

**Breaking the Black Box: Using Flexible Architecture to Connect
Performance with the Landscape**

by

Nicole Riekman

Submitted in partial fulfilment of the requirements
for the degree of Master of Architecture

at

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CONTENTS

Abstract	vi
Acknowledgements	vii
Chapter 1: Introduction	1
Topic	1
Context	3
Existing Program	4
Landscape	9
Movement of the Landscape	10
Procession	17
Proposed Program	20
Chapter 2: Design.....	25
Method.....	25
Body	26
Levels of Space	26
Body Movement.....	27
Site	34
Site Movement.....	37
Exploration of Form	45
Architecture: Where Body Meets Landscape	46
Project Description	48
The Lookout.....	48
The Outdoor Lobby.....	50
The Descent	51
Summer Theatre.....	53
The Arms	55
Underground Rehearsal Space	57
The Ribbons	57
Shoulder Season Performance Space	60
Winter Studio	64
The Complete Performance Space	67

Track System.....	69
Chapter 3: Conclusion.....	70
Appendix A: Case Studies.....	71
Laban Dance Centre - Herzog & de Meuron.....	71
Jacob's Pillow, Becket, MA.....	72
Storefront for Art and Architecture.....	73
The Tring Park School for the Performing Arts.....	74
Appendix B: Kit-of-Parts.....	75
Appendix C: Farm Machinery.....	76
Appendix D: Mechanical Movement.....	77
Appendix E: Environmental Information.....	78
Precipitation.....	78
Temperature.....	78
Average Daylight Hours.....	79
Sunlight Hours.....	79
References.....	80

ABSTRACT

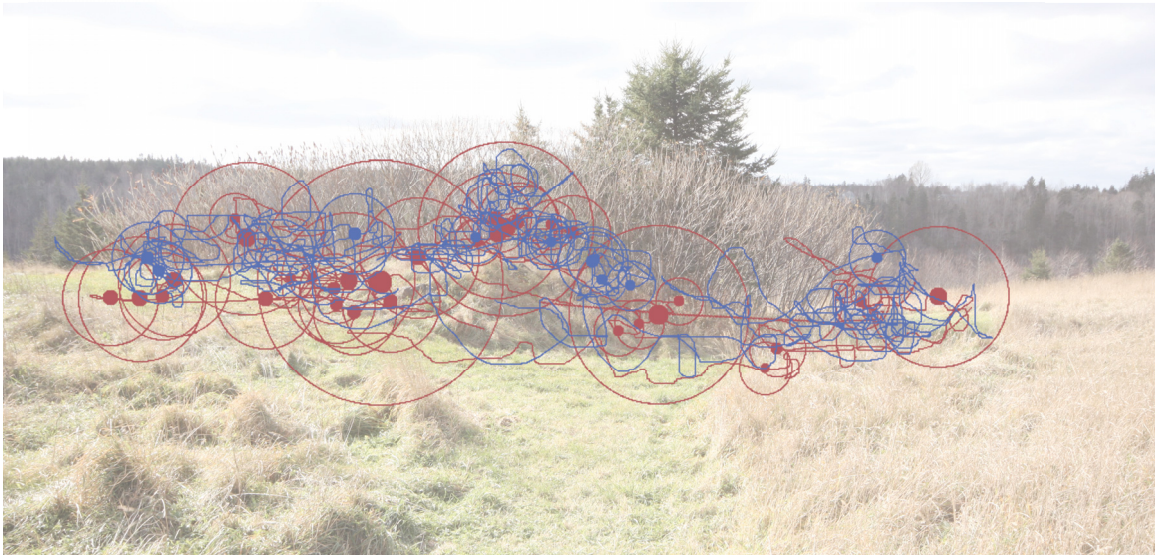
Buildings are largely static objects, while the people and programs that inhabit them and the landscapes surrounding them belong to a set of more dynamic, shifting and interconnected systems. The intention of the thesis is to demonstrate a sympathetic resonance between landscape and body, as architecture. This will be explored through the design of a dance performance and rehearsal space at The Ross Creek Centre for the Arts in Ross Creek, Nova Scotia, Canada.

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Thanks Sam for your support, creative energy and encouragement.

And thanks to my thesis support team Deborah, Dave, Becky, Megan and Magda.

CHAPTER 1: INTRODUCTION



Tracings of a dancer's movement on the site.

Topic

Buildings are generally perceived as static objects, while the people and programs that inhabit them and the landscapes surrounding them belong to a set of more dynamic, shifting and interconnected systems. By understanding the perceived and bodily experience of site, its physical characteristics and the different cycles of change, a building has the potential to resonate with its surroundings. Building in this context is thought of as presencing the existing movement or gestures of site, to embody the relationship between body and landscape.

The intention of the thesis is to demonstrate a sympathetic resonance between landscape and body, as architecture. My position is that if buildings were designed to have a stronger connection to the body, they would have an increased ability to adapt and react to changing programmatic, scenographic and climatic conditions, creating a deeper relationship between the user and site.

This thesis topic will be explored through the design of a dance performance and rehearsal space, as an extension of, and a mediation between the landscape and the body. Architecture is used as a connector to the landscape establishing a stance, framing views and extending existing movements within the land form. The ability to adapt to changing conditions such as climate, program and performance criteria allows the architecture to connect to the landscape and the performances that take place within it. The proposed design would involve a transformable performance space that bridges the gap between the enclosed performance and the outdoor show.

Performance Criteria

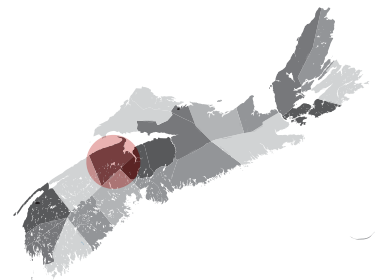
Shows varying in size, season, and genre have unique performance criteria associated with them and make different demands on the building. The proposed building has the ability to react to changing demand and circumstance. Changing environments can fascinate and educate, and in the case of a performance space, add to the excitement of a show. Rather than concealing the inner workings of the performance, these movements could be revealed, adding another layer to the performance. In a theatre, the interior fittings of the building have the ability to adapt to the needs of a performance; a natural step forward is to extend this quality beyond the stage to the entire building and into the landscape. Through the expression of moving components that react to their surroundings and the performance, the concept of time becomes apparent in building, as it is in the landscape, providing it with a fourth dimension and the users with a heightened experience.

Environmental Change

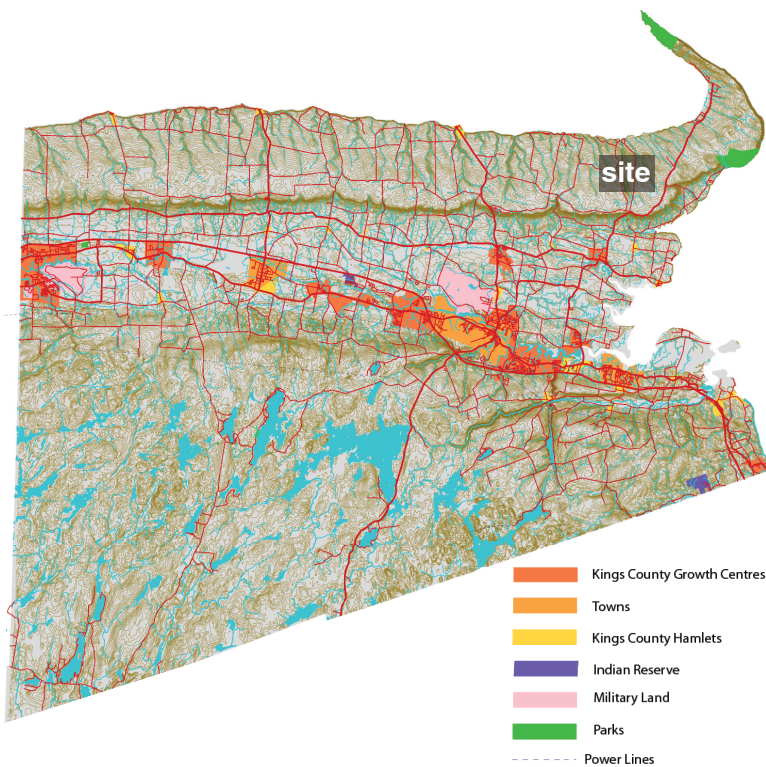
Building is thought of not just as a building but as an extension of the site. The design grows from site interpretation and the added elements act to enhance the gestural and experiential aspect of site. The architecture then is much more about creating a complementary frame or resonance with the site. Landscape Architecture is the act of putting the seeds of an idea in place, that will grow, in time to become the full vision, unlike the typical ideas of architectural design. A tree changes with the seasons, so should architecture. By responding to changing conditions the building can become a part of the interconnected systems of the site.

Context

The site for this thesis project is at The Ross Creek Centre for the Arts, located in Ross Creek, Nova Scotia, Canada.



Map of Nova Scotia. Base map from Nova Scotia Government.



Map of King's County Nova Scotia. Base map from Nova Scotia Government.

The centre is situated on 186 acres of the North Mountain in the Annapolis Valley. The Centre creates art programs for children and residency programs for artists.

Existing Program

The centre, established in 1992 on what was agricultural land, initially converted an existing cattle barn into two black box theatres and artists studios. Surrounded by forest and farmland, with views to the Bay of Fundy, the centre hosts artists, in visual and performing arts. Artists take inspiration from the dramatic landscape on extended residencies to create works. As well as hosting resident artists, the centre runs children's camps in the summer.

The existing facility includes galleries, offices, a kitchen and washrooms. The existing farmhouse built in 1974, acts as residence for the traveling artists and the newly constructed 'lamella' dining canopy provides shelter for eating in the summer months.

The camp has a successful theatre program, with its 'theatre off grid', where the performances take place outdoors, free from any connection to a building. These performances on the landscape use nothing but bleachers, hay bales and props to put on shows in the summer season.

The program for this thesis is a dance studio and performance space which builds on existing programs of dance performance currently occurring at the camp. The intention is to create an open architecture that enhances and creates an awareness of one's surroundings (time of day/year, weather etc.). By acknowledging its environment, a building can include its surroundings as part of the performance.

In the existing dance studio, the choreography and rehearsal for a performance take place in a separate room or building, sometimes far removed from the performance stage.

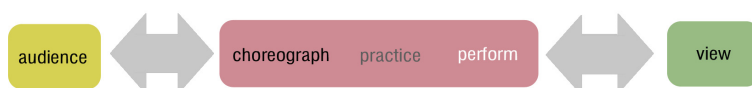
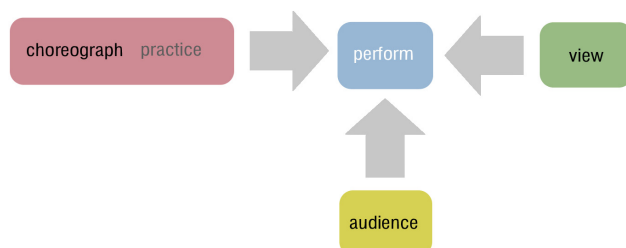
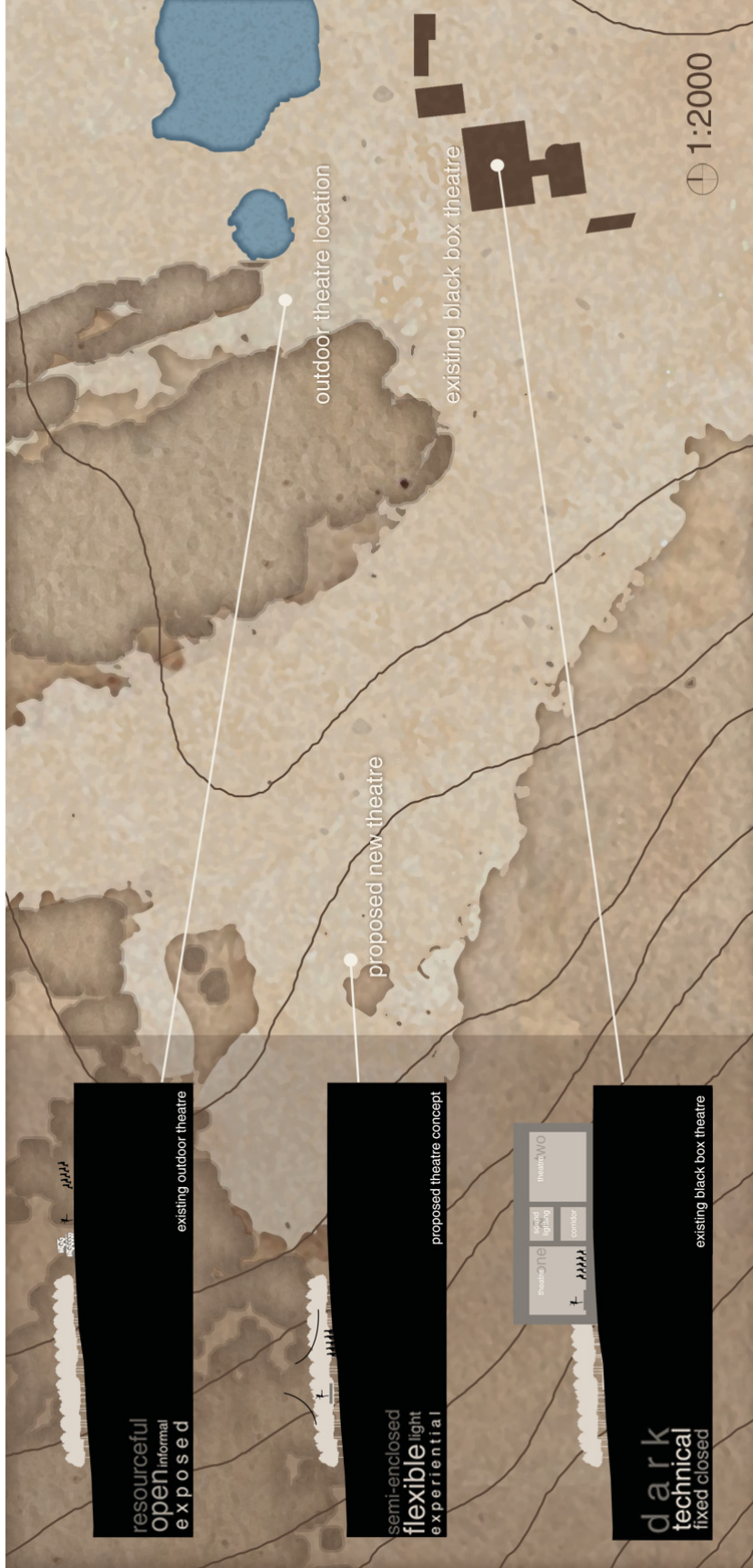


Diagram comparing the existing model of performance to the new proposed model.

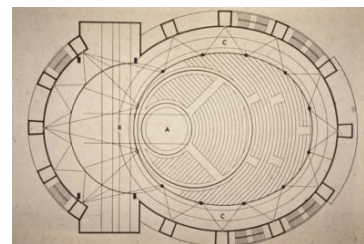
In the new performance model dances are choreographed, practiced and performed in the same location, giving the performance a connection to its place. This model sets up a two way relationship where the audience can view the performers, and performers can view the audience. The performance is open so that the audience experiences the preparation and ‘behind the scenes’ aspects of a performance. The audience views the show in context, while experiencing the same views that inspired the performances.

The two existing types of performance spaces, indoor and outdoor, have both positive and negative aspects attached to them. The new performance model will be a fusion of the positive qualities of the existing indoor and outdoor performance spaces. In addition, this model will enhance the performance by allowing the audience to follow the production through all of its phases and emphasize celebration and optimum utilization of the landscape.



This diagram highlights the locations of the existing performance spaces and the proposed location a new type of performance space.

Taking the dance program out into the landscape, like the summer theatre program, offers a challenge. In dance, surface is the primary concern. While theatrical performances can be undertaken on many surface conditions, most contemporary dances require a predictable surface. Current performances and rehearsals of the dance program at the centre, which require such a surface, are limited to the indoor studios.



Plan of Walter Gropius' Total Theatre. From Hekman Digital Archive

The proposed solution is to create a flexible architecture that can bridge the gap between the indoor performance space, and the performances that happen directly on the ground. The new performance area will provide a stage for dance, that can be viewed by an audience of different sizes depending on the season. By being flexible, the buildings will adapt to the season, time of day and performance, to make each performance completely unique.

A number of architects have explored the idea of a transformable performing space in the 1930's and 1960's, such as Walter Gropius and Cedric Price. The goal for Gropius' 'Total Theatre' was to create a "building that could respond in terms of convertible space and flexible lighting to every demand of the Director"¹. One of the greatest changes in this theatre model was the elimination of the proscenium bringing the performers and the audience closer together and allowing the audience to project themselves into the performance in their imagination. Architecture has control over how much the audience feels a part of or removed from the show. The design for Cedric Price's 'Fun Palace' provided a highly flexible indeterminate space capable of

¹ Wendell Cole, "The Theatre Projects of Walter Gropius", *Educational Theatre Journal* 15, no.4 (1963): 313.

responding to users and enabling a wide range of activities.

Architecture has the opportunity to facilitate performance that is more connected to its environment, achieved through how the architecture is experienced in the procession through the site, its relationships between inside and outside, views and transformable building components.

Often times, art takes the role as a representation of the real world. It seems fitting here that the creation of art, in this case dance, is produced in an environment that allows the surroundings to inspire the works rather than representing these ideas in a closed space from memory. In the 1960's and 70's, many small theatres designed large garage doors to open at different times onto the street to invite the life of the outside to the show. One example of this is the Performing Garage in SoHo, New York City. The Performing Garage is home to the experimental theatre company called the Wooster Group.

Fox and Kemp wrote that “architectural space can take advantage of an audience locally, regionally and globally by reconceptualizing the role that the physical environment plays in shaping the viewer’s experience. Such an approach suggests that the physical environment can be interactively viewed both within the confines of the space and beyond its walls”.²



The Performing Garage in New York City. Image from Wooster Group.

2 Michael Fox and Miles Kemp, *Interactive Architecture* (New York: Princeton Architectural Press, 2009), 138.

Landscape

The site is an area of cleared land, formerly used for agriculture. It slopes down toward the creek, surrounded by young forest. It is an open space with views to the creek valley below and long views to the Bay of Fundy to the North. A path network leads from the existing facilities down into the creek valley, through areas of forest and cleared agricultural land. A large ridge runs through the site, where in places outcroppings of bedrock come through the surface. The cleared land is grown up in tall grass and a zone of low shrub growth separates the cleared land from the forest. A large bush remains in the centre of the clearing where the land was left untouched around a small outcropping of bedrock. The outcrop sits in an area of focus, wrapped around by the ridge, and overlooked by a flat plateau.



Site model indicating the location of prominent landscape features.

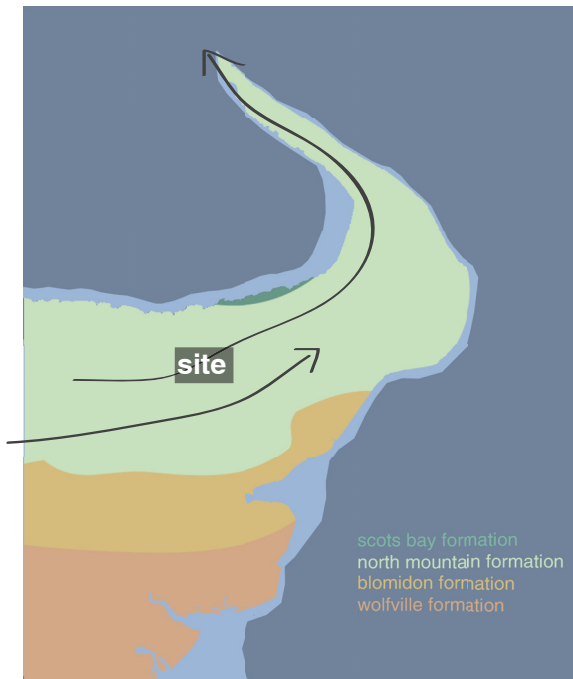
Movement of the Landscape

Directional Movement

Time has made its mark on this area of Nova Scotia. The continual shifting of geology and flow of rivers have shaped the landscape, creating a dramatic environment. The North Mountain was created by a lava flow that flowed over the landscape. The solid mass of basalt stone that remains guides the flow of the Gaspereau and Cornwallis Rivers, which formed the Annapolis Valley. On the North Mountain, a thin covering of soil supports forests and farmland, but evidence of the bedrock shows through in the form of outcropping or exposed bedrock on the surface. At cape split the ocean meets the North Mountain, eroding away the land to expose massive stone cliffs. The strong east-west direction of the flow is still apparent in the form of the North Mountain.



