Blind Sight

by

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DALHOUSIE UNIVERSITY

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The undersigned hereby certify that they have read and recommend to the Faculty of Graduate Studies for acceptance a thesis entitled “Blind Sight” by Ryan Beecroft in partial fulfilment of the requirements for the degree of Master of Architecture.

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ABSTRACT

This thesis focuses on the exploration of the sense of smell, touch, taste, and hearing as main design guidelines. In doing so, an architecture was developed which moves beyond the visual reliance of spatial understanding. The sense of touch became of primary interest as it is an immediate connection between oneself and the world.

The site for this thesis is located in an urban environment in downtown Halifax, Nova Scotia. A sensitive design strategy was developed to blur the lines between the static geometries of the space with the dynamic influences of experiences.

The program supports the display and creation of art. Promoting collaboration, this community building integrates those who are blind or of impaired vision with sighted individuals. Visual impairment became a vehicle as the true success of the building was found in how well it raised equal sensual awareness amongst users.

ACKNOWLEDGEMENTS

I would like to thank Susan Molesky and Brian Lilley for their continuous input, insight, and patience. Not only over the journey of this thesis, but the years that came before.

Thanks to the studio crew who have become more than just classmates, but lifelong friends. This includes Lucy, who will continue to make sure all of our dreams will soar when tethered by helping hands.

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I would like to finally thank the person who has helped enrich this experience every step of the way. Emily, you are my closest friend and are dearest to my heart. You are a source of constant encouragement, and I thank you for always believing in me.

THESIS QUESTION

How can an architecture driven by exploiting senses other than vision create a learning environment that challenges users with vision impairment while equally informing a community?

INTRODUCTION

PERSONAL EXPERIENCES AS INSPIRATION

The Unilever Series "How It Is" by Miroslaw Balka, exhibited at Tate Modern, 2009-2010

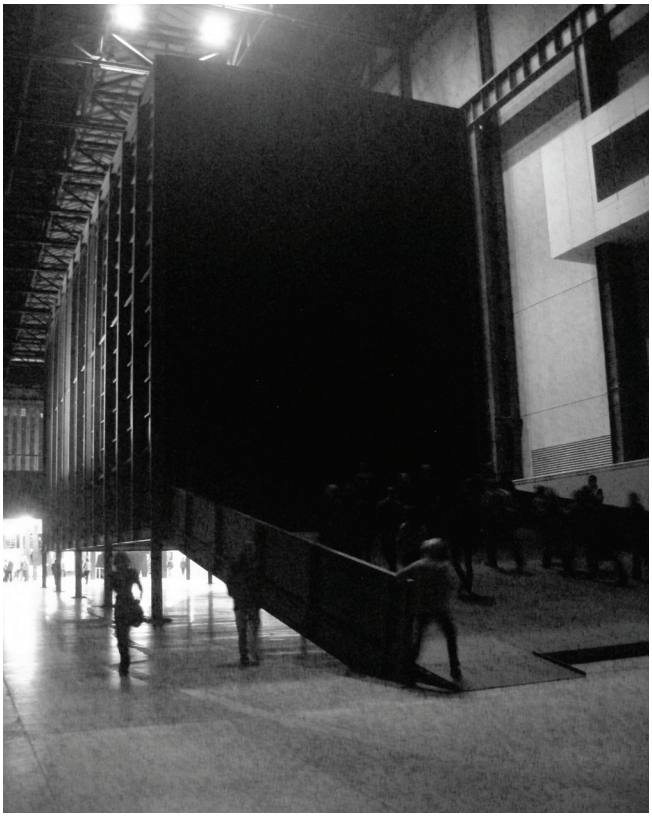
Taking over the Tate Modern's turbine hall during the fall of 2009 was Miroslaw Balka's installation "How It Is". I was able to experience the installation amongst a crowd of other visitors. It was a profound experience, which affected me more than I had expected.

At the rear of the hall was a large black steel box supported roughly seven feet off the ground. As I approached from the front, an echo of shuffling reverberated from inside the box creating a heightened sense of anticipation and curiosity. Turning to face the rear of the three story box it was revealed that there was an entire side missing creating a large entrance. As I continued to the entrance, ascending up a large ramp, a vast dark chasm consisting of the complete rear side of the container begins to envelope me. As I stepped up the ramp to enter the space I was engulfed into the black murkiness before me as faint figures walked throughout. As I had set into this alone, a strong feeling began to come over me. A feeling to hold the hand of someone I loved, to help guide me through the experience. As that emotional help was not obtained, my senses slowly readjusted, enabling the sounds of others and the grasping of my feet to try and calm the anxiety of moving further and further into the space. Although I had just walked along the exterior of the box, taking note of an estimate of its length, this new atmosphere stripped me of the previous use of measure and judgment. Within the murky hold of the space, the panic came over me. Wanting to turn back become a definite thought, but the curiosity to continue forward overpowered. I began to almost grope onto people that were moving around me, or

rather their shapes that have now dissolved so much in the surrounding darkness that I started to doubt if they were real. Then out of nowhere, smack, right into the rear of the space, the sound of steel echoing all around me.

It's at this moment that I was able to turn around and see the journey I had just made and those who where still in the midst of it. Their shadow like figures that had seemed to choke my surrounds were now nothing more than silhouettes struggling to reach the point I was relieved to finally obtain. This point is not one found in space though, it is the point when visual connection was regained.

As a result of this experience, I began thinking what if I couldn't return to my own point of comfort, if I couldn't simply turn around to gain back my sight. I began to analyze how the importance of sound had become, my awareness of others around me, how there was a new unit of measure that I needed to use to experience the space. How would the process of developing architecture change when stripped of the use of sight, exploiting the other senses to shape an end result?



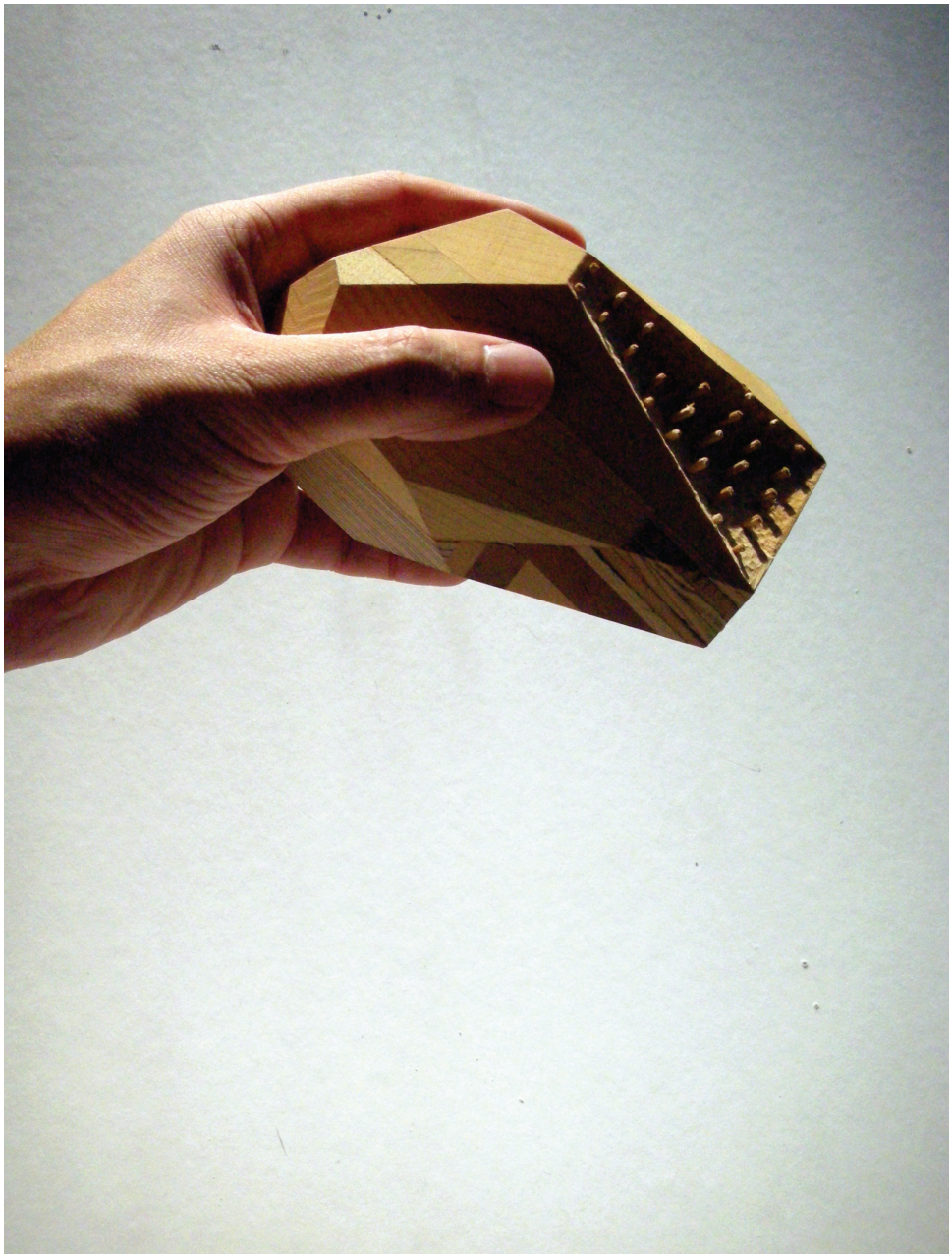
Photograph of Miroslaw Balka's "How It Is" looking towards the entrance of the box.

OBJECTS OF EXPLORATION

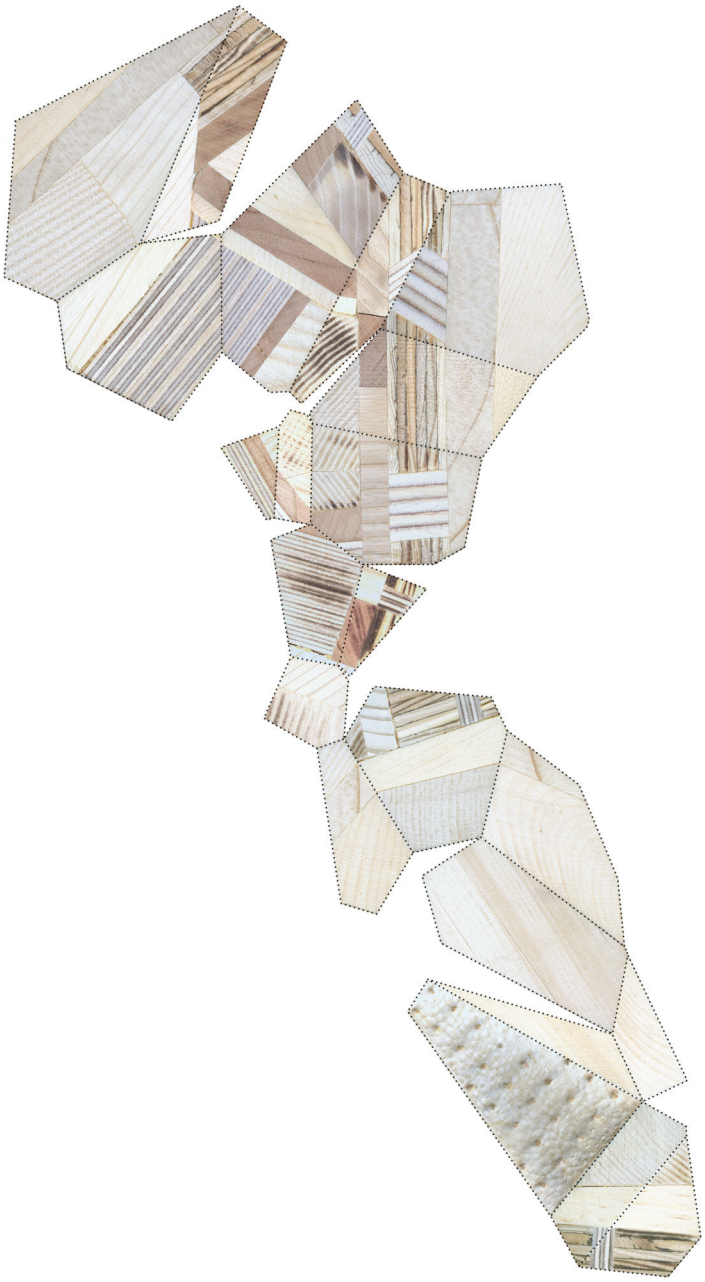
A collection of conceptual objects became the beginning point of exploration for this thesis. Ideas became tangible objects as they were explored through 1:1 hand models.

Pear

This was the first object made to explore the relationship that we have between a built object and our ability to interpret information without the use of sight. The object is made of various types of wood and wood products. Placed together in a fashion to create a surface that is overwhelming to look at and understand the complexities of its shape. The hand becomes more aware of the object's surfaces and deciphering its form. One facet of the object is carved out and has a surface that is replaced by a grid of points. This is used to signify that a surface or form can be identified through a network of connections spread over a form. Although a square measured grid is put into action in this instance, I believe that other geometries can create similar effects. Unfolding the object furthers the understanding of how the object was made. These textural cues are more evident by visual relations, but the all-wood piece has significant lines throughout. When held in the hand a "viewer" is able to relate individual pieces throughout the object, even-though they are cut and formed into faceted sides.



1:1 Wood hand model “pear” displaying facited sides of wood grain and grid surface.



Unrolled surface of “pear” further revealing relationships of wood grain.

Lamp

This object, with a bell like form, was intended to induce a user to take a visual clue; to use the silhouette of the object to determine its function. In actuality, it is a functionless object, as it does not provide light or resonate tones like a bell. This is bringing awareness that visual cues concerning form might not be something that a final piece of architecture will take on. Its forms finding should be informed by other senses. The purpose of the object is to experience not only two materials at the same time but also both sides of the same curve. The double curvature becomes a multi-sensory experience. One compares the texture of the plaster immediately to the texture provided by the copper.

The sense of touch also compares the temperature of the materials. The influencing atmosphere surrounding them allows the copper to be cold or hot compared to that of the plaster. Although this is a simple exercise, it shows the potential that temperature will have when using different materials in a resolved building.

The means of how each was made might be another thing that one might question. The fluidity of the plaster allows it to easily adjust to a curved form, where as the copper sheet was required to be assembled from a flat sheet into the final form. The plaster is also dependent on excess folds that form the copper. It is also interesting to think of this shape unfolded into similar flat elements. Translating this from two dimensions into three helps tell a story as to how the final form was made.

1:1 Hand model of the “lamp” displaying its double curvature and the materiality of copper and plaster

Unrolled surface of the “lamp” showing flat panels of copper compared to the taper of the final form.

Diamond Quilt

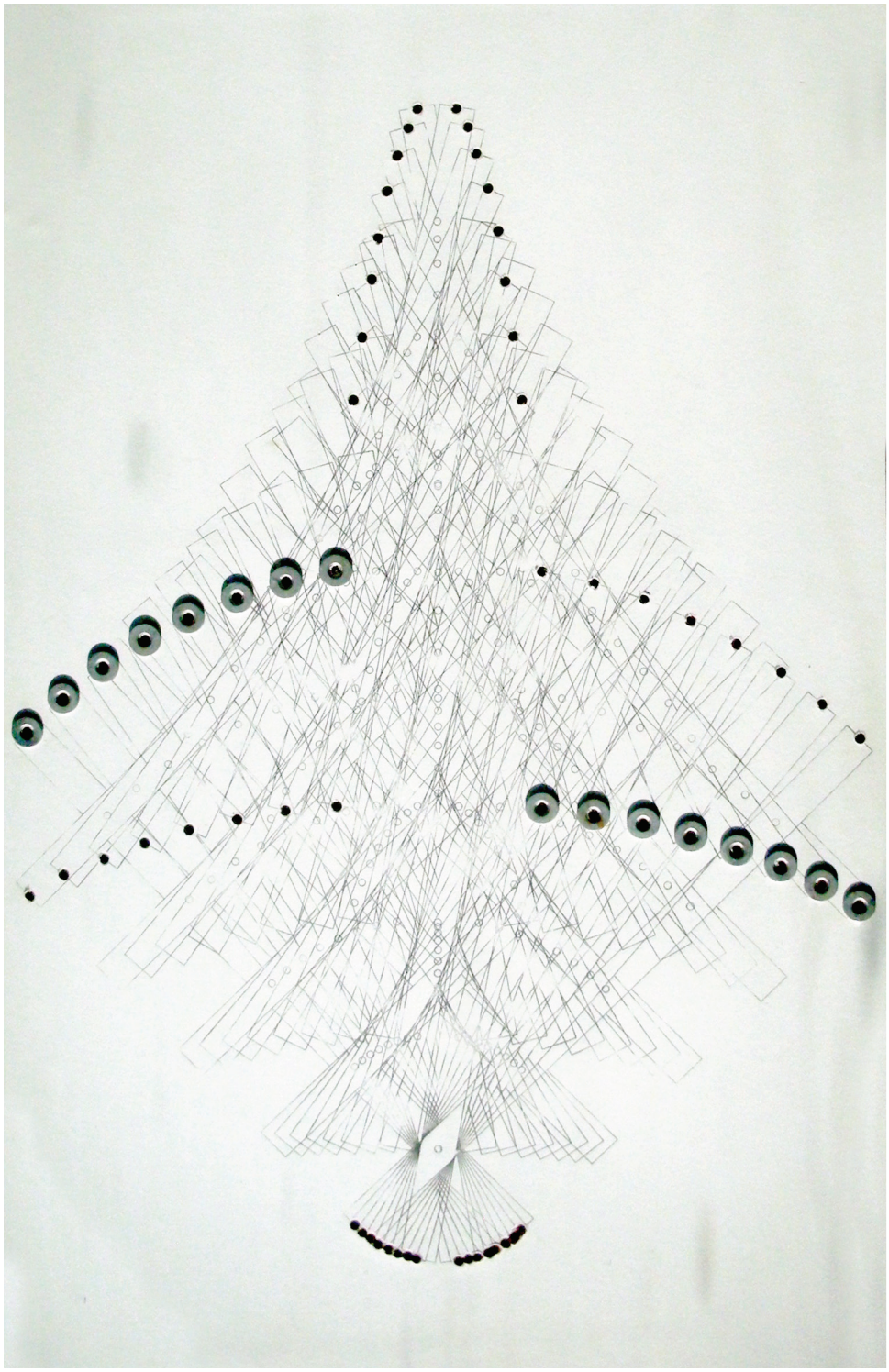
The next contraption once again challenges the visual against that of physical touch. The visually complex lattice like object is juxtaposed against its hands on function. This wood object is a manipulable formwork for fabric formed concrete. In this instance, the end product is a diamond made of plaster, but it would house similar surface qualities if the castings were made of concrete.

Plaster being dragged down by gravity creates impressions against the selected protrusions and frame of the formwork. This is regulated by the tension of differing membranes that range from plastics to natural fibers such as cotton. Surfaces smooth as glass can be created as well as rough textures from materials that have been woven together. To assist in the overall dimensions of the different diamonds, a “game board” of sorts was also created to help assist the precision of the tool. It traces the initial dimension of a square and is altered in five-degree increments to a final linear diamond. Two legs of the formwork are made of copper and matched against steel indicators found on the board to create a means of guidance.

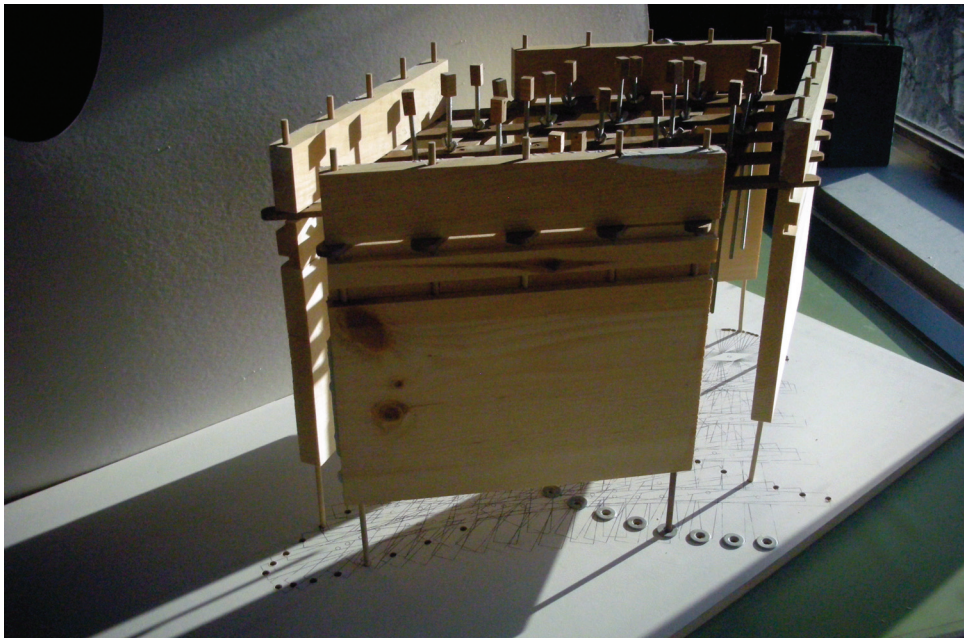
As a collection, the various diamonds create a quilt as a plain of information. It begins to represent not only a single individual, but also a community. Freedom can still be found within the given framework of rigour and method. With the hands-on approach to the tool, one can still imagine an innumerable amount of possibilities. This framework controls the outer form and allows the surface of the quilted piece to become the place of expression. The texture of the surface, the dimension of the diamond, the fluidity of the contours and the range of their depth create a piece that is a singular representation of its creator. When individual diamonds are gathered together, they create a final surface that has many contributors creating an identity for a community.

