

**Rooms in the Landscape: An Exploration into Building Process  
and Experiential Qualities of the Extreme, Remote Landscape of  
Nahanni National Park Reserve**

by

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## **ABSTRACT**

Architecture and wilderness are two distinct experiences that may seem an unlikely union, however, is there a way that these spaces, the natural and the architectural, can synthesize to enhance one's experience of a specific landscape? Nahanni National Park Reserve (NNPR) in the Northwest Territories is backcountry wilderness with only one access road through the town of Tungsten. This thesis investigates the potential of architecture to enhance the visceral experience of navigating along a "trail" from Tungsten to the Cirque of the Unclimbables. A series of structures will focus on clarifying, situating, and ultimately heightening the experience of inhabiting this landscape through bespoke architectural interventions.

## **ACKNOWLEDGEMENTS**

I would like to thank my family and friends for all of their love and support. I would also like to thank my supervisor, Roger Mullin, and my advisor, Ted Cavanagh, for joining me on this ride. Thank you to Patrick Spelliscy, Adam Sparkes, Samuel Walter-Battista, and Jacob Kalinowski for helping me with the final representation. And finally to the support staff at the school, thank you for everything you do for the school. Without them, this thesis would not have been possible.

Cheers!

Tyler

## Chapter 1: Introduction

After spending 8 months in Northern Canada, I realized that there is something truly special about the Arctic and Sub-Arctic regions of this country. During my visit to Tungsten, Northwest Territories in August 2016, there was no doubt that this would be the site for my thesis, driven by the beautiful landscape that I experienced. This beauty, paired with my interest in the phenomenological aspect of architecture, piqued my interest in exploring how one can create architectural experiences in this extreme, remote landscape. How can architecture enhance the experience of the landscape?

Nahanni National Park Reserve (NNPR) is recognized worldwide and a UNESCO World Heritage site, yet many Canadians are unaware of its existence.<sup>1</sup> There are several reasons that contribute to the lack of visitation to NNPR; one, being there is currently no road access into the park except for the Nahanni Range Road which connects Tungsten, Northwest Territories to the the Robert Campbell highway in the Yukon, Territory. Two, because of the lack of road access, visitors must fly in and out of the park which is extremely costly. Three, the terrain is vast, remote, unforgiving, and not for the faint of heart. How can you open the park up to become more accessible for the general public to use?

Tungsten being the only road access into the

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1. Parks Canada, *Nahanni National Park Reserve: Natural Heritage*, last modified May 5, 2015, <http://www.pc.gc.ca/eng/pn-np/nt/nahanni/natcul/natcul1.aspx#sig>.

park is great location to start. How might this abandoned mining town be leveraged in order to draw more tourists to the region? One answer which I have explored is the creation of an Interpretive Centre just outside of the townsite. The Interpretive Centre will be located on the edge of Mirror Lake, which is also the starting point of the 72km backcountry route to the Cirque of the Unclimbables located within the park boundaries. The Cirque of the Unclimbables is world famous for its 1000m granite faces which are a rock climbers' dream.<sup>2</sup> Usually the site is only accessible via float plane to Glacier Lake followed by an 8-10 hour slog up to the cirque.<sup>3</sup> The 72 km backcountry route is not an established route, however, it is not an entirely new route by any means. Using the book *Nahanni National Park: Cirque of the Unclimbables* as a "guidebook", the route is easy to navigate and determine points of interest. The Interpretive Centre would be ideally located as it is "easy to access" and would serve as a preview for visitors to guide them through the experience of the natural beauty that embraces the region.

The Interpretive Centre would serve as a destination for the majority of visitors and would also create a "gateway" into NNPR. Parks Canada would have the opportunity to establish an auxiliary office in Tungsten which would help regulate and record visitors entering and exiting the park. The Interpretive Centre for most visitors to the park would become

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2. Ibid.

3. Vivien Lougheed and Stephan Beidermann, *Nahanni National Park: Cirque of the Unclimbables* (Prince George: Repository Press, 2013)



Figure 1. View of Mirror Lake from Nahanni Range Road

Figure 2. Map of Nahanni National Park Reserve; from Parks Canada

Figure 3. View of Nahanni Range Road

their final destination; for others this will become their departure point. The Interpretive Centre marks the beginning of the hiking route to the Cirque of the Unclimbables. This is where the visitors are separated into two categories, tourists vs adventure tourist. Due to the extreme landscape and remoteness of the route, it would, unfortunately, only be opened to more experienced hikers who have spent time in the backcountry. THIS IS THE BACKCOUNTRY AND NOT YOUR LOCAL CAMPGROUND. Located along the 72 km would be 4-5 structures situated in places of interest/points of navigation. These structures would be open to the hikers completing the route to the Cirque of the Unclimbables and contain different programming designed to enhance the experience of the landscape. The following themes will help dictate the programming and experience of the structures: Rest + Relaxation (shelter and sauna), and Cleansing + Reenergizing (Shower Tower and food preparation). This thesis will maintain its focus on the structures along the route rather than the development of the Interpretive Centre at Mirror Lake.