Outcrop of bedrock on the site.



Site geology. Base map from Nova Scotia Government.

geological time

The North Mountain was created by a lava flow in the Triassic period 250,000,000 years ago



line continues 25,000 km (to Sydney Australia)



The Cornwallis River at low tide.

The landscape of the North Mountain is punctuated by creeks that run North to the Bay of Fundy or South to the Annapolis Valley. These creeks represent a continual directional flow that continues to shape the landscape. The creeks, over time, cut deep valleys into the bedrock, constantly eroding material and depositing it in the valleys and deltas below.

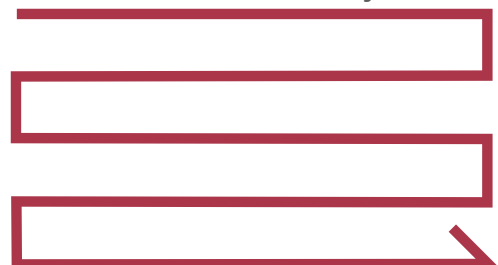


Site erosion. Base map from Nova Scotia Government.

erosion

Streams on the North Mountain have been carving their current path for a couple of million years. Older rivers like the Gaspereau and the Cornwallis have followed their path for about 50 million years

2,000,000 years



line continues 200 km
(to Antigonish NS)

Cyclical Movement

In the book *Forms of Nature and Life*, Andreas Feininger states that “nothing is permanent. Everything is in constant flux and change . Through day and night, through summer and winter, year after year, from birth to death, life flows in a timeless cycle”.³

The site is affected by a number of cycles that make their own marks or gestures on the physical landscape. Tides are a major force on the landscape. The main views are to the Bay of Fundy and the Minas Basin where the highest tides in the world flow in and out twice a day. The tides cause rivers to reverse the direction of their flow as the ocean water flows into the flat flood planes of the valley. The coastline’s high cliffs, which are the focus of the views, are in a state of constant change as the tidal cycles erode the land.



Aerial view of the tide out. Image from Google Maps.



Aerial view of the tide in. Image from Google Maps.

3 Andreas Feininger, *Forms of Nature and Life* (New York: Viking Press, 1966), 4.



Low tide at Halls Harbour, Bay of Fundy, NS.

The tidal cycles are visually evident by the height of the water in rivers or boats at dock. These serve as a visual register to people who are viewing the landscape. The extreme height of the tide activates levels of space, which are evident at low tide in the form of traces marked on piers and cliffs. The viewer can measure the levels in relation to their own body as they walk on vast mudflats, which hours before were ocean floor.



Tidal zones. Base map from Nova Scotia Government.

tides

13 hours

The Minas Basin has the highest tide range on earth, the water level at high tide can be as much as 16m higher at low tide than at high tide. The system has a natural period of approximately 13 hours.

16m



The seasons comprise another powerful cycle on the landscape. The site takes on a different appearance in different seasons. The highly dramatic landscape offers an ever changing backdrop. Farmers fields sprout, blossom and are harvested and rotated through the seasons, forests completely change their character, carrying on their branches the evidence of the seasonal cycles. As a result of the syncopation of the different rhythms of its composition, the experience of the Annapolis Valley landscape is unique every time it is experienced. These cycles and flows set the scene for shows that are viewed at the arts centre.

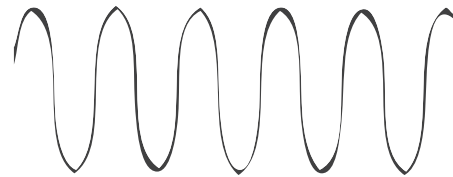


Seasons. Base map from Nova Scotia Government.

season

1 year

season





Site in summer.



Site in fall.



Site in winter.

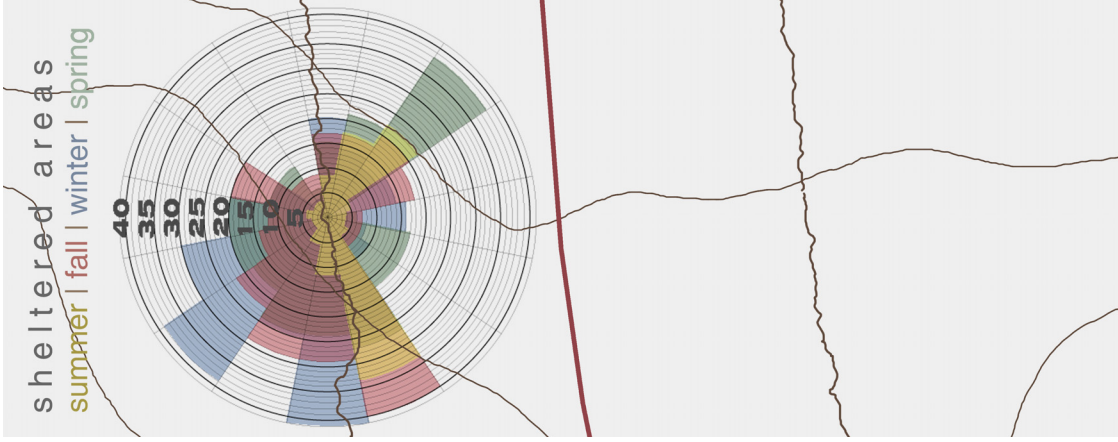


Illustration of sheltered areas for the four different seasons. Climate information from Environment Canada.

Procession

The rural arts centre attracts artists and tourists in all seasons. People travel from the nearby towns, or from Halifax, 120 km away, or further, to make art, attend shows or go to summer camp. Arrival at the centre is preceded by the anticipation of traveling through the Annapolis Valley. The audience arrives having experienced a long dramatic procession, filled with views and glimpses, twists and turns, through a spectacular landscape. Tidal mudflats, rivers, vast views, and fertile farmland create the larger setting of the performance.

The audience establishes a connection to the landscape while traveling. This connection is made between body and landscape as the viewers pass through, and project themselves onto the scenery. The procession sets up a rhythm, that the audience experiences, before the first set of the performance occurs. Time in performance becomes related to time of the landscape.

Viewers arrive at the centre with this established relationship between the body and the landscape. The building serves to maintain and enhance this connection leading up to and throughout the performance. The relationship between landscape, body and building is interconnected and interchangeable with the relationship between landscape, performer and viewer.



Map of the procession through the Annapolis Valley to the site, highlighting the major views along the way. Base map from Google Maps.



a) View of Blomidon.



b) View of the Look Off.



c) View of Cape Split.



d) View of the Bay of Fundy and Spencer's Island.

Proposed Program

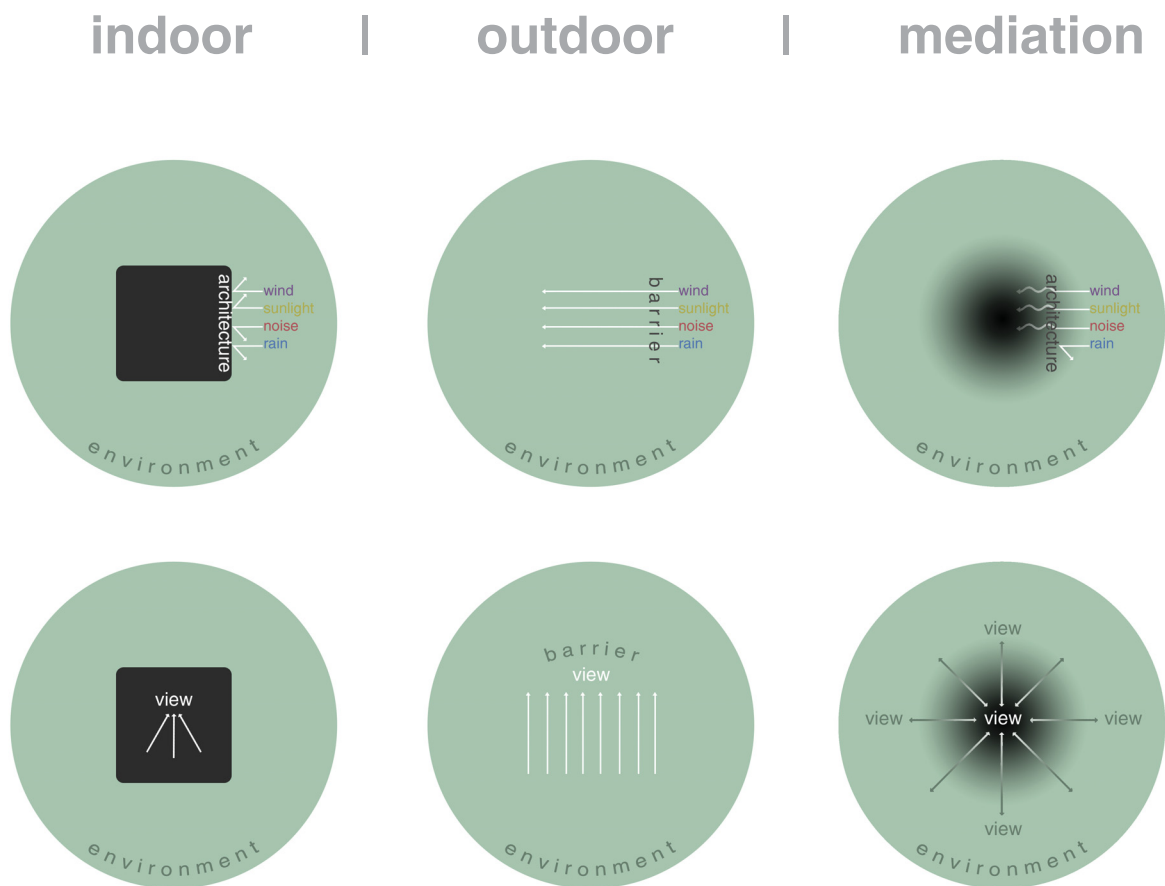
The existing models of theatre and performance spaces are closed off externally with a fixed relationship between performer and audience. They block out anything that might distract from the stage, so that the audience can become completely immersed in the performance. The relationship between body, building and landscape are also fixed, and the three are separate and distinct. This thesis proposes a new form of performance that creates a sympathetic resonance between the body and the landscape through architecture.

Early theatrical performances would go on for hours through the night, allowing the viewer to lose track of time in the real world, to suspend disbelief and become completely wrapped up in performance. They would emerge from the theatre in the morning as if from a different world, returning to reality. In these performances the architecture served to separate the body from the context of the site and set up a highly controlled relationship between performer and audience. The modern black box theatre emulates this sort of control over the audience's view and perception of time.

In the dramatic setting of the North Mountain, it seems fitting that a dance performance should embrace its surroundings, inviting the environment to be a part of the show. The perceived and bodily experience of the site, is overlaid on the performance to demonstrate the connection between body, building and landscape.

The audience, traveling to the rural centre, arrives having experienced a long dramatic procession, to a spectacular landscape. Rather than completely enclosing the audience

at this point, to shift their focus from the environment, this new architectural form will merge the mediums of dance and landscape into a harmonious production. In the proposed work I will blend the spaces of rehearsal and performance so that the dancers, who take inspiration from their surroundings in creating and perfecting their choreography, perform in the same space.



This diagram is an analysis of how both existing types of performance spaces interact with the environment and how the introduction of a third type might bridge the gap between them.

The building will also redefine the relationship between performer and audience. Typically a performance is thought about as one or more performers in front of a group of people for an audience. The new model of performance will include arrangements such as one person performing for no one, or a group for one person, or even an audience with no performers.

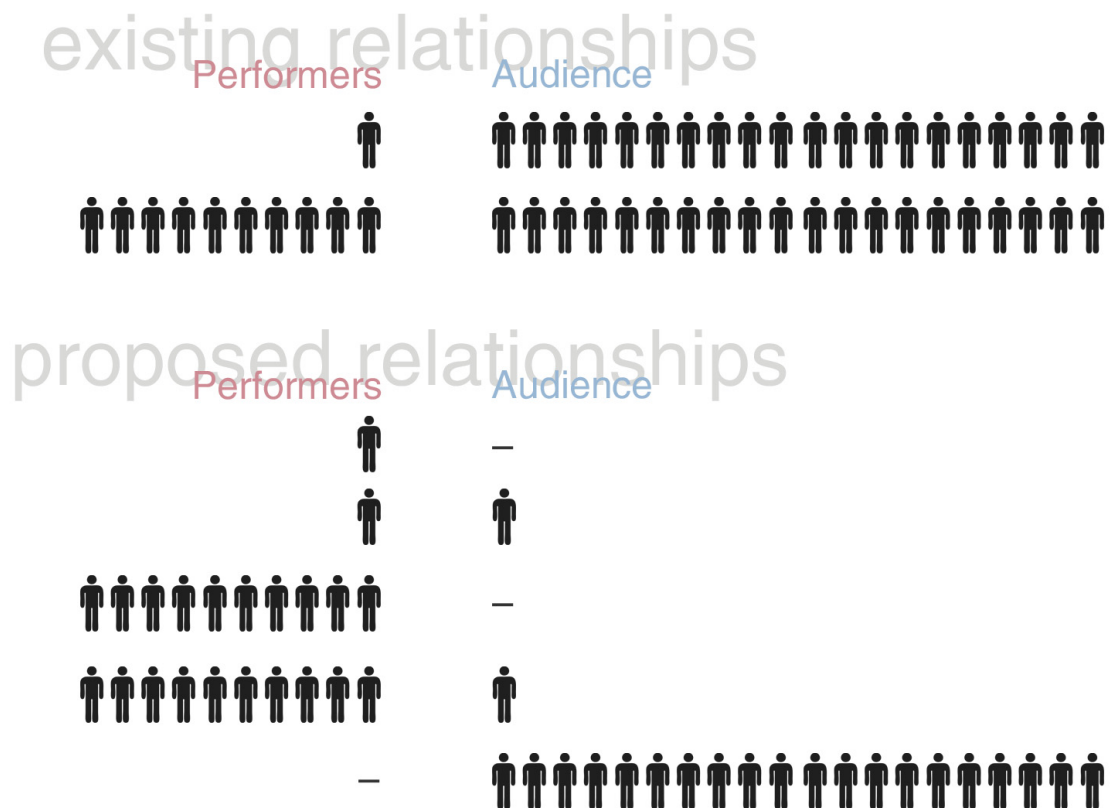


Diagram showing the existing relationships between the performers and the audience and the new relationships created in the proposed performance model.

Seasonal User Groups

The warm weather and large number of patrons of the summer months require the most flexible and open organization of program. Less covering is needed and the audience and gathering spaces are able to spill over the land offering a large amount of space to accommodate people.

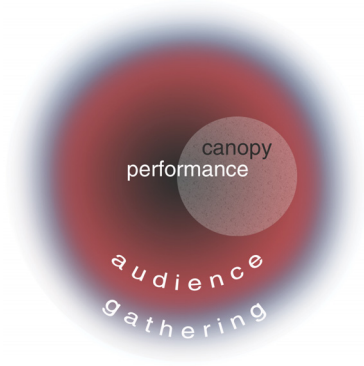


Diagram of the expanded program elements in the summer months.

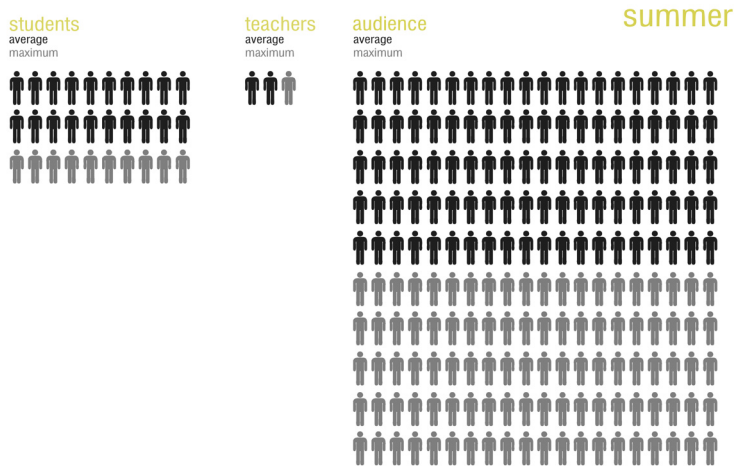


Diagram of the projected users during the summer months.

The weather and turnout for the shoulder seasons allow for more flexibility within the program organization. The audience and gathering spaces begin to grow outside the enclosure but still require a canopy to protect the people from rain.

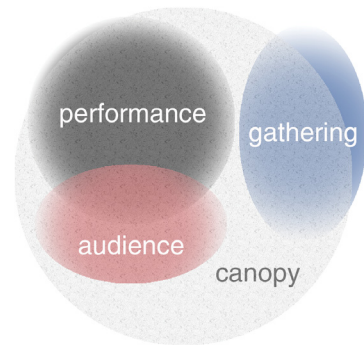


Diagram of the semi-condensed program elements in the shoulder season months.

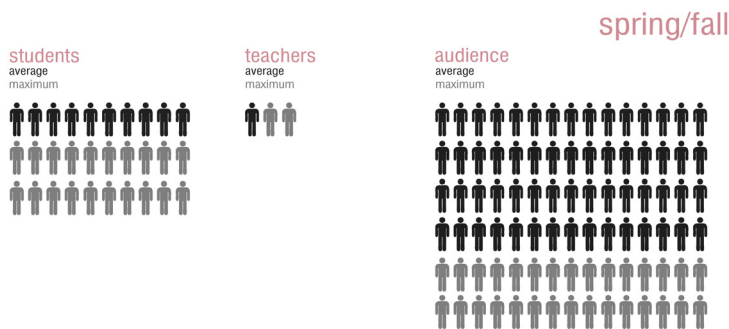


Diagram of the projected users during the shoulder seasons.

The camp has less people in attendance during the winter months. This factor, combined with the requirement for full enclosure due to weather will result in a tighter program organization. The performance, audience and gathering spaces will all be completely contained within the building.

winter



Diagram of the projected users during the winter months.



Diagram of condensed program elements during the winter months.

CHAPTER 2: DESIGN

Method

My design method borrows an analogy from dance used to train muscle memory. When dancers are trying to perfect a motion, or correct an incorrect motion, they go through four stages, described as, unconscious incompetence, conscious incompetence, conscious competence and finally unconscious competence. The stages describe the process through which a dancer identifies a problem in the routine, is aware of the problem, works at correcting it and eventually commits it to memory.

Like the dancer in training, my method for siting performance and architectural elements involved making intuitive movements across the site (unconscious incompetence), doing quick sketches or what I called intuitive siting (conscious incompetence), analysis of the sketches and movements (conscious competence) and determining the features in the landscape, that informed my initial reactions to site the architectural elements (unconscious competence).

The design, like the placement of the dance and the elements on the site, relies on an understanding of how the body moves through space. Using Laban's principles about body, space, weight and flow to inform the design of the architectural elements, a procession through the landscape was developed. The landscape is thought of as a dance in itself and the body enacting a dance across it. It is through both, that the architecture is born.

