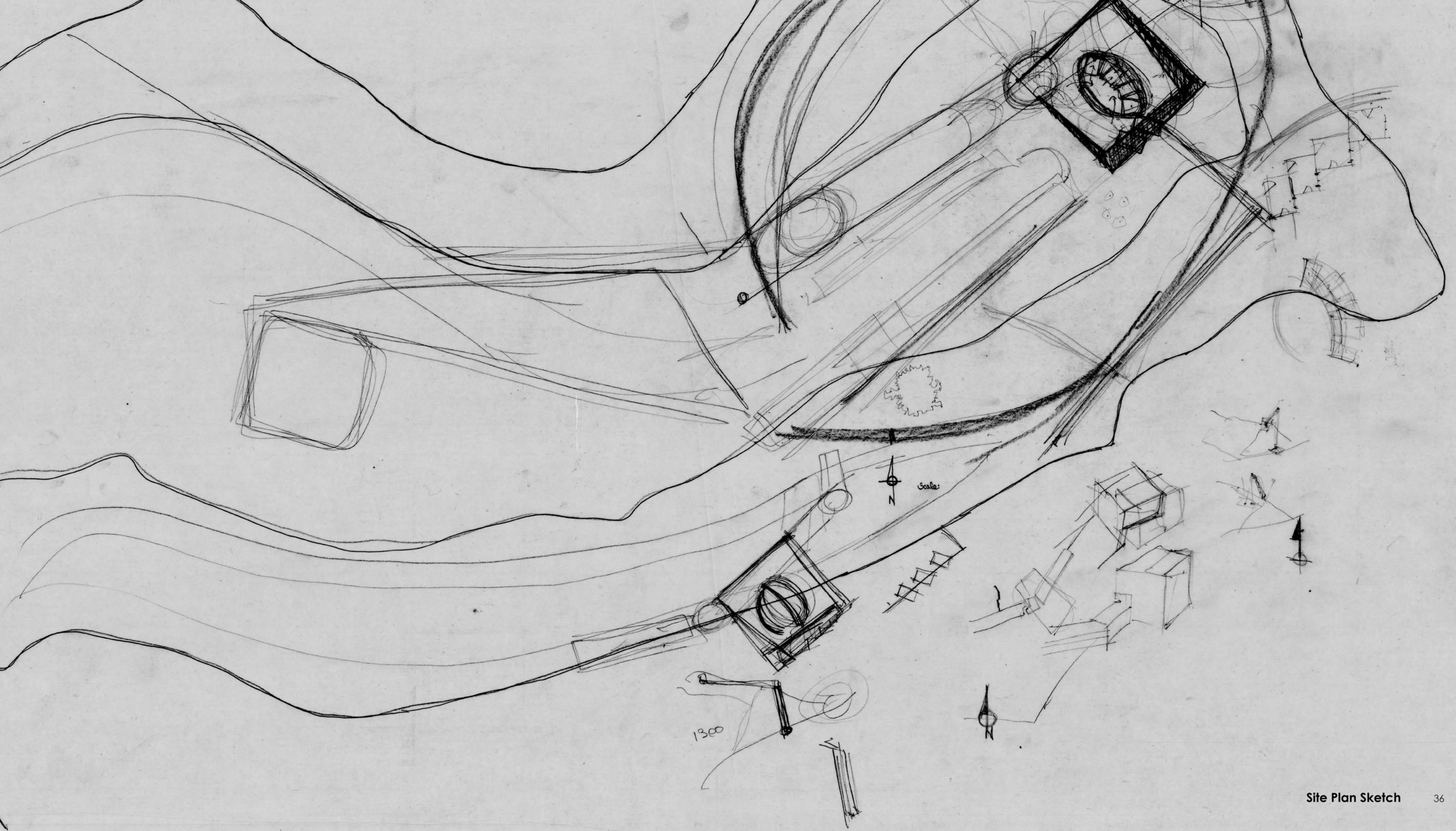


Model Photo





Model Photo



Giving Form to an Idea: the beginnings of a formal diagram

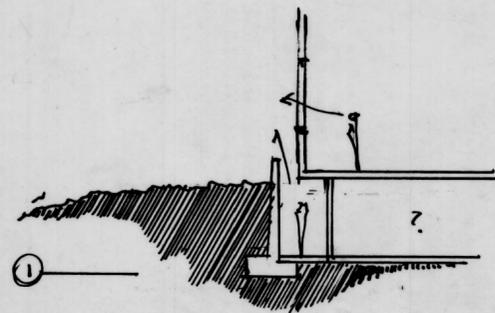
December 2008

Key ideas:

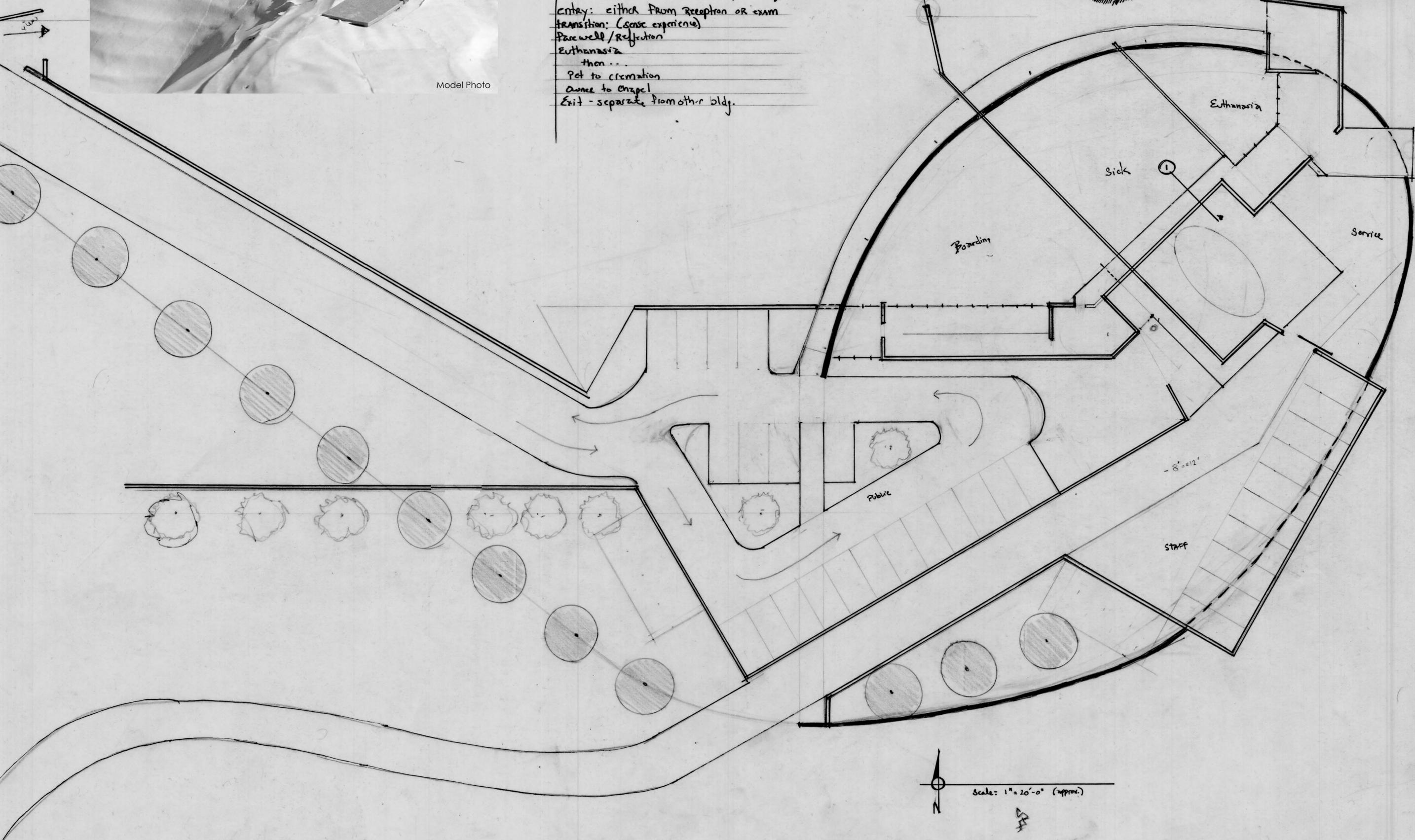
This plan, along with the axon on the following page, represent the creation of the first formal diagram. This diagram combines general programmatic considerations with ideas of the building form.

What elements define the sequence of euthanasia?

- entry: either from reception or exam
- transition: (sense experience)
- Farewell/Reflection
- Euthanasia
- then...
- Pet to cremation
- owner to chapel
- Exit - separate from other bldg.