In order to develop a method, I approached the challenge by examining the requirements that the site demands. How do you touch the earth in a constantly changing landscape? This landscape is one that demands respect, the terrain maintains a presence that requires a careful and thoughtful approach to design. The terrain changes annually, ranging from springtime flash floods, to landslides, to changes from receding glaciers, or rivers drying up;

the cause is due to the climate reality of the region.<sup>4</sup> To date I have explored possibilities ranging from stilts to a gabion wall system. Other building studies include a variety of enclosure/screen systems dealing with the range of atmospheric conditions from cloud and ice, to extreme daylight. Through this research I will compare and contrast the results while considering the performance requirements influenced by the equipment that hikers will be required to have on this trip. The following document will be a description of what I explored, and the results that were observed.

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4. Parks Canada, *Nahanni National Park Reserve: Hydrology*.



## Chapter 2: Land of Extremes

Nahanni National Park Reserve is located within the Sub-Arctic climate zone which experiences a huge range of climatic conditions. Here, the threat of snow and ice exists year round along with extreme temperature differences creating several issues for the users of the park.<sup>5</sup> The following chapter is broken down into subsections which are as follows; Issues of Climate, Issues of Geology, Issues of Isolation, and finally Issues of Construction/transportation. Through analysis of these subsections, design parameters are established and adapted to the structures. These parameters also help dictate future material studies, building studies, and landscape studies effectively determining the success of the structures.

### 2.1 Issues of Climate

Nahanni National Park Reserve's location within the Northwestern Sub-Arctic region means that the weather is in constant flux and is that of extremes. The threat of snow exists year round where an accumulation of up to 10 cm can be seen (including during the summer months).<sup>6</sup> The temperature can range from 0 to 30 degrees celsius during July and August paired with 60 to 90 mm of precipitation. Heavy storm events tend to take place during the late afternoons of July dumping between 100 to 150 mm per event which can result in flash flooding due to the mountain-

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5. Parks Canada, *Nahanni National Park Reserve: Natural Heritage*.

6. Parks Canada, *Nahanni National Park Reserve: Weather*.

ous terrain.<sup>7</sup> Precipitation amounts increase as elevation increases, where temperatures decrease as elevation increase.<sup>8</sup> These extreme variations in weather pose several problems when designing in this kind of environment, for example; the reliability of air travel is reduced, hikers must carry all necessary gear on their person, construction must be extremely durable to endure the harshest elements, natural events such as landslides and flash floods are very much a possibility, etc. Moving forward, the building and material studies must be examined from all angles and must identify particular questions they will address and which questions will be ignored.

## 2.2 Issues of Geology

The Ragged Range of the Mackenzie Mountains was formed during the last ice age (around 10000 years ago) through the erosion of the sedimentary rocks revealing the 1000m granite faces that make up the Cirque of the Unclimbables.<sup>9</sup> This section of the park/Mackenzie Mountains is also home to the highest concentration of glaciers in the Northwest Territories which act as a catalyst to the changing terrain.<sup>10</sup> The tectonics of the region means there is a higher concentration of hot springs in the park; located further down the Rabbitkettle River are the Rabbitkettle Tufa Mounds which are the largest tufa mounds

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7. Ibid.

8. Ibid.

9. Parks Canada, *Nahanni National Park Reserve: Geology and Geomorphology*.

10. Ibid.

in the country.<sup>11</sup> Unfortunately, there are no thermal springs along the route from Mirror Lake to the Cirque of the Unclimbables, however this does not mean that there is a lack of geological wonders along the way. The 1000m granite faces in the Cirque of the Unclimbables are themselves a sight to be seen, evoking strong feelings of the sublime.

Along with geological wonders, the park is also rich in resources such as tungsten. The appropriately named town of Tungsten is home to a tungsten mine which is currently not in operation. The Nahanni Range Road is also known as “the Road to Resources” because the region is home to several mines, all of which are currently not operational. For the purpose of this thesis I will not be focussing on the potential hazards that come along with the mining activities in the region. Mining may be an essential part of the Northwest Territories resource economy, however, it comes with many hazardous byproducts that can pollute the Nahanni watershed causing devastating effects.<sup>12</sup>

### 2.3 Issues of Isolation

Isolation is a major issue that will be have to be dealt with at every level of the project. The closest town to Tungsten is Watson Lake which is more than a 300km drive away. This is the last medical centre and last place to have cell service. Due to it's isolation, it is highly recommended that hikers have a Spot or

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11. Ibid.