Body

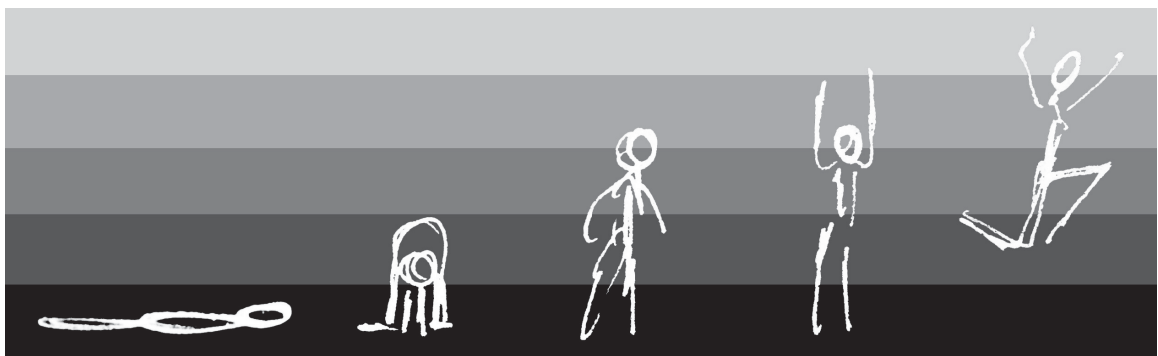
Levels of Space

In Dance the body can occupy and move on five basic levels, activating the space around it. The first level consists of movement on or along the floor such as rolling and lying. The second level consists of movement close to the floor such as crawling, sitting and kneeling. The third level consists of movement where there is contact with the floor by either the feet or hands, but not both, such as running, turning, galloping and sliding. The fourth level occurs where the body shape is vertically long such as vertical balances on rise and reaching. The fifth and final level occurs where the body leaves the floor as in jumps and leaps.

Like the dancer the architecture is thought to activate different levels of space. Some elements are dug into the ground, others rest on the ground and some float above the ground.



Image from Parkway School Website.



Sketch of a person occupying the 5 levels of space.

Body Movement

To make this connection, between body and building, I'm using the framework set out by prominent dance theorists based on how the body moves through space. Perhaps the most influential dance theorist is Rudolf Laban. He laid out a system for analyzing and annotating the way the human being moves in space. He ascribed values to these movements, releasing the expressive power contained within each one of them.⁴ Of particular interest to me are Laban's theories on space, time, weight and flow and the eight basic effort actions. These will be used in orchestrating the moments and form of the building.

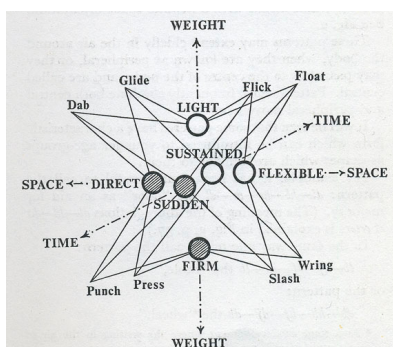
4 Factors of Effort

space | indirect or direct

time | sustained or sudden

weight | light or strong

flow | free or bound



8 Effort Actions

action	space	time	weight	flow
glide	direct	slow	light	free
slash	indirect	fast	strong	free
press	direct	slow	strong	bound
flick	indirect	fast	light	free
punch	direct	fast	strong	bound
float	indirect	slow	light	free
dab	direct	fast	light	bound
wring	indirect	slow	strong	bound

Table describing the four factors of effort and the eight effort actions as described by Laban. Diagram from Newlove, *Laban For All*.

⁴ Jean Newlove, and John Dalby, *Laban for All*, (London: Nick Hern, 2007), 10.

Some key definitions that will be applied to the architectural elements are:

Stance

Standing in a state of preparedness before embarking on an exercise or movement sequence.

Kinesphere

The area surrounding the body within the reaching possibilities of the limbs without changing your place. It is usually related to postural movement which emphasizes the space around yourself, in contrast to general space in which action and locomotion takes place.

The Dimensional Cross

We move in a three-dimensional way, we can reach high and low, from side to side and forwards and backwards.

Pathways and Trace Forms

A pathway is the route of a single movement traced by the body or part of it from one point to another. A trace form is the shape a movement makes in the air.

Monolinear and Polylinear Movements

A monolinear movement is the flow through successive joints in a continuous sequence. A polylinear movement is where all the joints move at once.

The design began with a focal point which became the stance or resting position from which architectural elements extend or reach resisting different forces and activating different movements.

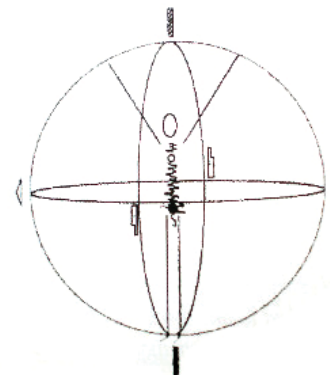


Diagram of the Kinesphere from Newlove, *Laban For All*

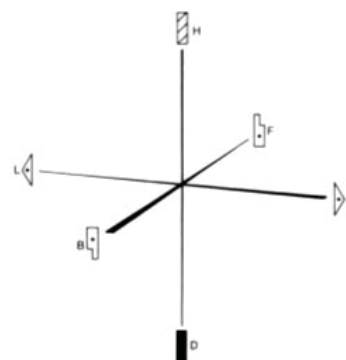


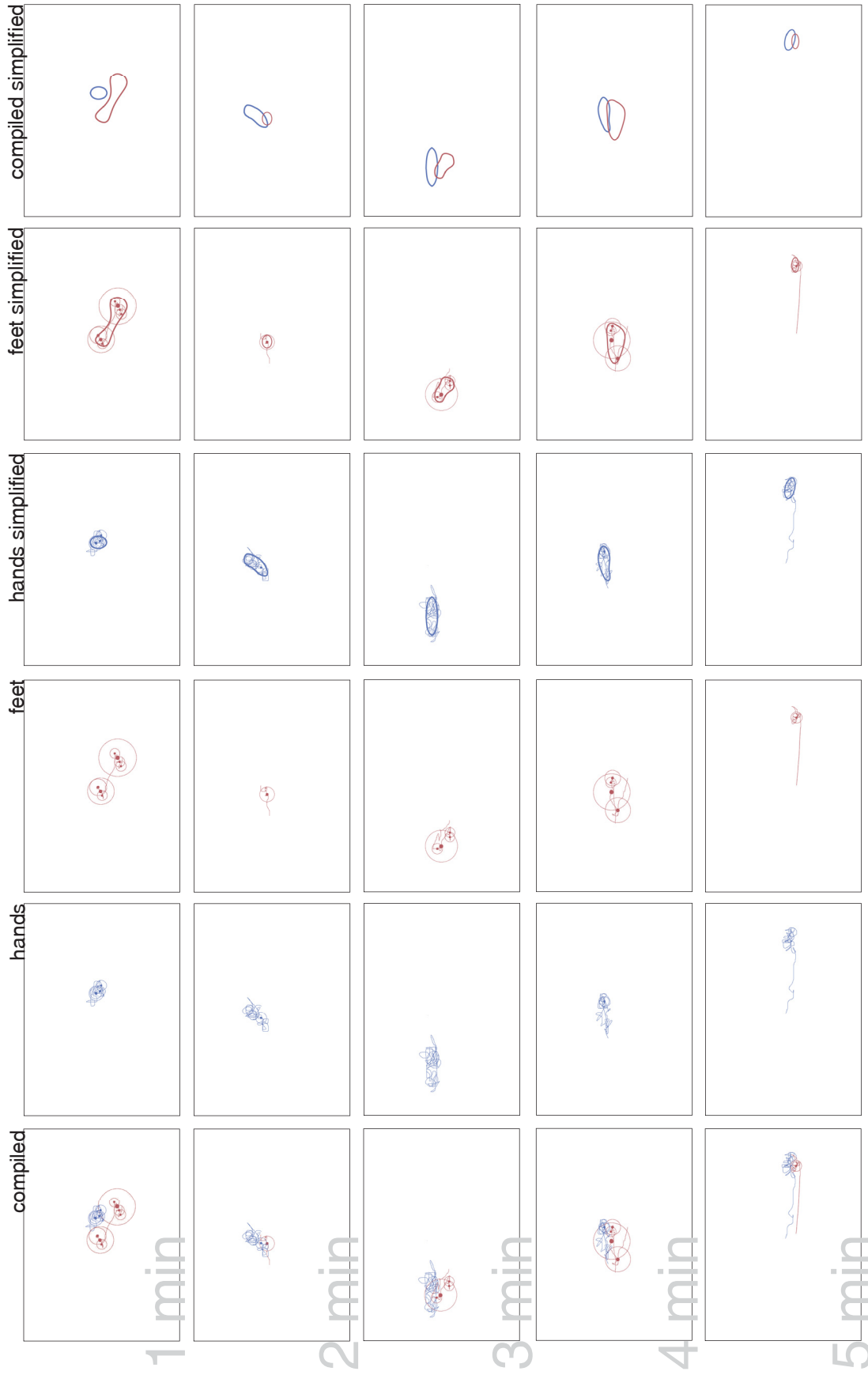
Diagram of the Three Dimensional Cross from Newlove, *Laban For All*

Dance Space | Site Space

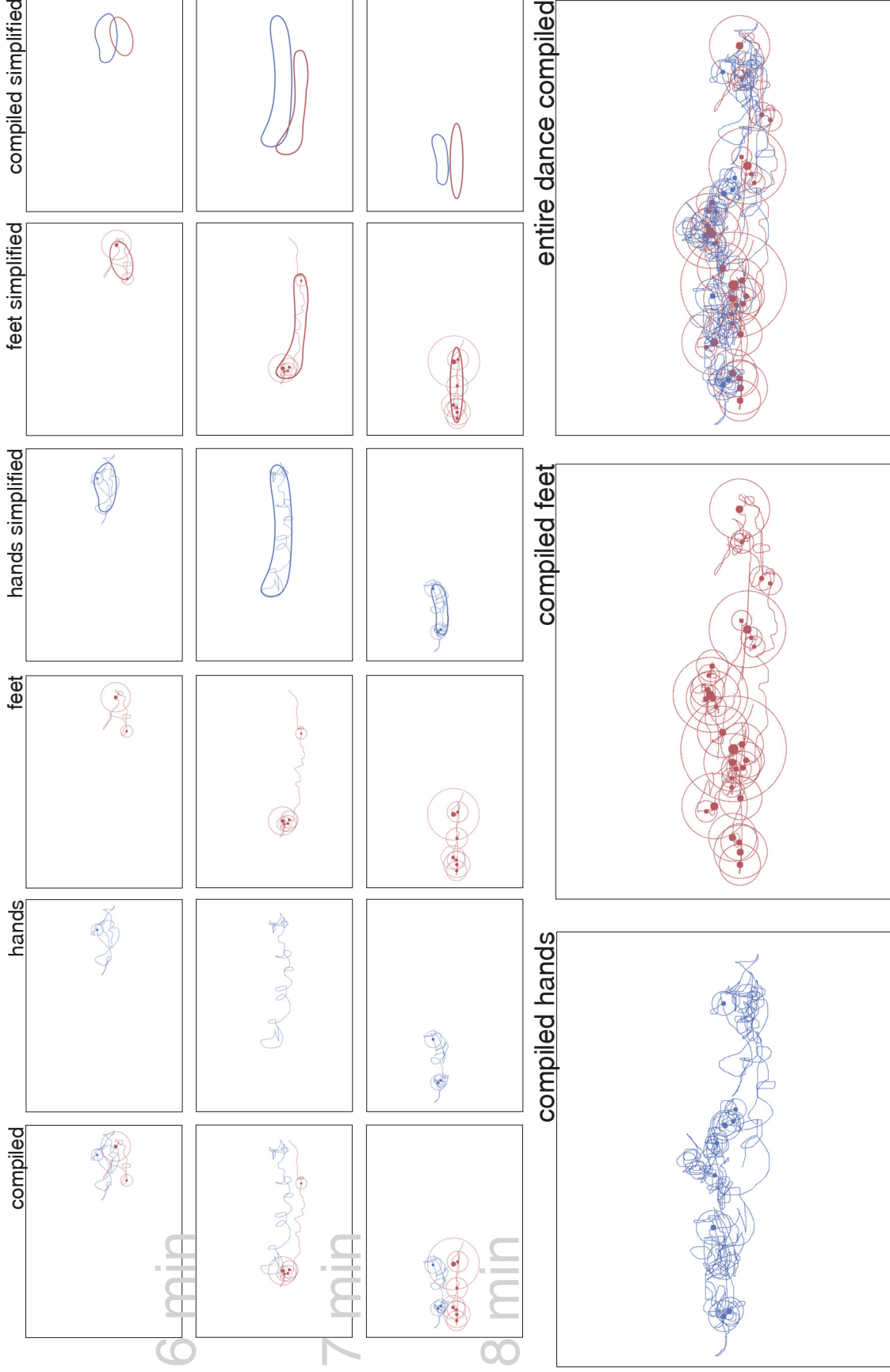
The purpose of this experiment was to see how one could interact with the site through dance and to help visualize what the dancer's space would look like. A video was taken of an unchoreographed and unrehearsed dance that was the dancer's natural reaction to the site. The video was then analyzed by tracking the movement of the appendages separately. A simplified form was the final result for every minute of dance. These forms were then stacked based on their position in the frame and duration in the dance to create a volume that signifies the dancer's space in relation to site.



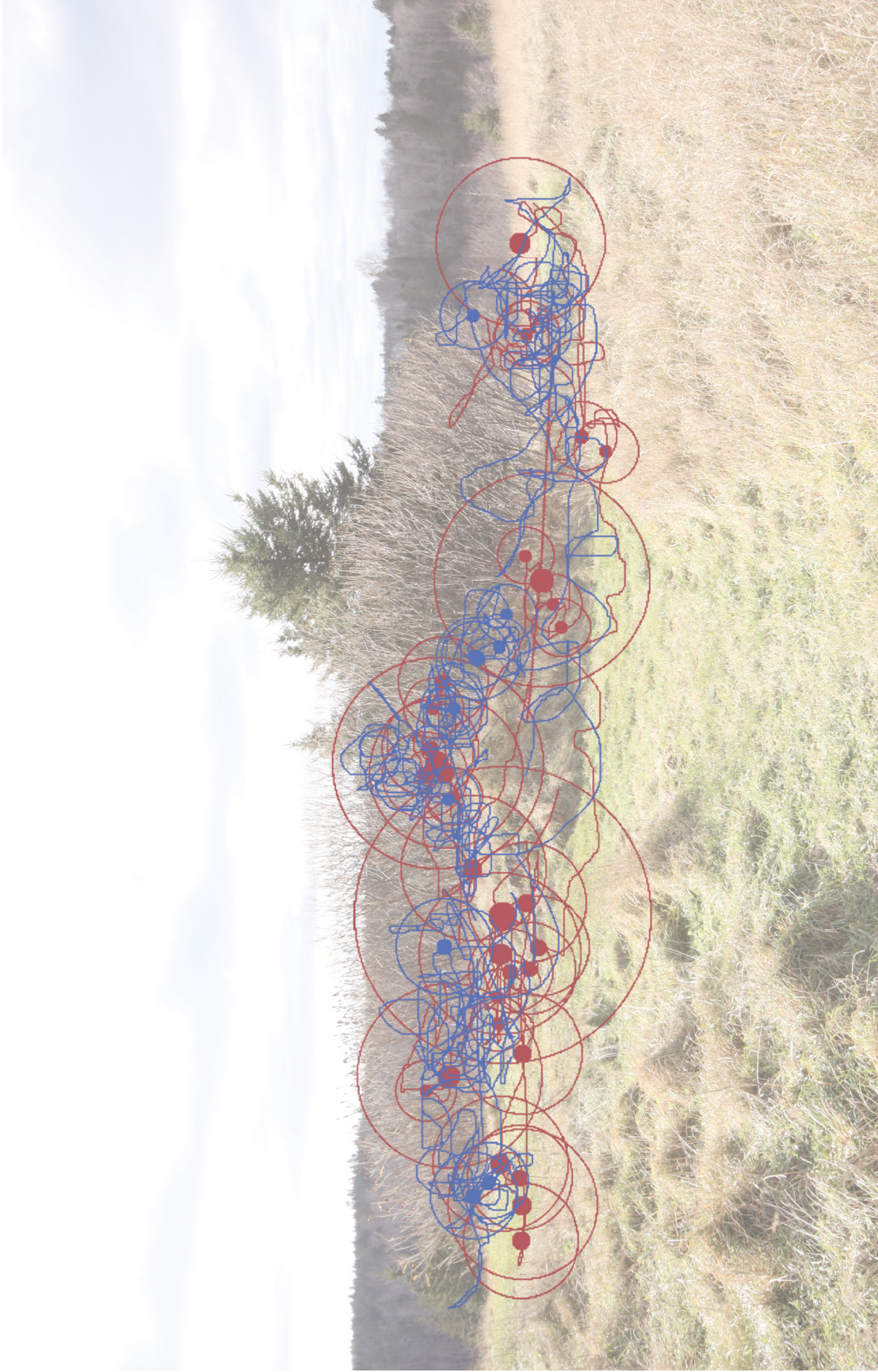
Still from the video footage of the dancer on the site.



Tracings of the dancer's movements for the first five minutes.



Tracings of the dancer's movements for the final three minutes and the compiled tracings for the entire dance.



Compiled tracings of the dancer's movements on the site.

The compiled forms of the dancers motion help visualize the space of the body dancing on the site. Information from these experiments is used to inform ideas about building placement, focus, stance and limits. The simplified form demonstrates the idea that dance can activate the different levels of the site.

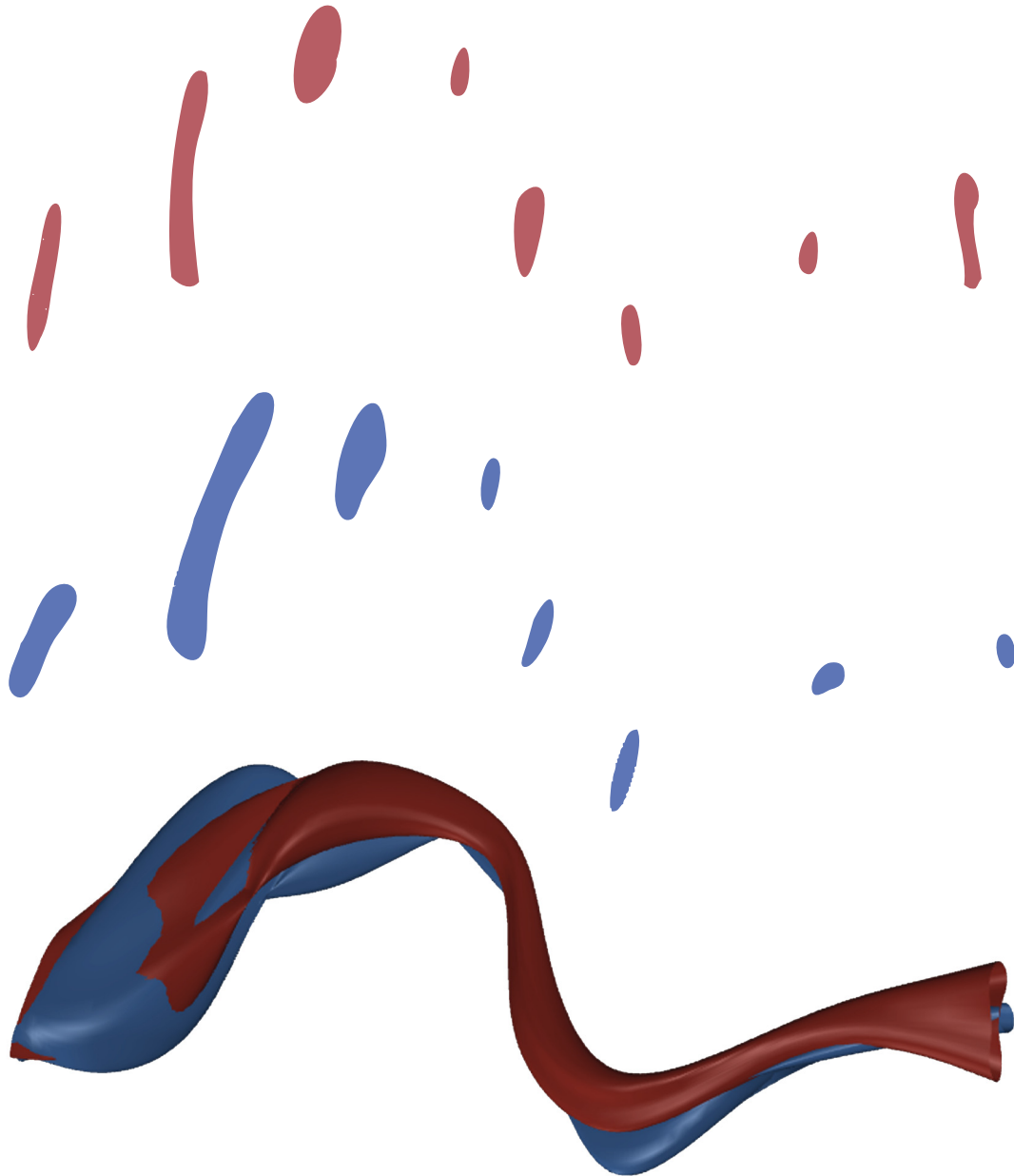


Diagram of the simplified forms stacked in position of the frame and their corresponding volumes showing the levels activated by the dancer on the site.