Model Photo

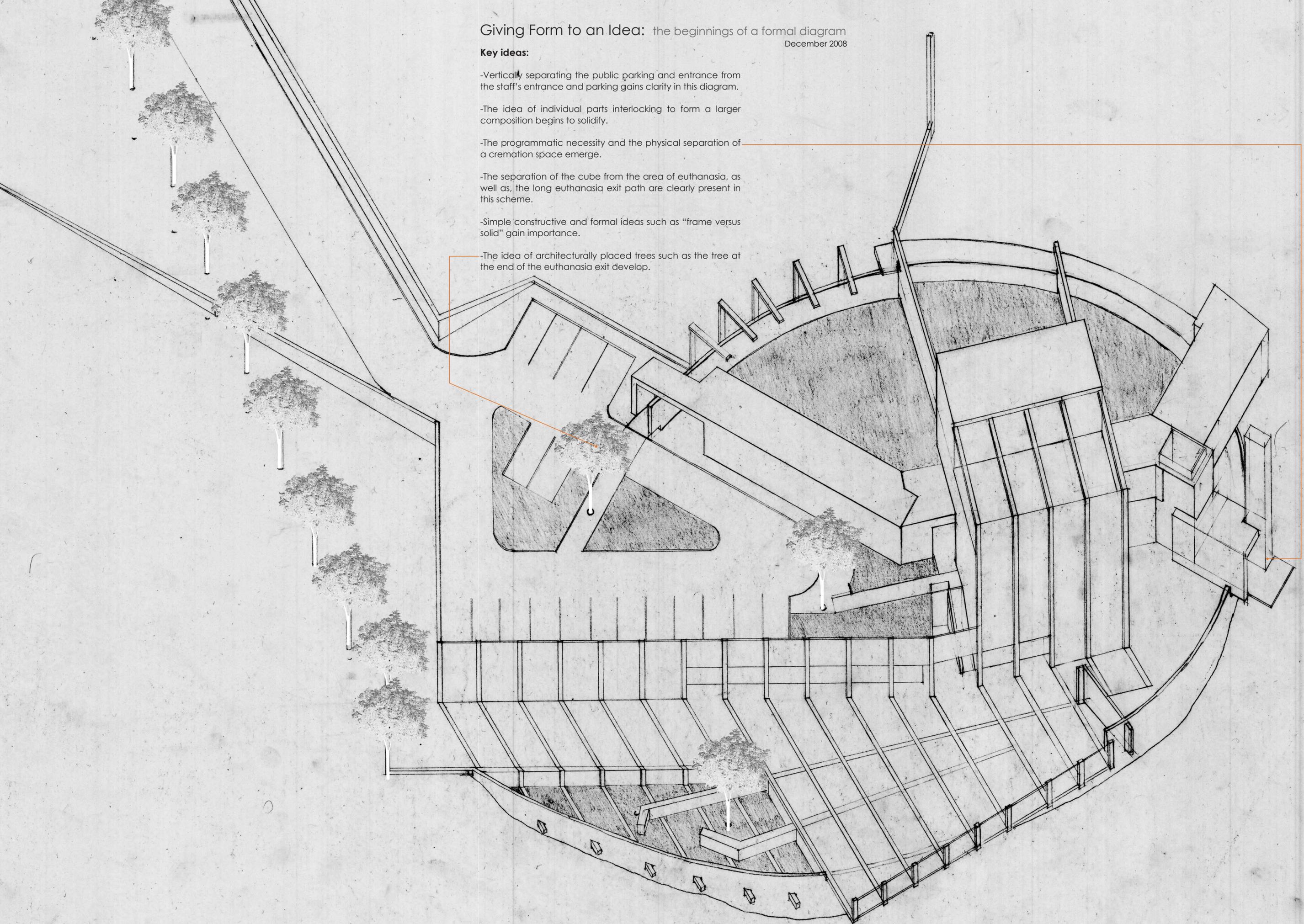


Giving Form to an Idea: the beginnings of a formal diagram

December 2008

Key ideas:

- Vertically separating the public parking and entrance from the staff's entrance and parking gains clarity in this diagram.
- The idea of individual parts interlocking to form a larger composition begins to solidify.
- The programmatic necessity and the physical separation of a cremation space emerge.
- The separation of the cube from the area of euthanasia, as well as, the long euthanasia exit path are clearly present in this scheme.
- Simple constructive and formal ideas such as "frame versus solid" gain importance.
- The idea of architecturally placed trees such as the tree at the end of the euthanasia exit develop.



Scale: 1" = 20'-0"

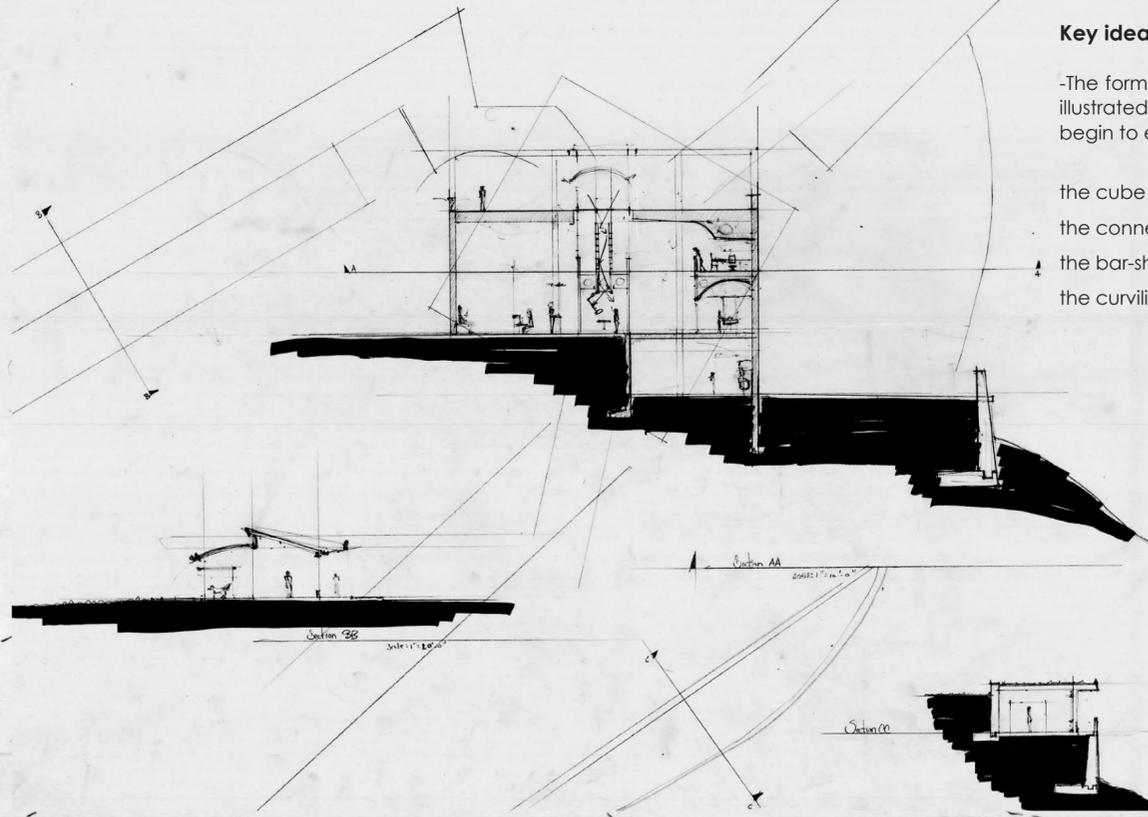
Giving Form to an Idea: formal resolution of the primary parts

January 2009

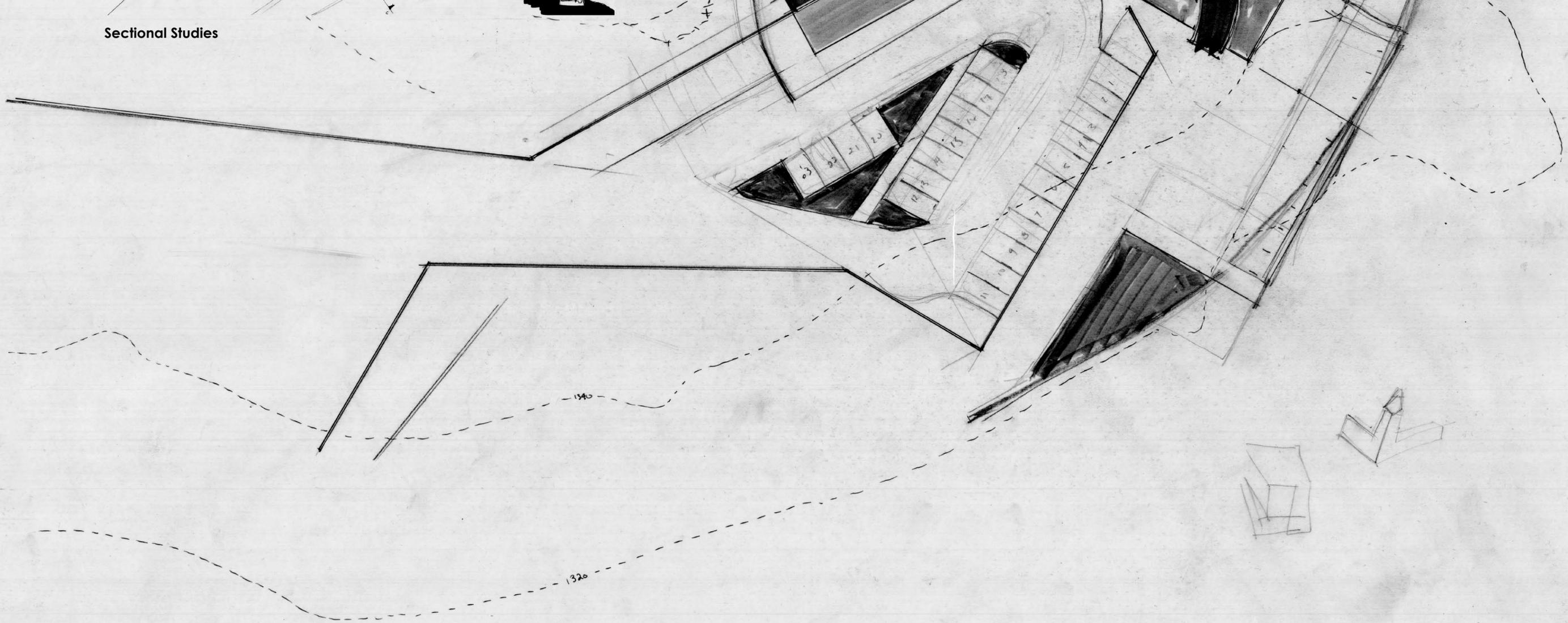
Key ideas:

-The formal arrangement of the clinic begins to take shape as illustrated in the drawings on this page. The primary parts that begin to emerge are as follows:

- the cube
- the connecting elements
- the bar-shaped elements
- the curvilinear retaining element