12. Parks Canada, *Nahanni National Park Reserve: Hydrology*.

an InReach on their person in the case of an emergency.<sup>13</sup> This does not apply to users whose destination is at the beginning of the route at the Interpretive Centre as the road is frequented by transport trucks since the mine at Tungsten is still manned while it's not in operation.<sup>14</sup> Petrol would have to be publicly accessible as visitors would be required hold extra fuel with them in order to complete the trip. With this in mind a fuel pump would need to be added to the programming ensuring accessibility to the park.



Figure 4. View of the Lotus Tower, Cirque of the Unclimbables; from Blogspot.

Figure 5. View of the Cirque of the Unclimbables from Mount Ida Plateau; from Summit Post.

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13. Lougheed and Beidermann, *Nahanni National Park: Cirque of the Unclimbables*.

14. Ibid.

## Chapter 3: The Contemporary Tourist

The Contemporary Tourist category is divided into two distinct groups of tourist. For this thesis I will be using the terms “Tourist” and “Adventure tourist”. The “Adventure Tourist” represents the user group who will complete the 72 km route to the Cirque of the Unclimbables. Due to the nature of the hike, it is assumed that this category of tourist has extensive knowledge/experience in wilderness camping. The other category of tourist could be described as “car camping tourist”. This tourist is still adventurous enough to drive the Nahanni Range Road and has some knowledge of wilderness camping. This tourist may not be interested in the extreme nature of the hike, however, loves driving and experiencing back-country roads. Both groups of tourists land on different ends of the spectrum regarding adventurous spirit and wilderness camping experience. It is important to draw a line defining the two categories because the Interpretive Centre (located at the beginning of the hike) is meant to service both groups, while the structures are catered towards one group, being the Adventure Tourist group. This thesis is aimed to explore the structures that will service the Adventure Tourists rather than the Interpretive Centre, as my interest lies in the experiential qualities that exist in this remote landscape.

During longer expeditions, similar to this route, hikers have a tendency to create their own process of making and breaking camp. This process, in my opinion, changes only slightly from site to site, however-

constants exist in this process. The constant in which hikers work with is their equipment as this is their life-line and a crucial component to the success of the expedition. Looking at this, how can these structures serve and enhance this experience bringing focus onto the landscape? Creating a consistent modular structural element that is adapted to each of the sites would allow the hikers to focus on the landscape and the structures that occupy the site rather than making and breaking their camps. Maintaining a common modular structure element is also driven again by the equipment required. For two weeks hikers set up and take down the same tent, sleep in the same sleeping bag, and wear the same clothes. The architectural interventions situated within the NNPR become the threshold at which the hikers get to experience the landscape, catalyzing a moment that otherwise would not exist. In the words of Palasmaa, "...they evoke and strengthen our own emotions and project them back to us as if these feelings of ours had an external force." <sup>15</sup>

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15. Mark Treid, *Spatial Recall: Memory in Architecture and Landscape*, (New York: Routledge, 2009), .





Figure 6. Fairy Meadows, Cirque of the Unclimbables; from Pinterest.



Figure 7. Two men climbing the Dawn Wall in Yosemite; from Rest Jug.



Figure 8. The "Penguin" at the Cirque of the Unclimbables; from Tumblr.

## Chapter 4: The Phenomena

The phenomena of Nahanni National Park Reserve is created through a combination of factors in the form of its vast size of untouched wilderness accompanied by the extreme shifts in environmental conditions. Phenomena being a personal experience becomes an issue when creating an architectural typology that aims to capture and enhance the experience of the landscape. These modular structures, or rooms in the landscape, would create a threshold between the built and the natural. It is in these intentional thresholds that the hikers experience the landscape in a new way that would otherwise not exist without the architecture. Playing off of the experience of the sublime, these structures will bring an awareness of self and a sense of place to the users. In doing this, I would argue that the experience of the landscape is enhanced.

### 4.1 Tangibility of the Senses

Phenomena is an extremely personal experience that varies from person to person. The way one hiker may view a landscape in the sense of its passability, may greatly vary from that of another. It is through this perception of the landscape that the phenomena of the place is experienced. Using the tactile senses I will create these moments where the users share a common architectural experience that heightens their awareness to the landscape. It is these architectural experiences that create a threshold at which the visual and tactile senses are fused creating these





Figure 9. The idea of Navigation Points

Figure 10. The approach of “Adventure Tourist”

Figure 11. The Aurora Experience

individual, yet shared experiences.<sup>16</sup>

## 4.2 Translating into Architecture

These tactile moments can be translated into various forms of architecture, be it through programming or the use of materiality. Here, I analyzed the 72km route to help identify how these phenomenological experiences be translated to the built environment. In doing so, I identified what programming would be best utilized in their respective sites. Through this the program of each site have further been categorized into the following: Rest + Relaxation and Cleansing + Reenergizing. The R+R structures include a shelter and a sauna and the the C+R structure is a shower tower. Each site’s structure(s) will become the threshold at which the phenomena is experienced. Through the curation of views that evoke a sense of discovery, mystery, and shadow, the architecture can enhance the experience of the landscape.<sup>17</sup>