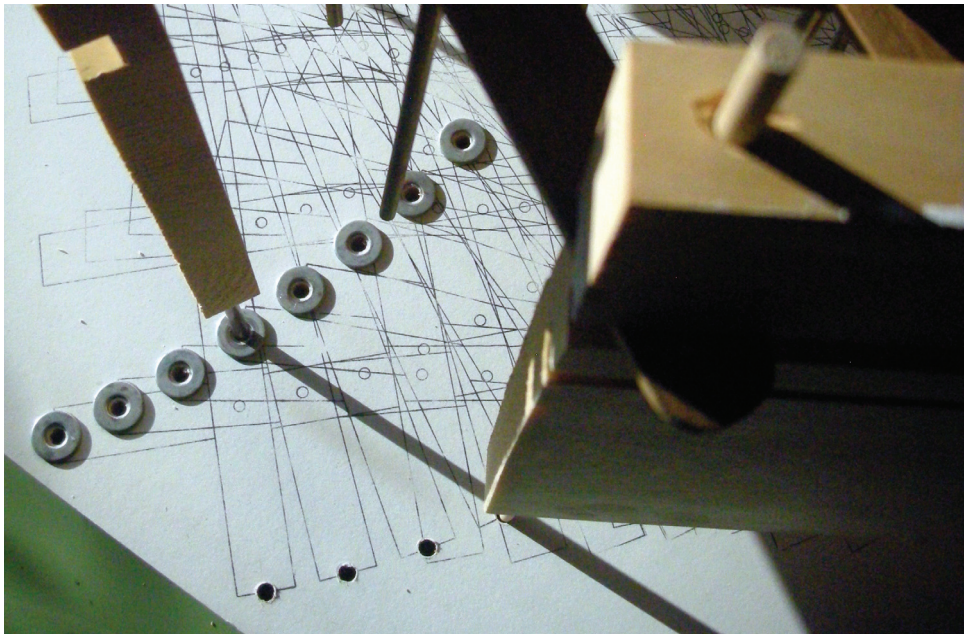
The idea of various materials and surfaces translating tangible means of information will be applied throughout the final piece of architecture. These are not only surface

deep, as corresponding volumes would reflect information being read by other senses. The play between a finish and surrounding volume should be further explored.



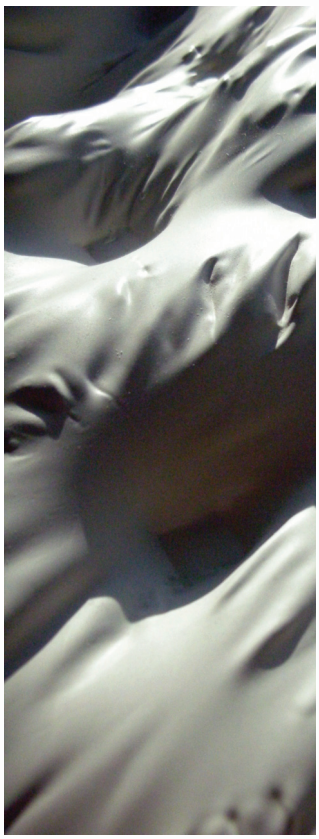
Game board showing opposing metal guide holes in five degree implements that receive copper legs of formwork.



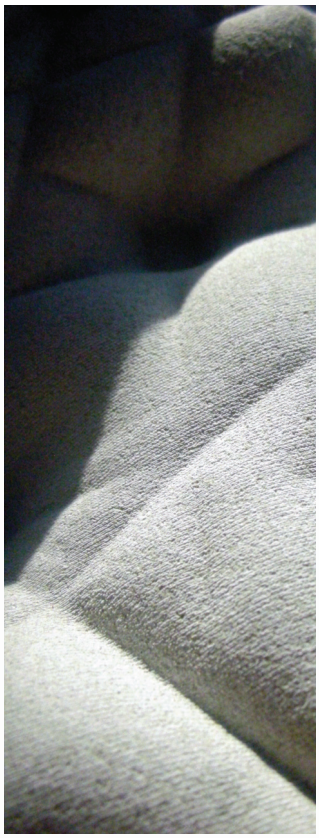


top: Wood formwork placed into the game board. bottom: Detail of copper leg inserted in the fourth steel guide.

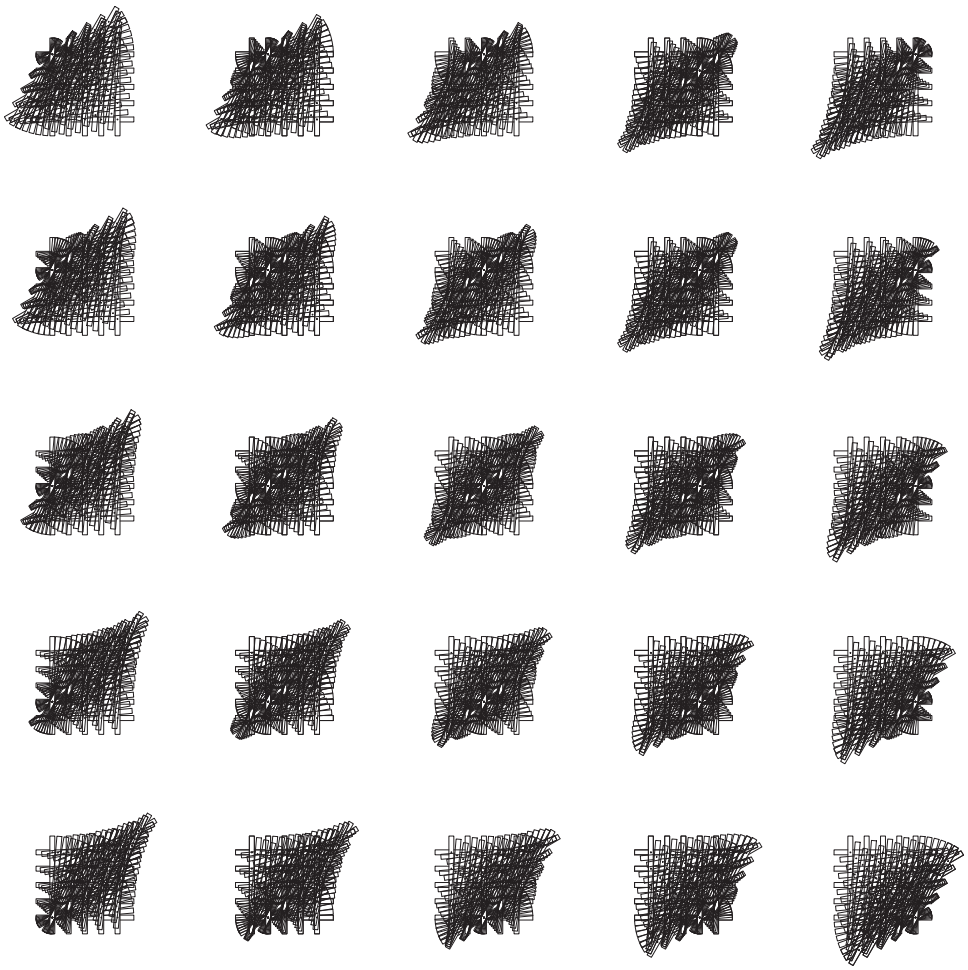
left: Detail of diamonds surface. right: A distinct stripe in the surface of this diamond was created by a overlooked seam of the fabric membrane.



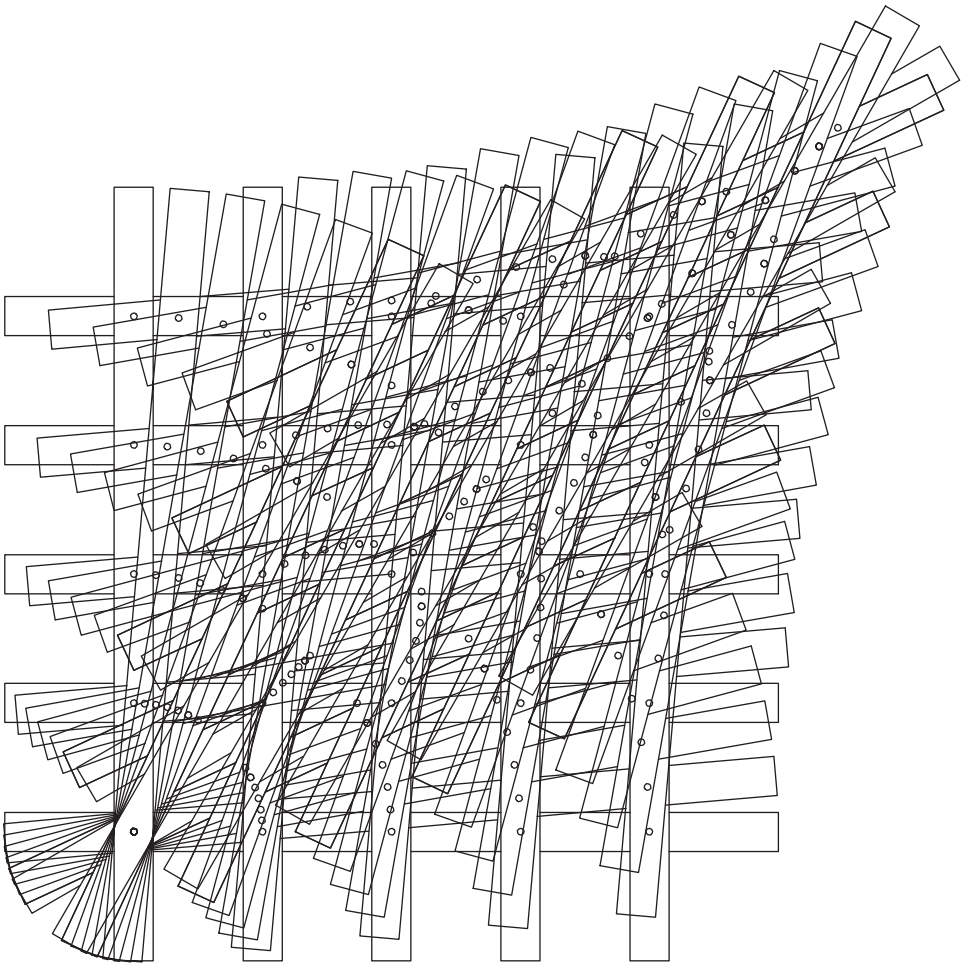
left: Detail of diamonds surface. right: This diamonds surface is extremely smooth as it was cast from a sheet of plastic. This material also created non-uniform displacements of plaster resulting in bulges between surface nodes.



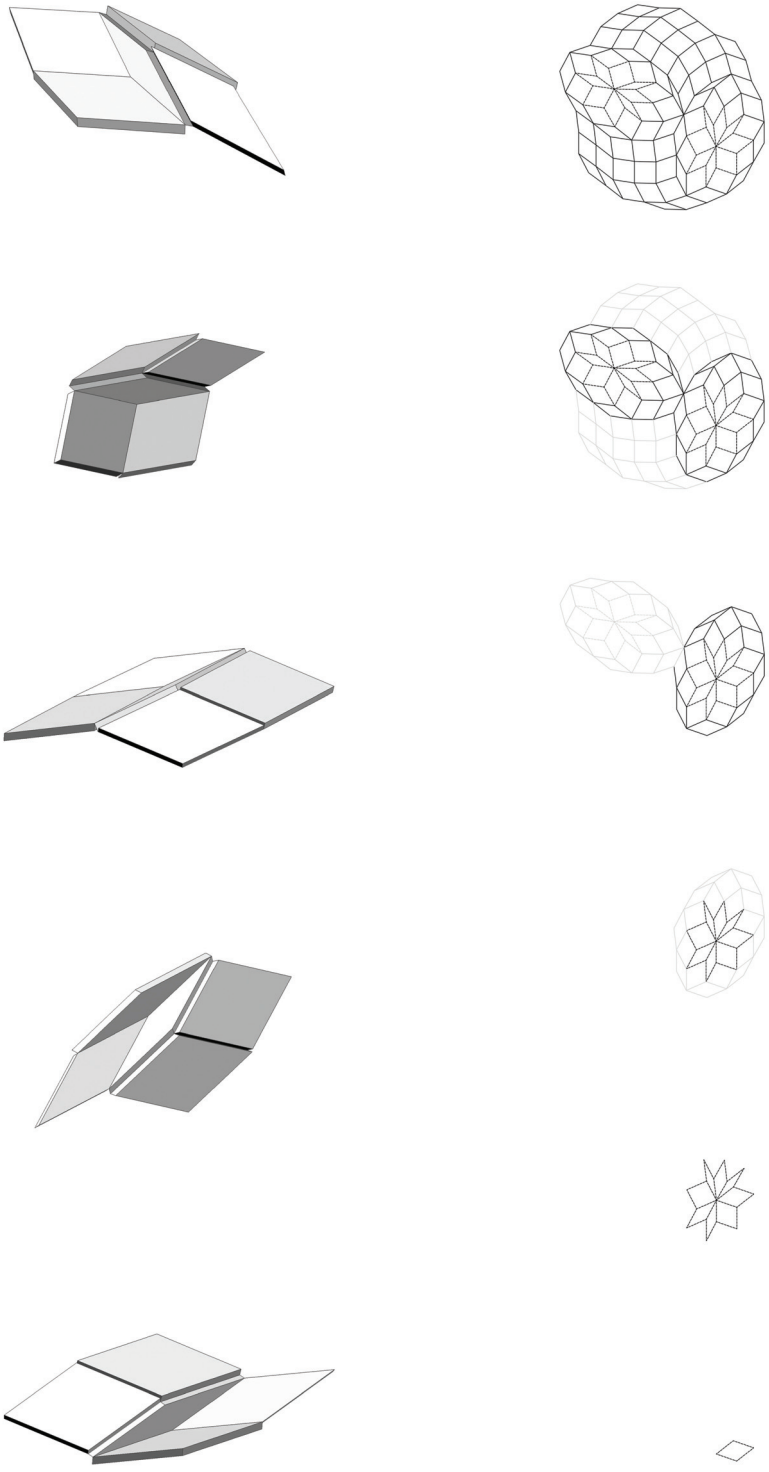
left: Detail of diamonds surface. **right**: This diamonds complex surface was created by adding an additional layer of information by routing string through the surface nodes creating a secondary tension influence on the cotton fabric.



Graphic showing overlays of the formworks array of positions. Each arrangement has a different point that doesn't move. This study assisted with creating the game boards layout, which is shown in the bottom left and top right corner.



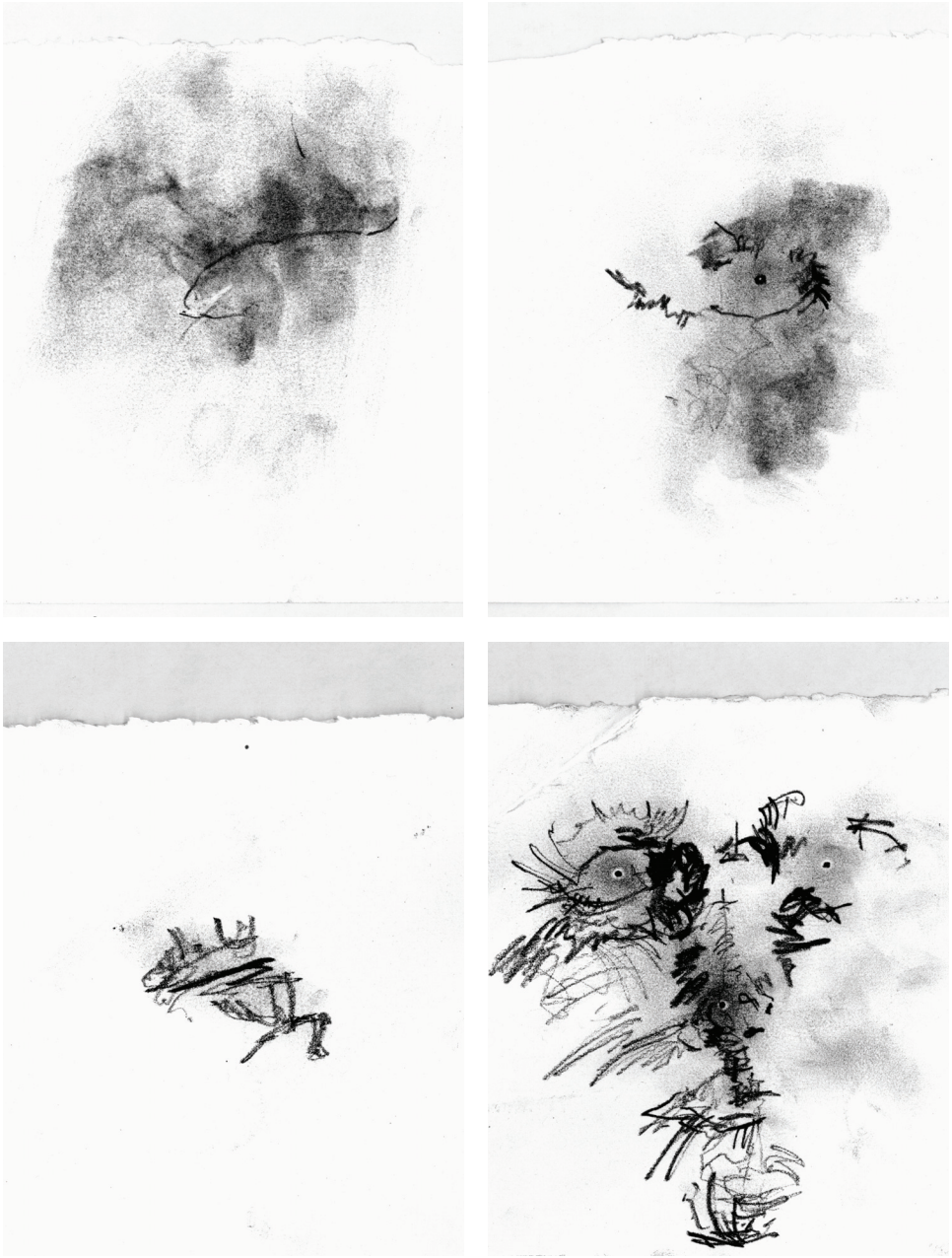
Larger graphic showing the layers of the game boards layout.



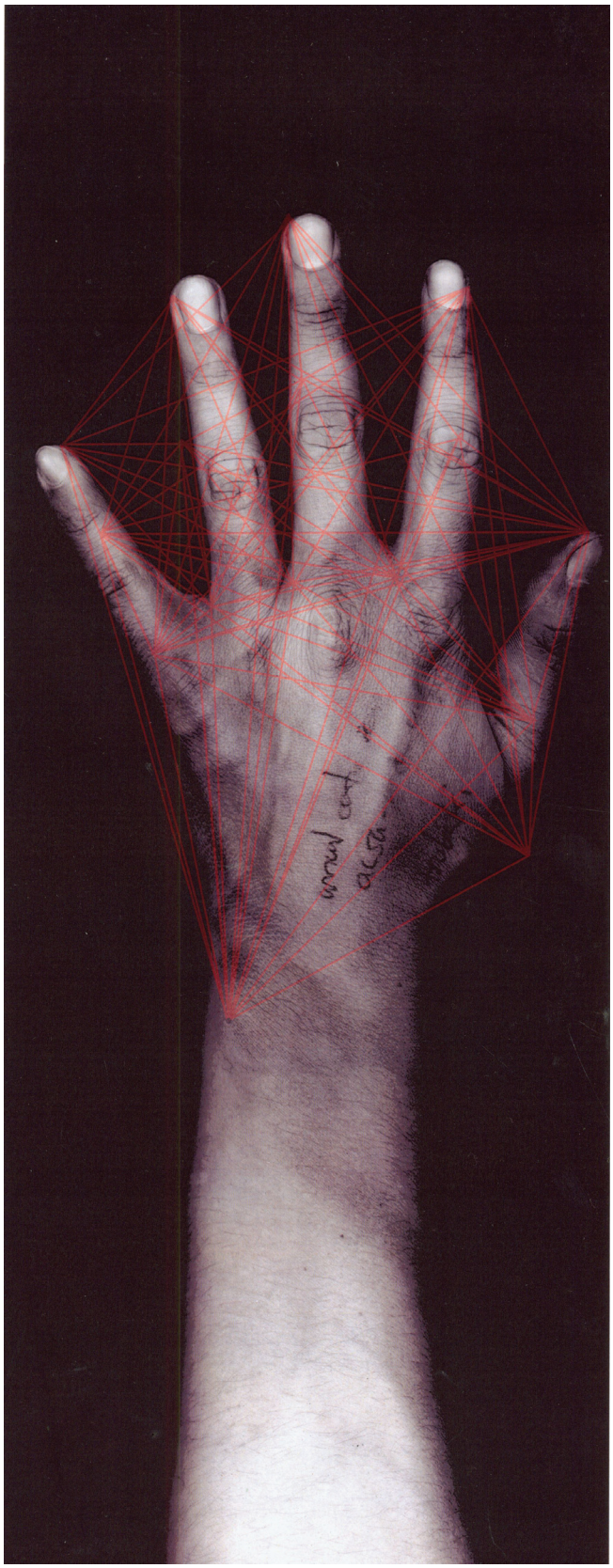
left: Example of how diamonds can come together to create an undulating faceted panel system. right: A two dimensional exercise showing how a single unit can be arranged to create a quilting effect when grouped with multiple diamonds and varying dimensions.