Sectional Studies



Giving Form to an Idea: formal resolution of the primary parts

January 2009

25
25
735
125
750
875

Key ideas:

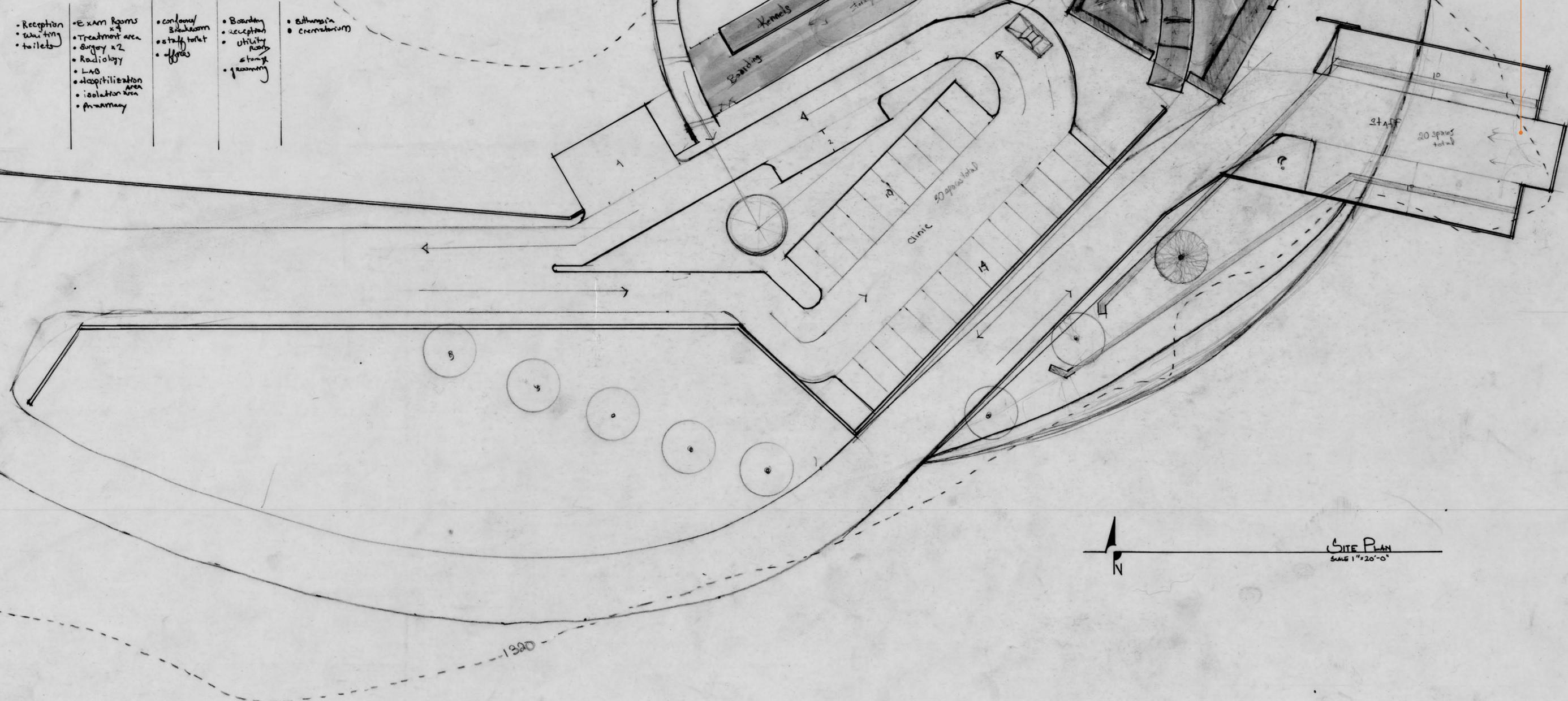
-The staff parking area develops as an element in this composition.

-The program of the clinic begins to resolve itself with the form of the building.