## 4.3 Considerations for Architecture: Issues of Construction

The site’s isolated nature creates a new set of challenges regarding construction and transportation to and from the site. Building materials would be required to be delivered to Tungsten by transport truck and then delivered to their respective site via helicopter. In order to address the issues of building in isolation, various building process’ investigations were

16. Juhani Pallasmaa, *The Eyes of the Skin* (West Sussex: John Wiley & Sons Ltd, 2012).

17. Juhani Pallasmaa, “Hapticity and Time: Notes on Fragile Architecture”, *The Architectural Review*, Vol.207 no.1239 (2000) 78-84.

required to find the most suitable solution. Issues that would require consideration include of weight, durability, portability, and construction tools and equipment. The use of a modular structural element will be capable of addressing both the phenomena and the issues of construction.

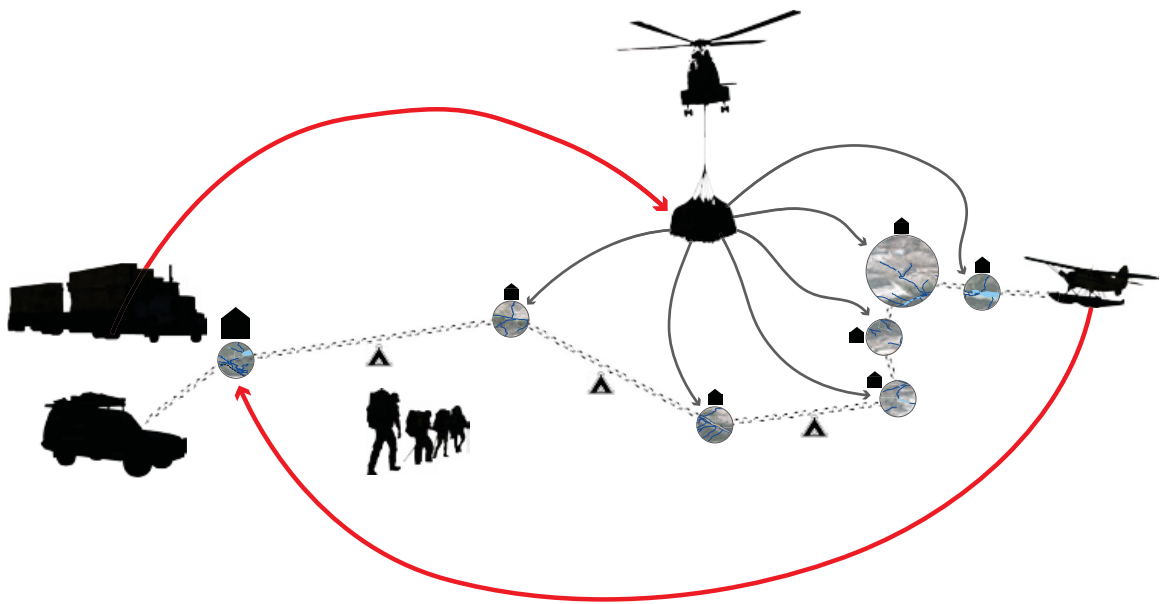


Figure 12. Issues of Construction and the procession

## Chapter 5: Design Process

Developing the design process in parallel to the research/theoretical portion of the thesis, has allowed me to freely develop my own personal methods to the design process mainly through finding the parallels between the three scales of landscape, building, and material. Some questions have arisen, mainly: how do I choose/develop a site that I have not visited in person? How does one design in a landscape that is constantly changing? Fortunately, the geology of my home province of Nova Scotia is that of a glacial landscape similar to taiga plains located east of the park. It is through these similarities between Nova Scotia's constantly changing coast line and the precarious granite faces of the Cirque of the Unclimbables, that I have been able to draw inspiration. Using found objects (mainly rocks) I have been able to draw a metaphorical relation between these objects and the randomness of the landscape creating fictional sites that are likely to share similarities with the reality that exists in NNPR.