POINTS AND LINES: CREATING LEGIBLE RELATIONSHIPS

Experimenting with “blind” drawings I found it necessary to create a system of physical points to create a successful end result. I tried using my own face, starting drawings around the crest of my brow and nose as strong points to reference. Initial attempts of reading with my left hand while drawing with my right were futile on a flat blank page. Through frustration I applied a single reference point and started using my reading hand as a means of measurement and translating them into marks. Instantly I was able to map my entire face to the page. Further drawings explored how soft and hard materials created different marks and created a hierarchy of understanding. The harder the point of reference the more useful to compare to other points. The wrist and knuckles stand out amongst the softer tissue of the hand and create a stronger referential map to draw from. This rigour can be compared and applied to the poignancy of a smell, the differences in temperature, or the pitch of a sound found in a volume of a building. Making relationships with this system of references and measure became more useful than the overwhelming process of using memory without a strong point of reference.

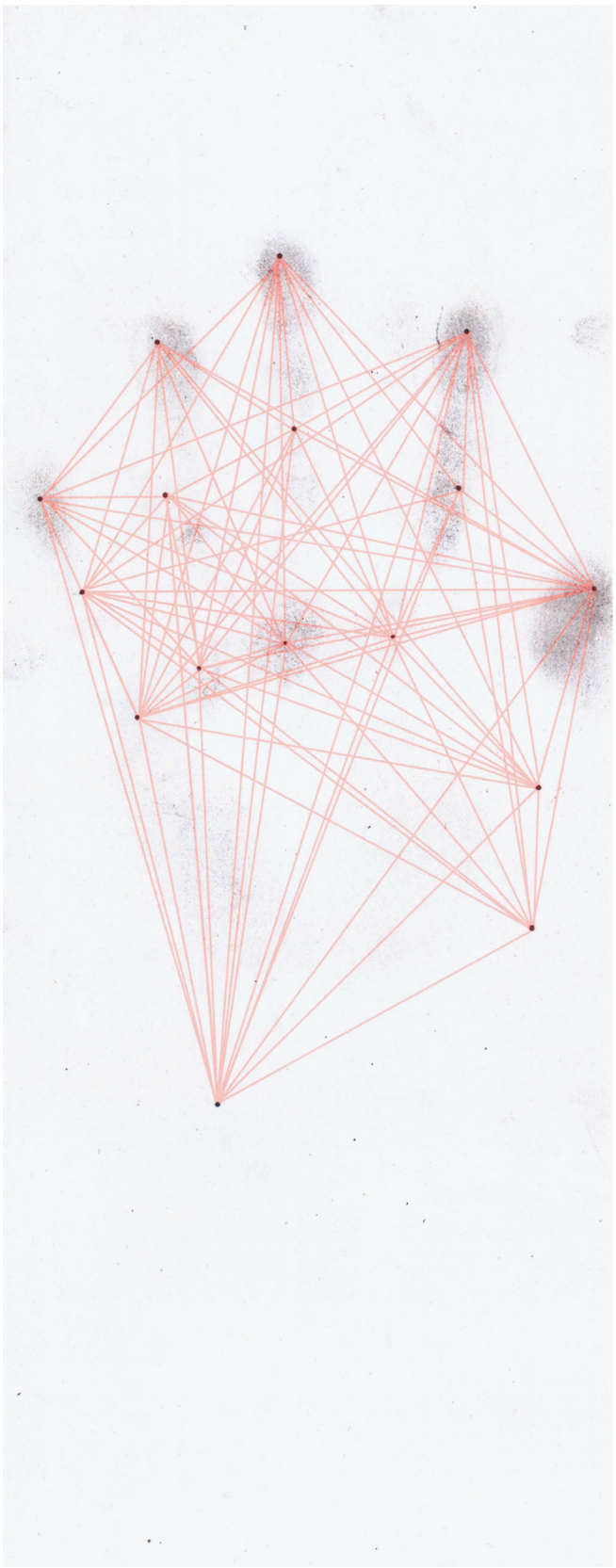


top left to right: First attempt of drawing an eye using charcoal and conté without a point of reference. Second attempt drawing with a single point of reference in the centre of the eye. bottom left to right: Another example attempting to get further from the eye with a single point. Finally, using system of points to reference a face is more evident



Hand with points of reference overlaid.

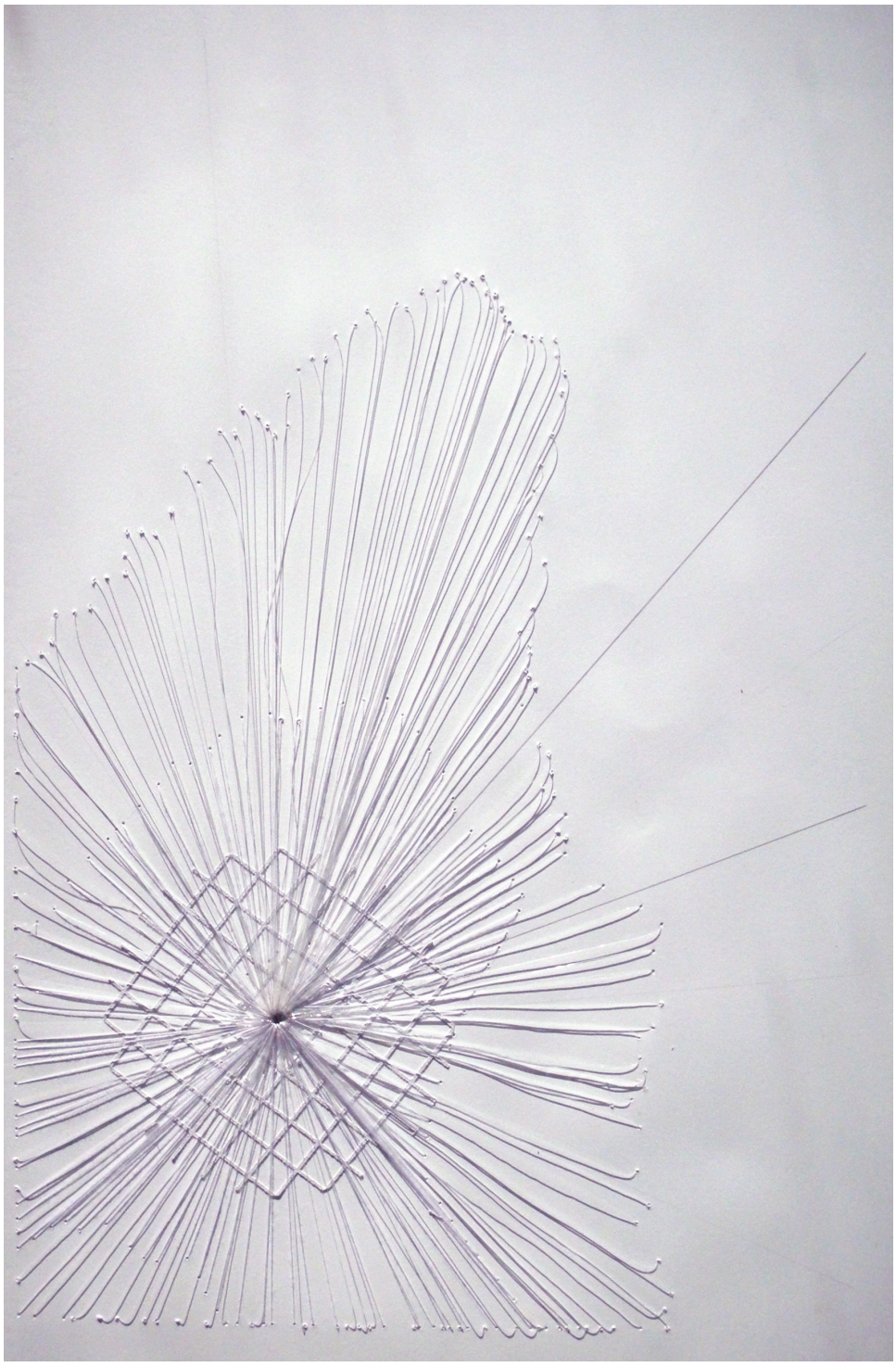
Charcoal drawing of hand revealing stronger marks around hard points of reference.



Possible geometries between reference points found on the hand.

RELATIONS BETWEEN SOURCES

We rely on other sources to provide sensory information and in turn are putting out our own sensory pulses. There is a constant give and take of sources producing and effecting sensory environments. This is an obvious fact, but still one of great value. Although each sense is dependent on the intensity of its source, one can still place each sense into a hierarchical list. My personal findings are that touch is the most immediate when connecting to the physical nature of particular environment. Sound quickly makes one aware of movements. Smell has been described as the most memorable. Taste the least effective at analyzing an exterior influence. Vision dominates as the sense we rely on the most. Different levels of connection begin to form when analyzing these broadcasting sources in plan. I came to explore the idea of verticality as a means to express the boundaries of incoming and outgoing sensory information. As “We behold, touch, listen, and measure the world with our entire bodily existence and the experiential world is organized and articulated around the centre of the body. (Pallasmaa, 1994, 35) the following drawings are executed with single bodies.



String drawing depicting an abstract representation of a person in plan. Each type of string represents a different sense and a distance involved with transmitting and receiving information. The drawing is read with the eye, but more information is transmitted through touching and moving strings with your hand.

A further study showing the overlap of information as a group of people is shown in plan.

FICTITIOUS SITE

The pilot project became a means to explore senses on a vertical axis. To help choose a proper site for the suggested program, a thirty meter tower was placed in two ideal environments. These environments were the two extremes of each other: a natural forest like environment or a dense urban environment. What can each environment provide and which would be the best environment for learning? In elevation, striations of senses are taken from different volumes found within the given environment. Some are common between the two, acting like bookends, the earth and the sky are constants between both environments. This isn't to say that they are exactly alike as their surroundings influence each of these. Natural environment can be broken down as: earth, floor, grid of trees, canopy, and then sky. Urban conditions have slightly less striations: earth, floor, built environment, and finally sky.

The exploration took the striations of the towers own interior against those found in each environment. Expanding or squishing spaces within the towers allowed it to further reflect the surrounding environment. As one is closer to the ground, the ceiling height is more condensed, providing concentrated relationships. This creates a contrast to larger volumes in the floors above. Mid way, a narrow floor could be sandwiched between two vast volumes to reflect a point of concentrated sensory information.

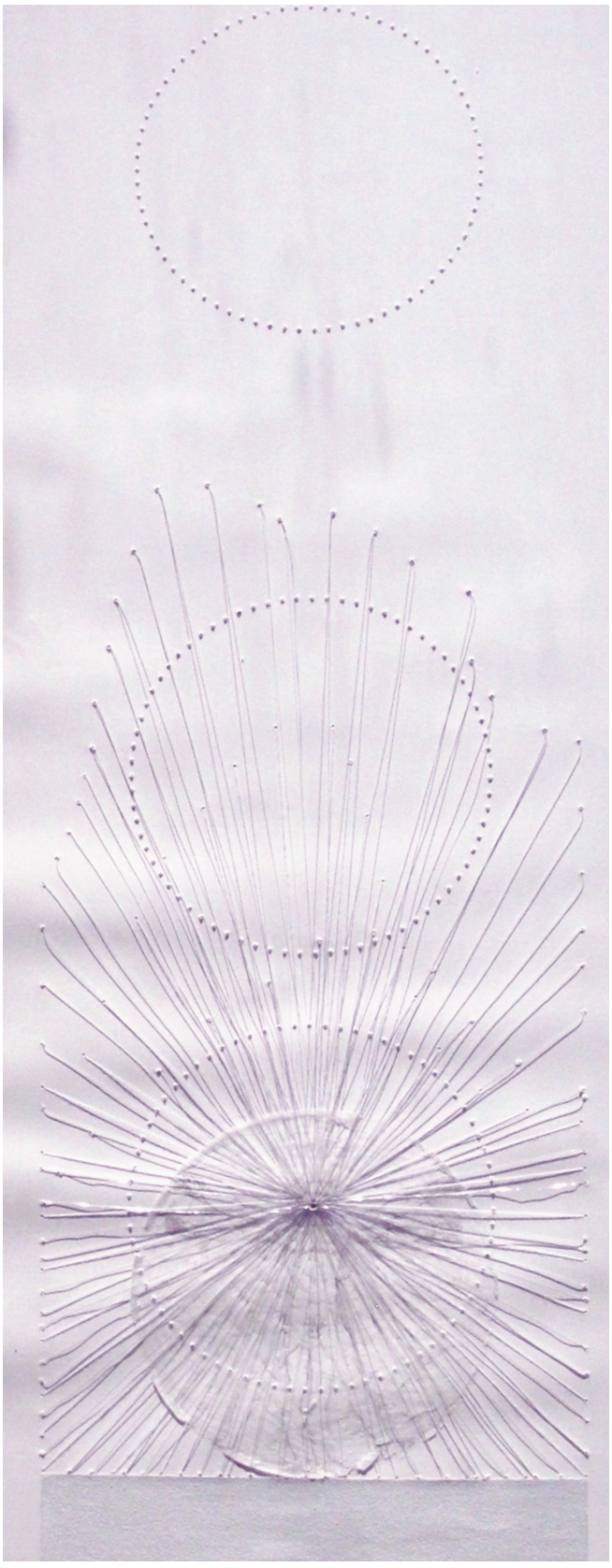
The ability for these conditions to range in dimension is expressed largely in the natural realm. There are seemingly more variables as the environment is in a constant flux. The urban condition on the other hand becomes static in comparison. It is the constant flux that becomes an exciting element in regards to sensory information. The environment reacts to the seasons allowing changes to occur to not only what we perceive, but also effects the clarity of perception. Imagine the difference acoustically between a forest covered in a thick blanket of snow and one full of lush trees.

Although there are given advantages to a natural environment in terms of seasonal

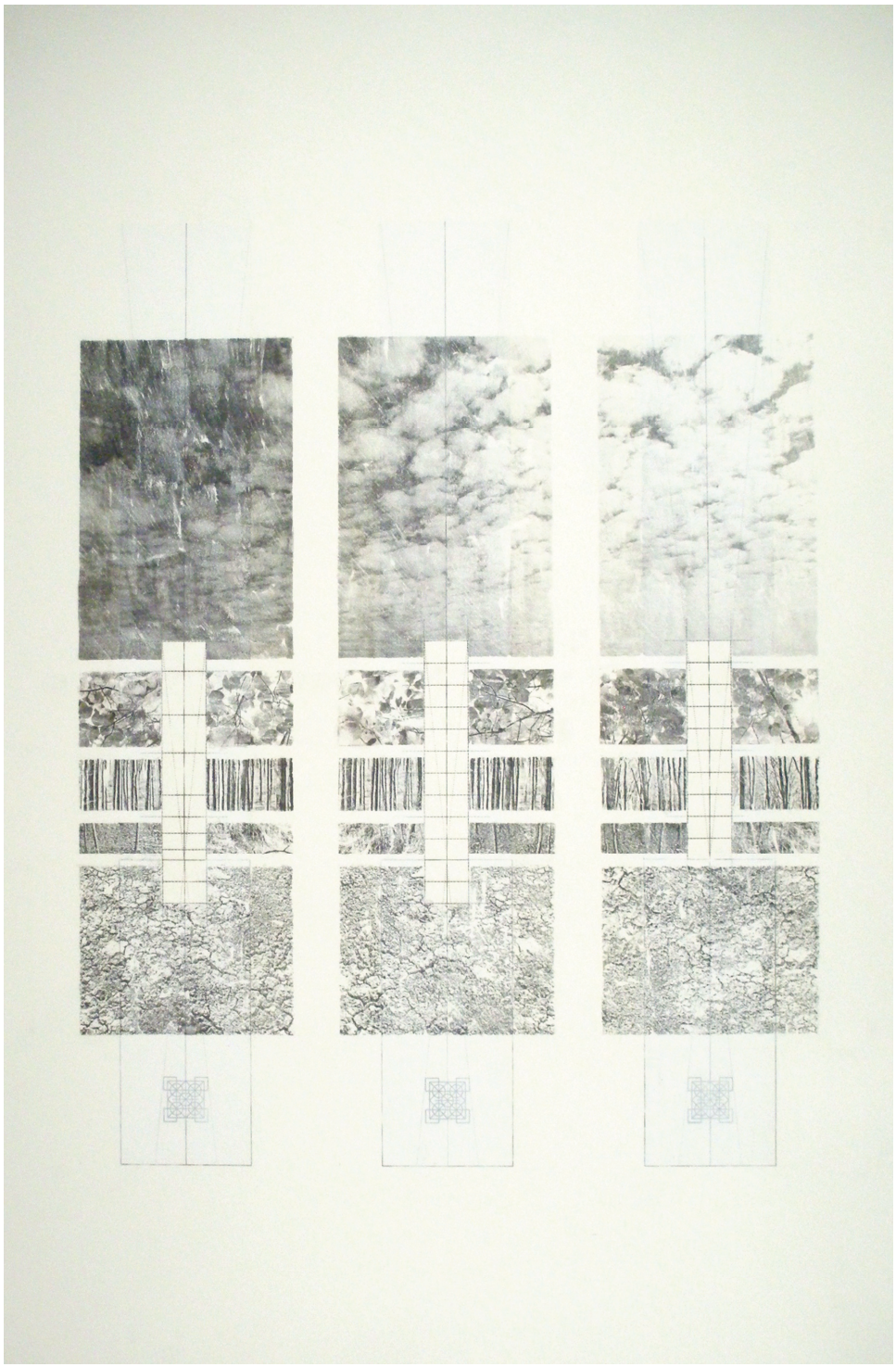
changes affecting the senses, there is an important guide missing. A city provides is a rhythm, with patterns that can be followed. The street, sidewalk, wall, etc. can be accounted for in their means of measure. Concrete pavers provide less multi sensory information than the soft complex carpet of a forest floor but provide something more useful as a point of reference. The urban condition provides better guidelines for learning how to take in information from the environments that encompass you. The city ultimately provides a more helpful relationship between an individual with impaired vision and their environment because of these tangible guides.

Although it is found that the urban condition provides measure, to some degree it can cut out other sensory influences. In architecture, there are two basic possibilities of spatial composition: the closed architectural body that isolates space within itself, and the open body that embraces an area of space that is connected with the endless continuum. (Zumthor, 2006, 22).

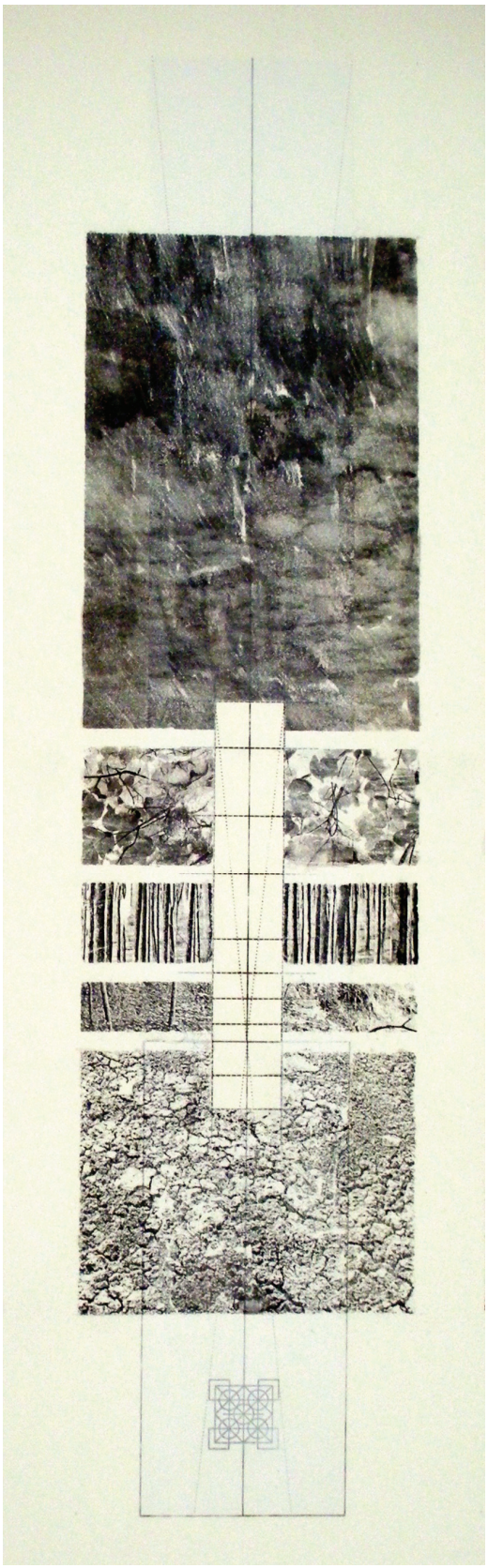
To react to this the building will attempt to take on not one, but both of the conditions outlined by Zumthor. By taking the two realms and creating a container on an urban site, the building has the potential to become a reactionary sieve to the world surrounding it. It should question when and how it opens up, closes, filters, and accepts influences from each condition. The ability to play with measure juxtaposed against the senses will help to create an overall rounded environment. These solutions will be decided with strong connections to program.