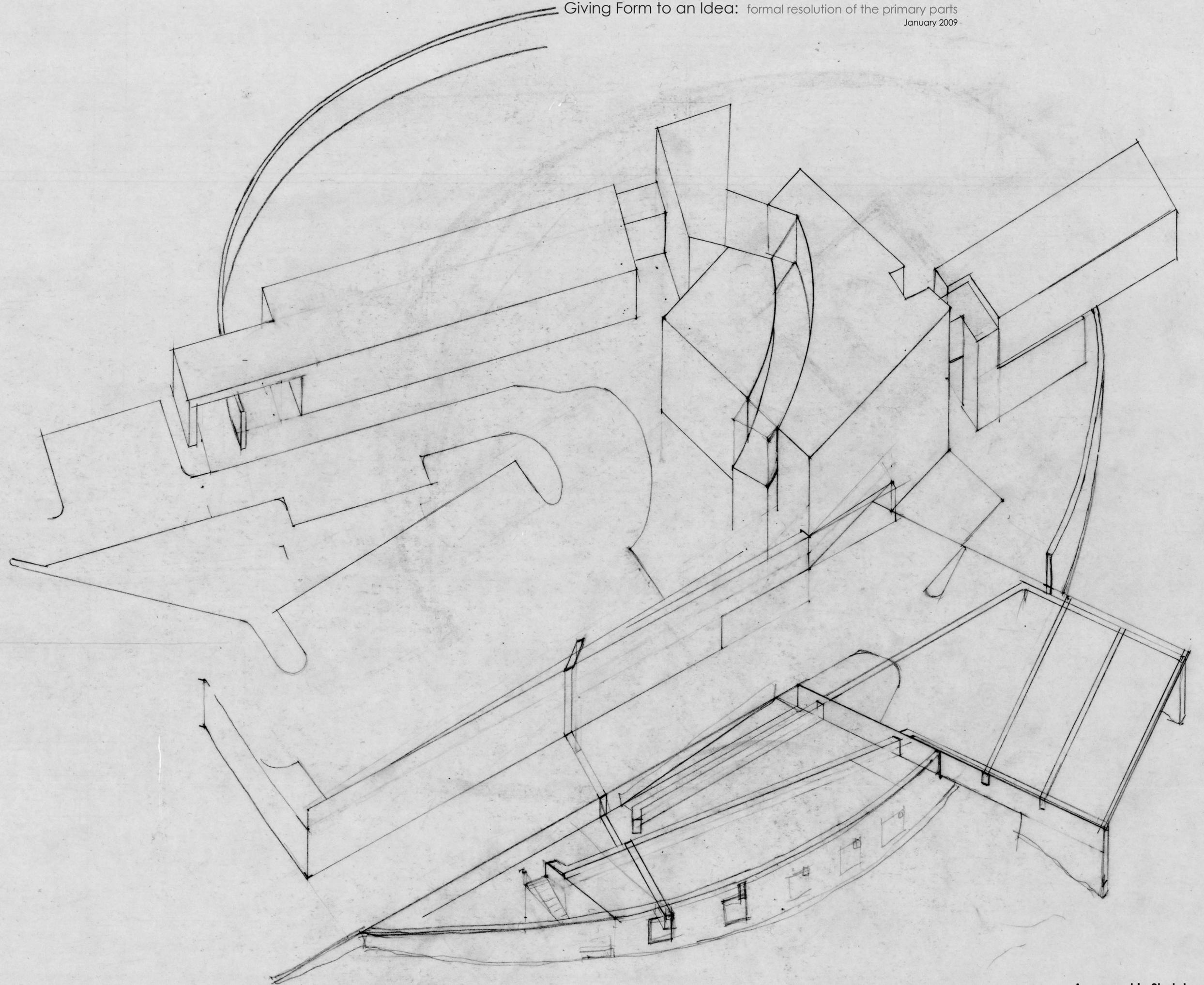


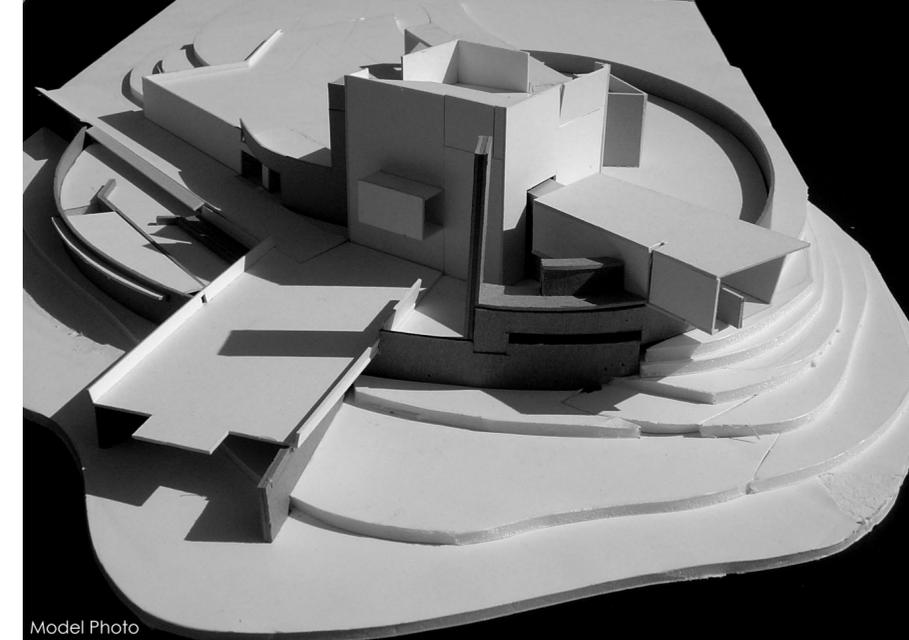
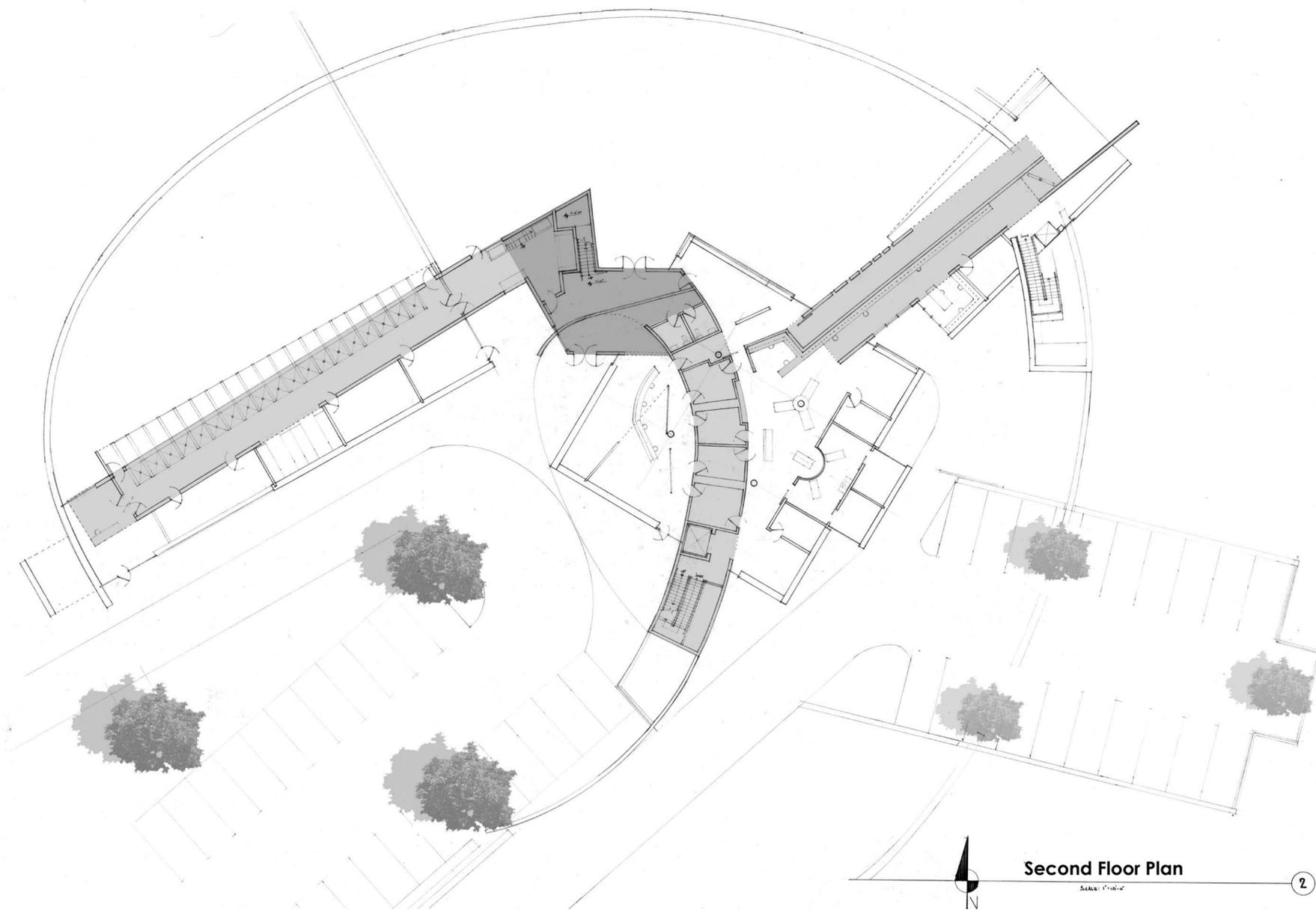
Model Photo

- Reception
- waiting
- toilets
- Exam Rooms x 4
- Treatment area
- Surgery x 2
- Radiology
- LAS
- hospitalization area
- isolation area
- Pharmacy
- conf room
- Breakroom
- staff toilet
- offices
- Boarding
- reception
- utility room
- storage
- grooming
- Ethnopia
- Crematorium

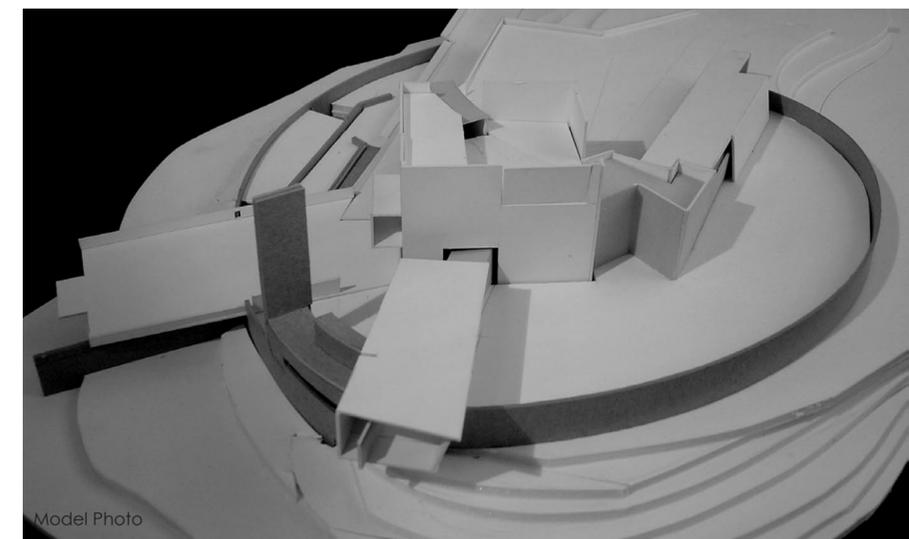


SITE PLAN
SCALE 1" = 20'-0"





Model Photo



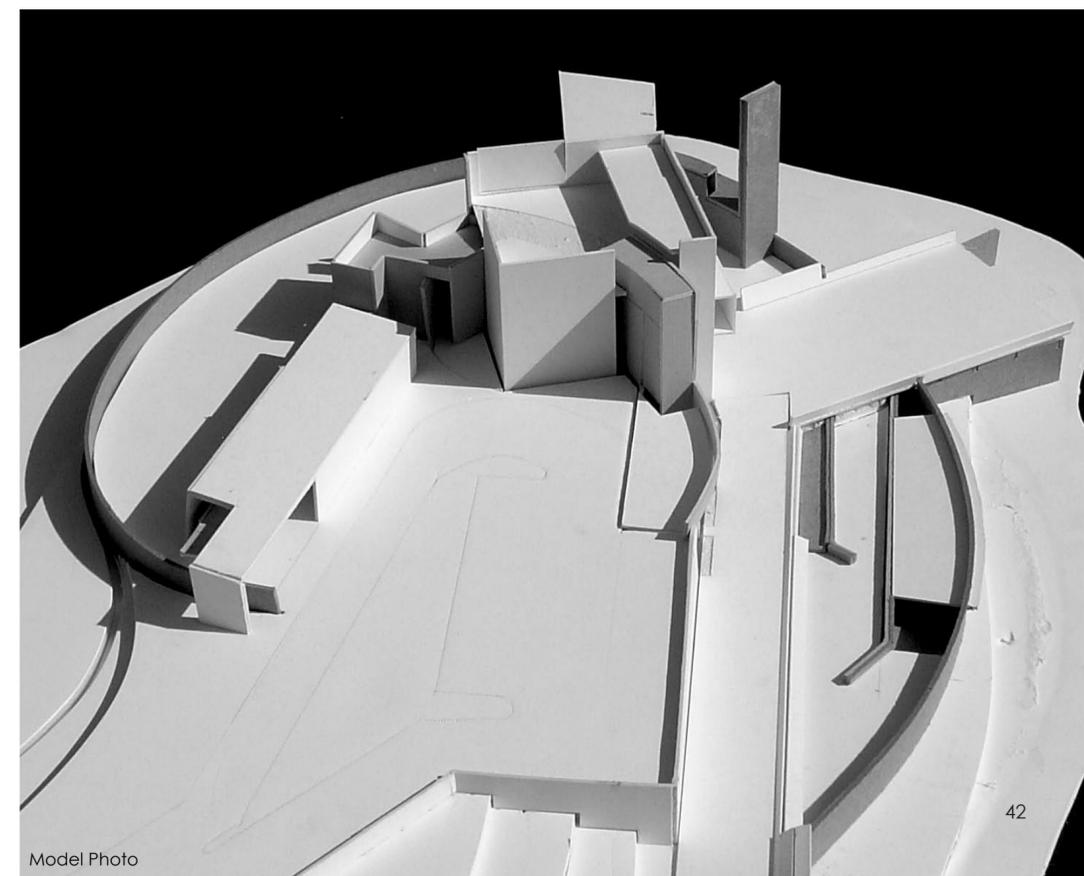
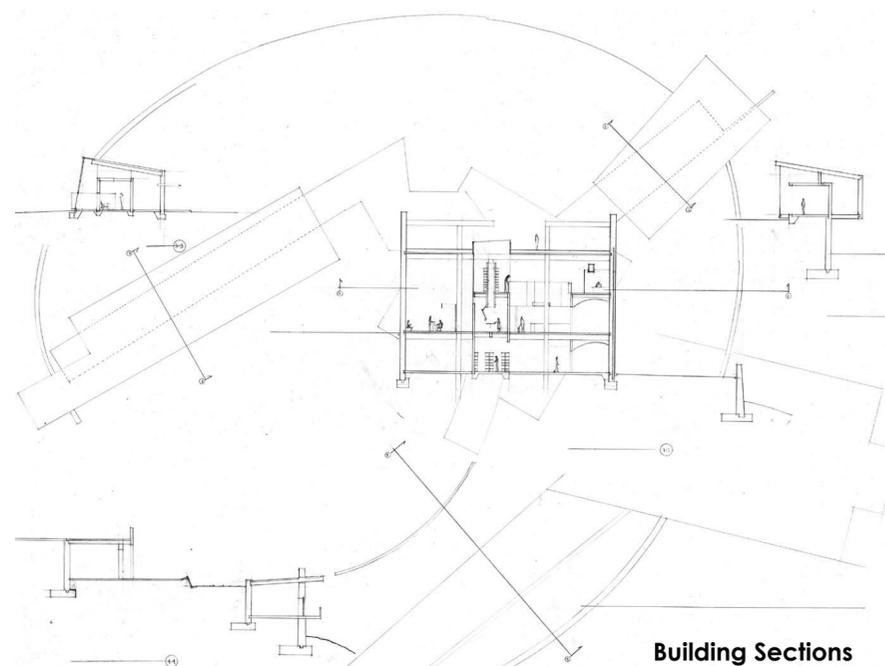
Model Photo