Figure 13. Landscape Study: Rock

Figure 14. Landscape Study: Glacier

Figure 15. Landscape Study: Water

### 5.1 Landscape Studies

The landscape studies were done in such a way to discover how variations can be simulated through the modes of modelling. In order to achieve a variety of results, I explored various materials that consisted of a variety of viscosities such as plaster, paraffin wax, and grout. These were metaphorically used as a means of demonstrating the changing geology of the site. The viscous materials were poured



Figure 16. Building Study: Cantilever

Figure 17. Building Study: Gabion Wall

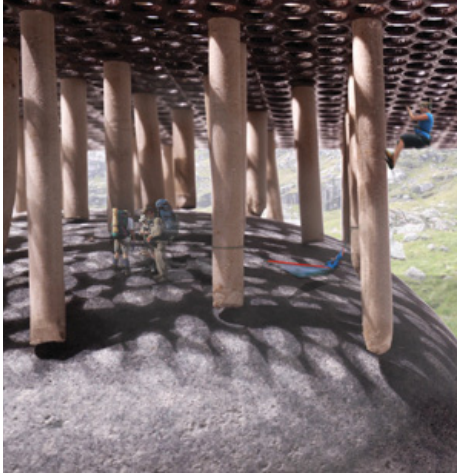
Figure 18. Building Study: Stilts and Cantilever

Figure 19. Building Study: Stilts

through a screen combining them with the found objects which allowed for a consistency to be established in order to better compare results in the pours. These screens can be further examined and explored as fictional landscapes and as various methods of screening. The landscape studies were an opportunity to create a more playful approach that can be interpreted in many different ways. Consistent themes used and discovered from these studies are the ideas of layering, movement, randomness/predictability, and extrusion.

## 5.2 Building Studies

Explorations in the landscape allow an opportunity to further explore various building studies in regards with how you combine and layer these two conditions, furthermore, how do we build in these extreme and remote landscapes? After looking at the findings from the landscape studies, an important question arises, how does the building touch the earth? To date the building studies have mainly been focused on answering this question through explorations in cantilevers, gabion walls, and stilts. Through these explorations, it is suspected that stilts, paired with a modular structural system, appear to be the most useful as this changing landscape demands an adaptable building structure. These stilts, combined with with modular structure allow for the creation of the multiple building types that will exist on the site. The modular structure will be constructed of metal (either steel or aluminum) to create occupyable spaces that address issues of inhabitation and circu-



lation. The stilts would be constructed of wood and address this issue of how the modularity will interact with the ground plane.

### 5.3 Material Studies

Material studies have been examined in conjunction with the landscape and building studies creating a jump in scales with the design process. The material studies have attempted to incorporate possible climatic conditions including; extreme cold, fog/cloud, and a variety of lighting conditions. A consistency of themes have developed throughout the design process such as porosity, layering, and intersection. These themes were then tested in attempt to recreate climatic conditions, the fog/cloud and extreme cold were simulated by using dry ice. Layering a series of perforated metal screens allowed for an exploration into capturing fog/cloud within the building components. This would then bring forth the experiential qualities of the landscape through use of architectural moments.



Figure 20. The Stilts; from Jacob Kalinowski

Figure 21. The Approach; from Jacob Kalinowski

Figure 22. The Interaction; from Jacob Kalinowski



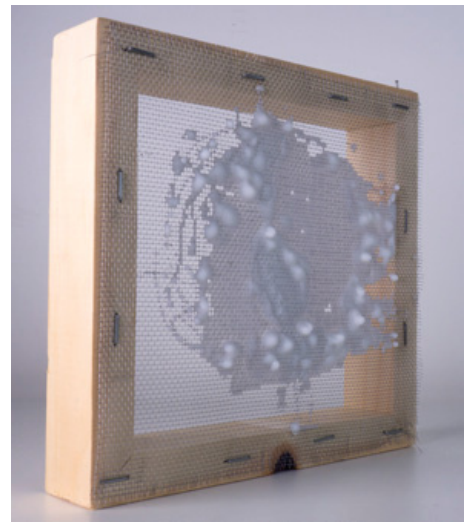
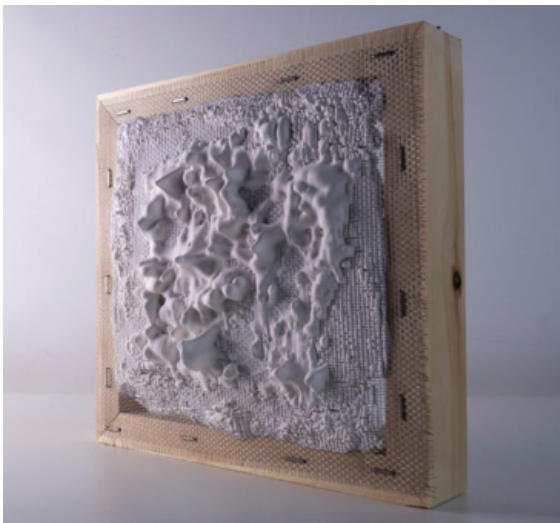
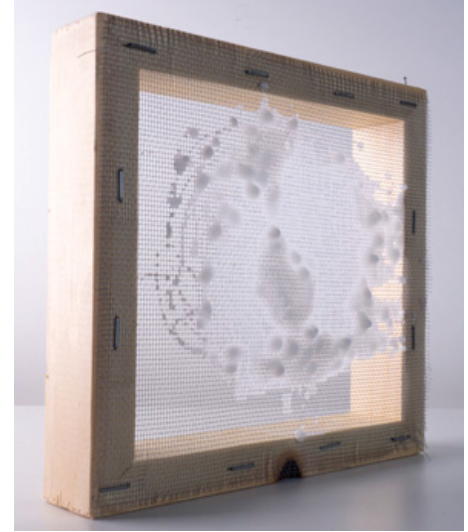
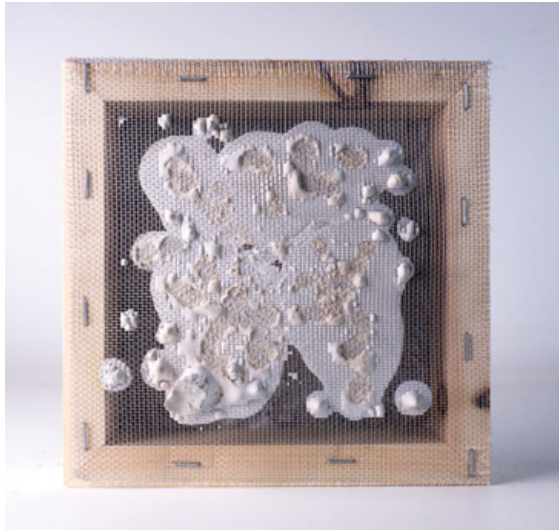