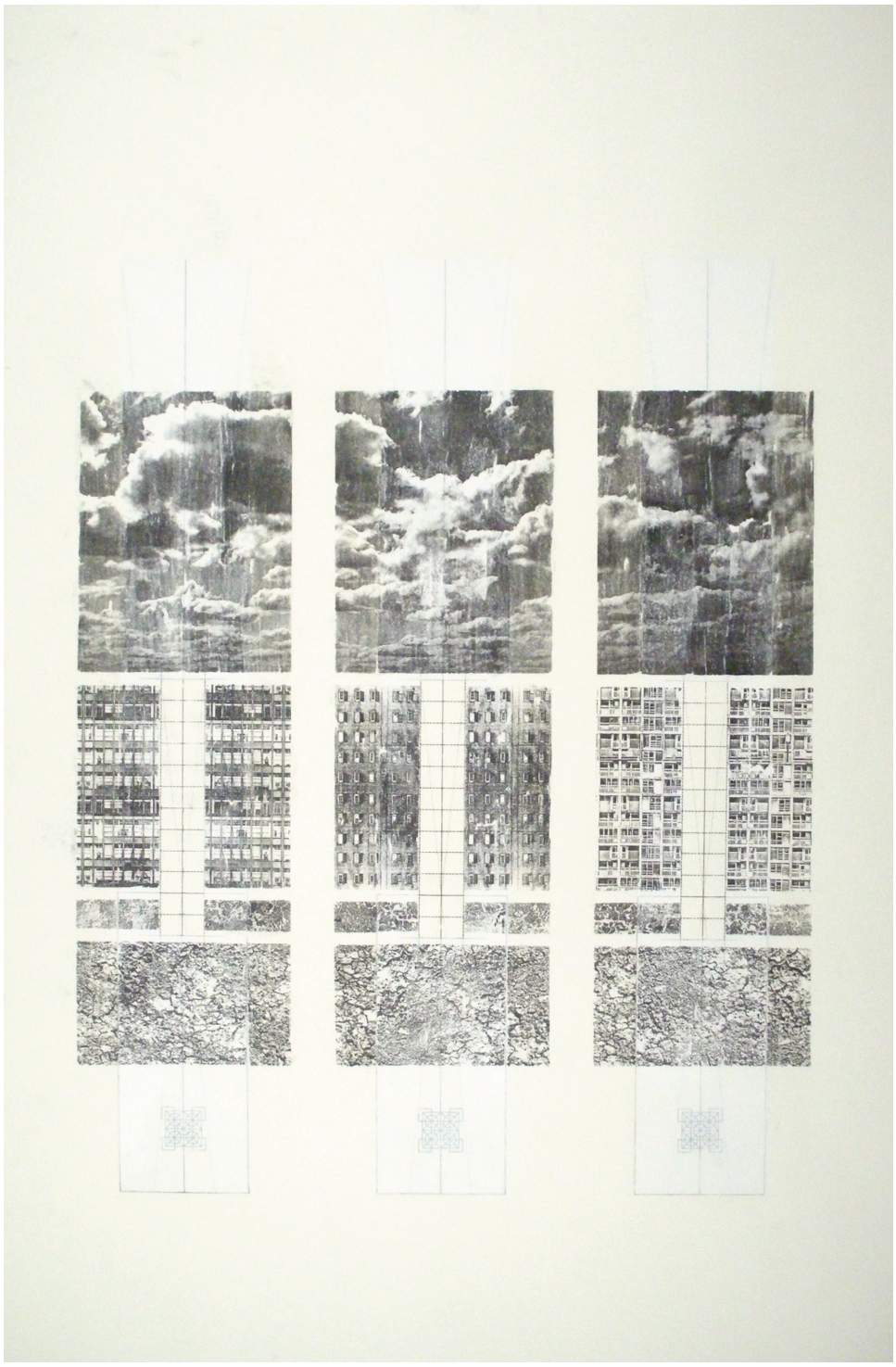
Elevation of the possibilities of a person experiencing space in a vertical manor.



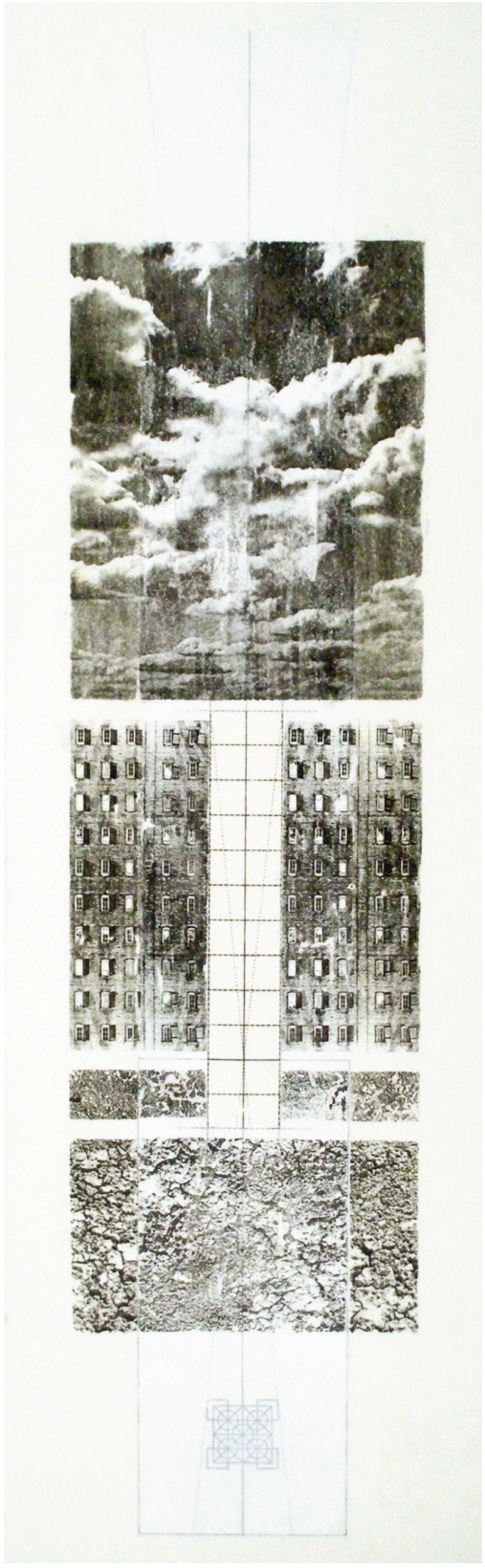
Sectional studies of a tower in a natural environment. Striations of space are arrenged in a ascending order of earth, floor, tree grid, canopy, and sky.



Section through tower showing how natural striations have affected the volumes of each respected floor.



Sectional studies of a tower in a fictional built environment. Striations of space are arrenged in a ascending order of earth, floor, built environment, and sky.



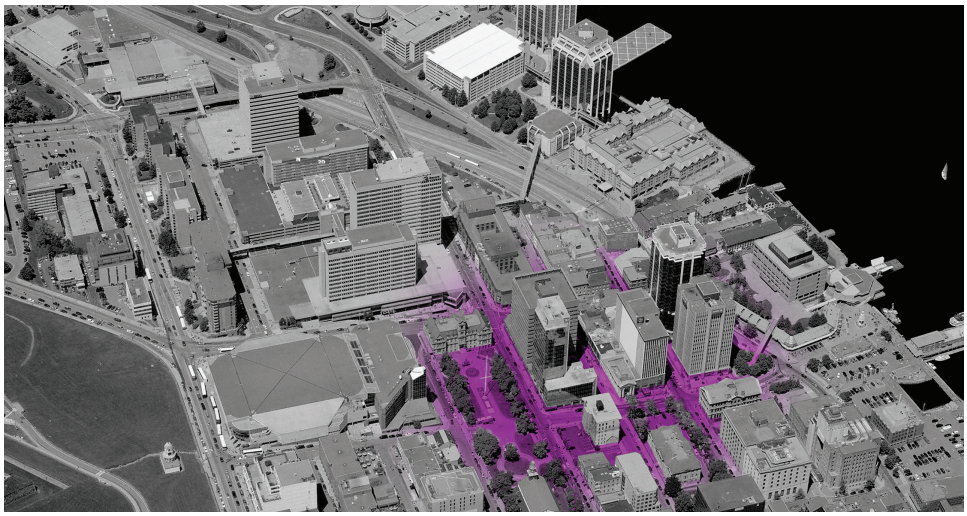
Section through urban tower showing how conitions are less likely to change drastically when reacting only to an urban context

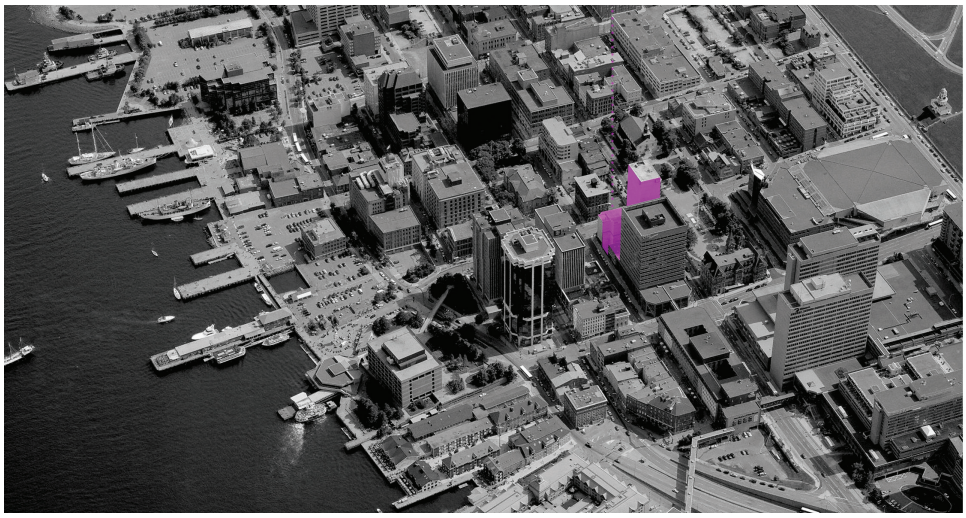
SITE HISTORY

Halifax as a city has been created and influenced by the eye. A grid of streets was developed in plan and draped over the contours of the Peninsula. From the high point of the Citadel, sight lines clear to the harbour are still enacted today. These force the built environment into constraints developed by sight. The Halifax explosion of 1917 is something that is a strong part of the city's history. The force from the blast literally sculpted the ground of the city, but had a greater impact on its people. Injuries to many onlookers were the cause of watching the blast behind the windows of their homes. A great amount of eye injuries resulted, ranging from levels of impairment to cases of complete blindness. The tragedy fortunately had some positive attributes as the large number of cases allowed practitioners to gain great advancements in treating optic injuries.

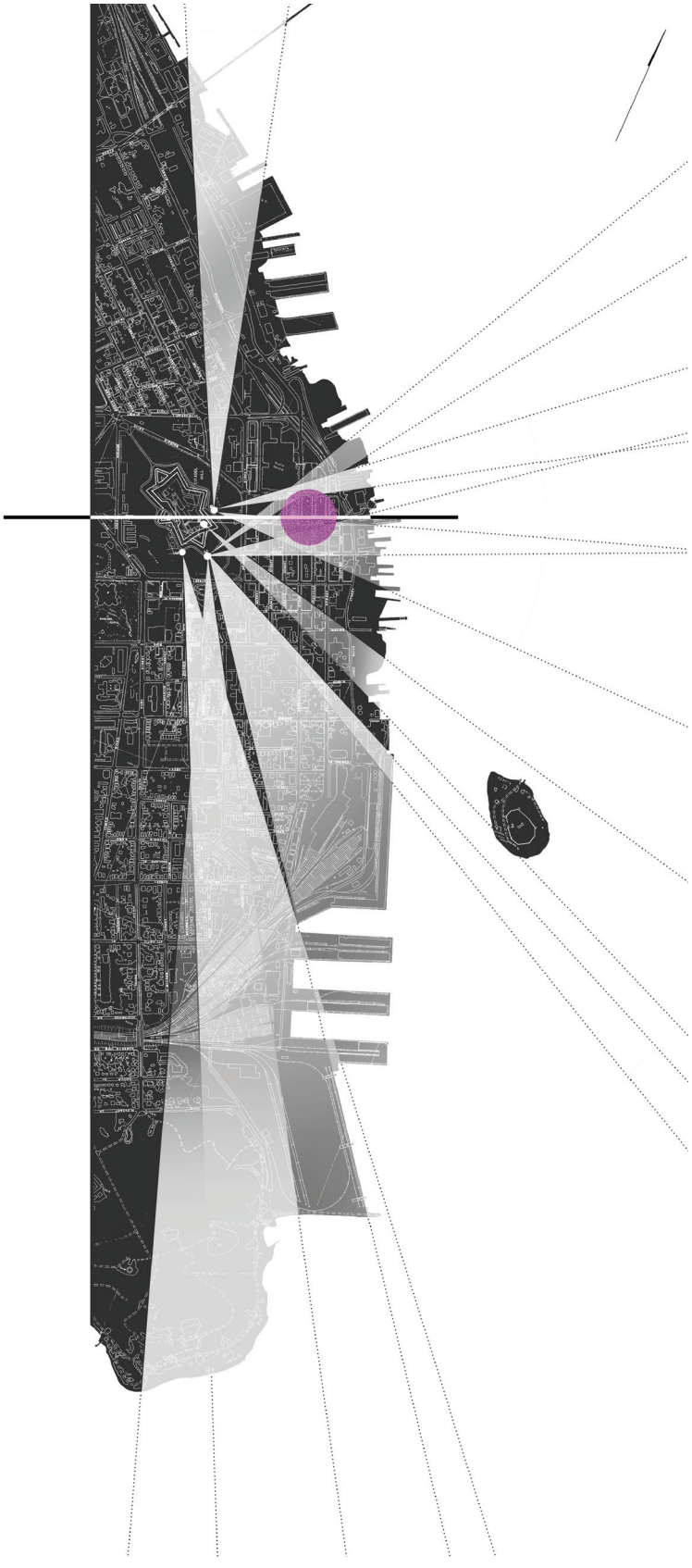
The site is located on Granville Street in downtown Halifax. Currently, the site is empty creating a void in the fabric of the city that faces east onto the street. This space was chosen as it has a rich pallet of textures and materials that have been developed through layers of building. The former building on the site was very similar to its still standing neighbour. Three stories in height and of wood construction with granite party walls, one still existing to the north. The tower that encompasses the rest of the site consists of a flat repetitive facade. The east-facing facade is without windows and casts a large shadow onto the site for the greater part of the day. Although it drops significantly on the west side of the site, it still doesn't allow much light into the space.

top: Plan of the Halifax peninsula surrounded by water. bottom: Plan of Halifax showing relationship between citadel, the site, and the harbour. Sourced; Bing Maps, 2010

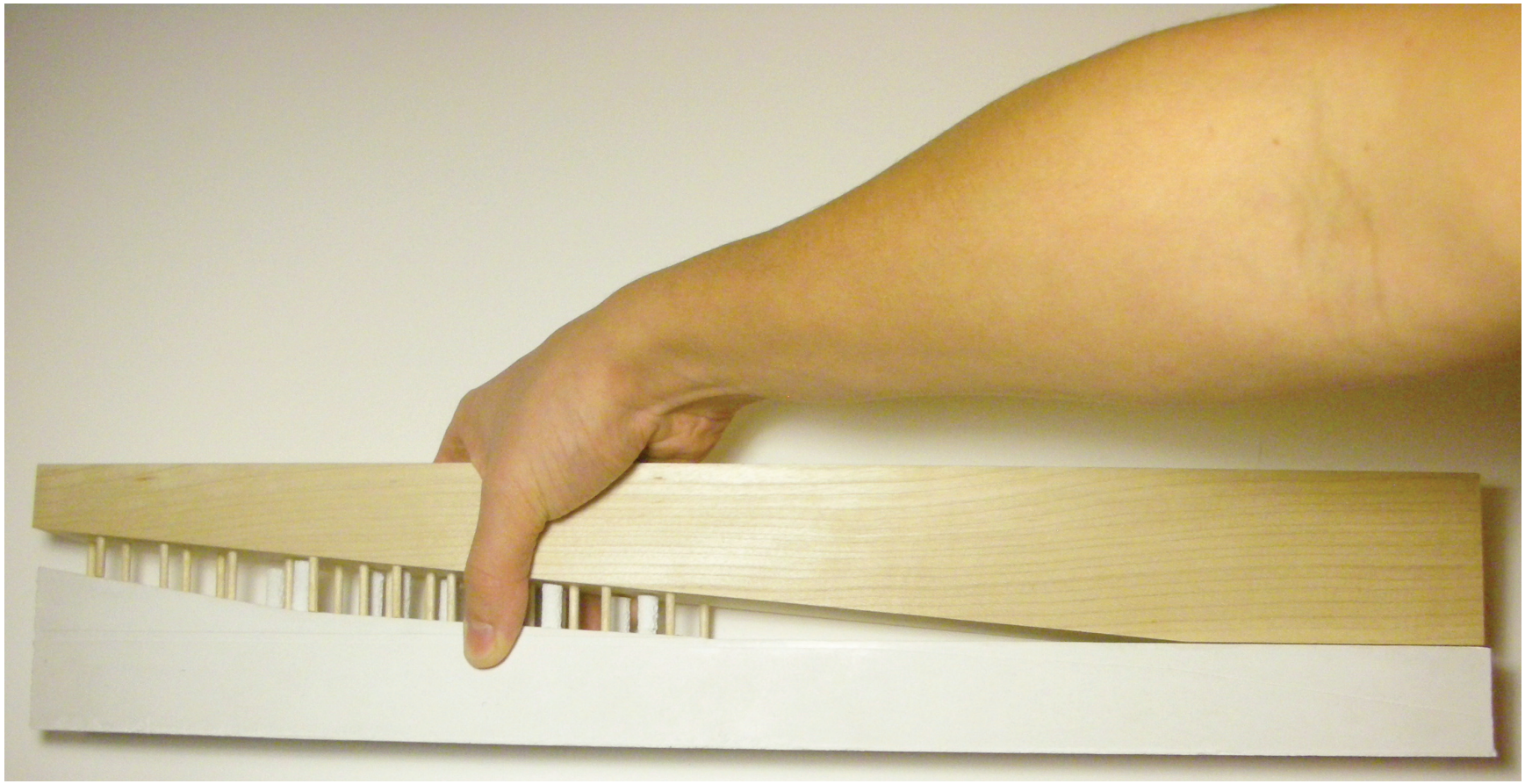




top: Birds eye view looking North showing surface plain surrounding the site. middle: Birds eye view looking South showing influencing building facades. bottom: Birds eye view looking North showing influencing building facades. Sourced; Bing Maps, 2010



Plan of Halifax showing sight lines from Citadel to the Harbour.