Giving Form to an Idea: pushing the limits of the composition
February 2009

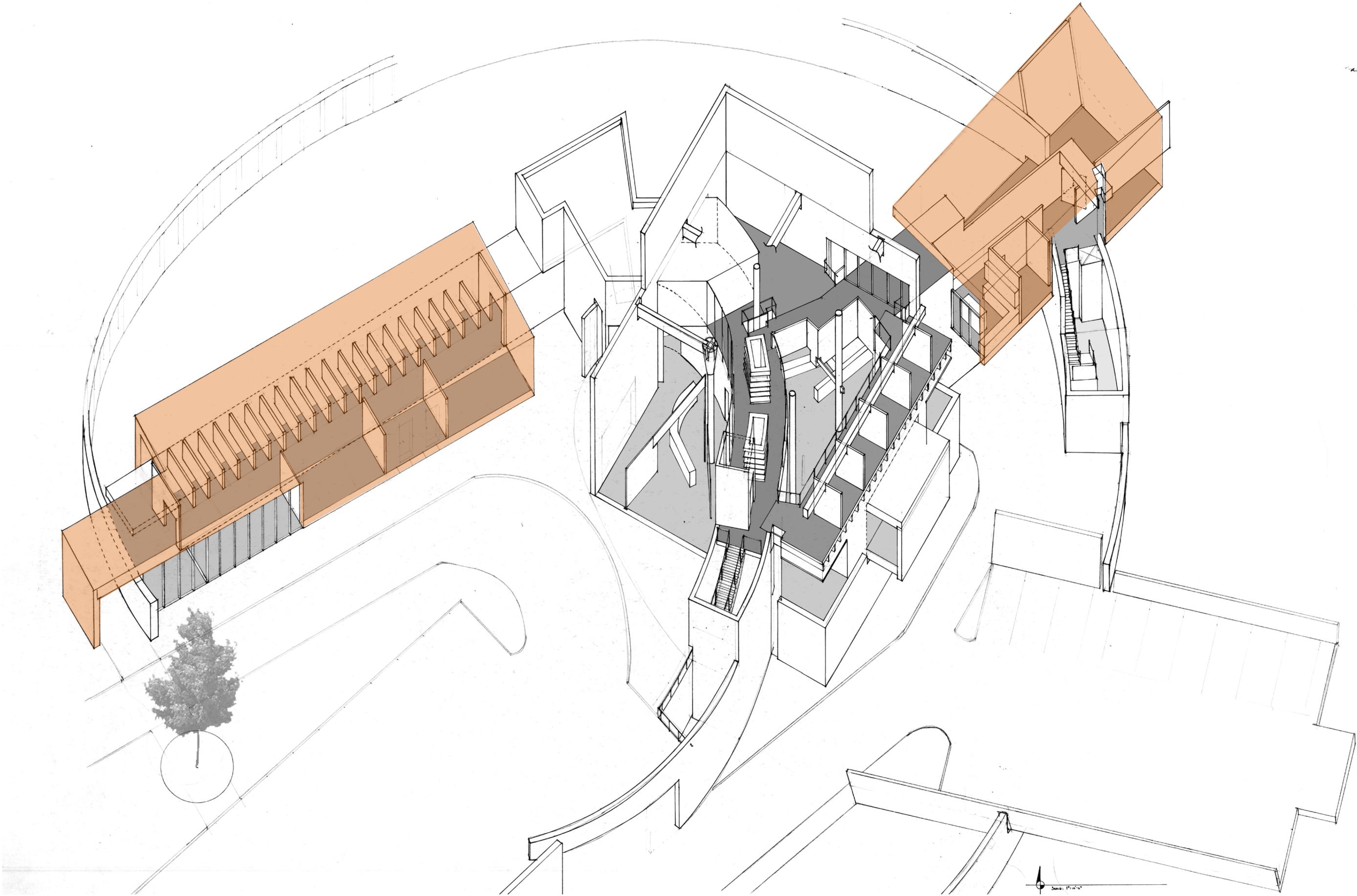
Key Ideas:

This scheme illustrates the necessary step of resolving the complex program with the increasingly complex form of the building. Investigations that led to the development of this scheme took place in plans, sections, axons, and physical models. Through the previously mentioned means, all of the necessary spaces as well as their relationships to each other and to the whole began to develop. This was an initial attempt to synthesize all of the formal and programmatic complexities of the project into a single proposal. As such, this scheme is a compromise between formal ambitions and the pragmatics of the program.

Although formally exciting and programmatically acceptable, this composition lacks the appropriate clarity and fails to coherently bind the form of the building to the form of the program.



Model Photo



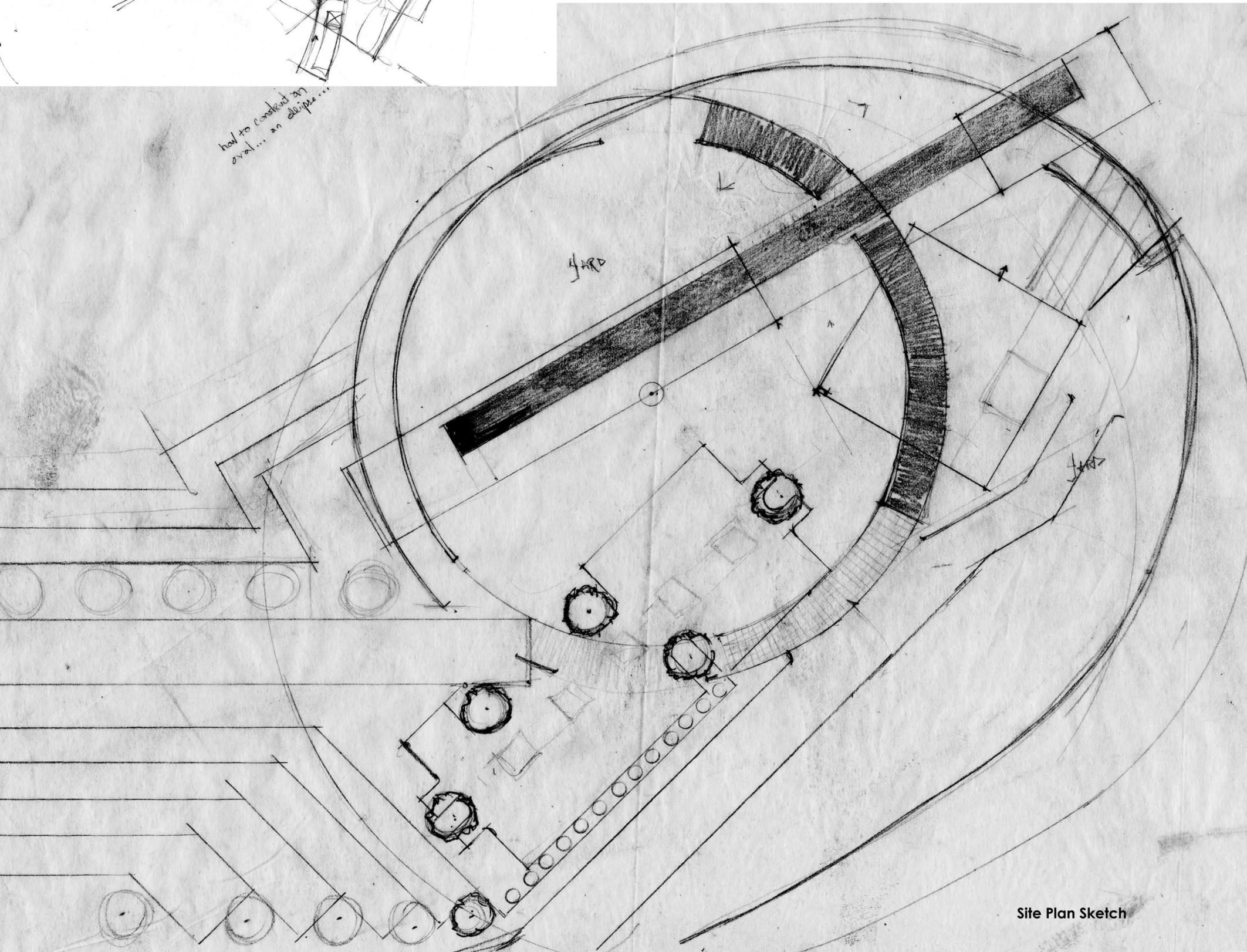
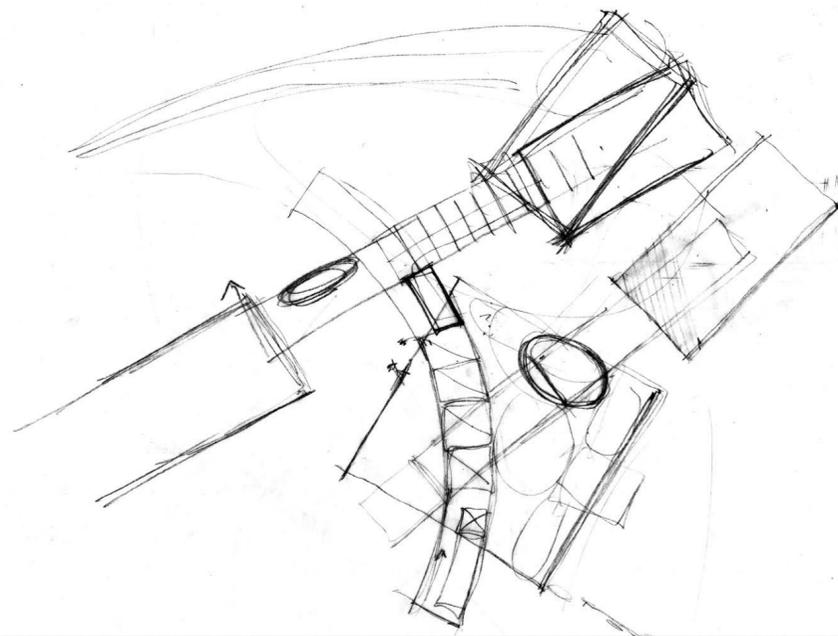
Giving Form to an Idea: simplification and elimination