Figure 23-28. Material studies and screening explorations: grout, plaster, and wax

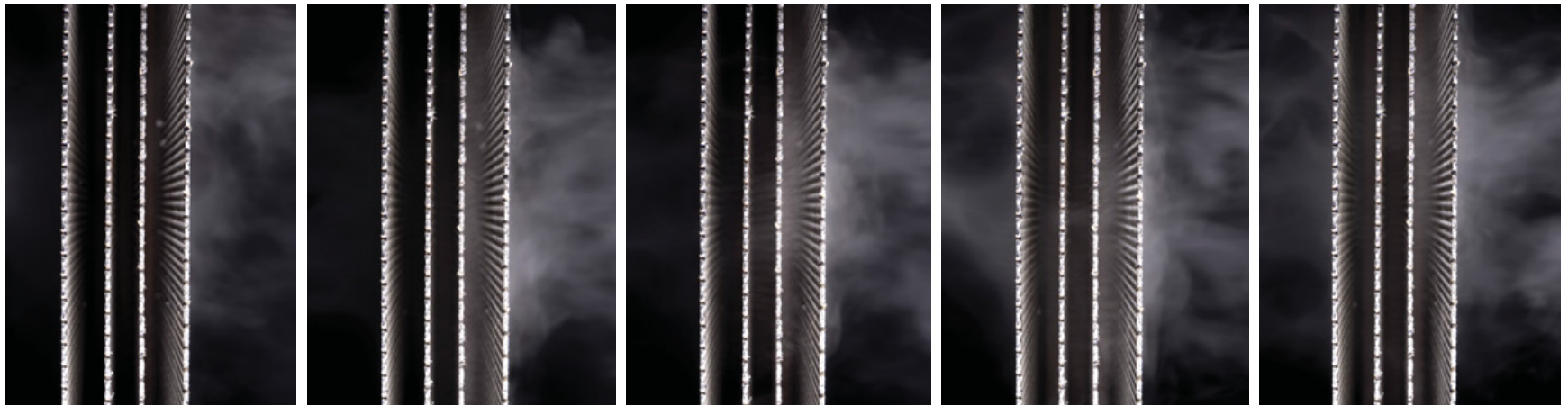


Figure 29-33. "Capturing" Fog

## Chapter 6: The Project

### 6.1 The Program

Backcountry Camping is feat of adventure and survival. Hikers completing the trek are assumed to have adequate backcountry experience and carry all necessary equipment on their person. The backcountry comes with many sacrifices and challenges, however, the moments within the landscape are what makes the hard work worth the effort. Because hikers are only carrying necessary equipment, many comforts are left behind such as showers, water tight accommodations, toilets, and so on.

The entirety of the route is filled with potential sites. The first and obvious site is that at Mirror Lake. Due to its proximity to road access, the mirror lake site would be able to serve a broader range of programming and users. The site could be developed into a Research Facility / Interpretive Centre, Parks Canada office, campground, etc. The second site is located at the half way point on the Mount Sidney Dobson plateau looking onto the Mount Sidney Dobson Glacier on one side and the backside of the Brintnell Glacier (the largest glacier in the Northwest Territories). The third site is located at the Cirque of the Unclimbables followed by the rendezvous site at Glacier Lake. Sites 2 and 3 have been developed further and categorized under the themes of Rest + Relaxation, along with Cleansing+ Reenergizing. The Rest + Relaxation category consists of a multiple person shelter and floating sauna. The Cleansing + Reenergizing is translated