Site

My site strategy is based on reading the landscape through engaging with it. The underlying structure and natural flows were identified to help determine circulation patterns and siting of platforms, lookouts and seating areas. Through dancing, walking, and observing the landscape, I identified what were still, calm, or breathtaking areas. My process became a retrospective analysis of my patterns of interaction, identifying locations that I was drawn to intuitively for their spatial qualities.

Protection from the Wind

The main or permanent aspect of the program will be sheltered against a hillside with tree cover, so that the building can withdraw to a natural place of shelter. From there, in appropriate weather and season the building can branch out, to claim more of the landscape.

Focus and View

The natural bowl shape in the landscape, that I was drawn to for its theatrical qualities, emphasizes in different places, focus and view, which naturally suggest place for performer and audience.

Light and Shadow

The primary element inhabits the northern part of the site, allowing it to open to the south, to gain exposure to the sun, and to set up performance spaces with variable shading.

Proximity

The siting remains in close proximity to the existing facilities, to establish a connection, while spreading out on the

site to claim a prominent position overlooking the creek valley.

When interacting with the site, I was continually drawn to an area with a natural bowl shape that is adjacent to a large plateau and bounded at the top by a large, continuous ridge. Within this area, I felt that different areas were suitable to different aspects of performance.



Panoramic view of the site



This sketch is a summary of the factors that influenced the proposed location of the new dance model. Climate information from Environment Canada.

Site Movement

The main features of the bowl are the outcrop, the plateau and the ridge. These three features were studied through model to determine their suggested movements. The three models were then combined with photographs and topographic information to create a series of drawings that depict the characteristics of the three study areas.

The Outcrop

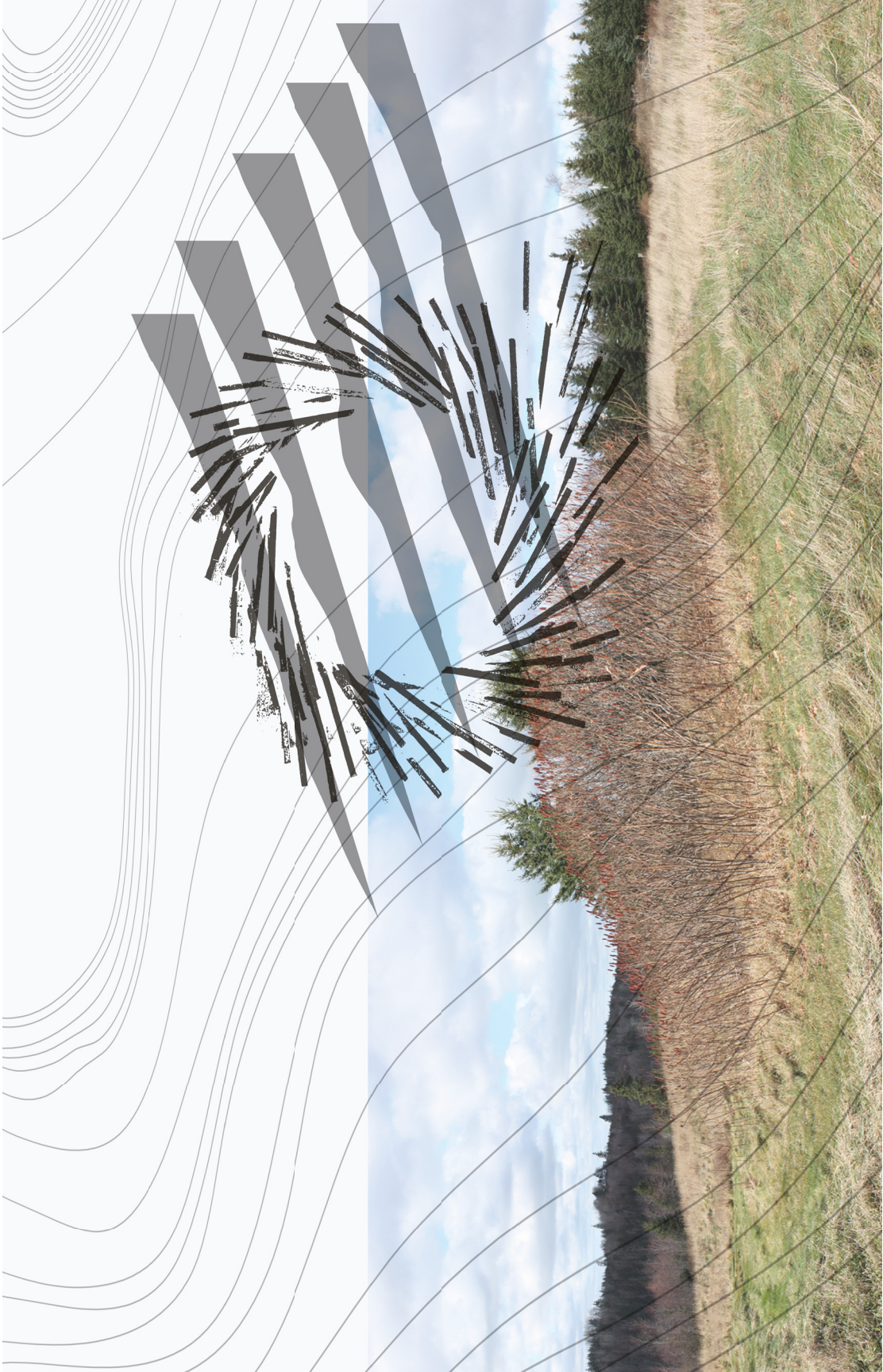
The outcrop is characterized by an area of exposed bedrock. The bedrock prohibited the cultivation of the land at this central point allowing more dense vegetation to grow up, creating an isolated bush. The outcropping became the focal point of the site. The pattern of the grass swept around this point suggesting movement out from a central point.



Detail of the outcrop model.



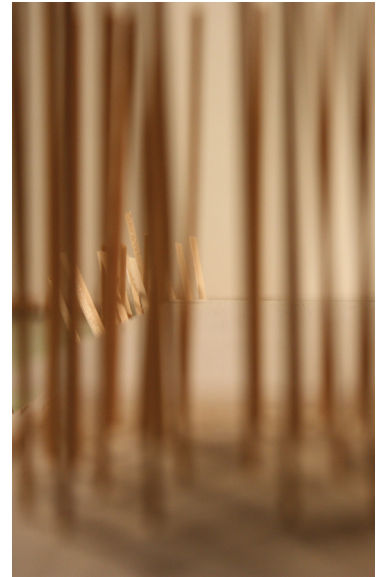
Model of the suggested movement of the outcrop.



Characteristics of the bowl.

The Plateau

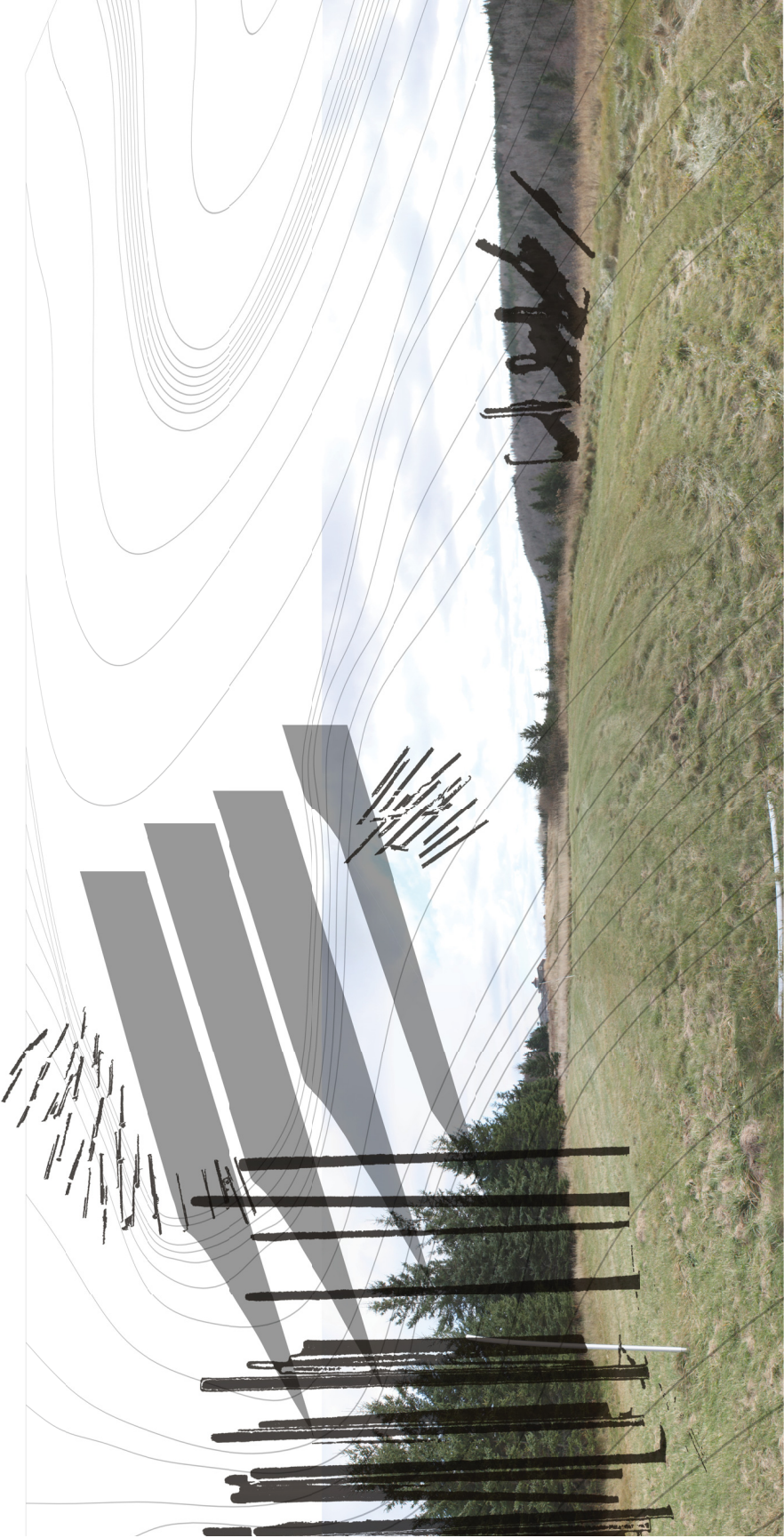
The plateau is a large flat grassy area, adjacent to the bowl. This area acts as a viewing platform overlooking the focus area and the creek valley beyond. This plateau is the limit or bounding edge of the bowl at the northern part of the site. This edge is reinforced by the tree line that runs along the edge of the study area. The raised flat plain of the plateau implies a motion of extension, projecting or reaching out.



Detail of the plateau model.



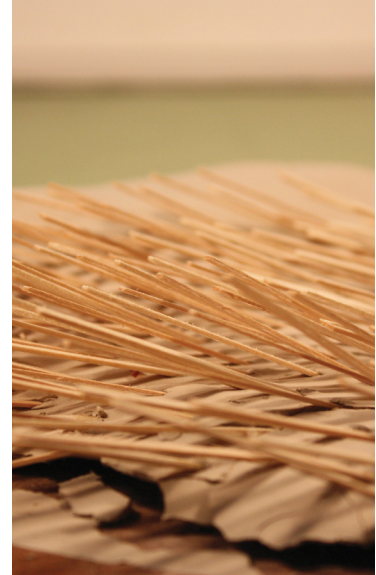
Model of the suggested movement of the plateau.



Characteristics of the plateau.

The Ridge

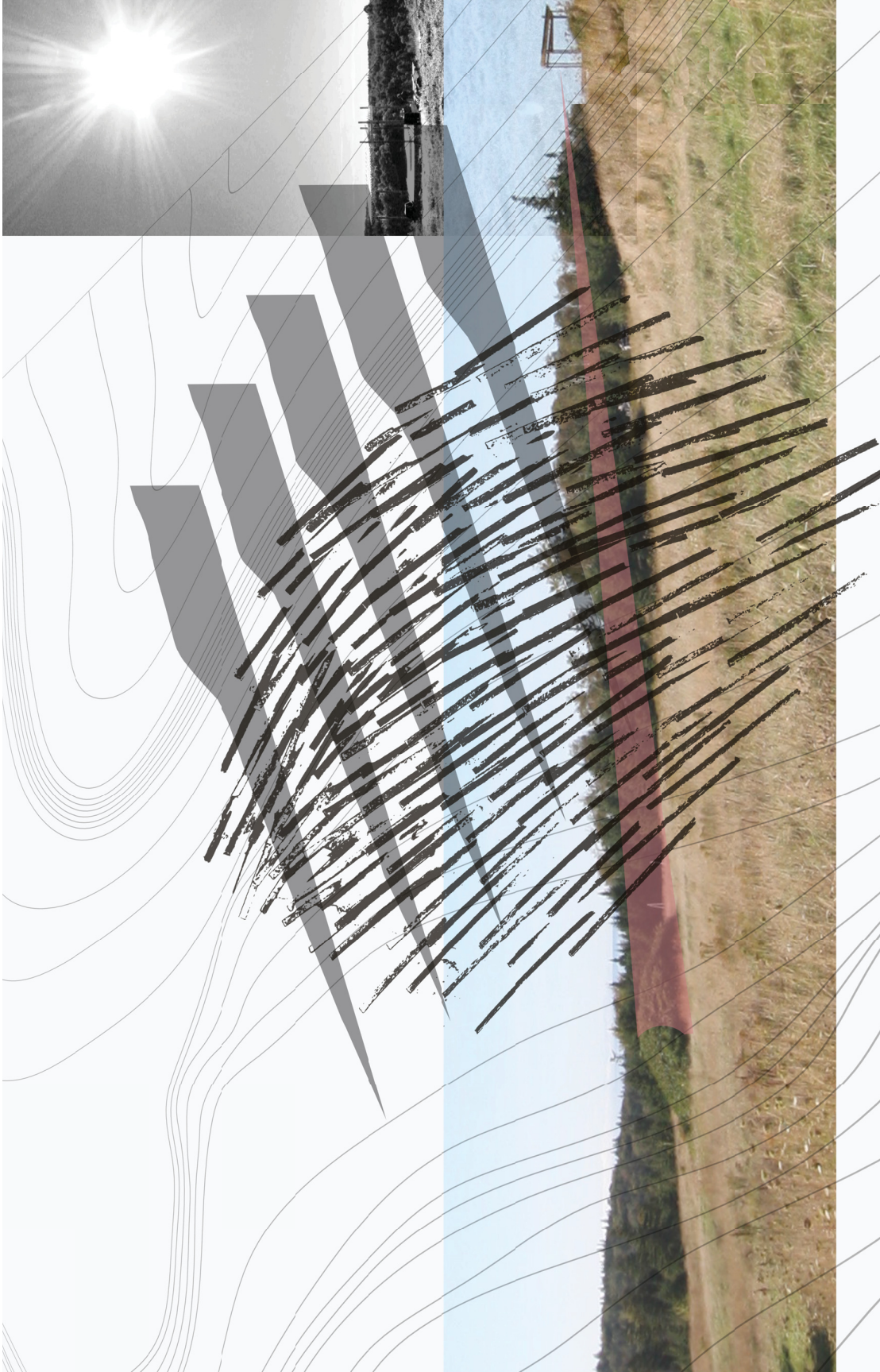
The third study area is characterized by a long continuous ridge which acts as the edge condition or limit of the site on the eastern side. The view of the bowl and site beyond are concealed by the ridge when approaching from the existing arts centre. The ridge line suggests a corridor for directional movement across the site leading to a natural lookout where the bowl and focus area are revealed. The tall grass sweeps alongside the ridge reinforcing this edge. Outcroppings of bedrock suggest that it is a permanent feature of the geology beneath the surface.



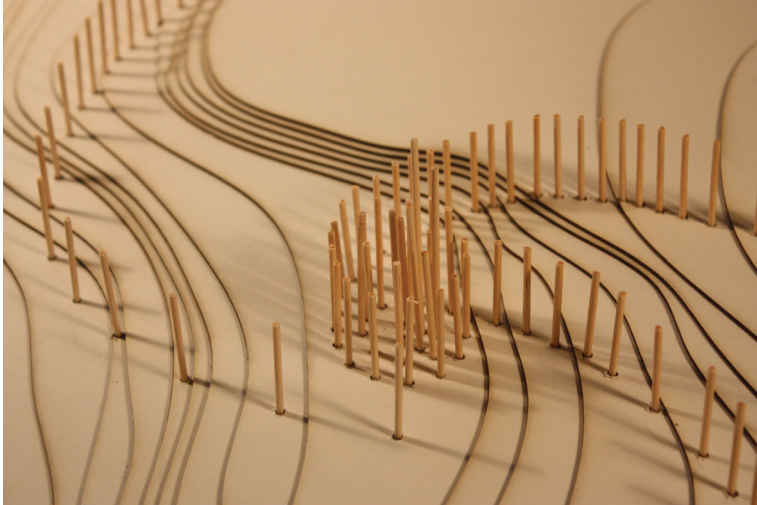
Detail of the ridge model.



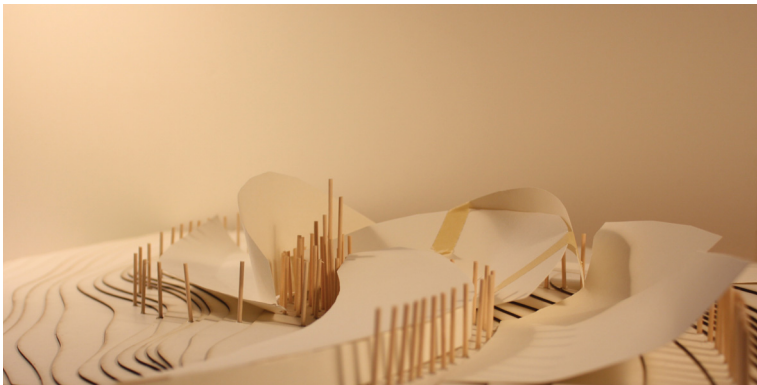
Model of the suggested movement of the ridge.



Characteristics of the ridge.



Simplified movement and rhythm model.