March 2009

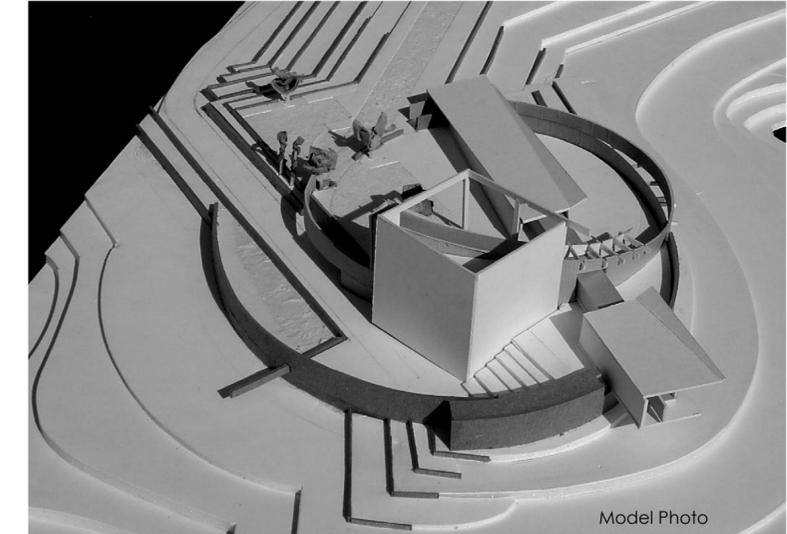
Key ideas:

-In this iteration, the staff parking area was eliminated as a distinct element in the composition.

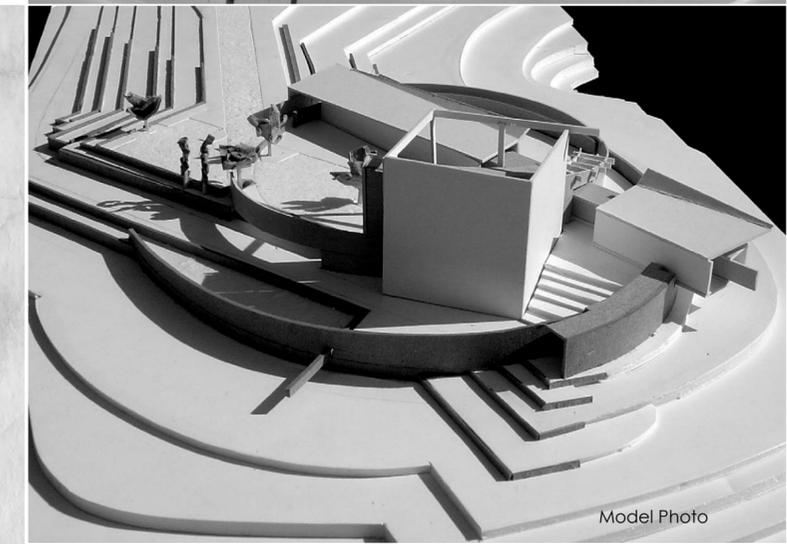
-This iteration explores the implications of simplifying the formal composition as illustrated below and in the model images to the right.



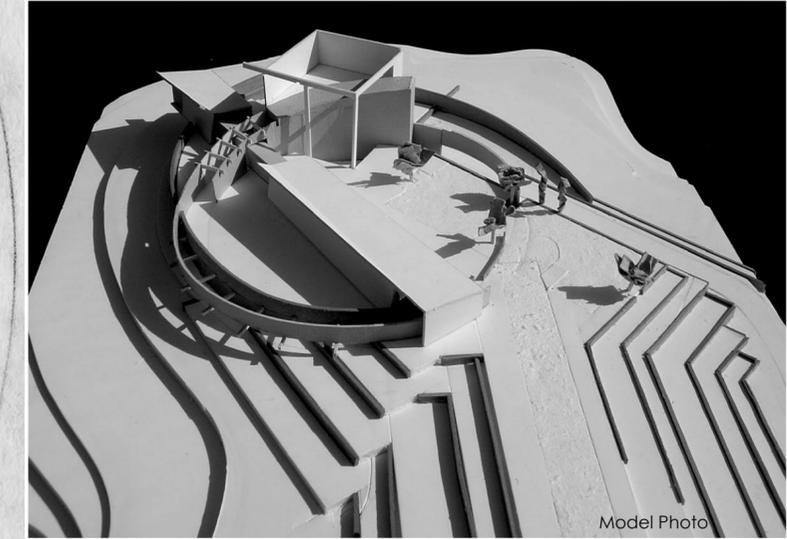
Site Plan Sketch



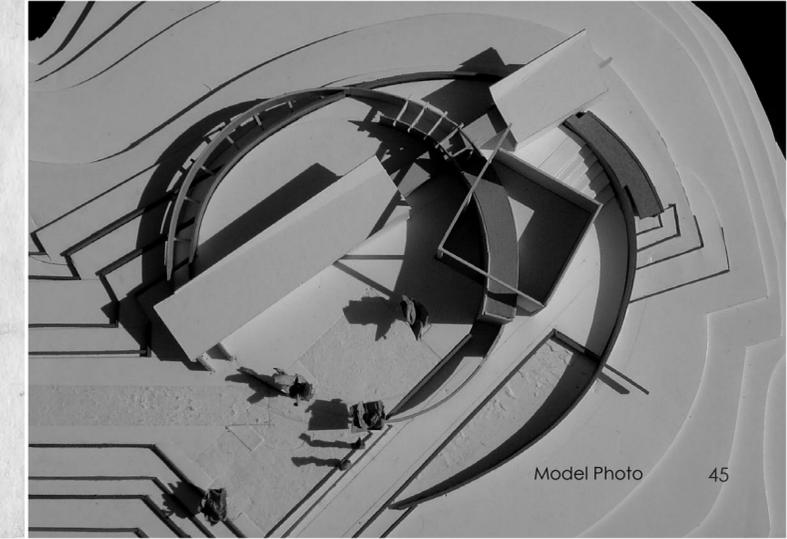
Model Photo



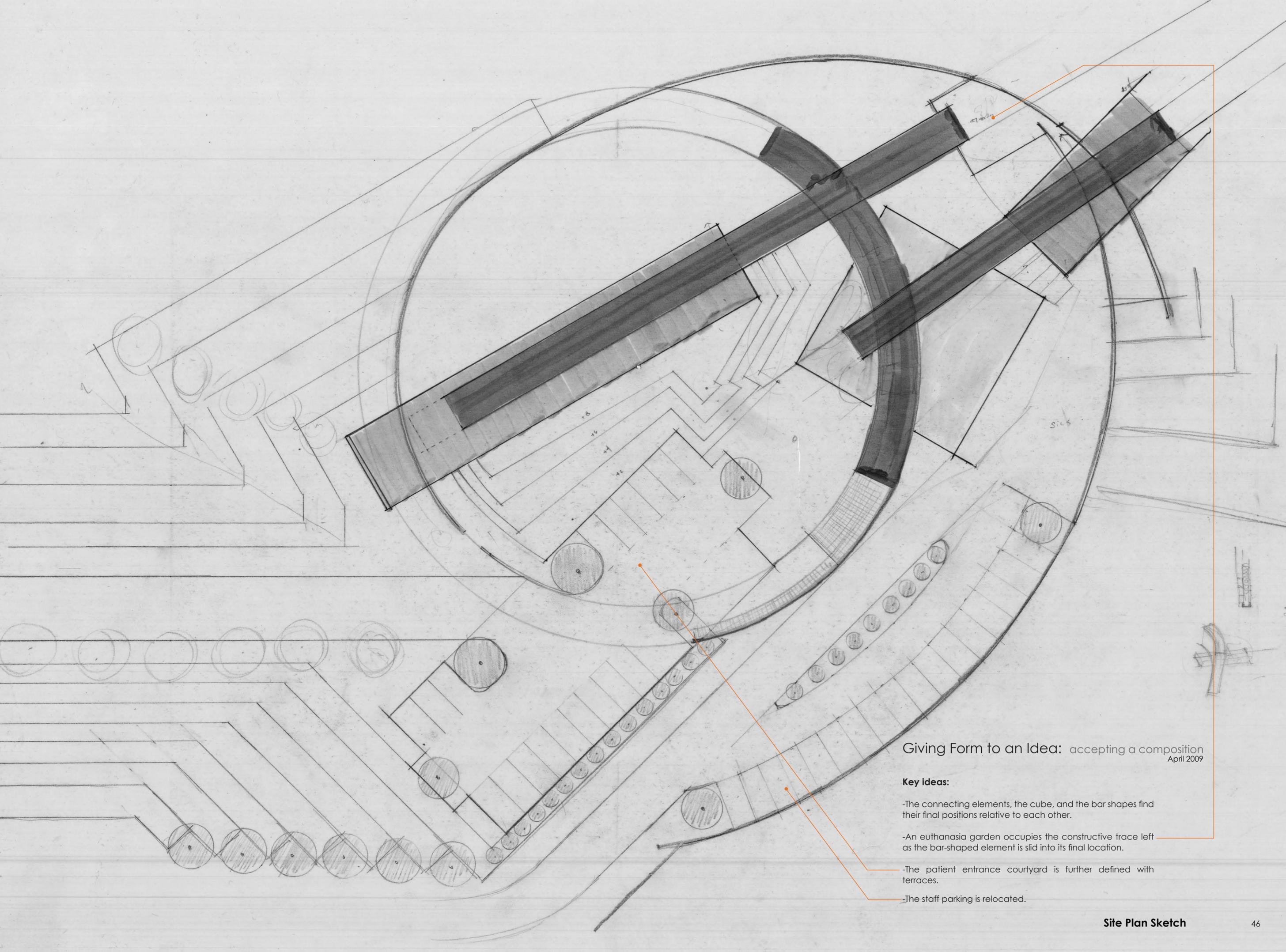
Model Photo



Model Photo



Model Photo



Giving Form to an Idea: accepting a composition
April 2009

Key ideas:

-The connecting elements, the cube, and the bar shapes find their final positions relative to each other.