Figure 34. Site map; data from Natural Resources Canada

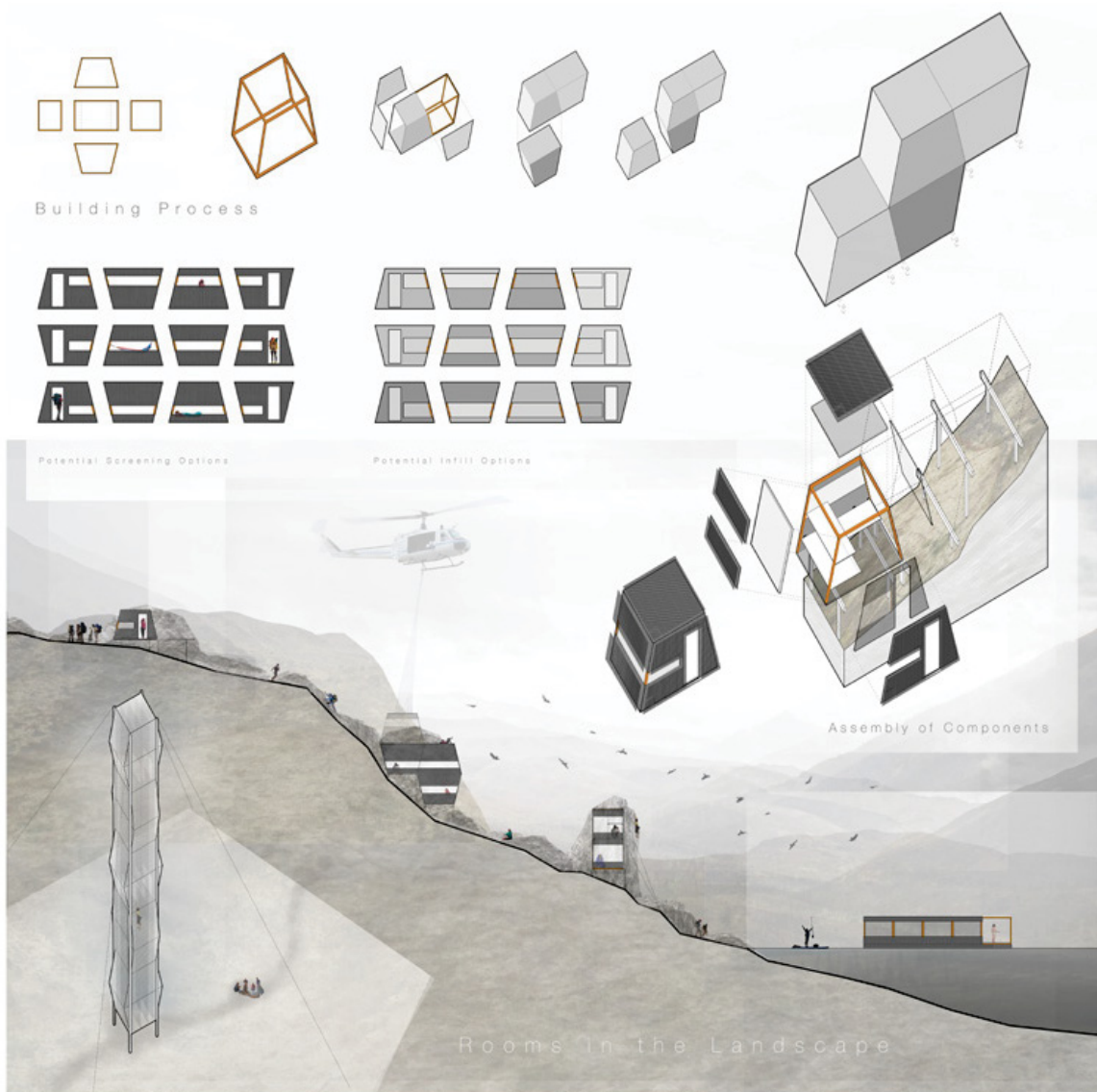


Figure 35. Modular structural elements assembled to serve a range of programming.

to a shower tower.

The programming and the architectural interventions as a whole become the threshold and catalyst in which the landscape is experienced and enhanced. This brings us to the floating sauna, the shelter, and the shower tower. All of these combined provide the lacking comforts that are missed in the backcountry. They also then become this threshold that encapsulates the body and frames views of the landscape and in a sense levelling the playing field for all users to experience their surrounding environments. Everyone perceives their environments differently which creates profoundly individual experiences. Through creating these thresholds, the users then share a common perception of their immediate environments allowing their focus to shift to their broader environment hence forth enhancing their individual and/or common experience of the landscape.