Tectonic site movement model.

The movement suggested by the three highlighted areas, the outcrop, plateau and ridge, were explored further in model to identify the main gestures of the site. These models highlight a focus point or stance generated by combining the simplified movements of the earlier models. By building from the gestures of the landscape, architectural elements began to emerge. In this way, architecture became an extension of the landscape. The found gestures describe the dance of the landscape. The development of architecture based on these gestures allows this dance to be enacted later by movement of the body through the space.

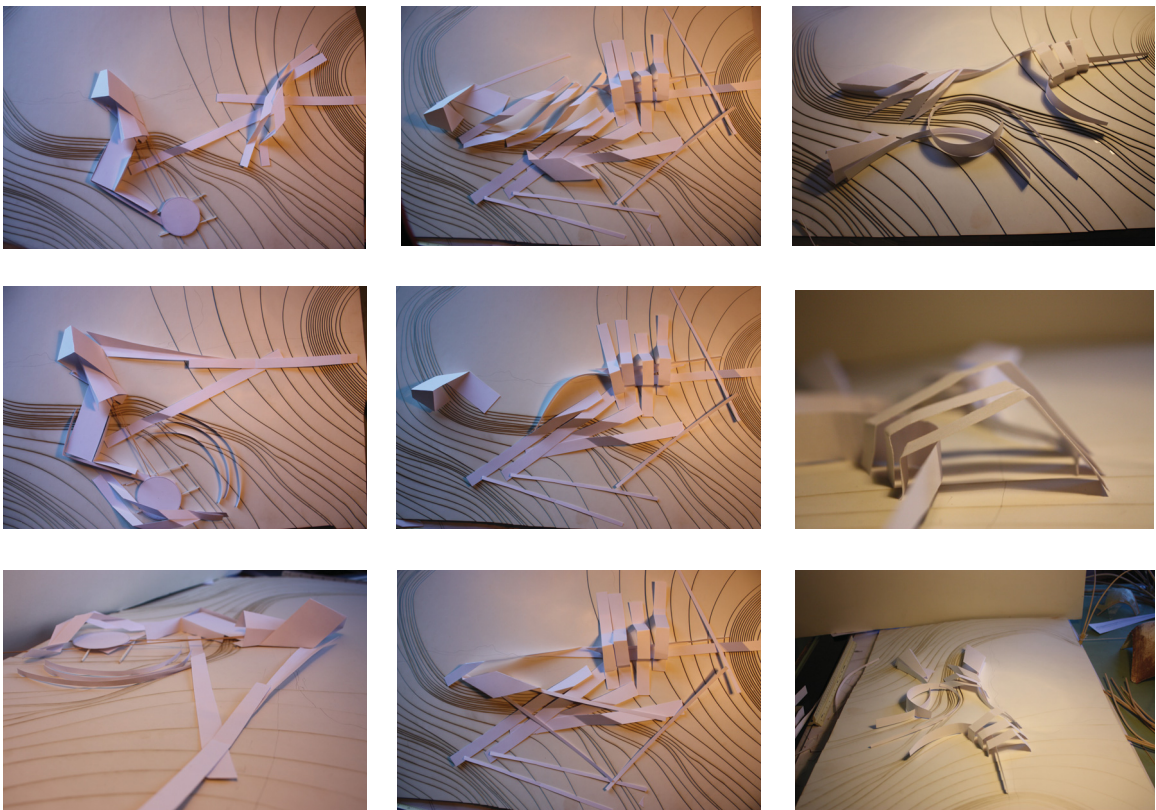


The movement of the site was refined through modeling into its three most basic gestures. These three gestures are an abstraction of the complex flows on the site and provide a starting point for the main structural flows.

Exploration of Form

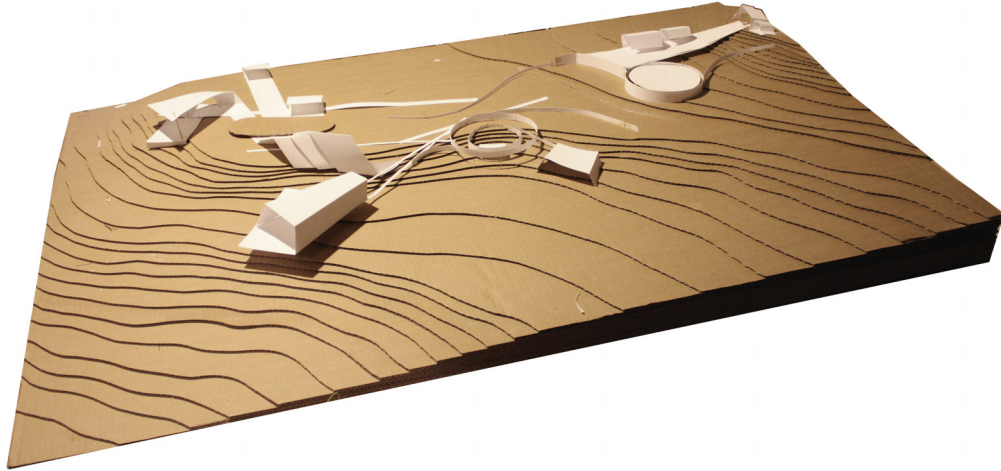
Paper models were used to enhance the main gestures suggested by the site and create forms to accommodate the various aspects of performance. The forms borrow postures from the human body in dance based on balance and gravity to extend the movement of the landscape to create the architecture.

The forms became a series of continuous elements which projected from the landscape defying gravity or leaping into the air. While these forms resist gravity seeming to float above the landscape, others relent and become grounded or firmly planted in the ground. Reaching is made possible by counter balance and precise contact with the ground.

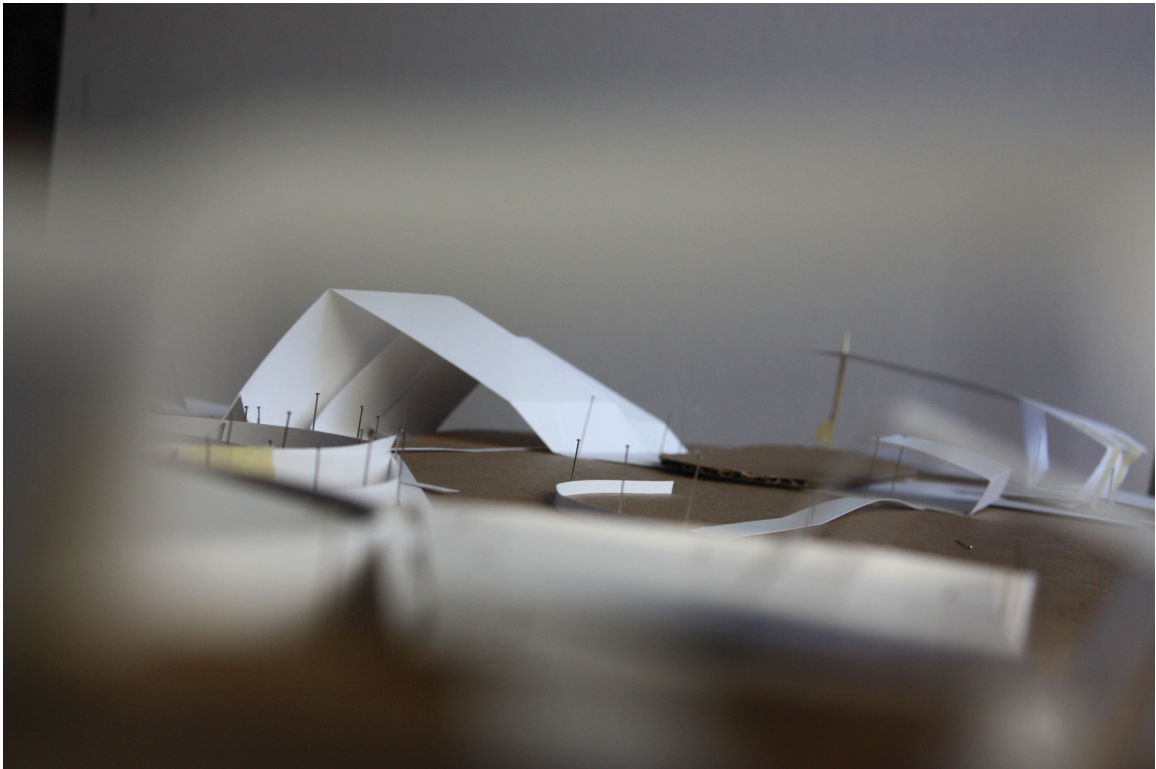


Series of paper models used to develop forms around the site gestures.

Architecture: Where Body Meets Landscape



Early version of the design model showing how the design was worked through in physical model.



The model was used to study views and levels and calibrate the relationship between elements.



Plan drawing.

Project Description

In the same way that the body, in dance, activates different levels of space, the proposed architectural elements activate the different levels of space on the site. Movement through the project gives the user an understanding of the connection between the body, building and the landscape.

The Lookout

Upon arriving at the site, the audience, having traveled by car, follow a path from the main parking area by the existing centre to the performance area. This area, concealed beyond the ridge, is signalled by an elevated ground extension, called 'the lookout' upon which a dancer can dance. This activates the landscape at the highest level, corresponding to the fifth level of space in dance or a leap off the ground.



Section through the path running along the ridge with the lookout in sight (section a).



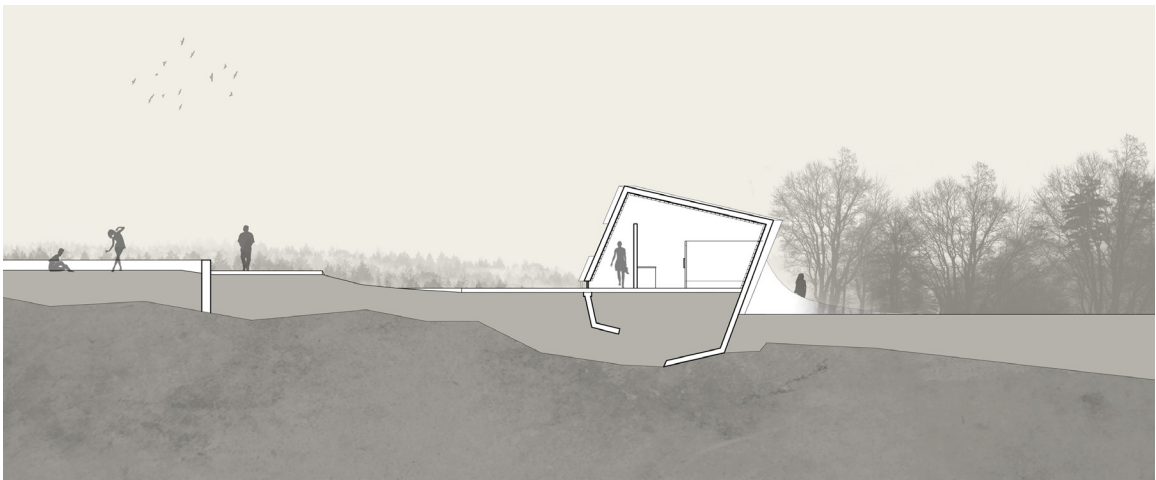
Summer rendering showing the approach to the building with a dancer on the extension.

The Outdoor Lobby

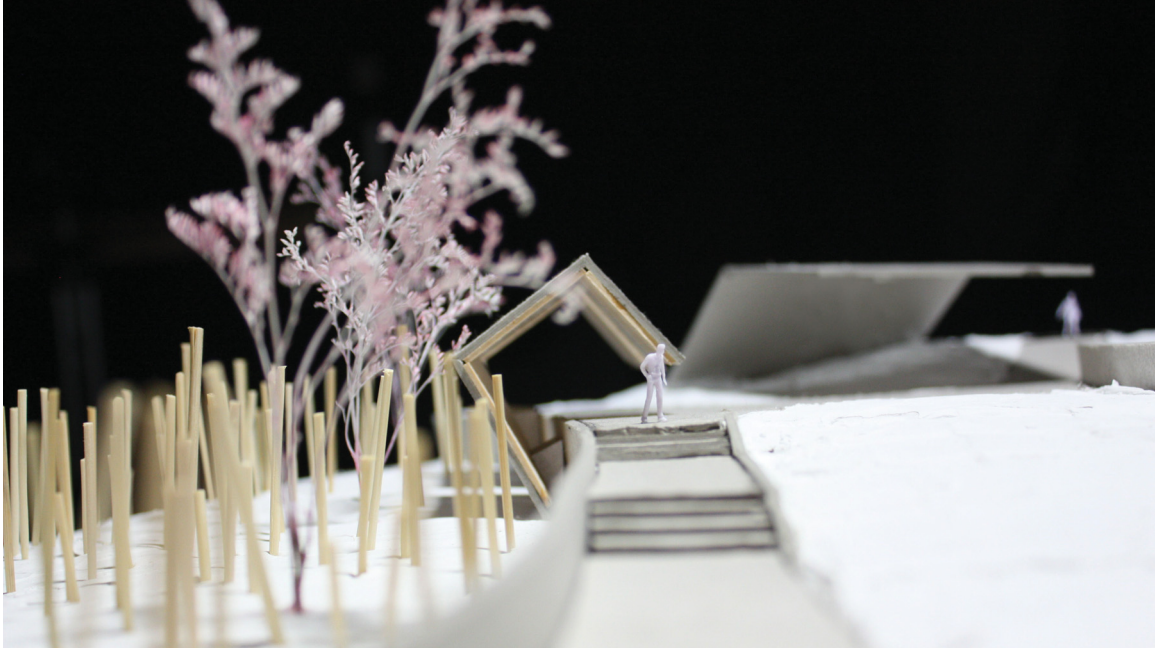
As the audience and dancers pass under this extension, the building is unveiled and understood from above as a series of flows and gestures reaching out and extending toward the main views and focal points on the site. This level corresponds with the fourth level of space. As the user continues on, they enter the outdoor 'lobby space', a large, flat viewing platform. A ridge wall creates an arching back to the space which houses small service rooms.



View from the top of the ridge.



Section through the outdoor lobby space and the associated washrooms (section b).



View back up the ramp to the 'lookout'.

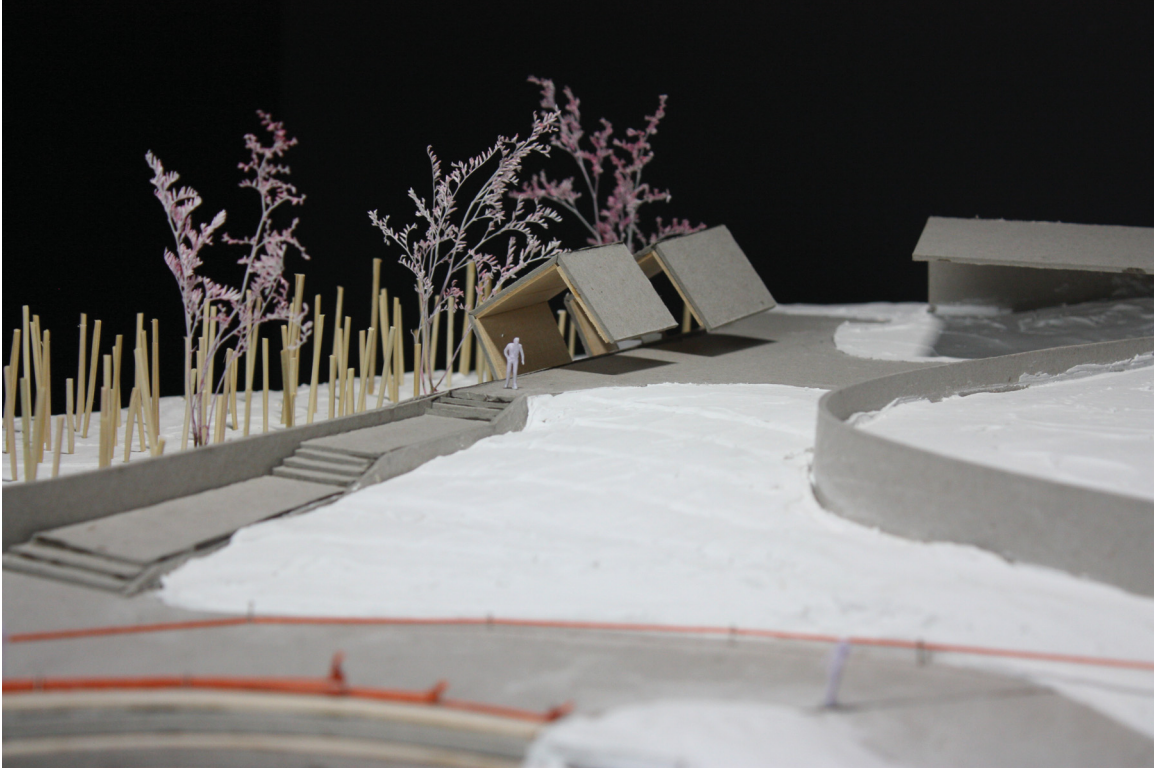
The Descent

From this point the user moves down a slope and shallow steps to the performance area, platforms, roves and seating areas. The use of ramps or steps, accelerate and decelerate this descent creating, as Laban describes, pathways and traceforms. This level corresponds with activation of the third level of space where the body runs, gallops or slides across the floor with feet or hands in contact with the ground.

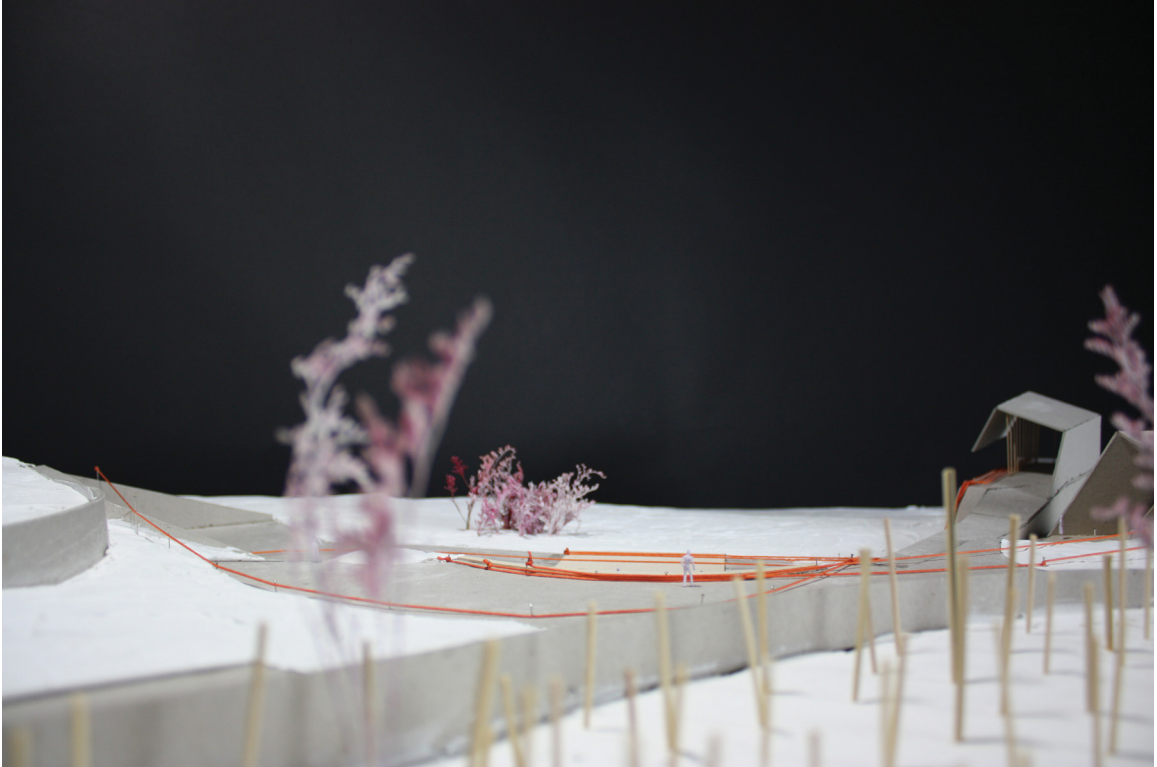
The pattern and rhythm of the third level, culminate in what is the natural bowl of the landscape, conceptually thought of as the second level, movement close to the floor, of the landscape. From this level various landscape gestures or extensions can be viewed rising above ones body level. From here, the prominent view is presented and the main exterior performance space culminates. At this level both the user and the building are grounded in the landscape approaching in on the centre of balance or stance.