-An euthanasia garden occupies the constructive trace left as the bar-shaped element is slid into its final location.

-The patient entrance courtyard is further defined with terraces.

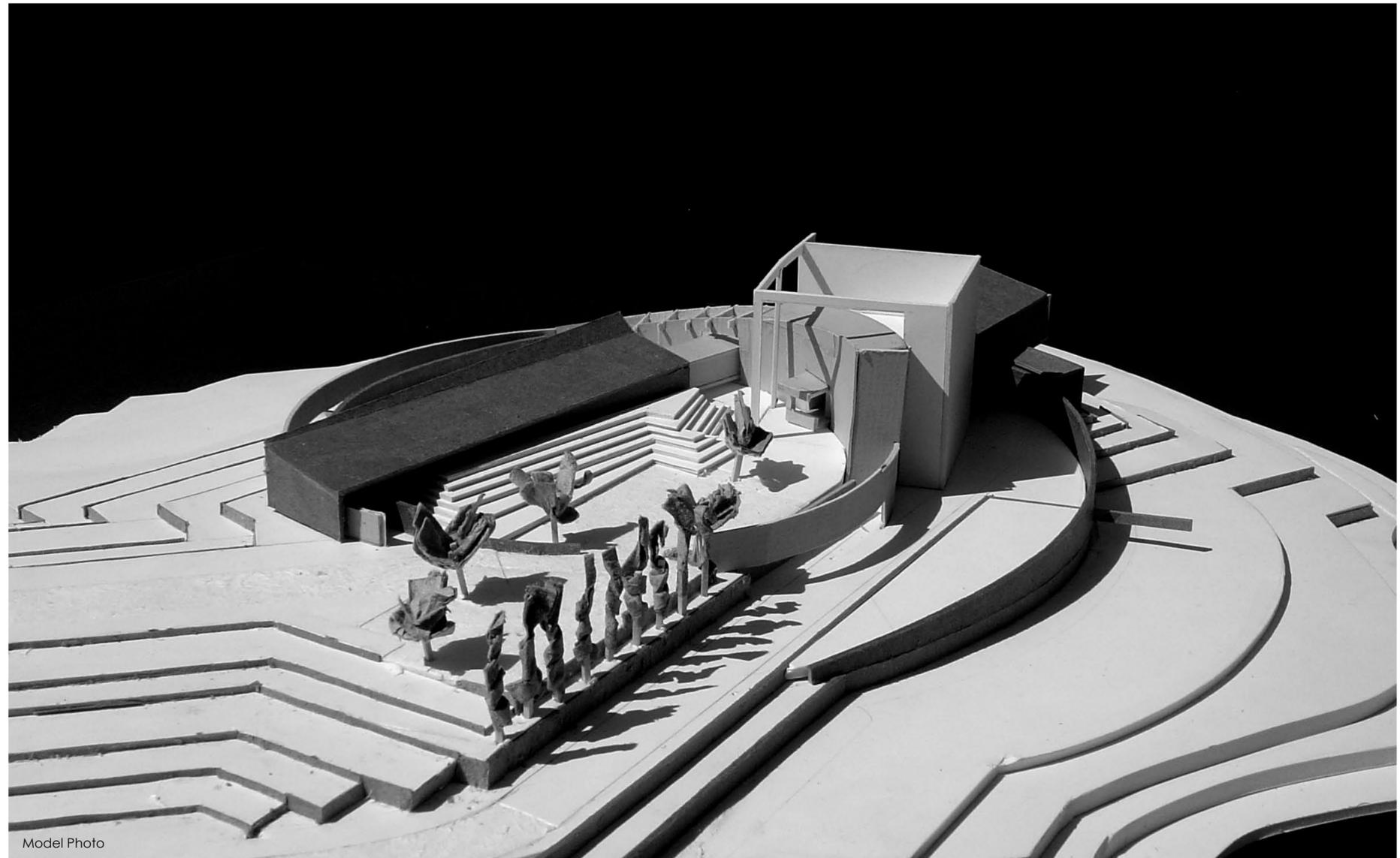
-The staff parking is relocated.

Giving Form to an Idea: accepting a composition

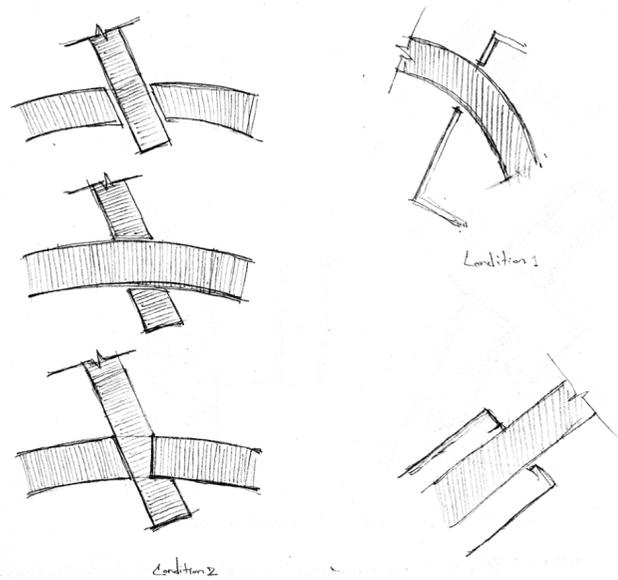
April 2009

Once the project reached the level of sophistication illustrated on this page, all of the major programmatic and formal elements of the building were determined. That is to say, the form of the program was properly aligned with the form of the building and the complexity of each were no longer at odds.

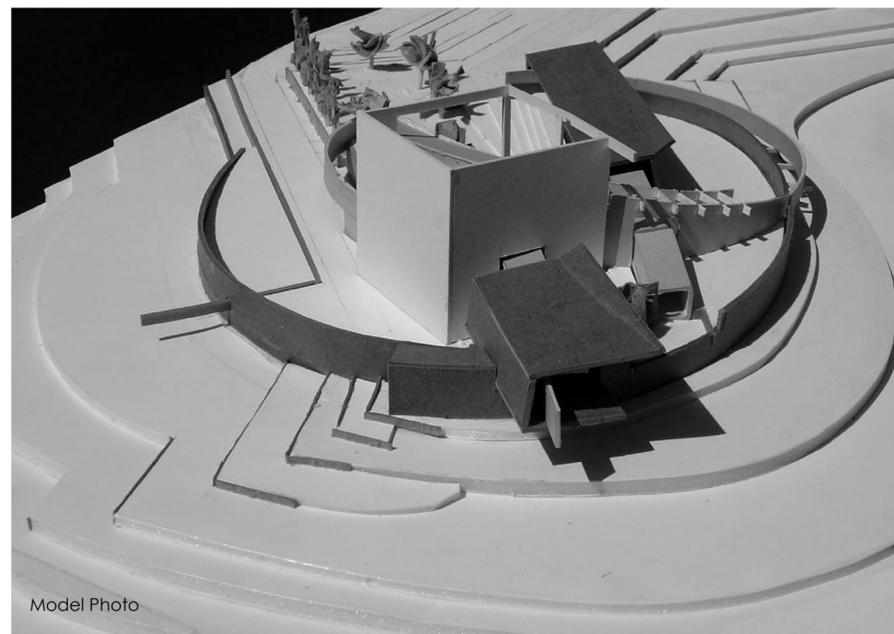
Even though the major programmatic and formal elements were beginning to resonate together, in order to reach an appropriate clarity refinement beyond this point was still necessary. However, it is appropriate to pause here because this phase of the project marks a very important milestone. Prior to this scheme, the search for an appropriate union of form and program was ongoing. Only when this union was accepted, could the process of true refinement begin.



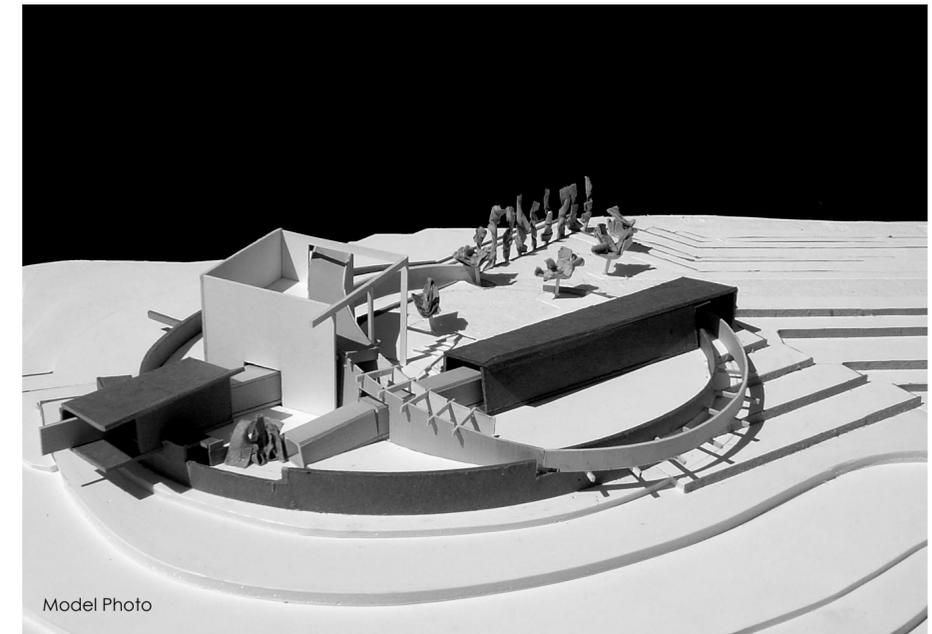
Model Photo



This series of diagrams explores possible methods of intersection.