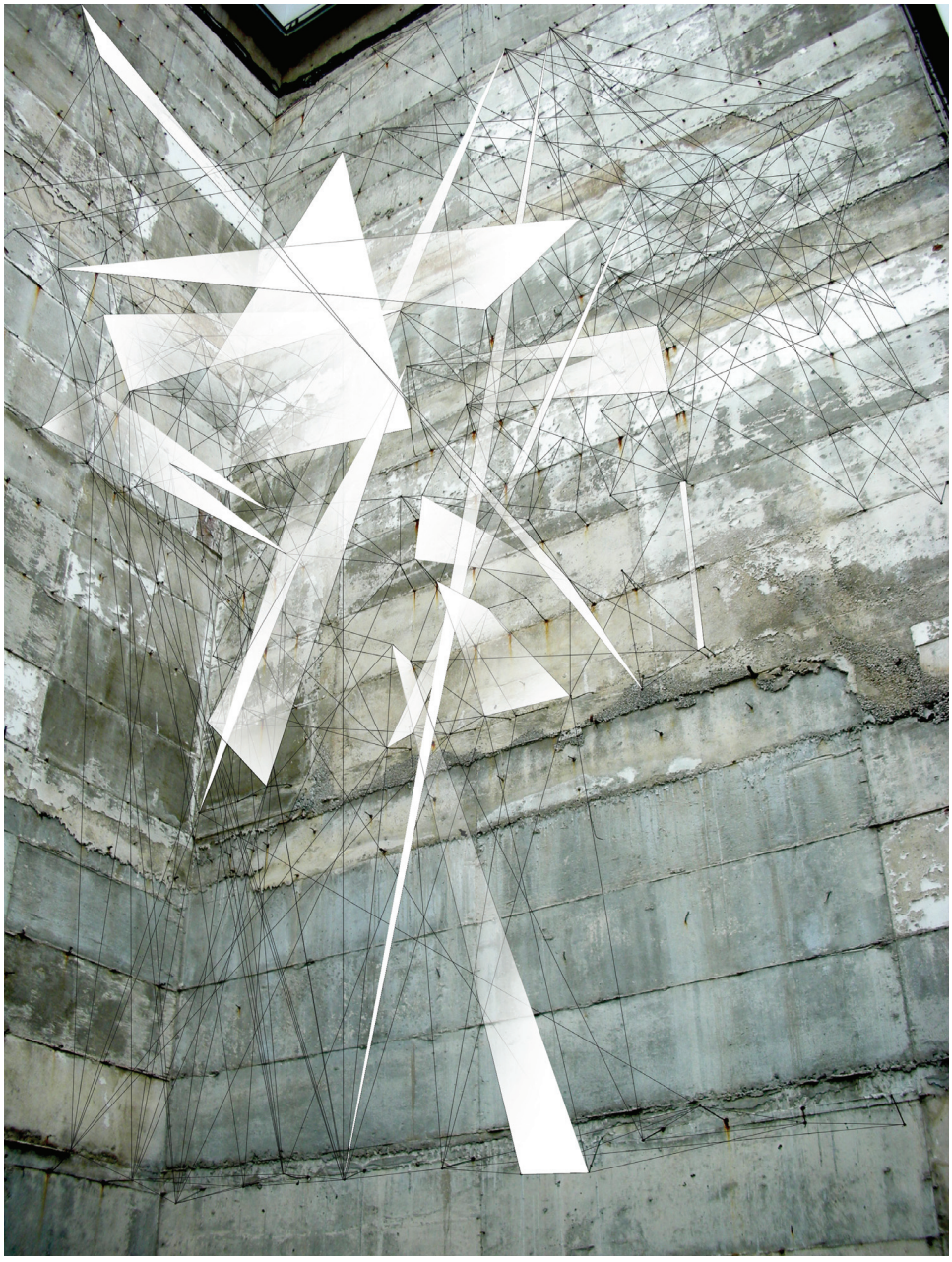
Sectional model cutting West to East through the Citadel to the Harbour. The sky is represented by a wood block and Earth as concrete block. The area between the two is read by an individual's finger, expressing a built environment as an opportunity for the two to intertwine each other.

READING EXISTING SENSES AND GUIDES

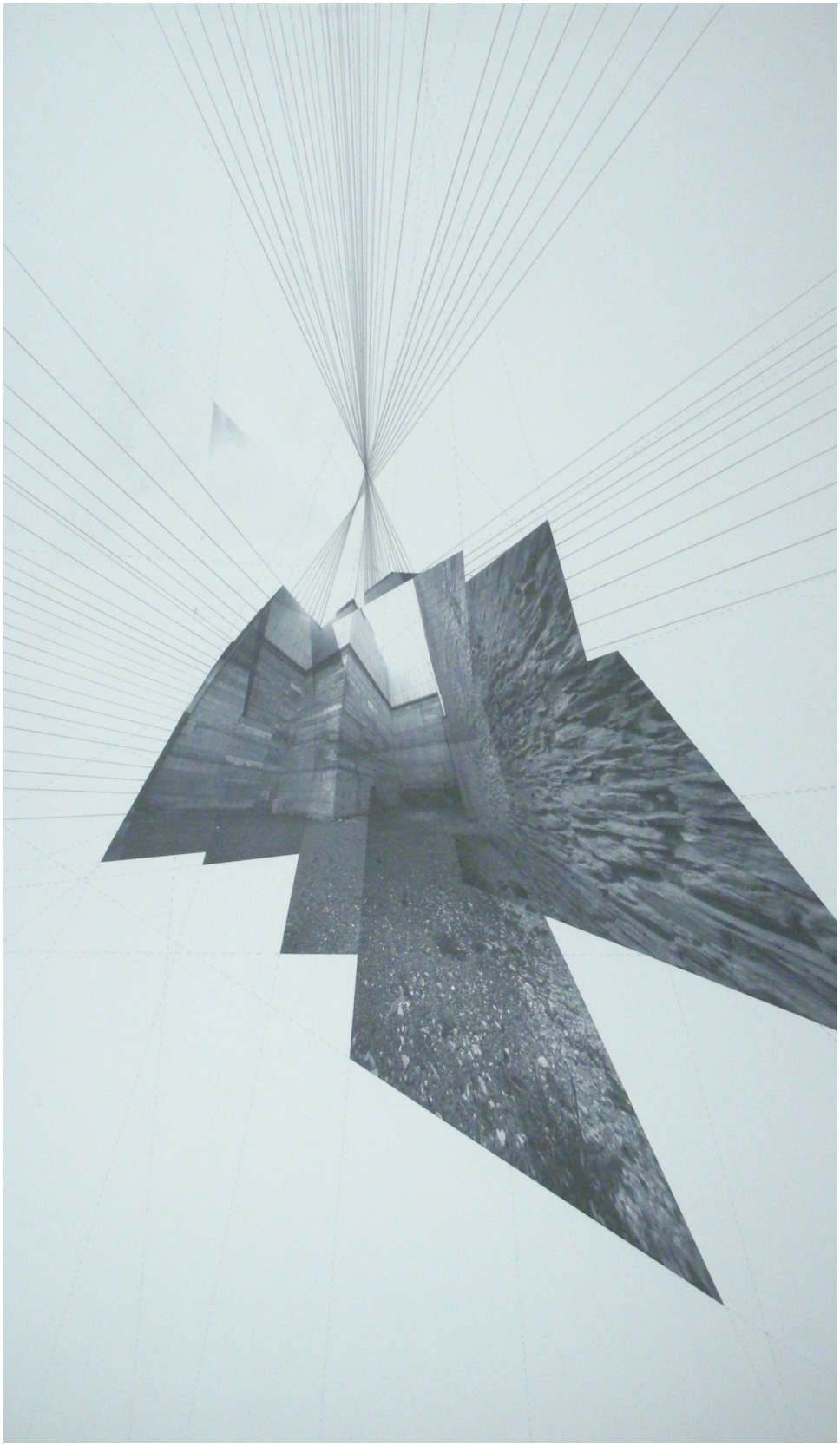
Observations of the site reveal that there are static and dynamic elements awaiting interpretation. They can be further categorized as being of a natural or built nature.

The dynamic elements are those provided by nature and are in a constant state of flux. Wind, the dampness of the air, sun patterns, etcetera all develop the character of the site. These lines are fluid and range in intensity. They combine together to create atmospheres that cycle in and out of the hard constraints of the site. They are taken in by all the senses and can deeply affect ones current state of being. The human eye cannot physically see these elements, but their effects are noticeable. Wind moving objects, rain falling to the ground, the sun slowly drying out a damp surface can all be seen, but the elements themselves are difficult to represent. I have attempted to establish them as curved flowing line types in further representations.

The static elements are the literal concrete surrounds of neighbouring buildings and the physical restraints governed to the plan of the site. It is enclosed on three sides, allowing development above and below the current ground plain. Existing materials and methods of construction have given the site direct lines of measurement. Residual lines from formwork striate the adjacent buildings concrete walls. There are a series of small steel clips awkwardly bent and hanging off these walls. An aluminium panel system repeats up the vertical face of a building. The granite party wall creates an uneven surface, but outlines a buildings silhouette. These elements all provide possible physical units of measure to work with. They are tangible by the sense of touch and will be used to further develop a piece of architecture.



A construct of lines connected between two different textured walls of the site. The walls act as vertical constraints and house textural information. The lines generated off these found points, some kind of exposed tie back, begin to create spaces. The white planes introduced further define an idea of space being created from the potentials of the existing site.



The first part of a triptych, this initial forced perspective image views the site as a container. Exisitng lines found in the surrounding context are exploited as potential measures to work from.

The second drawing of the triptych expresses natural elements that are flowing through the containments of the site. Each line weight represents ideas of wind, water, sound, smell, etcetera and are layered to create depth within the drawing.

The final instalment of the triptych takes the representation of influencing elements and allows them to be read by the hand instead of the eye. The relief's are part of a concrete panel allowing each line weight to be read against the other.

Detail of the concrete relief panel. The hand easily reads the defined lines.

PROGRAM

The program of the building will further assist the relationship between an individual and the world around them. Focused on the arts, and specifically the untrained creation of folk art, the program will facilitate flexible gallery space as well as a range of studios. The intentions of this aspect of the program are to let people create, on their own terms, and through their own methods. Folk art is categorically an untrained form of expression. The building will provide facilities that will invite and encourage a range of people to come together and share practices that reflect this specific community.

The gallery space will be able to change accordingly to curatorial requirements. Large partitioning doors arranged in a variety of moves would allow a network of spaces or one vast volume to be created. The gallery space is not limited to a singular volume and installations will be encouraged to explore the entire building. This especially heightens the experience of the sound and smell of installations. Studio spaces concentrating on ceramics, painting, and drawing will have more rigour to their layout. The volumes of spaces will accordingly suit each aspect of use to help create effective creative atmospheres. A small library will supply a collection of publications in Braille as well as audio books that range from topics covering the arts as well as material surrounding issues of living with impaired vision or blindness. Flexible space will be dedicated towards focus groups and one-on-one discussions. These spaces will be able to house larger drawing and painting groups that find a requirement for a larger work area. A number of private offices will also be provided for the facility managers.

Circulation will be taking a large amount of floor space considering the tight dimensions of the site. As a result, it will be fair to say that it is also part of the program. The conditions created by different forms of vertical circulation will be explored. Ramps create a smooth transition between floors and have the ability to lengthen the connection between spaces. The layout of stairs easily forms overlapping conditions, but what happens when variation is applied to this form of vertical measure. Break

out spaces and small meeting areas will be created along the vertical and horizontal circulation in the building. These intimate spaces have the potential to encapsulate the atmosphere of specific aspects of program allowing one to register a location to a specific aspect of program.

DESIGN

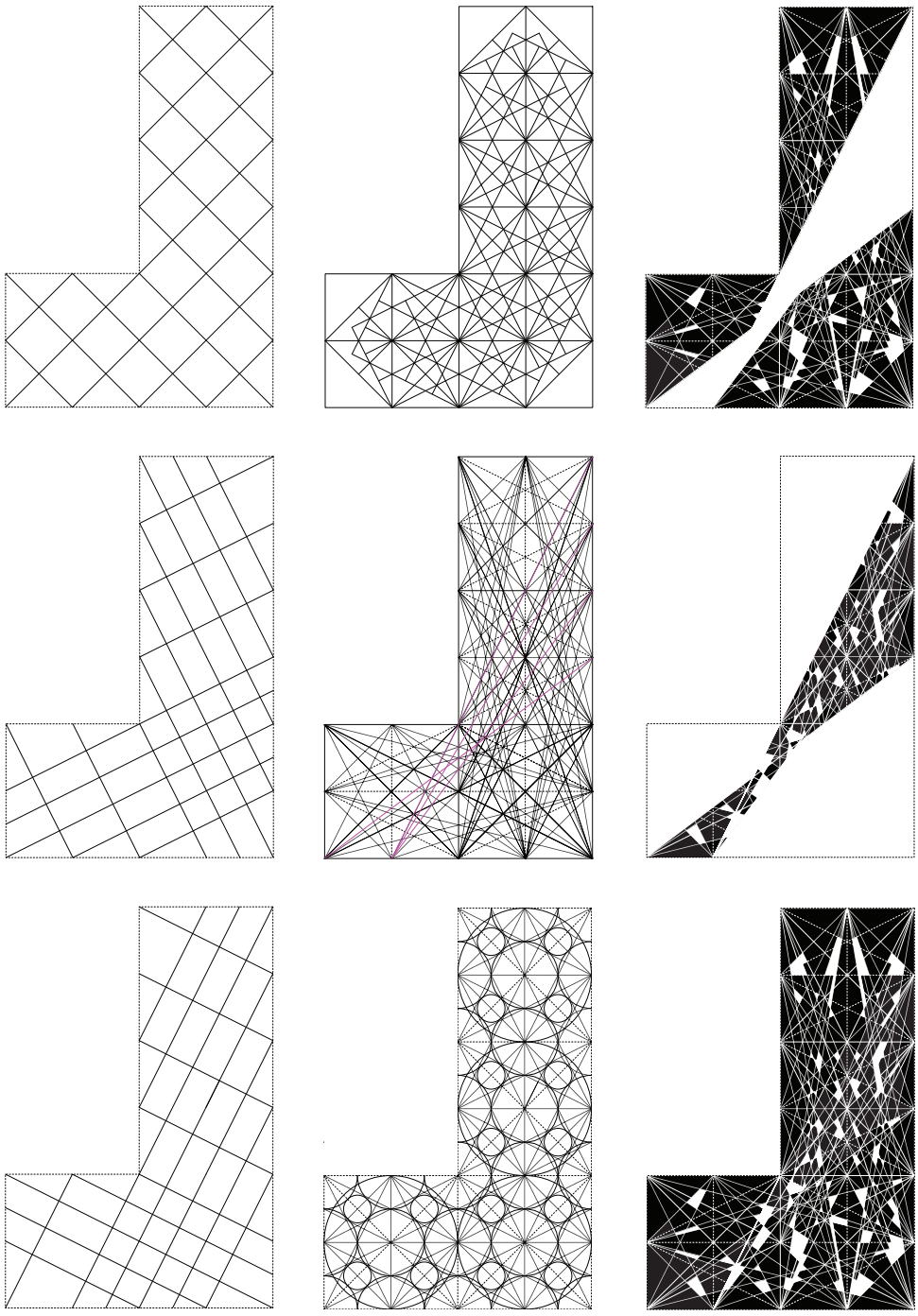
Geometry of the Site

> The regulating line brings forth the sensory mathematics that produces a beneficent perception of order. The choice of a regulating line fixes the fundamental geometry of the work; it determines one of the fundamental impressions. The choice of a regulating line is one of the decisive moments of inspiration, it is one of the crucial operations of architecture.
> (Le Corbusier, 2007, 137)

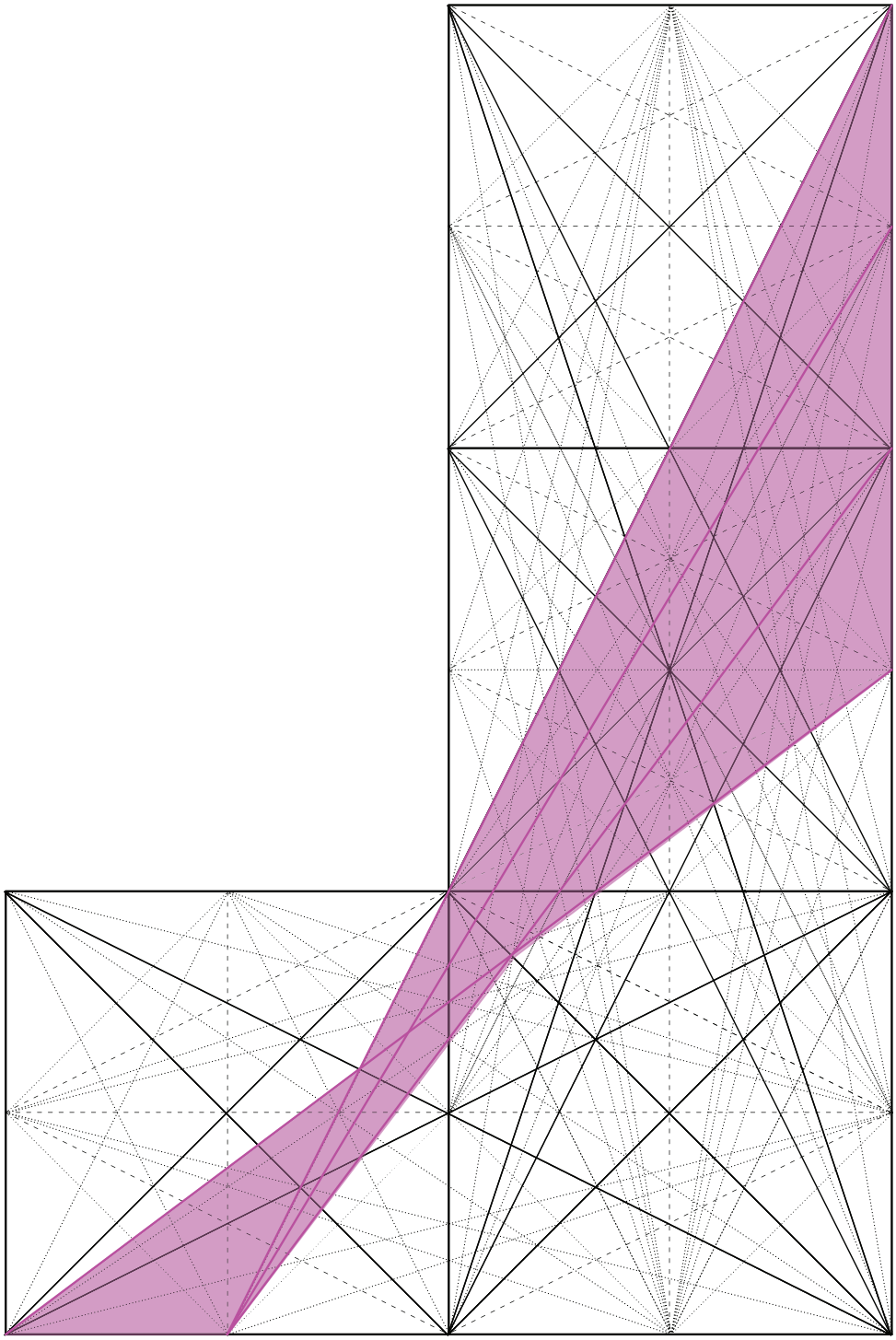
Studying the geometry of the site influenced initial Design. It is practically a perfect L shape, which can be divided into 4 equal squares. This shape is further broken down into two rectangles that intersect by sharing one square in plan. Dissecting the plan and starting to connect points form a network of reciprocating lines. Each line has a mirrored twin except where the two rectangles intersect. In the intersection singular lines can be found. When placed in a hierarchy where singular lines are irregular, they can combine to create a new shape within the plan.

This is a static analysis of the site that will remain consistent as opposed to analyzing the site purely on the influence of natural elements such as weather. This is not to say that those elements are not important, rather the opposite of that. What will become important is when the natural is introduced into the building. The building is very introverted and effectively becomes a “tool” to raise sensory awareness at different moments of program and circulation.

These singular lines create a parti for the plans of the building. They will be further enforced as lines outlining a void through the centre of the building.



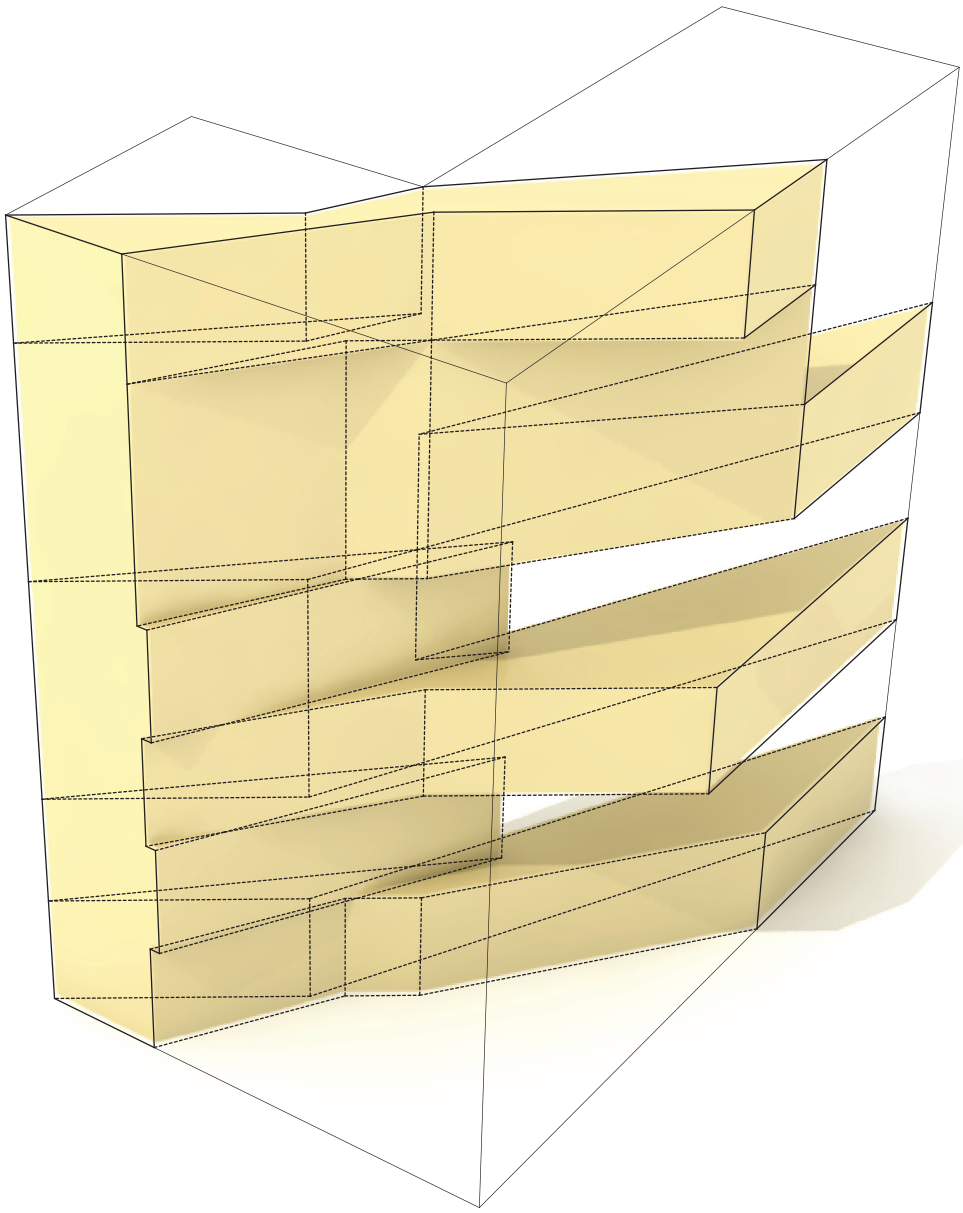
Shown are examples of geometric studies that used the plan of the site. The central diagram is of most importance as the resulting pinwheel of studies stem from its further analysis. Abstractions of solid and void are shown in the right hand column. More traditional geometries were expressed with the top and bottom image in the central column. Angles of similar orientation are organized in the left hand column.