Diagram of the main performance space.



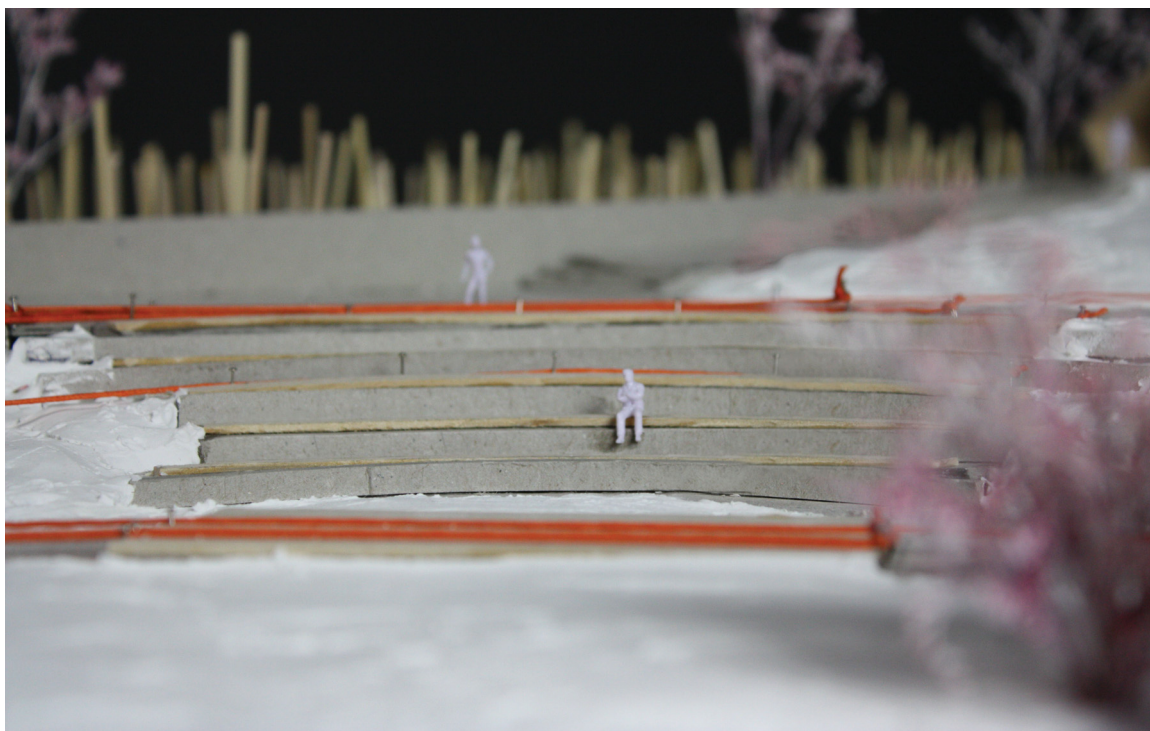
View from edge of exterior seating bowl, to the outdoor lobby space and ramp.



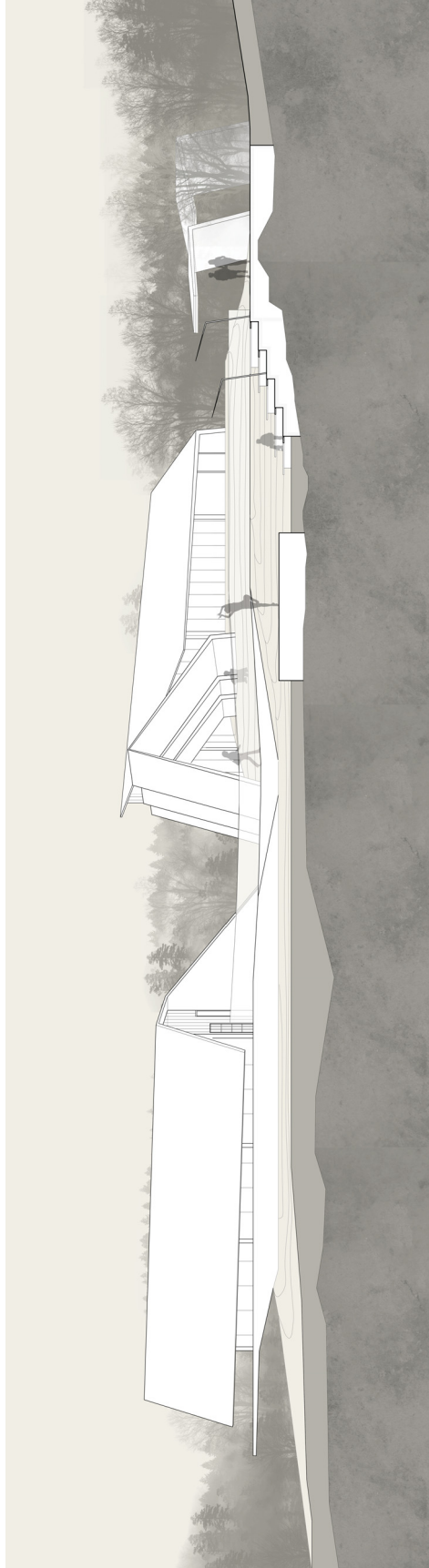
View from bottom level of ramp just above amphitheatre.

Summer Theatre

The central summer stage is the focus or stance of the body of the architecture and the landscape. This point is a moment of pause back-dropped with the most dramatic view. Extensions of the project reach out from this point, like the limbs of the body. In this grounded position the architectural frame is at rest as a body in the landscape, relenting to the forces of gravity. From this central grounded position the 'arms' extend, reaching the limits of the project, defining the kinesphere as described by Laban.



View of the amphitheatre.



Section through the amphitheatre (section e).

The Arms

The summer theatre is set up by the two 'arms' of the project: the rehearsal space on one side, dug into the ground, and the rehearsal space on the other side, rising above. This platform occupies the first level of space. In dance this is the level where the body is in full contact with the ground. This level of the building establishes a heavy connection with the ground. This lowest level is accessed by a large ramp. The audience moves down the ramp to a landing where they face the outcrop, creating an inwardly focused space. The outcrop acts as a foreground element for performances, setting up a dramatic scene in contrast with the view beyond. This creates a natural space for gathering and a pause before branching off to either side. As the audience accesses their seats, they share the same space as performers as they access the stage. In this area the relationship between performer and audience become blended.

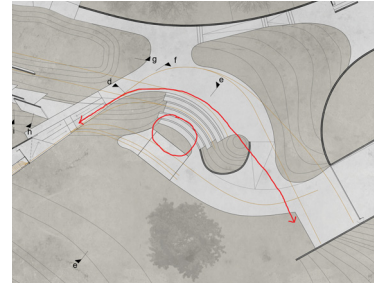
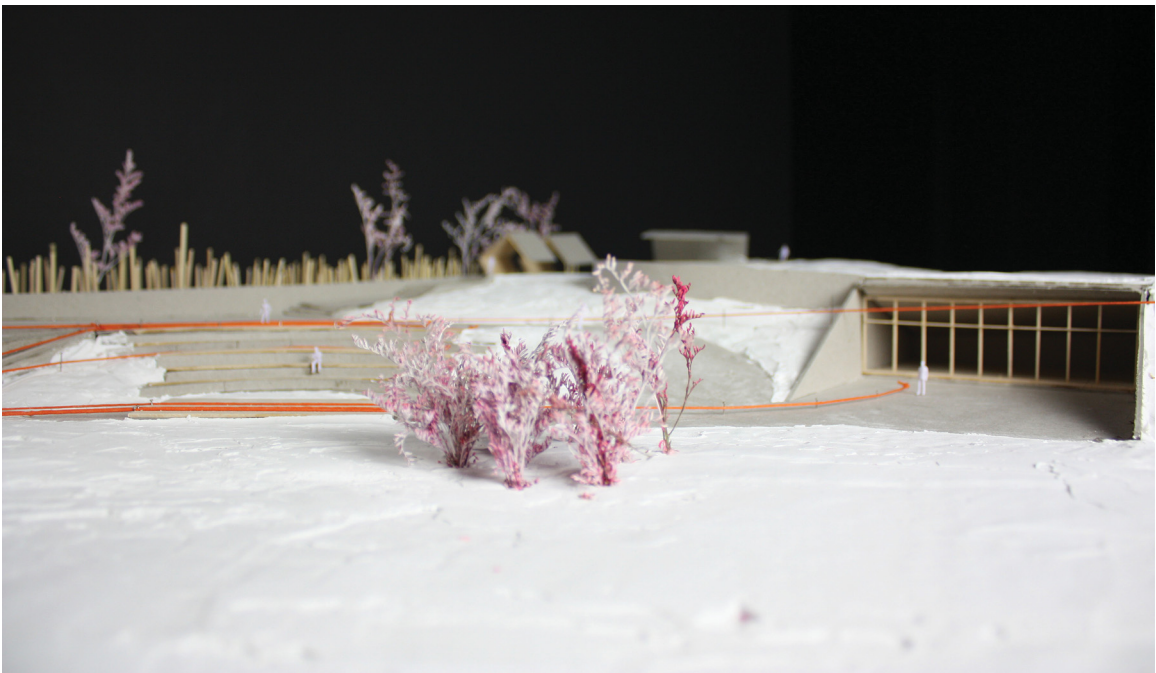


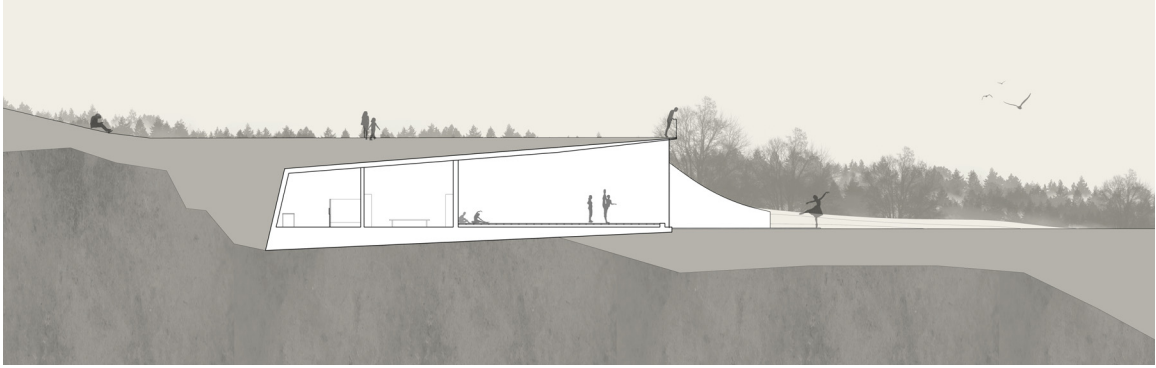
Diagram of the focal point framed by the two arms.



View of the relationship between the focal point, the amphitheatre and the lower rehearsal space.



Section through the main stage at the base of the amphitheatre and the adjacent underground rehearsal space with the raised rehearsal space in the distance (section d).



Longitudinal section through the underground rehearsal space, the outdoor lobby and viewing platform above (section c).

Underground Rehearsal Space

The lower rehearsal space is the most grounded, dug into the hillside, with the weight of the ground above it. The roof-line slopes up to a slender point suggesting a projection out to the view, with a high ceiling. Its composition sets up a tension between weight and lightness. The outdoor lobby space above allows the audience to share the space with the performers on a different level, creating unique relationship between performer and audience.

The Ribbons

Beyond the focal point of the space is the plateau. Moving from the summer theatre to the plateau, the user returns to the second level of space. Extension from the flat plateau are manifested as a series ribbon gestures which project out of the hill and wrap up and over it. These secondary cross gestures set up a both a measure and a series thresholds counter to the main movements or gestures of the landscape. They act as more informal spaces for performance or viewing. Performances can take place on the largest platforms with places for viewing on the second and third platforms or on the hillside.

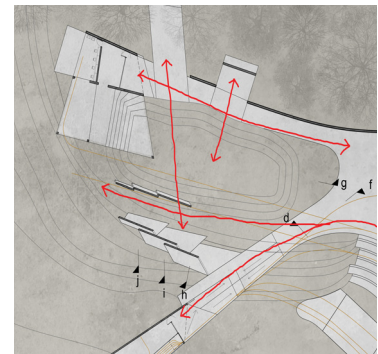


Diagram of the main gestures and the secondary cross gestures.

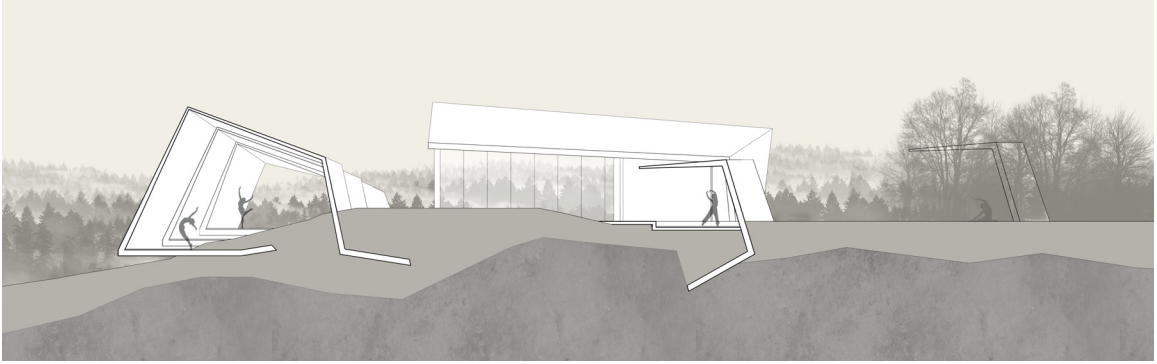


View of the platforms formed by the ribbons projecting off the plateau.

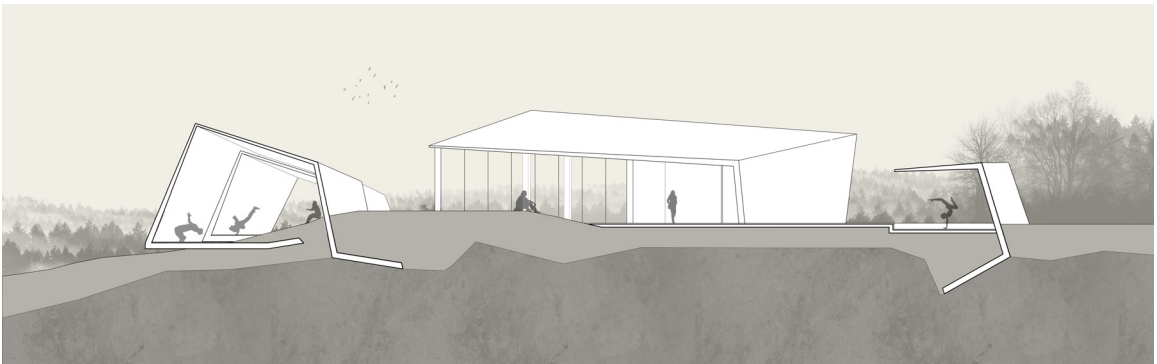
These ribbons emphasize the dual movement in the landscape and wrap over the performance before plunging back into the hillside. The resolution of these secondary gestural moves create more intimate or singular spaces to rehearse or perform on the other side of the hill. Some are set in the woods to enhance to more inward focus of the space.



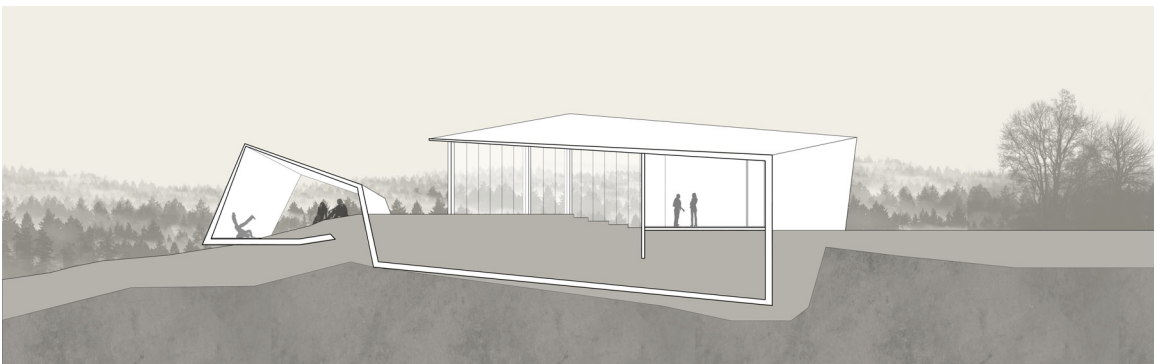
View of the pavilions nestled into the trees on the far side of the plateau.



Section through the first ribbon (section h).



Section through the second ribbon (section i).



Section through the last ribbon (section j).



View of the shoulder season performance space.

Shoulder Season Performance Space

The second largest performance space is interior. It is part of the culmination of the cross cutting gestures to the primary landscape gesture and approach along the ridge. This crossing enables enclosure as the primary gesture terminates at the crest of the ridge. It is enclosed by glass walls that can open up, creating different levels of enclosure, depending on weather in the shoulder seasons. This theatre occupies the third level of space. The stance of the theatre is dug into the hillside at the back but projecting out over the edge, lifting the corner just off the ground to suggest a projection beyond the ground plane to the view.