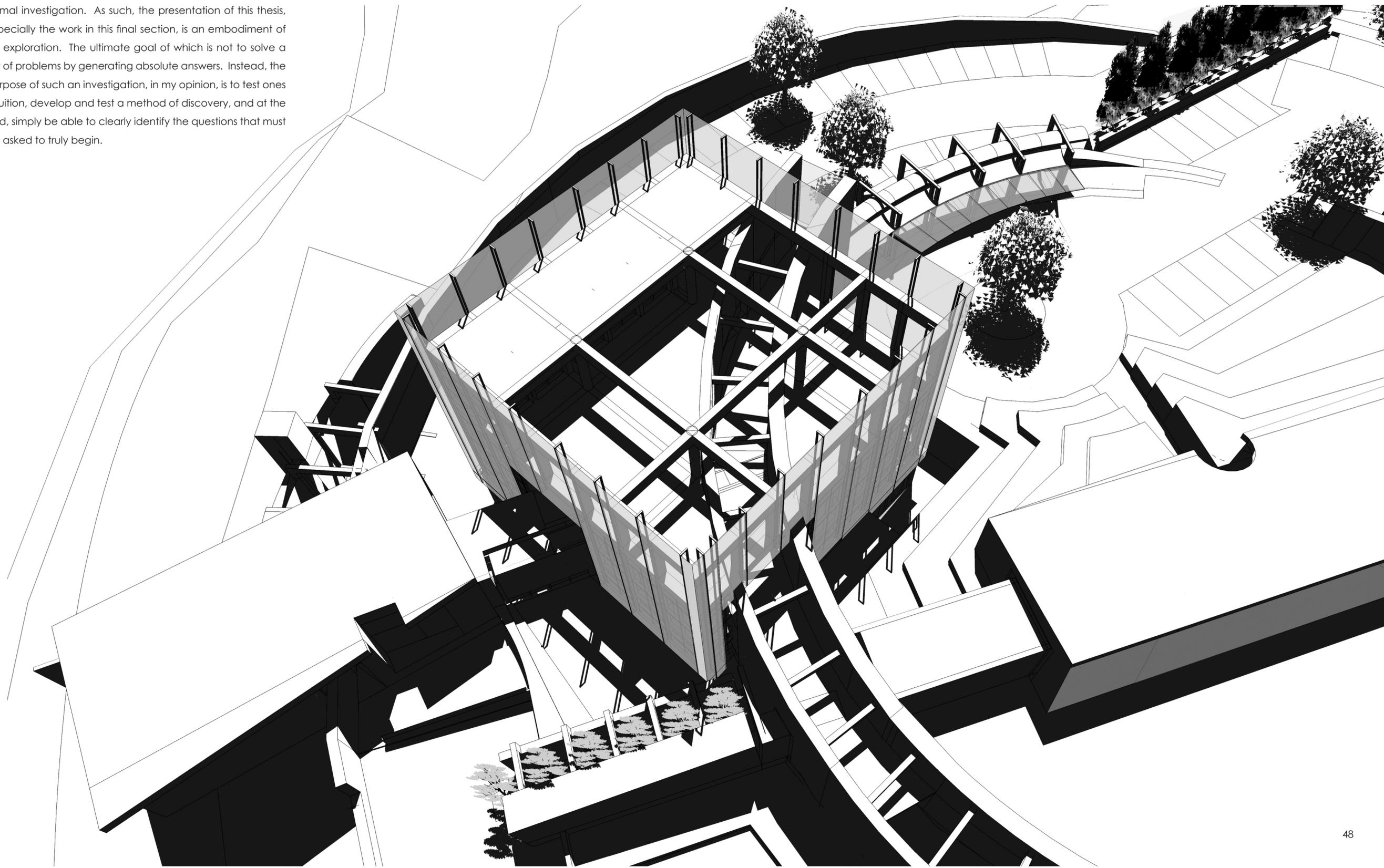
Model Photo



Model Photo

Giving Form to an Idea: the final composition
May 2009

As this project will never be built, the drawings, images, and descriptions throughout this document must be relied upon to create the physical reality within which this veterinary clinic will exist. This final reality was never evident from the beginning. Furthermore, the object created does not represent the end of the investigation, nor is it the final solution. In fact, there is really no end; rather, the final object contained within this proposal exists only as the concluding iteration of this formal investigation. As such, the presentation of this thesis, especially the work in this final section, is an embodiment of an exploration. The ultimate goal of which is not to solve a set of problems by generating absolute answers. Instead, the purpose of such an investigation, in my opinion, is to test ones intuition, develop and test a method of discovery, and at the end, simply be able to clearly identify the questions that must be asked to truly begin.



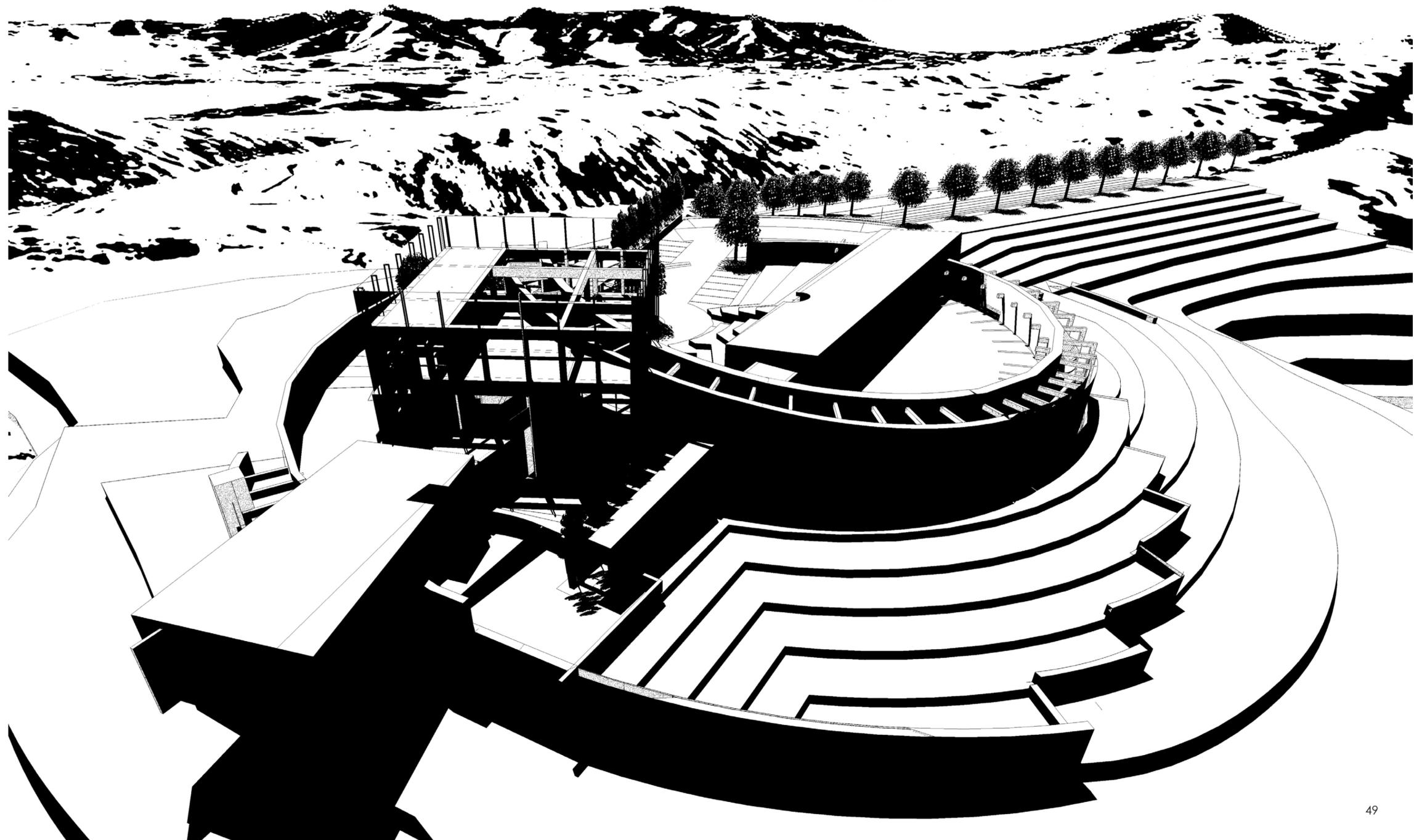
Final Thoughts:

trust your intuition
think by drawing and making
architecture must first exist in the imagination
take chances
build only buildings you would like to inhabit
travel
sketch more than you photograph
allow your method to guide the search
challenge yourself
do not assume you have all the answers
remain humble

Artists & Architects from whom I Gain Inspiration:

Samuel "Sambo" Mockbee
Carlo Scarpa
Tadao Ando
Salvador Dalí

Giuseppe Terragni
Peter Zumthor
Alvar Aalto



SOURCES



This image captures the essence of my year-long workstation.

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NY : Princeton Architectural Press, 1995.

Media and Illustrations:

All drawings, photographs, sketches, and models were created by
the author.

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