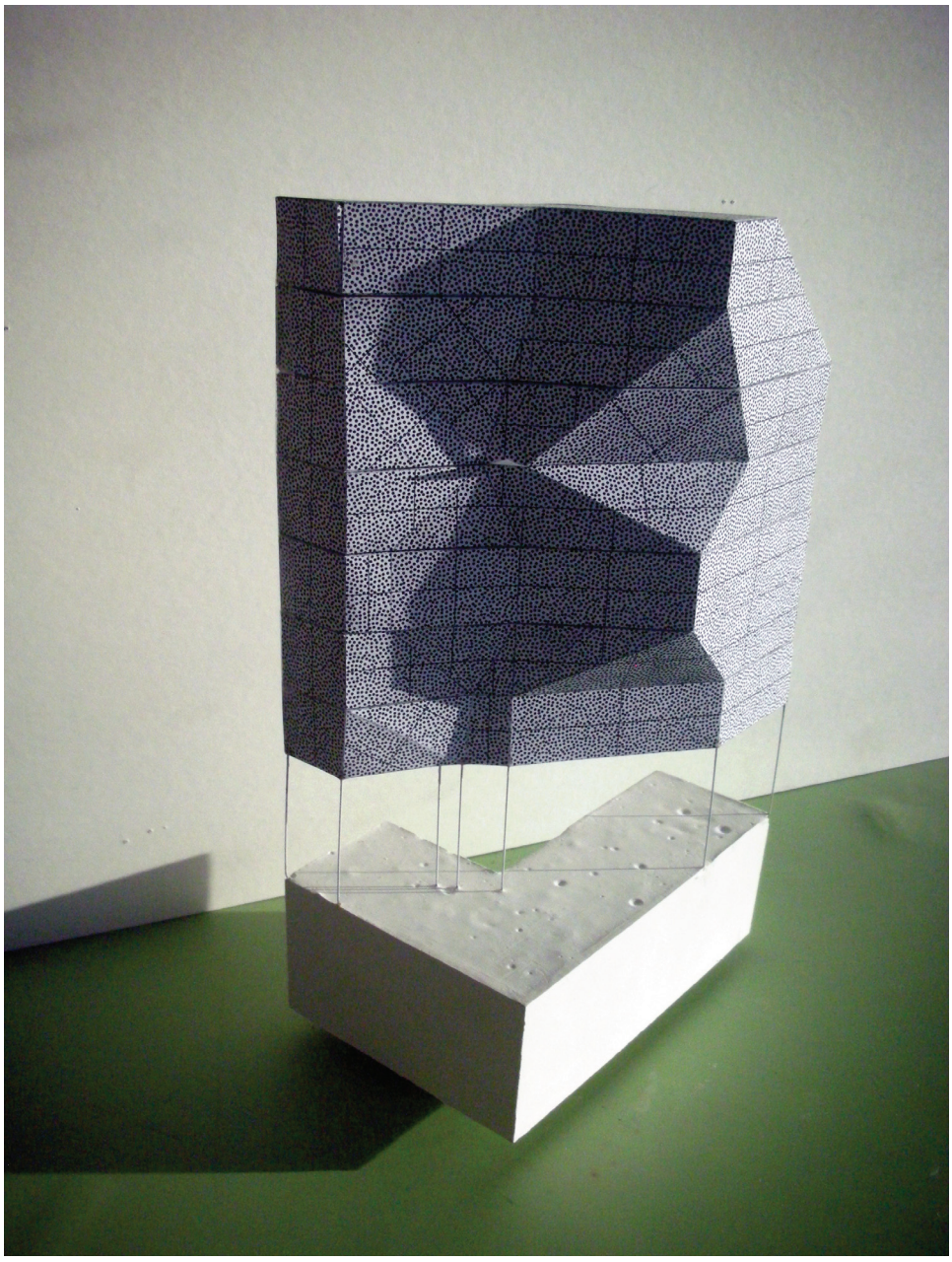
This diagram divides the site into a series of squares and connects tangible points of reference. This is achieved through breaking down each square into a set of four smaller squares creating a midpoint on each face. The connective geometry revealed a collection of singular lines found where the two rectangles overlap each other. Represented by the coloured area, it creates a way to break up the plan of the site. It would further become the outline of the "void" when vertically extruded.

Void

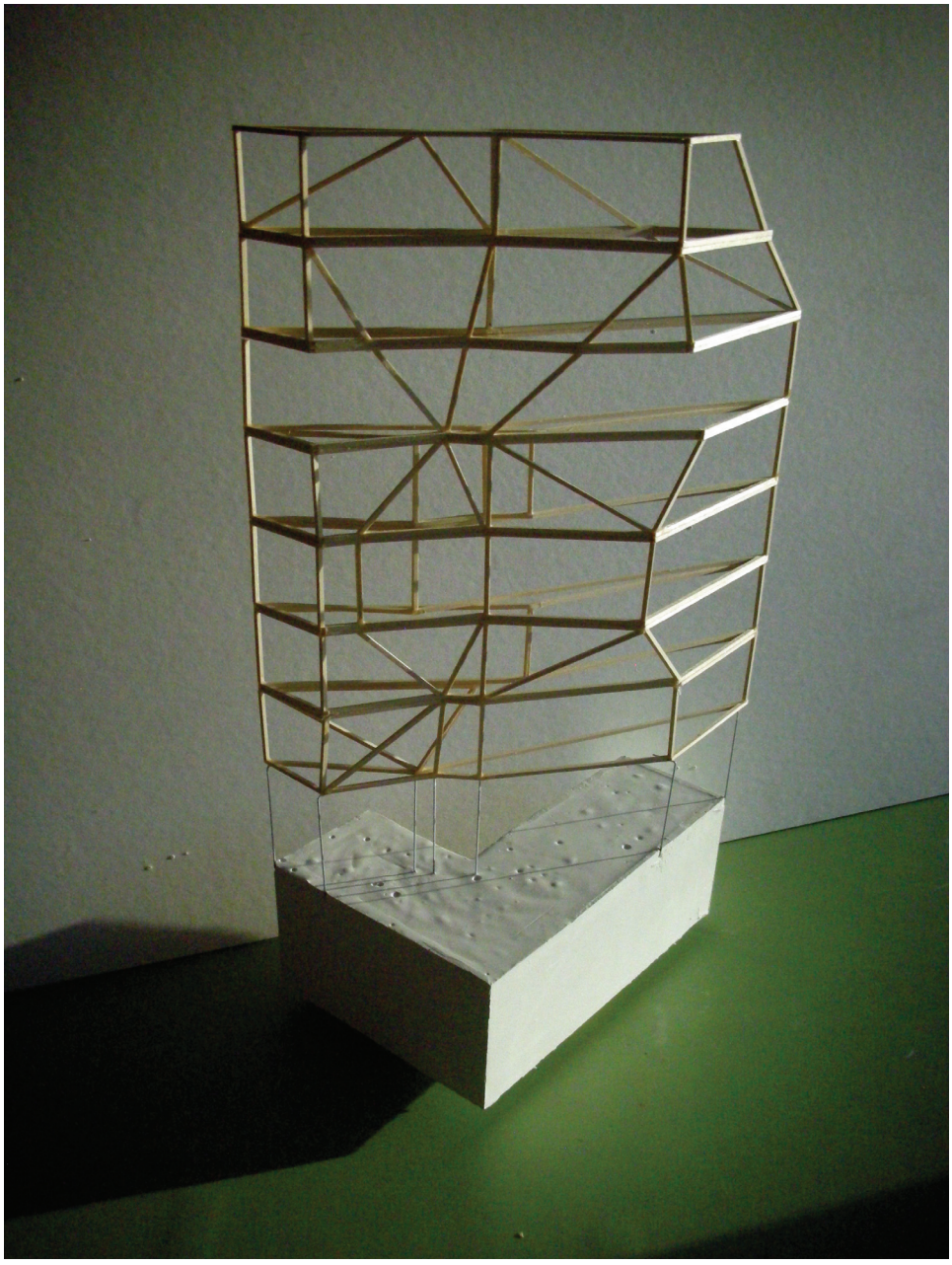
The geometry found in the plan of the site generates an asymmetrical order through the site. The orientation of the dissecting lines changes slightly, but it still allows a repetitive order when stacked vertically. The void creates an open vertical core that regulates information between elements of program and the influence of the exterior world. It takes in natural elements and internalizes them creating a connection between the internal and external world. It connects the gallery floor to the highest internal point of the building allowing installations and exhibitions to have a range of scales. It houses the main aspect of circulation connecting the front and rear of the building in a simple line throughout each floor. Although this was expressed stronger as a concept, it still has an important function of connecting spaces of the building by allowing sensory interactions between the different volumes of space.



An initial study of the void shows different stacked extrusions that were generated from earlier geometrical studies.



Paper model showing the void represented as a solid.

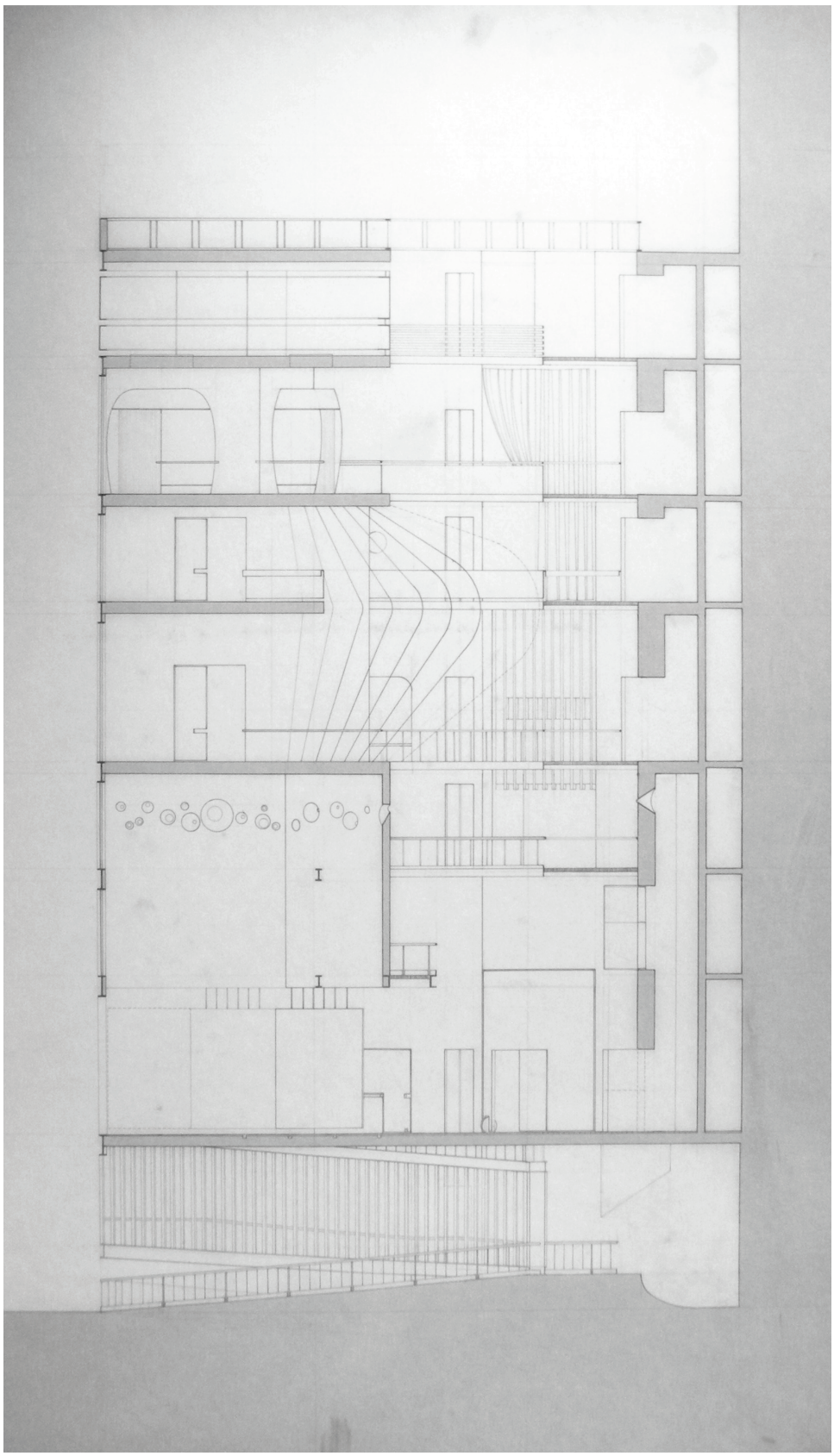


Wood framing model of the voids faceted faces.

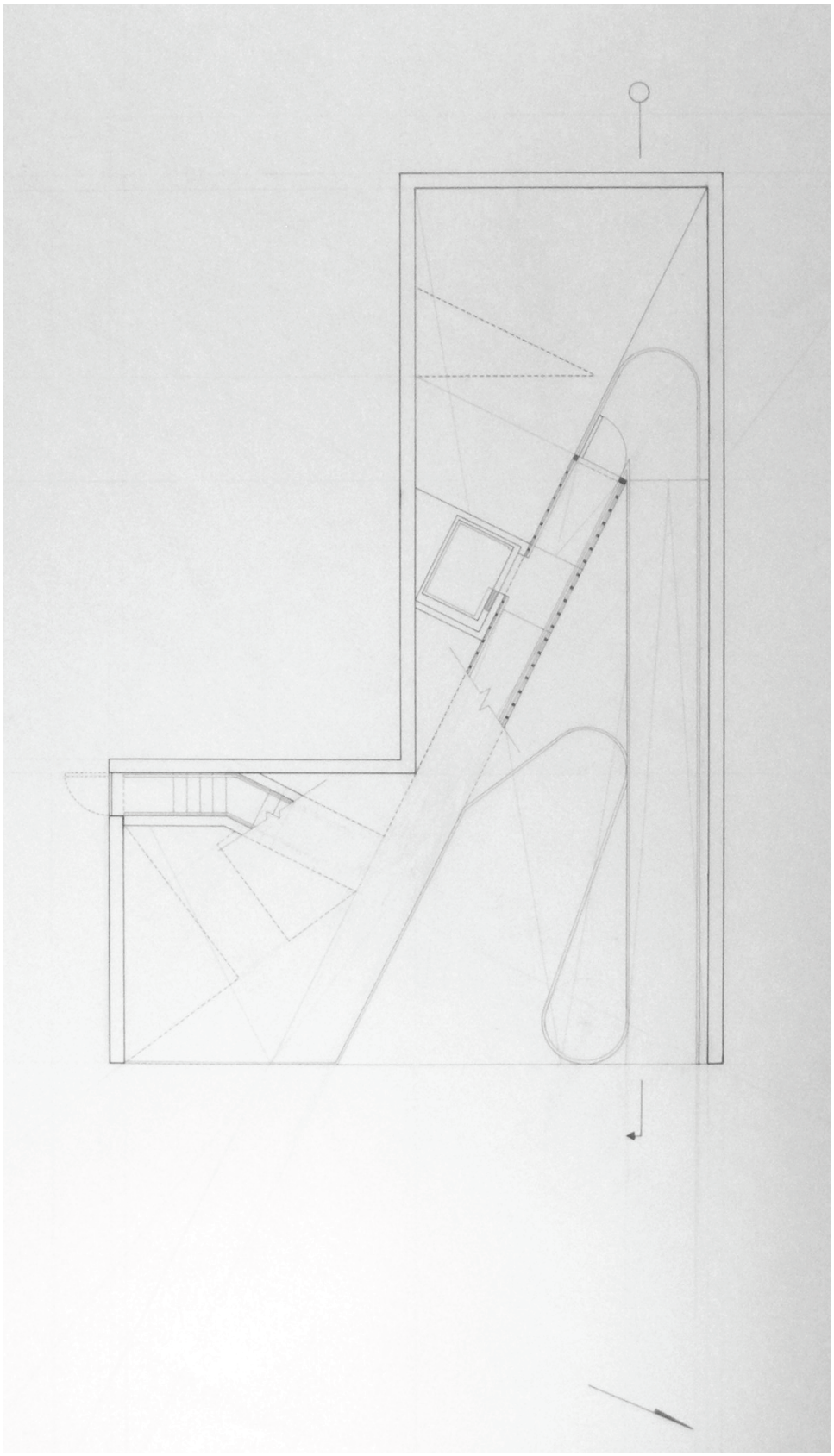
Model of void being cut out of floor plates with generic 12 foot spacing.

Building Concept

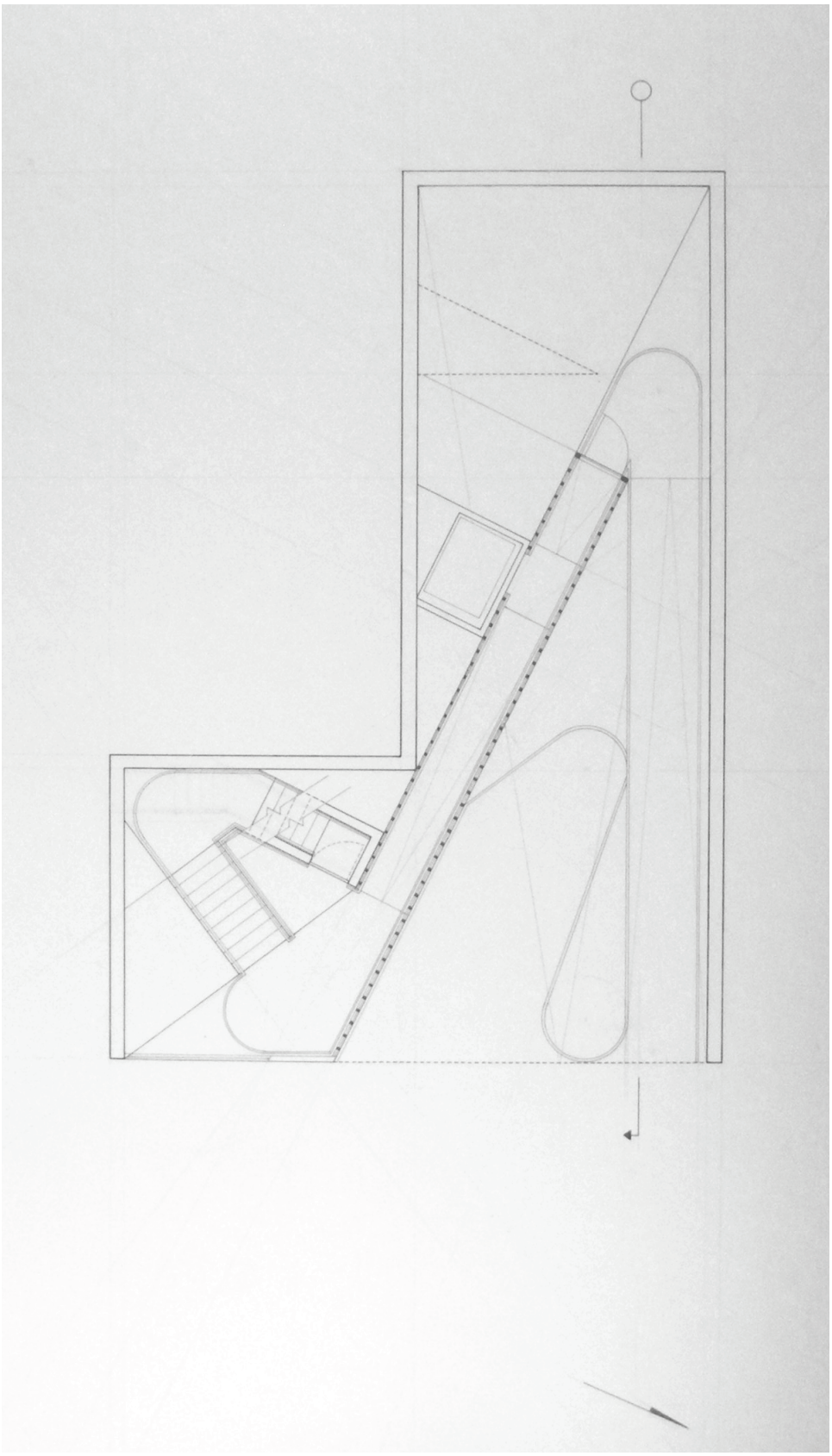
Relating to earlier tower studies, the arrangement and height of interior spaces becomes an important way to form and connect aspects of the program. As one ascends through the building, spaces condense. This relates to the function of the spaces and the people that will be using them. Slowly the building transforms from vast public spaces to more private areas. Users who are sighted might find these initial spaces comparable to the outside world. This is to challenge them within a comfortable environment. Comparably, users with sight will become more aware of experiencing a built environment with senses other than sight. The condensed private spaces are created for those with impaired vision. Here the architecture becomes more selective to allow clarity when exploring spaces without the aid of vision. It allows users to concentrate on experiencing spaces with touch, sound, smells, and taste. This is done through different architectural interventions as “Man can be viewed as having visual, kinaesthetic, tactile and thermal aspects of his self, which may be either inhibited or encouraged to develop by his environment” (Hall,1990, 65-69). The size of volumes, their connection to the void, and the materiality of the spaces allow users to become more aware of a world without visual stimuli.