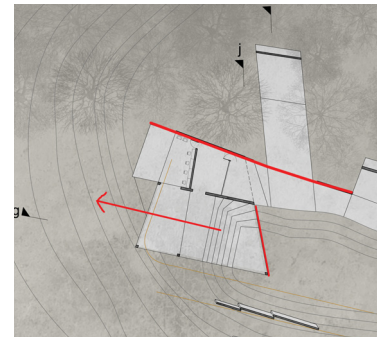
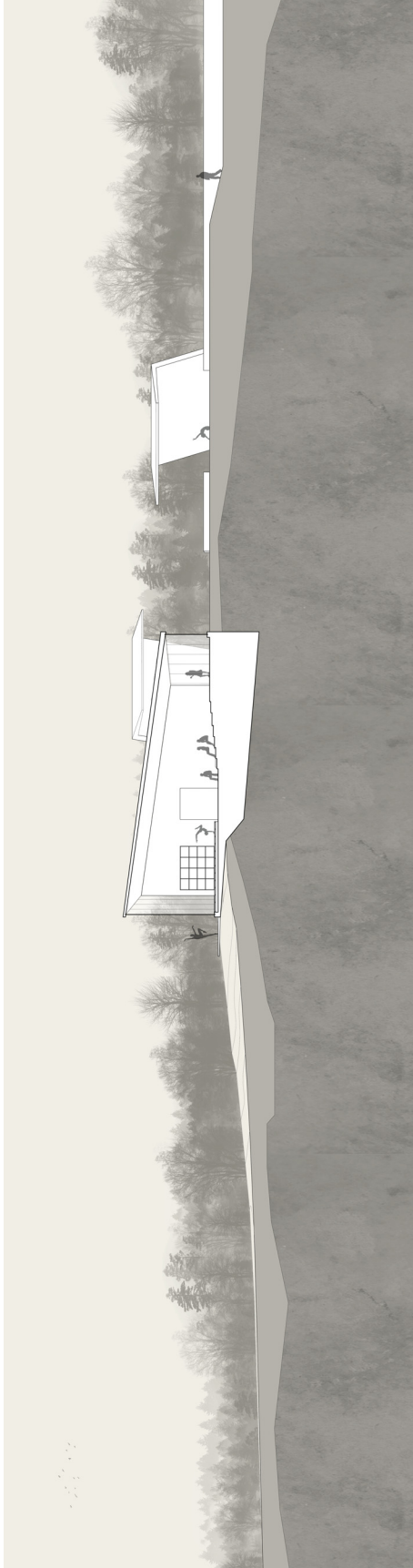


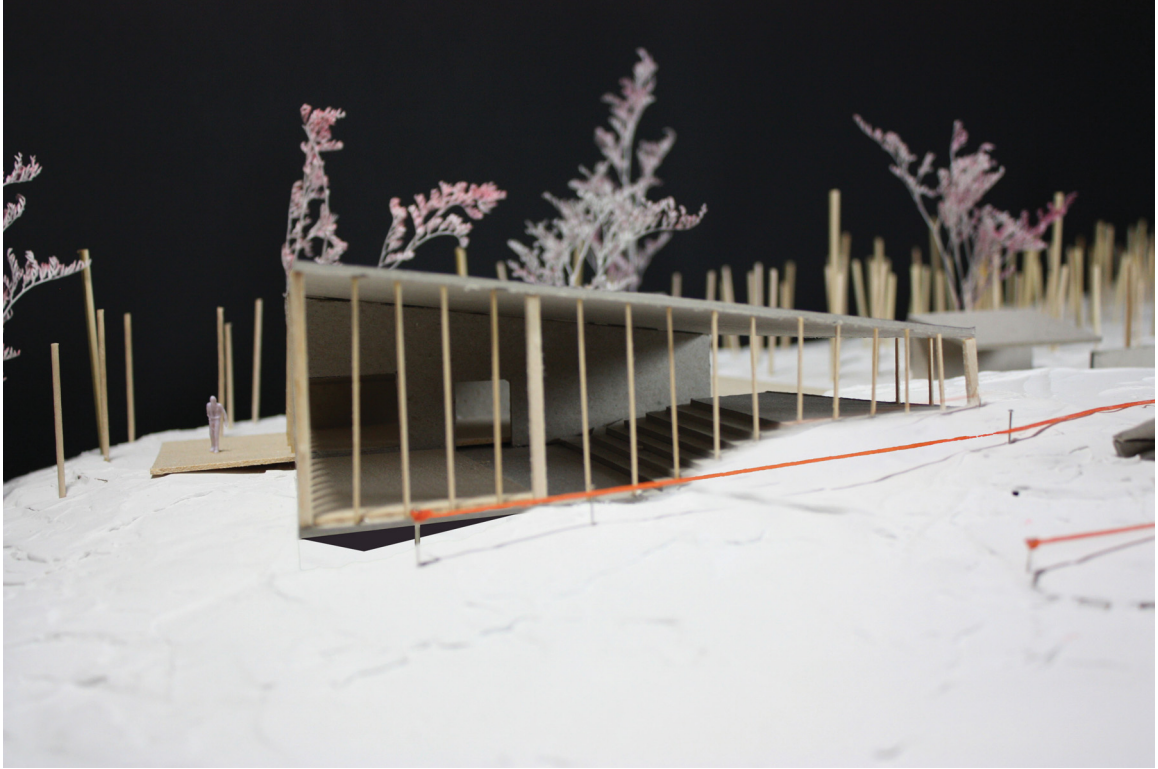
Diagram of the grounded shoulder season performance space projecting to the view beyond.



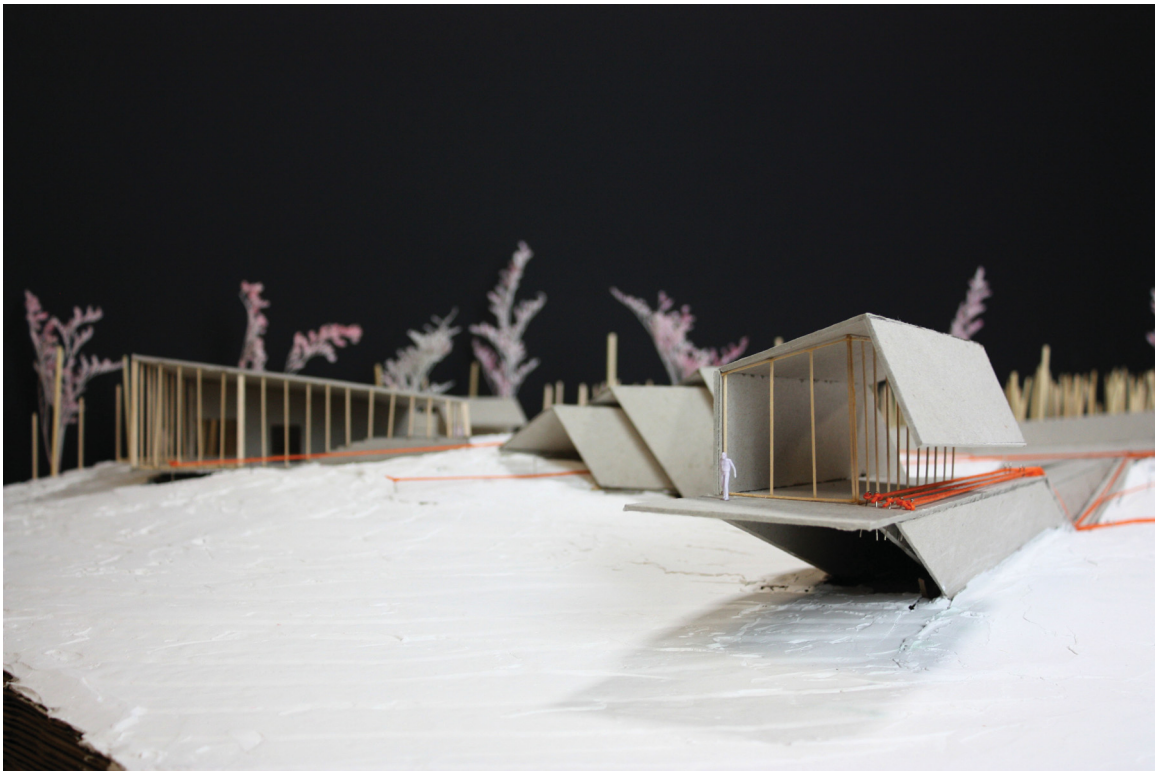
Section through the shoulder season theatre (section g).



Fall Rendering showing the shoulder season performance space.



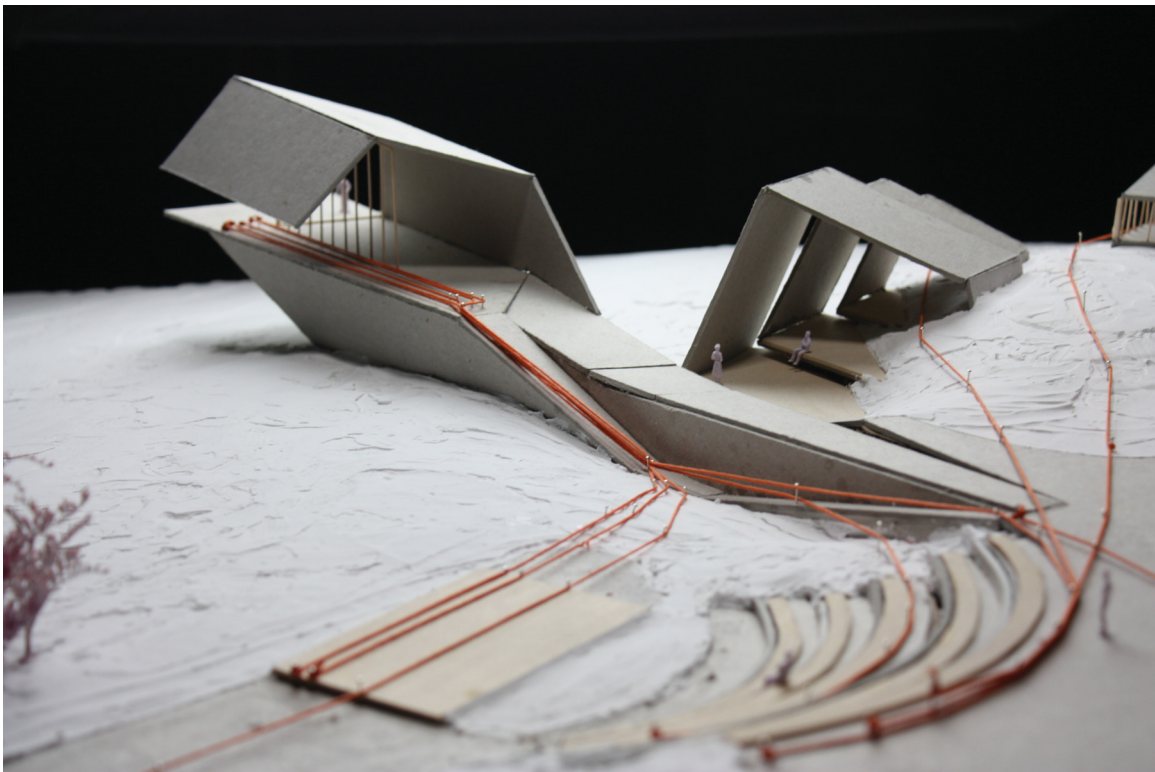
View of the shoulder season performance space.



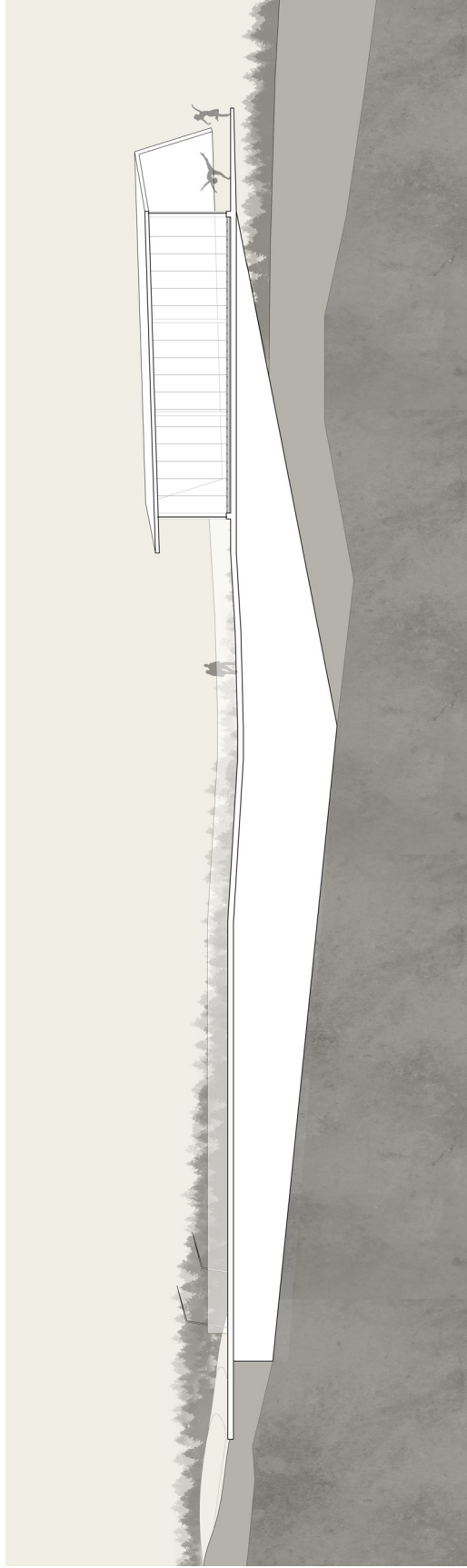
View of the winter performance space and prop storage house.

Winter Studio

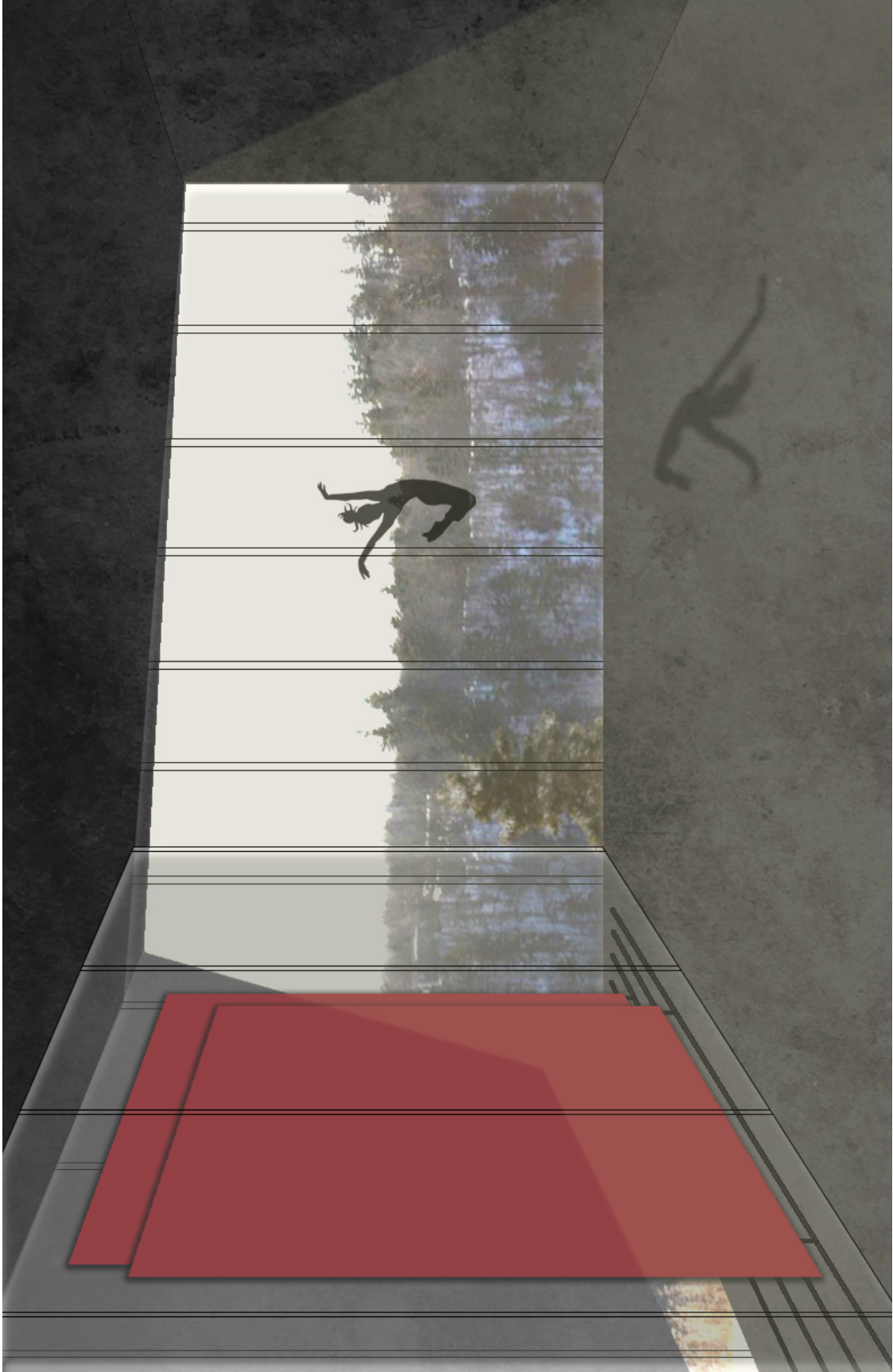
The final space is a theatre for performance in the winter months. This building houses the props for all of the exterior spaces. It also doubles as a teaching space during the warmer months. The winter theatre occupies the fourth level of space. In dance, this level describes where the body shape is vertically long. Here this is expressed through an architectural element that projects out of the hillside, making the longest reaching gesture. The tip of the form comes to a point cantilevering toward the view of the creek valley. It is grounded on the base and balances, defying gravity and projecting over the hillside. Based on the reaching arm of the human body, it bends at the elbow and reaches upward to hold up an outstretched hand.



View from the top of the amphitheatre towards the arm.



Section through the arm extension which houses the winter performances and classroom spaces (section f).



Winter rendering inside the arm showing the prop storage behind a glass wall.

The Complete Performance Space



Building model.



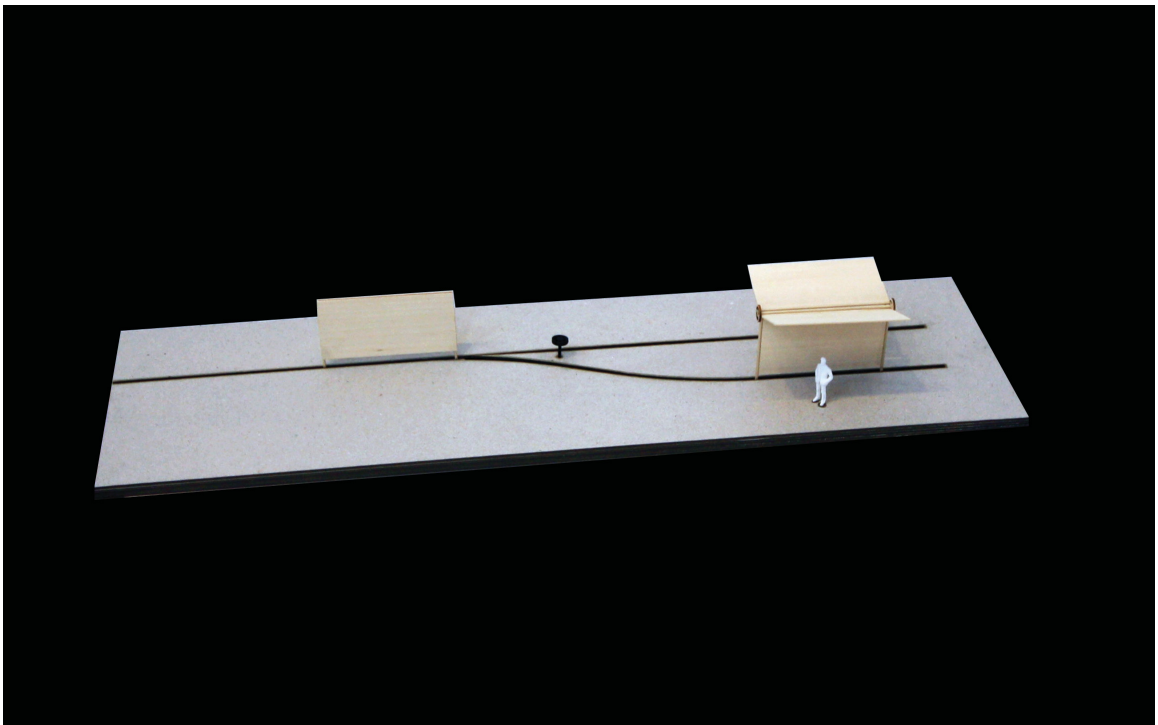
Building model.

Track System

The track system described in the winter studio houses a kit-of-parts based on performance criteria that facilitates the specific needs of different performances. The proposed kit could include elements for acoustics, lighting, shelter from sun or rain and stage props (see Appendix B). Using inspiration drawn from the rural setting and farm machinery, the primary element will power the secondary elements, similarly to the way a tractor powers its accessories (see Appendix C). The secondary elements move about the building on tracks, allowing a performance setting to be transformed for a particular show.



Photos of farm equipment from the site with mechanical devices that could influence the kit-of-parts.



Model of the track system showcasing two items from the proposed kit-of-parts: an acoustic partition and a sun shading device.

CHAPTER 3: CONCLUSION

The intention of the thesis was to demonstrate that landscape and body and building share a sympathetic resonance that can be highlighted through architecture. By understanding the perceived and bodily experience of the site, its physical characteristics and the different cycles of change, architecture has the potential to resonate with its surroundings and create harmony with its natural environment.

As well, when a set of architectural elements are designed to have a stronger connection to the body, they have an increased ability to adapt and react to changing environmental conditions and programmatic requirements. Therefore, architecture can serve as the mediation between the landscape and the body.

APPENDIX A: CASE STUDIES

Laban Dance Centre - Herzog & de Meuron

The large, embracing gesture of the Laban building volume gives the effect of creating a spatial limitation as well as a melting together of Laban Garden and Laban Centre. The topographically shaped structure of the garden, simultaneously serving as an entrance yard for the Laban Centre and a place for walking, playing or leisure, finds corresponding qualities in the interior gestalt of the building. The exterior façades consist of transparent or translucent glass panels, depending on whether the space behind them requires a view. Coloured, transparent polycarbonate panels are mounted in front of the glass panels and serve as a protective shield (against sun, glare, and heat radiation) and contribute to the overall energy system. The shadow images of the dancers, which will fall onto the matte glass surfaces of the interior walls and façades, have a magical effect and play an active part of the Laban's architectural identity.



The translucent facade made from polycarbonate panels. Image from Trinity Laban.



Photo of Mari Frogner at the Laban Dance Centre. Image from Trinity Laban.

Jacob's Pillow, Becket, MA

Jacob's Pillow Dance is a dance center, school and performance space located in Becket, Massachusetts, in the Berkshires. The organization is known for the oldest internationally acclaimed summer dance festival in the United States. The facility also includes a professional school and extensive archives as well as year-round community programs. The Marcia & Seymour Simon Performance Space, affectionately known as "Inside/Out," is an outdoor stage with a panoramic vista of the Berkshires Hills. An essential part of the Pillow's mission and a beloved cultural tradition, Inside/Out is free and open to the public. Patrons are welcome to arrive early to claim a bench seat or to bring lawn chairs of their own.

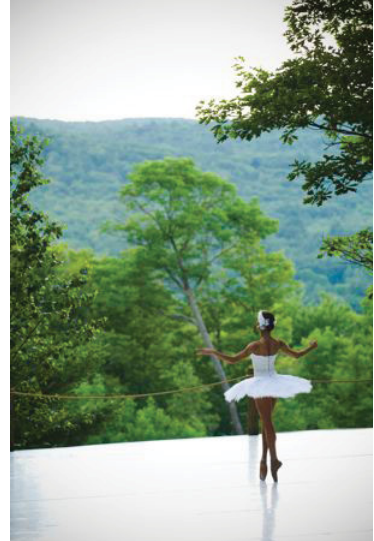


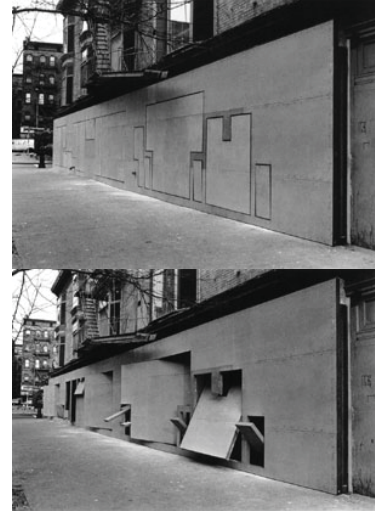
Image from Jacob's Pillow.



The Inside/Out Stage. Image from Jacob's Pillow.

Storefront for Art and Architecture Steven Holl

SAA is a nonprofit organization committed to the advancement of innovative positions in architecture, art and design. The program of exhibitions, artists talks, film screenings, conferences and publications is intended to generate dialogue and collaboration across many boundaries. Seeking to introduce improbability and to puncture the facade, Acconci and Holl challenged this symbolic border which underlines the exclusivity of the art world, where only those on the inside belong. Holl and Acconci inserted a series of hinged panels arranged in a puzzle-like configuration. When the panels are locked in their open position, the facade dissolves and the interior space of the gallery expands out on to the sidewalk. If the function of a facade is to create a division separating the inside from the outside space.



Street view of the hinged panels closed and opening. Image from Steven Holl.



Image from Steven Holl.

The Tring Park School for the Performing Arts Burrell Foley Fischer Architects

The Tring Park School for the Performing Arts sits in an area of outstanding natural beauty. Planning permission has been obtained for Burrell Foley Fischer's design for a new 280 seat theatre space for Dance and Music Theatre, five new dance studios and a new Art Department comprising art rooms, workshop spaces and IT design studios.



Inside the Dance Studio. Image from Tring Park.

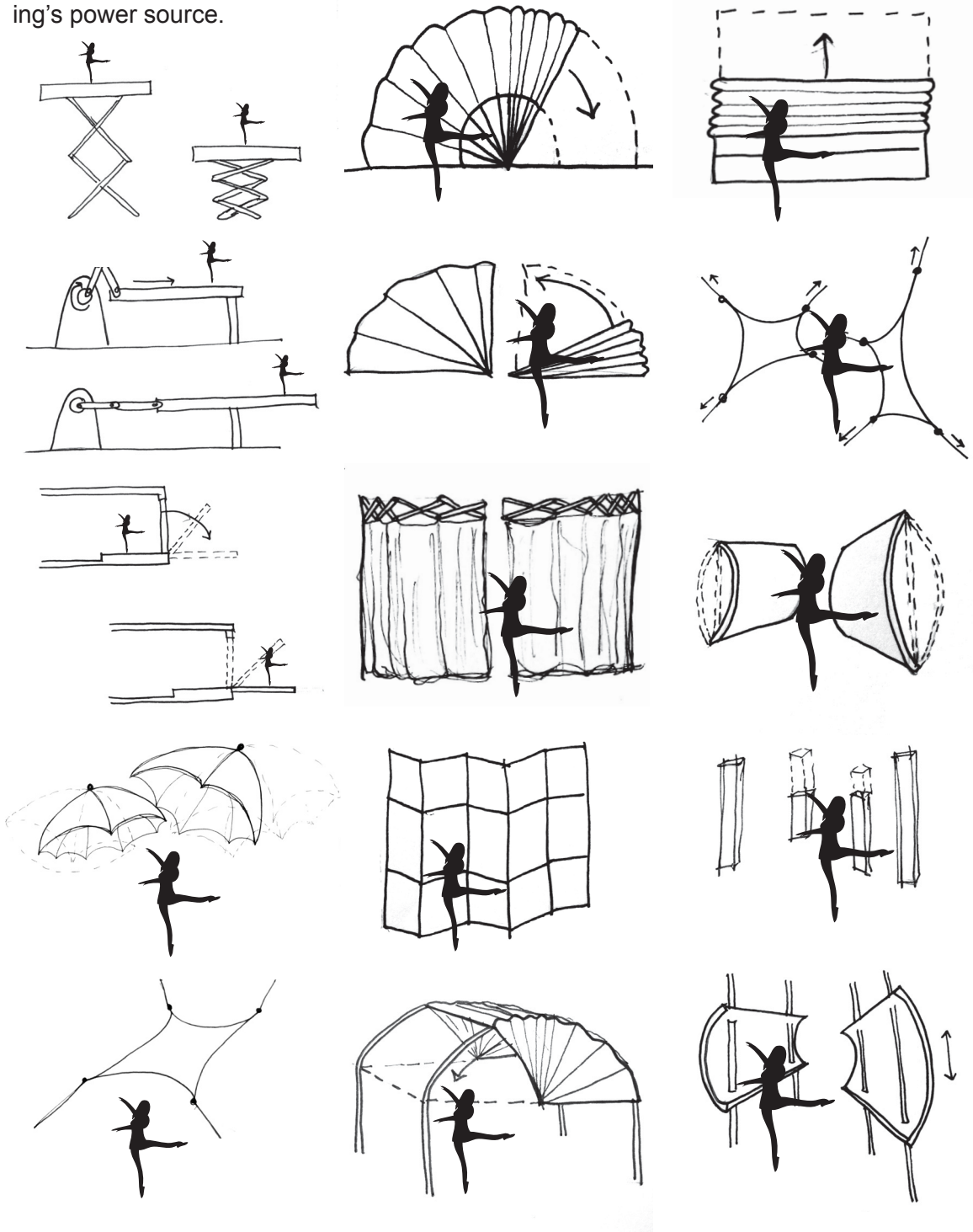
The new Dance Studio building has been designed to nestle within its heavily wooded landscape setting with randomly spaced Red Cedar perimeter posts to echo the surrounding tree trunks. The dense wildflower meadow grass roofs reference the surrounding tree canopies and undulating landscape. The studio roof lights and high level windows create visual connection with the surrounding landscape and abundant day lighting for the dancers.



The Dance Studios. Image from Tring Park.

APPENDIX B: KIT-OF-PARTS

Similarly to the tractor's accessories, a performance space has different parts for specific purposes. The sketches below identify types of movable stages, canopies, backdrops and partitions that could be 'plugged in' to the building's power source.



APPENDIX C: FARM MACHINERY

In agriculture, the tractor serves as the power source, supplying torque to a wide range of attachable components each with its own specific purpose. The components become an extension of the body and translate the torque provided by the tractor into the movement that it requires.



Tractor

power take-off



Mower



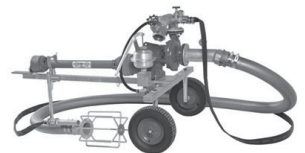
Wood chipper



Sprayer



Auger

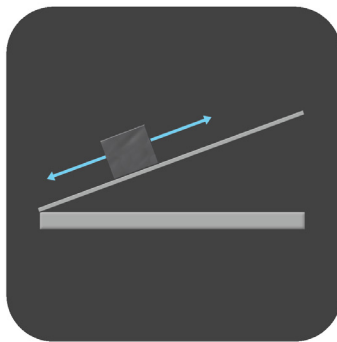
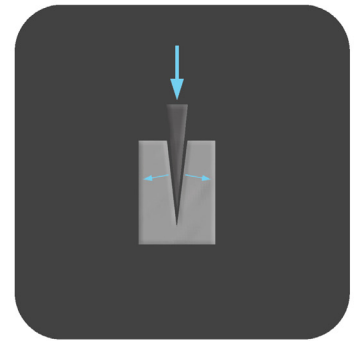
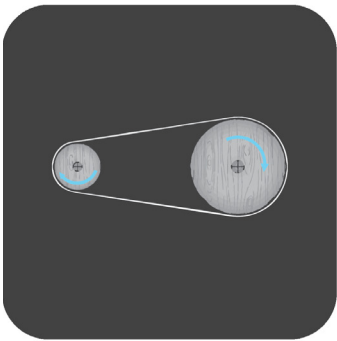
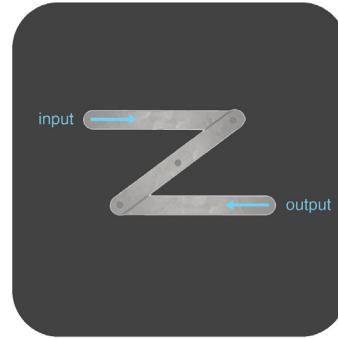
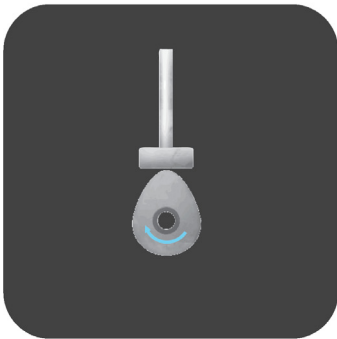
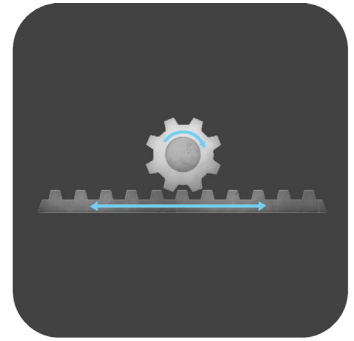
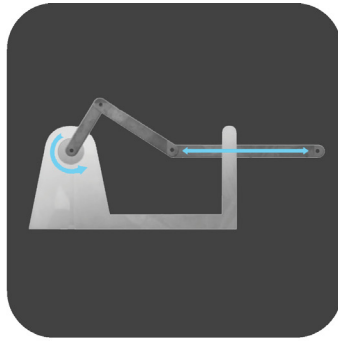
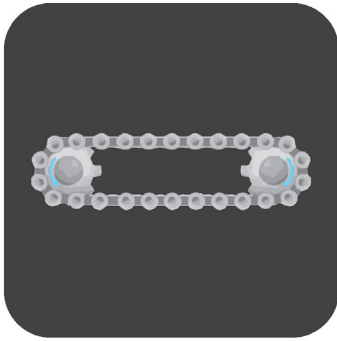


Water pump



Snow blower

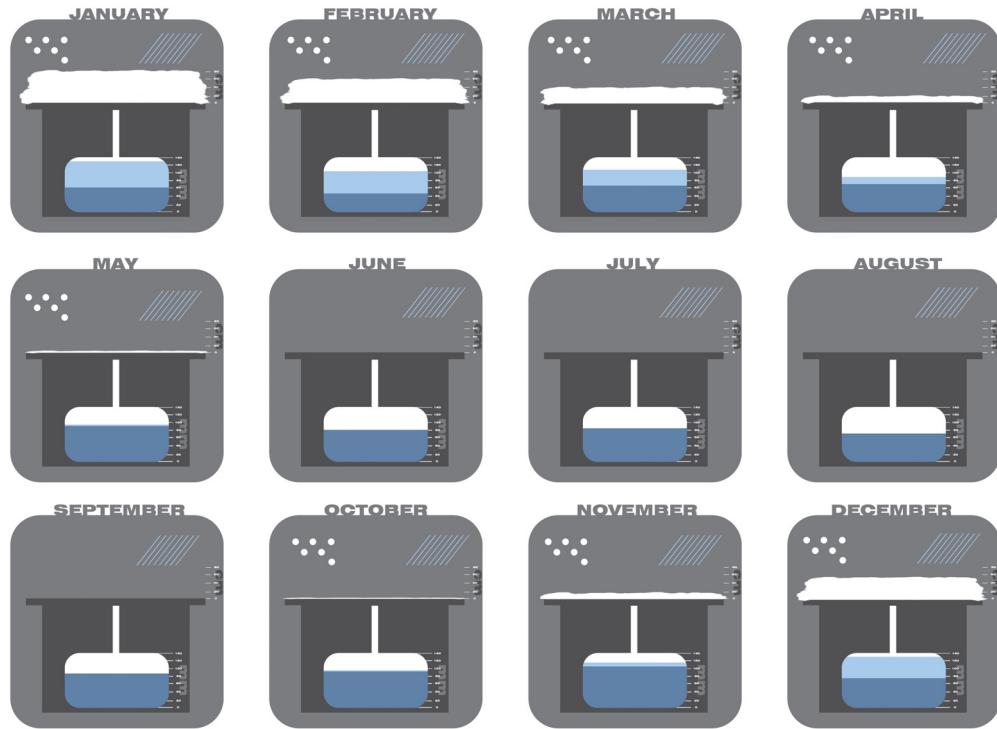
APPENDIX D: MECHANICAL MOVEMENT



A catalogue of basic machines.

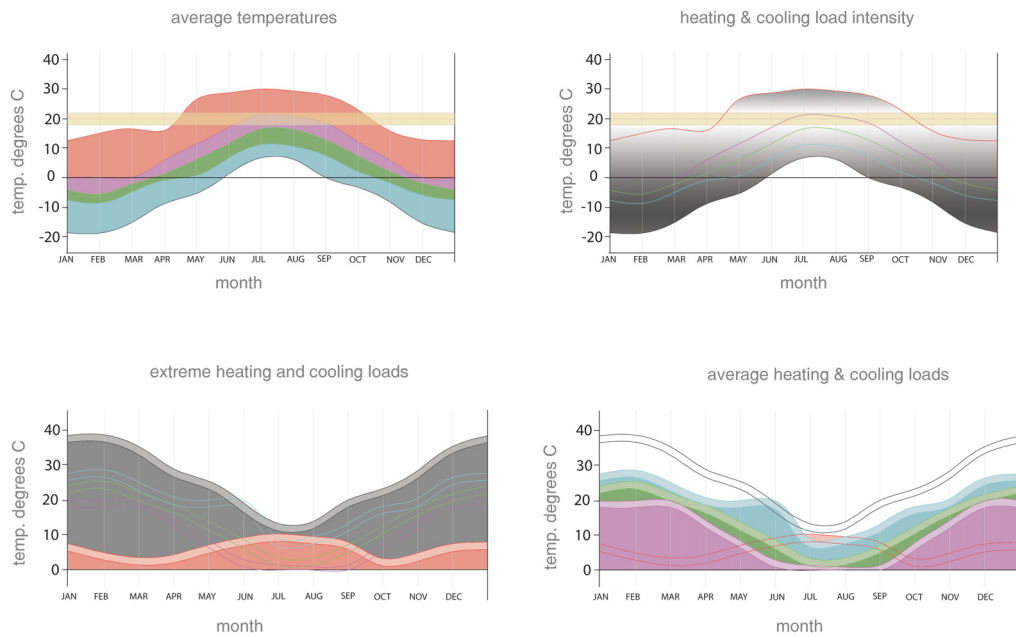
APPENDIX E: ENVIRONMENTAL INFORMATION

Precipitation



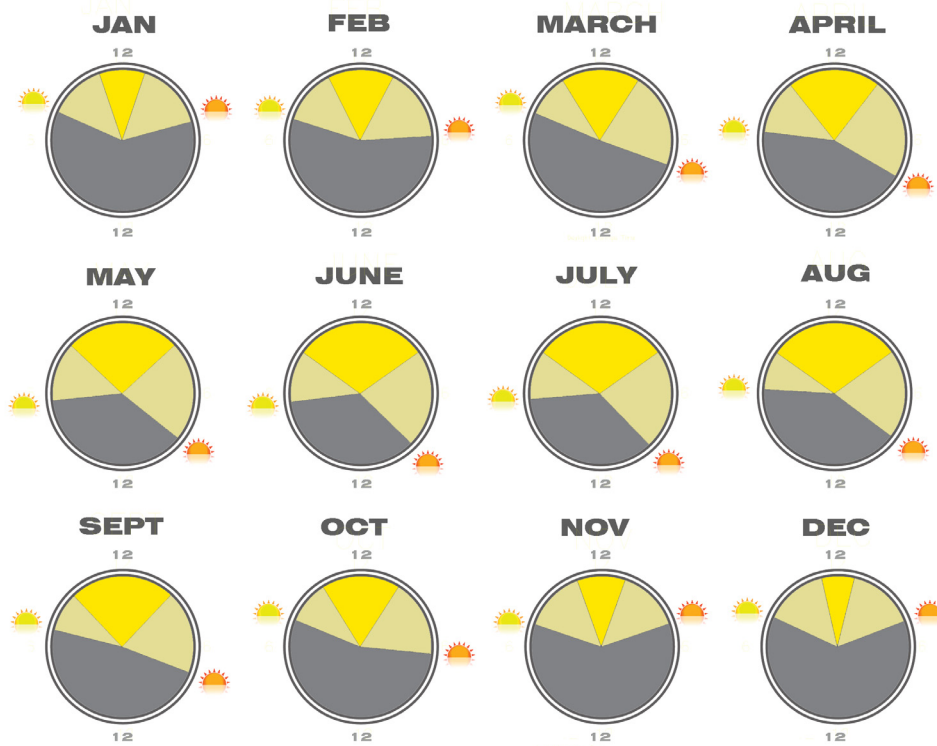
Meltwater
Rainwater
Snow

Temperature



Information from Environment Canada.

Average Daylight Hours



average daylight hours per month
hours of possible bright sun per day

 sunrise
 sunset

Sunlight Hours



Total Hours of Sunlight
Days With Measurable Sunlight

Information from Environment Canada.

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