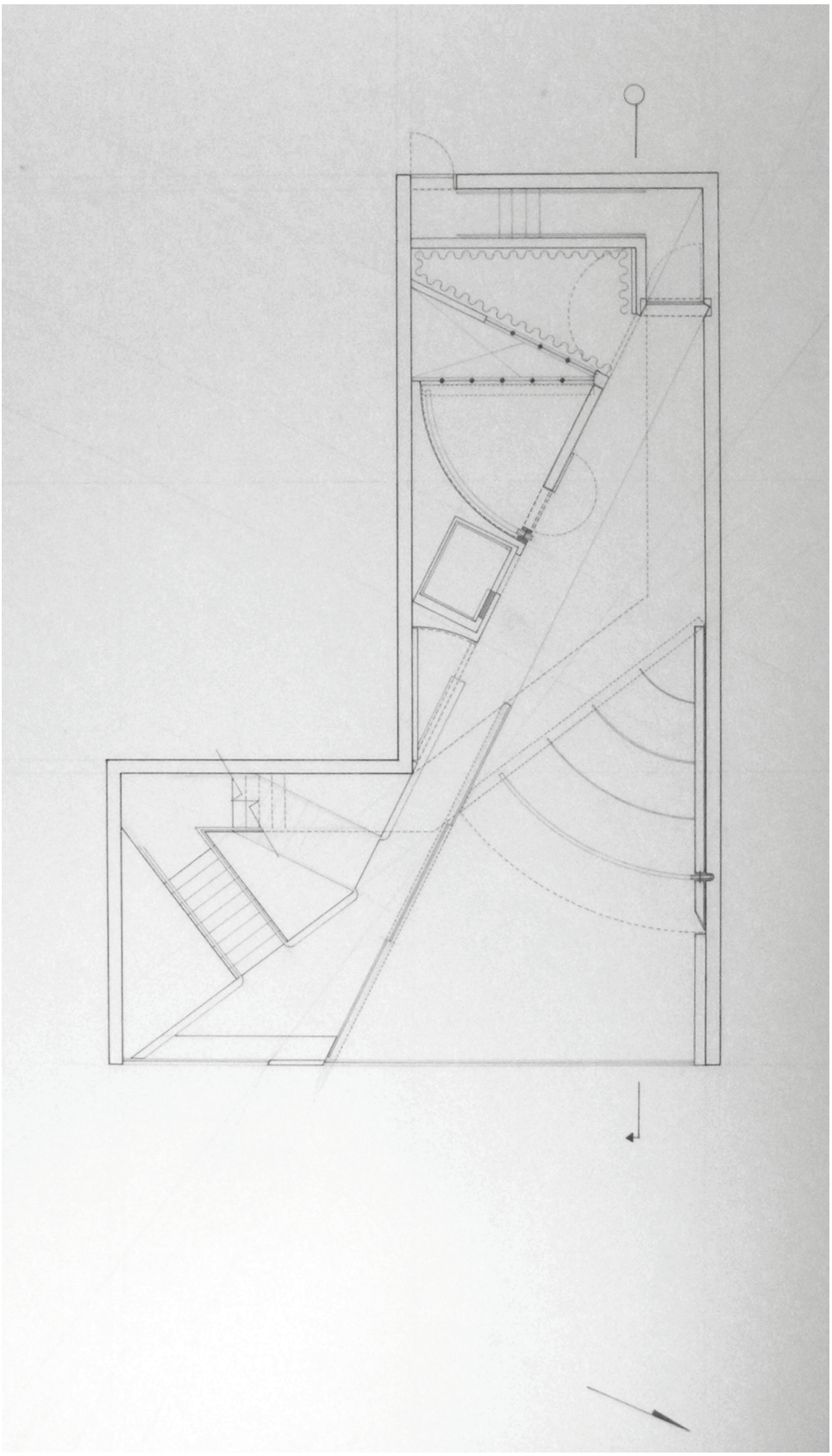
Long Section



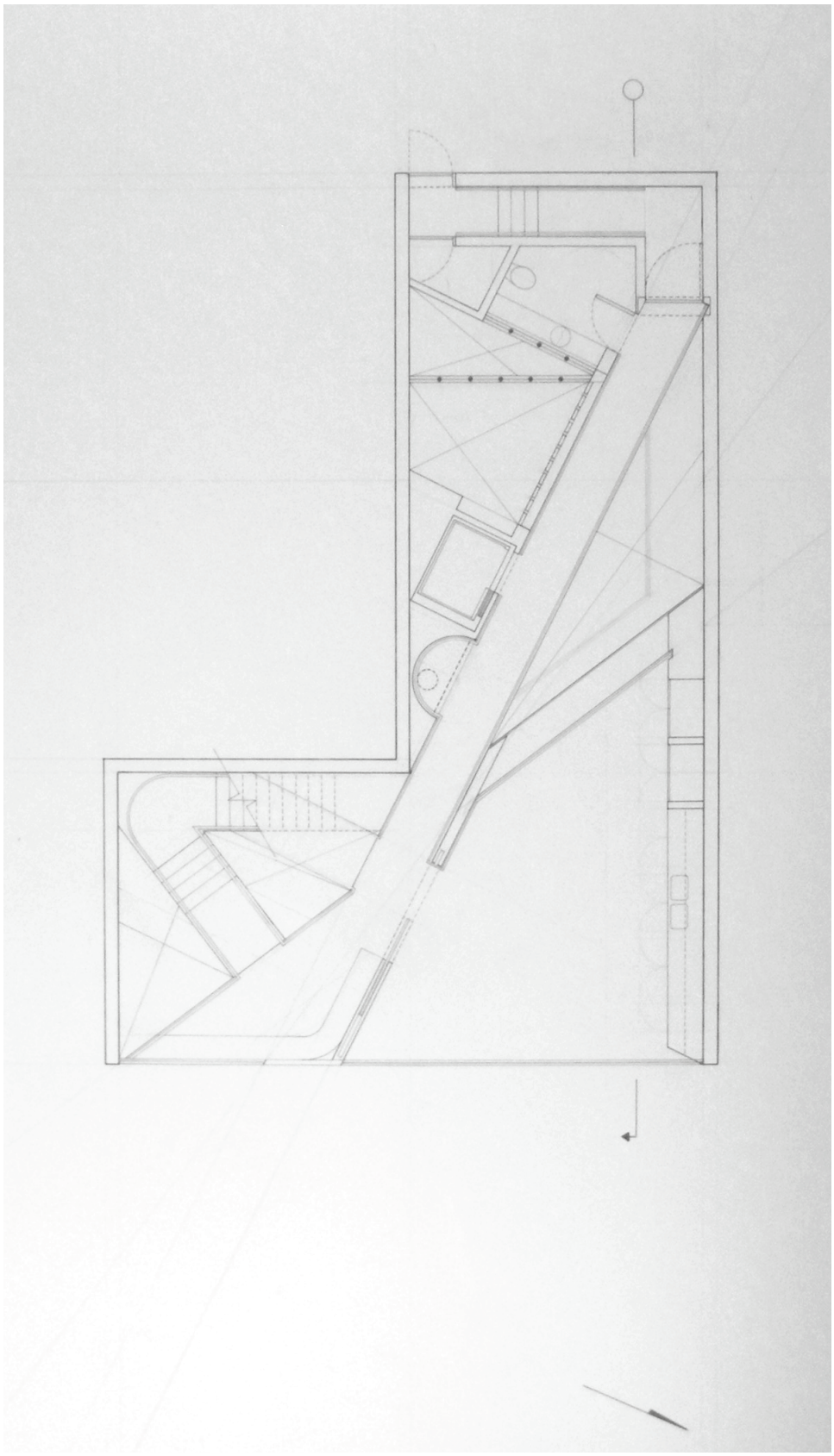
Ground Floor - Granville Street Entrance



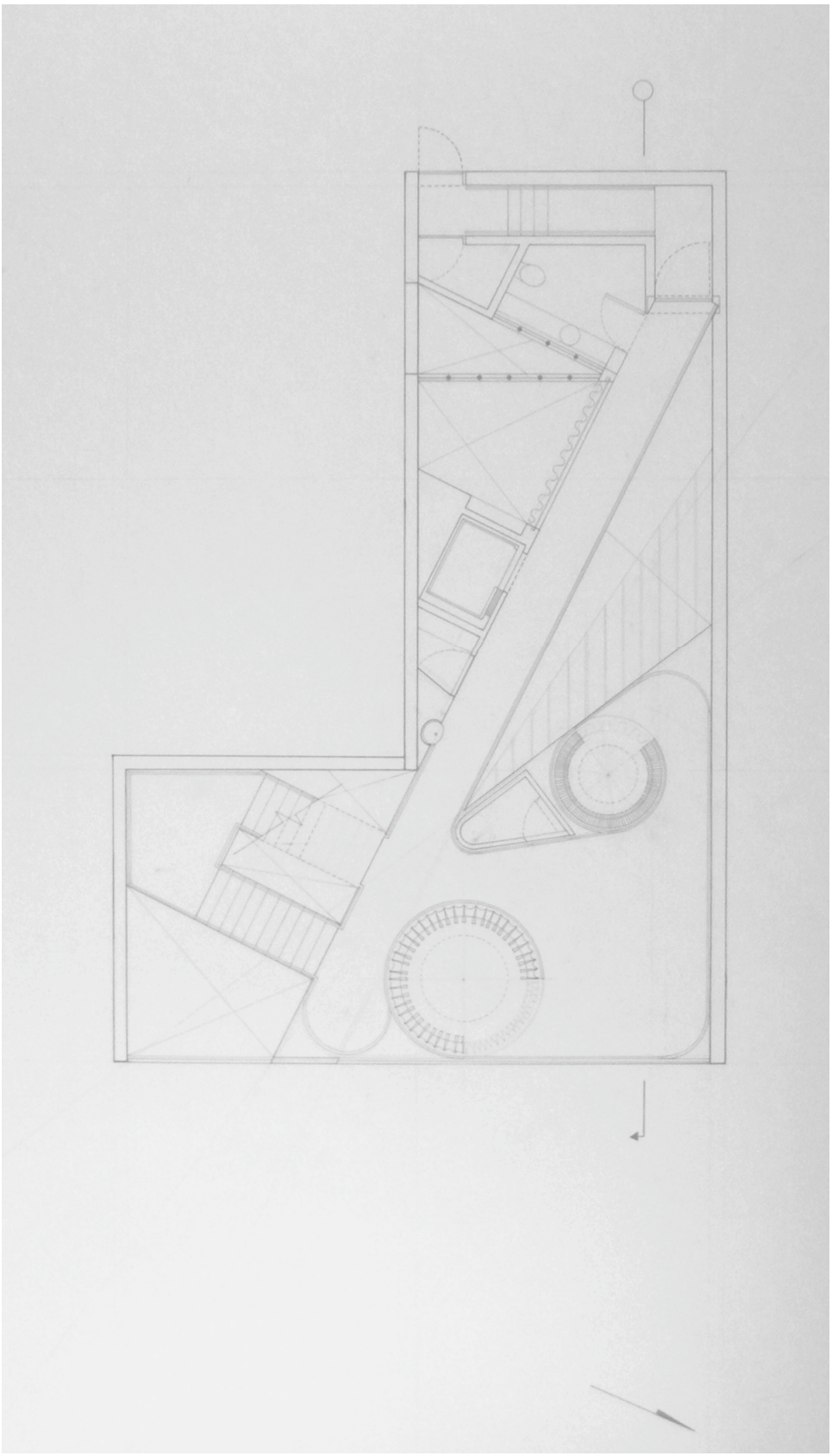
Ground Floor - Continuation of Entrance Sequence



1st Floor Plan - Gallery



4th Floor Plan - Studio



6th Floor Plan - Meeting Space

Compression of Program

Entrance

The entire building was lifted of the ground plain of Grainville Street. This was done to create a distinguishable mark amongst the cities urban fabric to help guide people into the building. This interstitial space between the exterior context and the embrace of the building is initially sixteen feet in height. It then descends another six feet as it slopes down to the rear of the site and is cut by the ramp that leads to the main entrance and its extension into the building. The sixteen-foot height was taken from neighboring buildings to create a unifying line across the overall facade of the street.

Gallery

Overall, the Gallery is composed of a triple height volume. This is most evident from the front of the building. Rolling and pivoting doors that regulate the openness of the ground plan further control this initial space. This creates the constant state of flux that would be used appropriately to amplify the experience of exhibitions. Further breaking down this space is the void itself. Before the gallery opens to the void, it plunges down to compress the gallery experience before extending to the roofline. There are two smaller gallery spaces located deeper in the rear of the plan. The first is double height and the last is a narrow room that has a triple height volume. The break down of each of these spaces would allow many individual experiences. They allow direct comparison to each other and heighten the personal awareness of oneself in various volumes of the building.

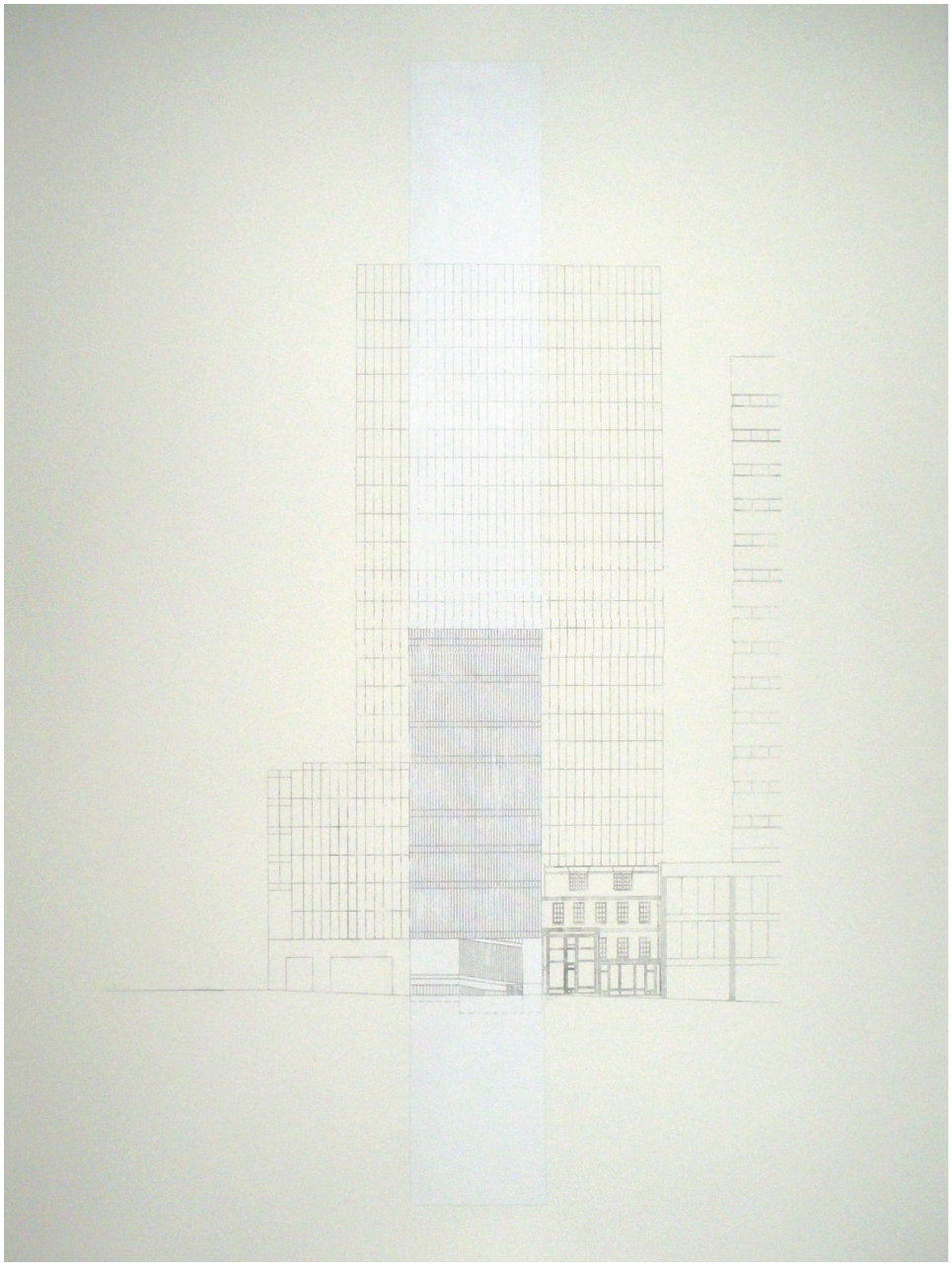
Studio

The Studio floor is stacked on top of the gallery, continuing the slow break down from public to private. This space also has a large floor-to-floor height of fourteen feet. An

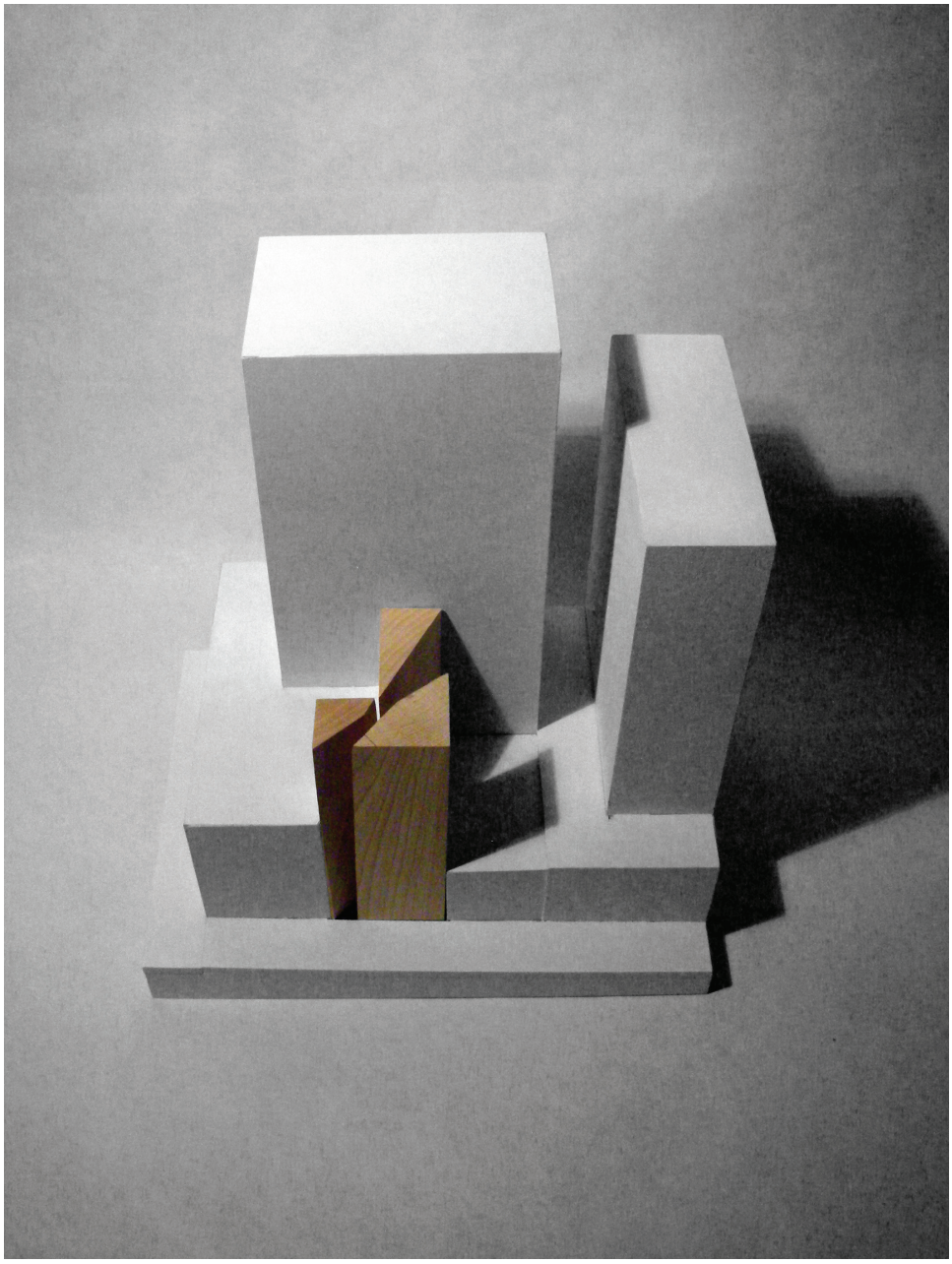
interior facade bulges into the void and connects with the ceiling of the second studio. This creates interior relationships between the two studio spaces, allowing users to be aware of events happening within these creative communal areas. The interior facade allows a buffer between the void and the studios so that elements relating to the senses can be regulated to the rest of the building.

Private Meeting and Reflection

As the building continues to stack pieces of program higher and higher off the ground, the striations created by the floor plates become more condensed. This relates to the change from public program to private program. The final three floors of the building are only nine feet in height. The Meeting spaces on the sixth floor take advantage of this to create more intimate spaces. Finally, the top floor consists of an open-air balcony that is possibly the most condensed space in the building. This is a space for reflection and clarity. Concrete walls become encompassing and provoke individuals to read the contextual surrounds with the senses that they have available. The space is stripped of any visual context as the front and interior facades close off this connection.



Elevation showing relationship to surrounding context.



Massing model of the geometric parti vertically extruded.

Materiality of Program

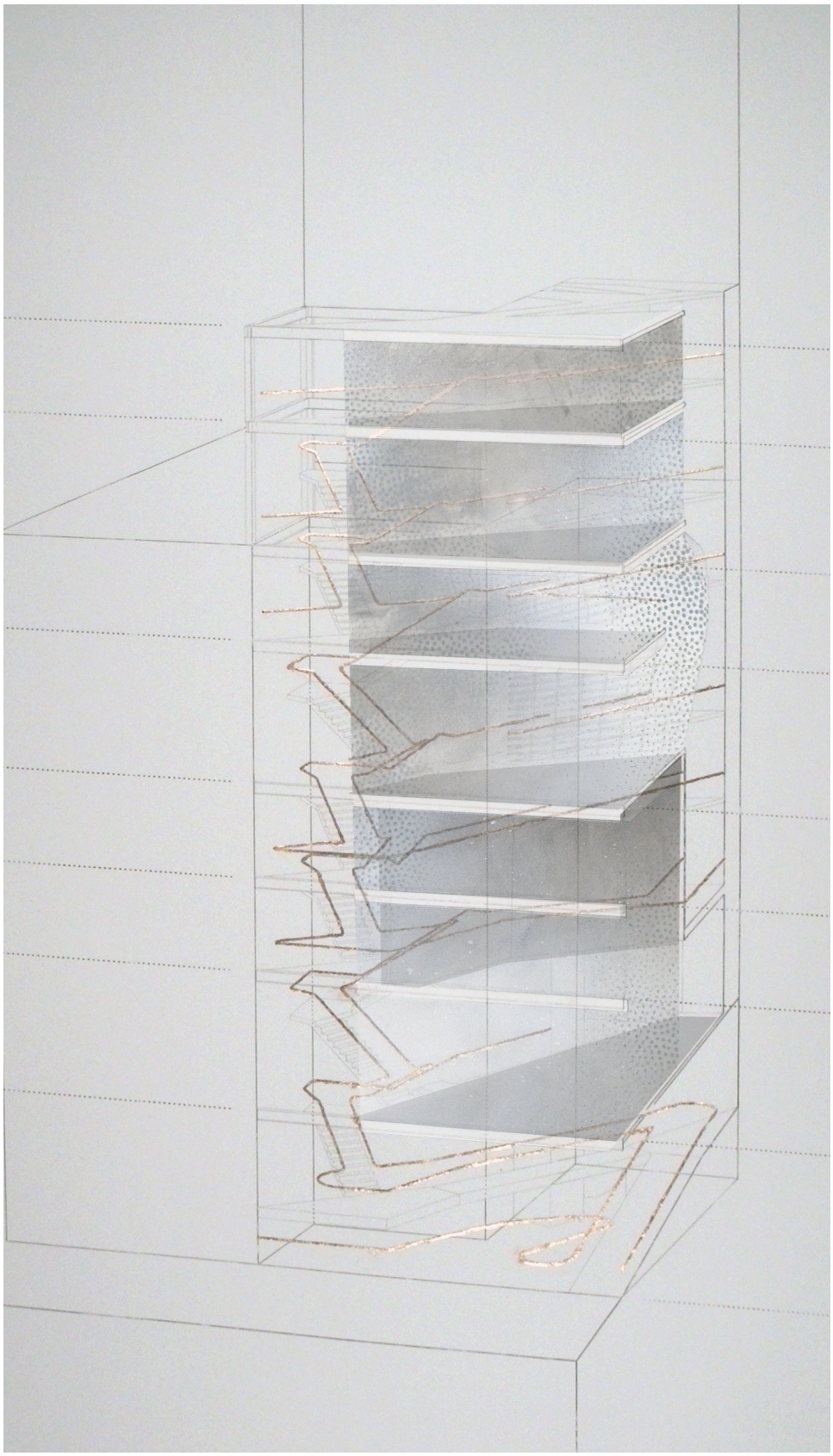
Touch has been indicated as an immediate means to create a relationship between a person and their environment. It has become an important way to create tangible references to a space as well as effect the way a volume of space is perceived. “With the loss of tactility, measures and details crafted for the human body- and particularly for the hand- architectural structures become repulsively flat, sharp-edged, immaterial and unreal” (Pallasmaa, 2005, 31). As a reaction to this statement, materials will be used to amplify information being read by the hand. The overall treatment of materials relates to the same format of public to private spaces ascending vertically off the ground. Respecting the contextual world that users are forced to connect to, materials in public areas are not streamlined. They are presented with the same complexities found within an urban street. This street is continued into the lower void of the building, allowing materials to be open to the air. It will allow materials to age and weather, reacting to their environment.

The range of volumes found in the gallery space continues through the use of materials in these spaces. The gallery consists of rough textures that you can feel with your feet as well as your hands. Board formed concrete paired alongside hardwoods, screens composed of different metals and plastics, and fabric panels or curtains create surfaces to be played with and composed along side exhibitions.

The Studio spaces reflect the materials that are being used as mediums to create pieces of art. Ceramics would attribute to the atmosphere as they absorb and regulate the moisture in the air. Softer woods would be used allowing wear to show and allow the space to account for the history of the space.

The Meeting areas found throughout the building would be of a softer nature. Fabrics and the warmth of woods and concrete would be exploited. These environments attempt to sooth users in more specific instances. These soft tones would be against starker walls, attempting to allow the user to hone in on specific senses.

Materials have been used in some cases only as finishes, while others become more integral to an overall structure of a space. This is most evident in the small pieces of program attached to the concrete elevator core. A reception desk on the gallery floor as well as a seating area on the studio floor becomes cave like. A water fountain indented into the heavy wall allows a quite moment of enjoyment. A whole to whisper into, found above the seating area creates an intimate connection between two floors. Areas like this are speaking more truthfully about the material they are made of.



A axonometric drawing of the building highlighting handrails and their relationships to surrounding volumes.

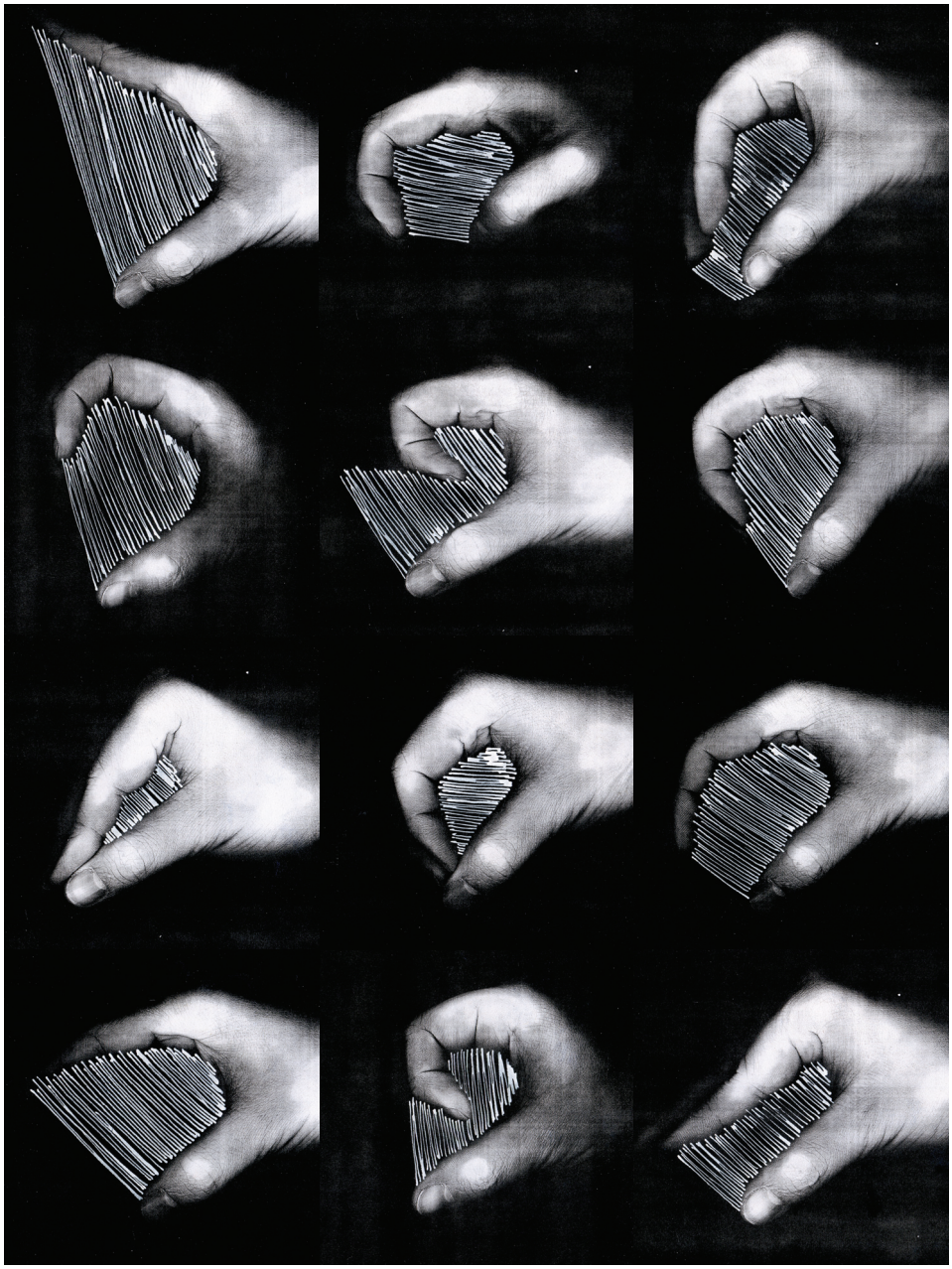
Handrail

Although the architecture of the building is intended to challenge users into being overly aware of their surrounds by means of hearing, touching, and smelling the main form of connection is found through touch. Materials are given throughout the building, but the most consistent means of experiencing them is via the handrails that run throughout the vertical program. This one to one reference point becomes the main means of way finding through the building.

At street level the handrail is the first physical way to experience the building. A ramped spatial void mediates the ground plane of the entrance. The handrail invites users into this void and amplifies the importance it has for users with or without sight. It shows how a space can be architecturally divided by means of circulation, while still allowing other senses to connect and interact beyond it.

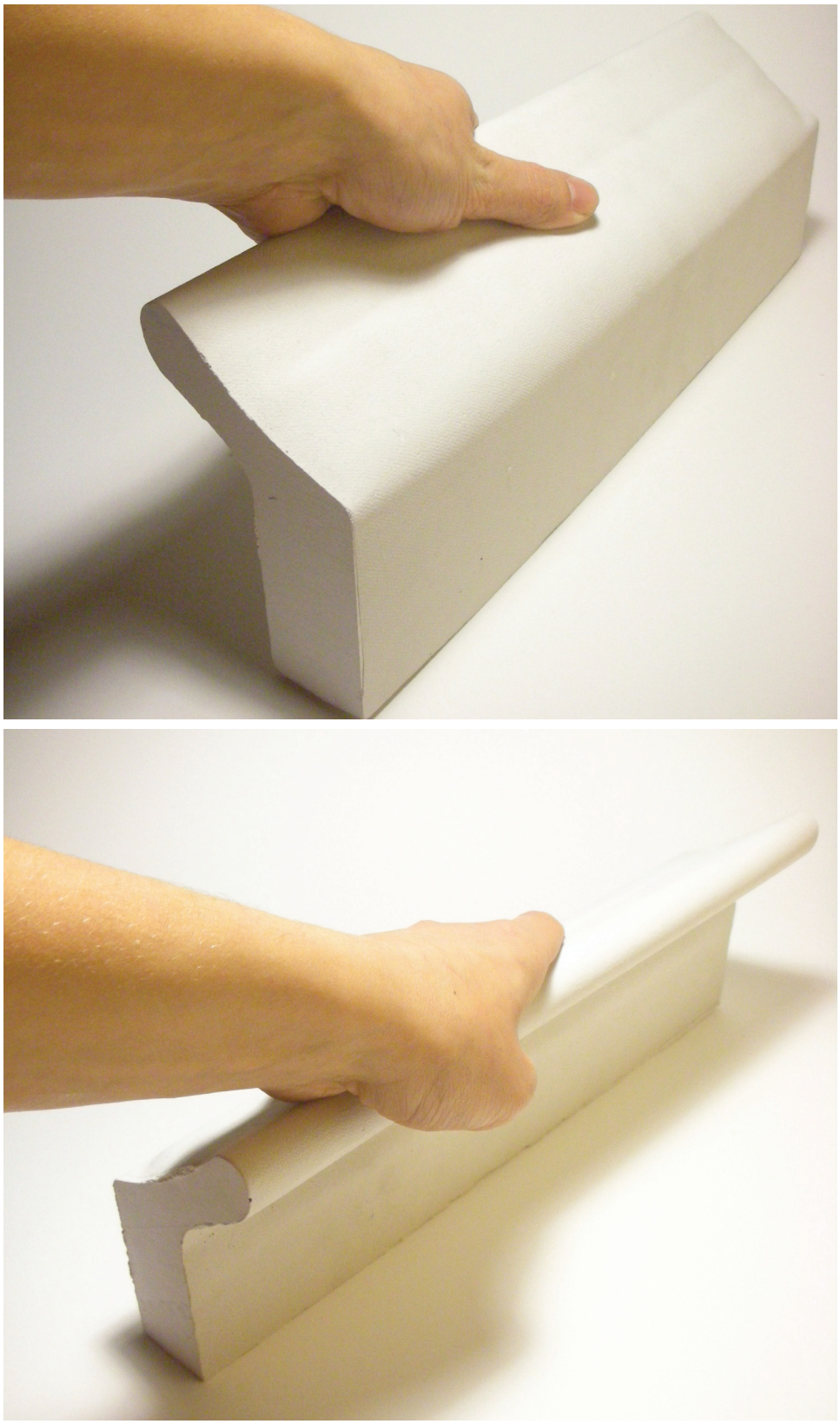
As it ascends it amplifies the spatial and material conditions already expressed. It begins by taking the complex rhythm of the city and further explores the ideas of measure. Guide rails are placed closer together on lower floors to allow numerical measures to coincide with distances. As one travels higher, this assistance becomes tamer to try and allow users to concentrate on their own sense of space. It is not so blatant with its assistance. Although it is there, it begins to allow users with impaired vision not hold on so tight.

The handrail leads to important nodes of the building. It splices into objects such as the reception desk of the gallery, a seating area outside of the studio, and leads to a water fountain on the intimate Meeting area. The material and over all nature of the handrail is able to change incrementally as it is informing users of upcoming changes with program. It also extends past just a point to be held by your hand. It informs thresholds within the building and attaches the floor walls and ceiling to help allow it express and reflect volumes of program. It is not only a way finding device, it has the ability to encompass the desired feeling of a particular space.

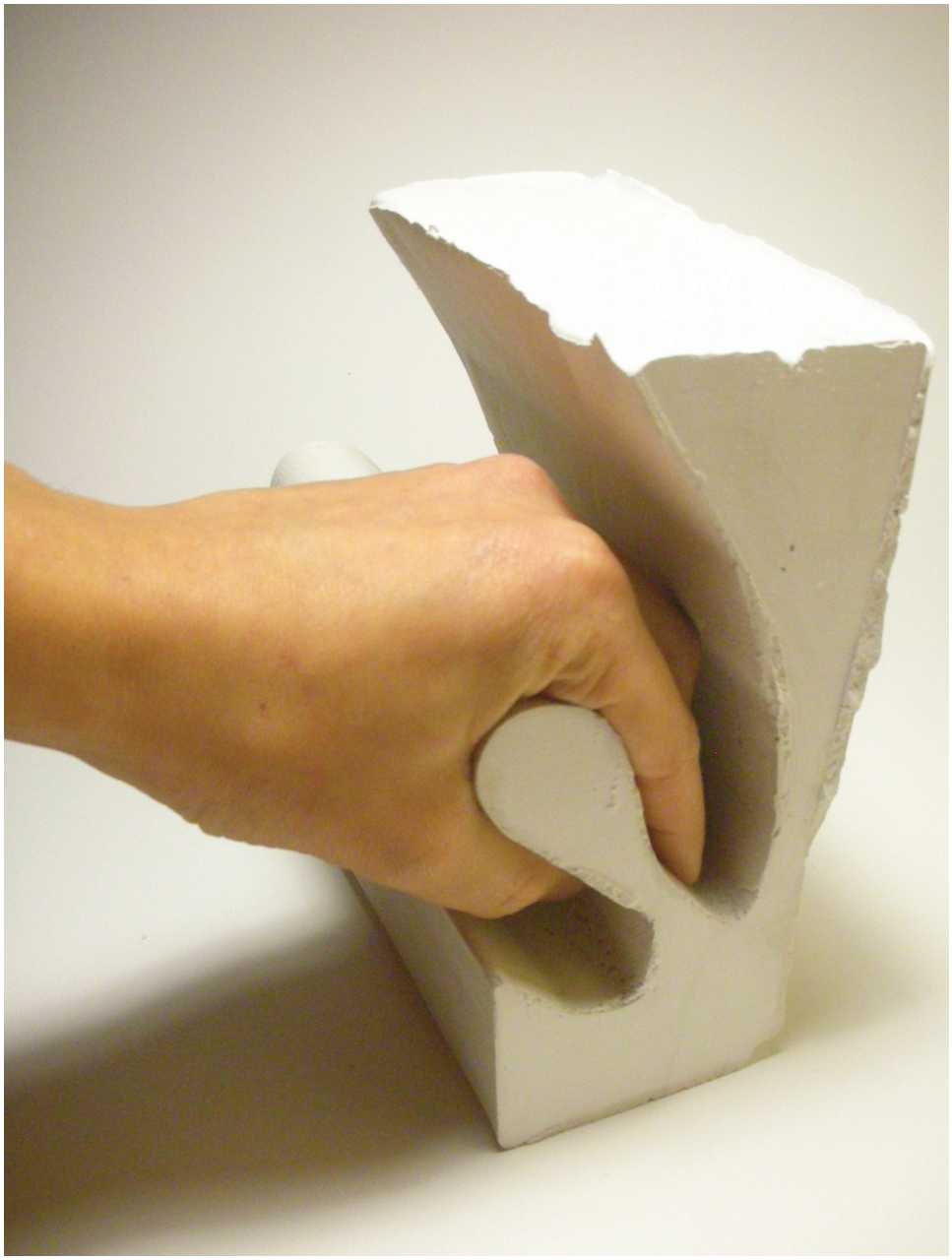


Sections of handrail found through identifying the negative space of gestural hand studies.

A handrail made by means of fabric formed plaster. It is an extrusion of an earlier sectional study.



top: This orientation of the handrail was found to provide more security as your hand wraps around to grasp the contours. bottom: By simply flipping the handrail around a new experience of guidance was found to relate back to the user.



This handrail would be found within the volume of a wall, allowing a users hand to experience a sensation of being wrapped. t was also created by means of fabric formed plaster.

SUMMARY

This thesis recognizes that there is so much more to be taken in than what we can simply see with our eye. The full range of senses must be used to create something that truly responds to and projects the users. Although a user group with visual impairments drove this exploration of architecture, it heightened the quality of building for every type of user.

The process of developing architecture changed drastically when sight was not a fundamental concern. Creating connections between users by means of smell, touch, sound, and taste formed volumes of spaces that were dependant upon each other. Breaking vertical space into striations of influencing sensory elements created volumes based on sensory experiences. Applying these rigors to elements of program and connective volumes helped to bring a natural order to the atmosphere of the building.

The environment created can be seen as confusing for someone with impaired vision. This is counteracted by the fact that if so, it will ultimately be more effective as a controlled learning environment challenging users to be more aware of how different senses allow different readings of a space. When combined, the overlap of information make a user much more aware of their environment.

As a result of studying abstract objects, abstract approaches were created to dealing with sensory driven architecture. The sense of touch became an immediate means to inform users of their surrounding environment. Throughout the complexities of public space to more refined areas of contemplation, the single element of the handrail stood out. It became the hand that reached back from the dark, allowing one to continue on.

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