## 6.2 The Structural System

The main structural system consist of these trapezoid frames that are 2- 4x8 sheets on one face (roof and floor foot print) while the other roof and floor foot print is 3-4x8 sheets. This is dimensioned in such a way that one frame is able to be assembled with 2-3 people while it is also capable to house 2-4 people as an emergency shelter. These frames allow for the creation of many different spaces as they can be bolted together in various configurations to service a variety of programming.

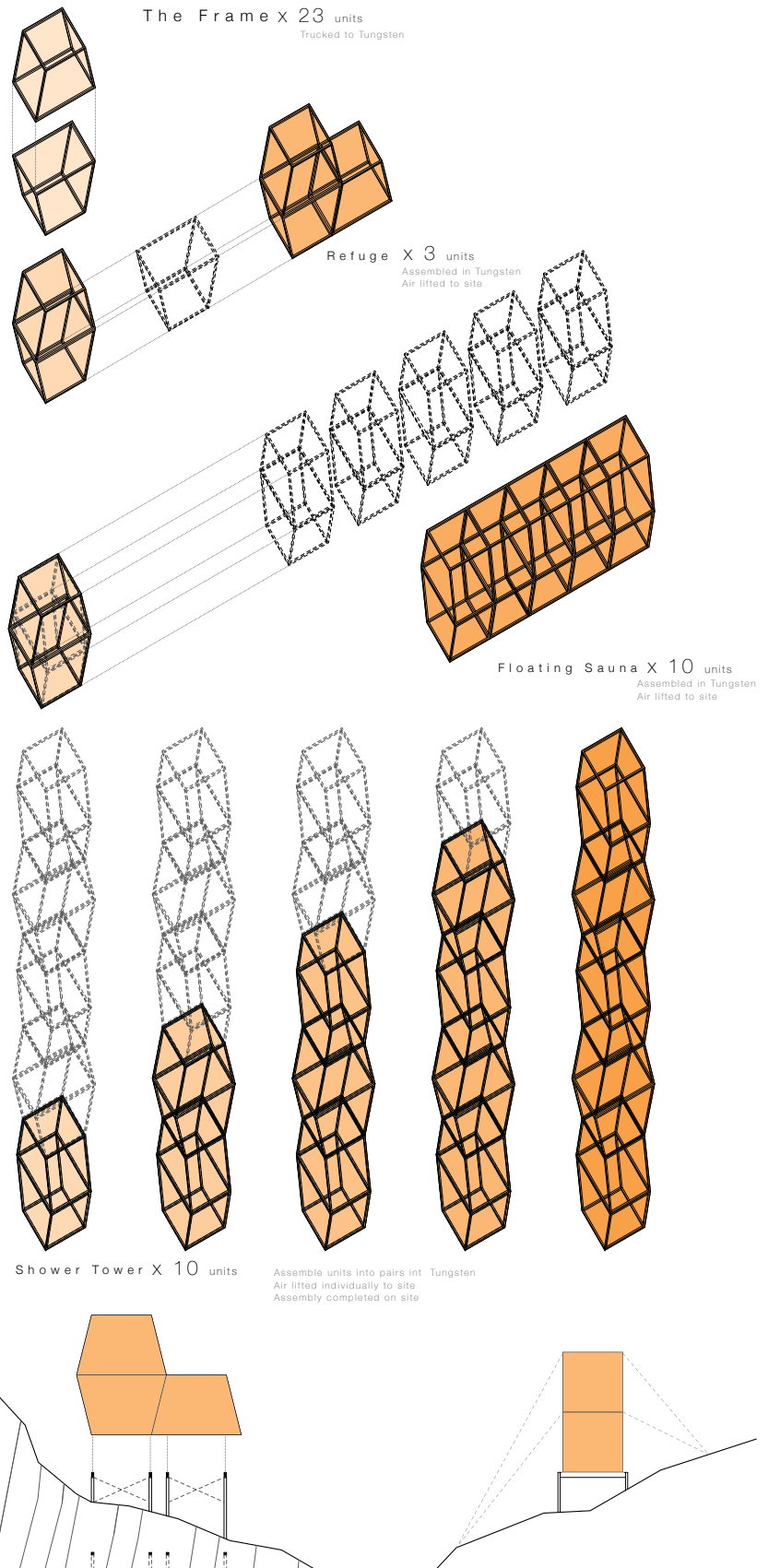


Figure 36. The Structural System

The frames are trucked into tungsten where they are fully assembled with an envelope and interior finishes. During this time, limited site work is done to prepare the piles that are drilled into the ground creating a foundation for the completed frames. Once the frames are assembled they are flown by helicopter to their respective sites where they are placed on their foundations and tensioned to the ground. The tower is the exception to this rule where two frames at a time will be flown to site and bolted to one another. In total we can expect about 10-15 helicopter flights.

### 6.3 Rest + Relaxation

It is the fourth day of hiking and you see two huge towers of sand-coloured stone, and suddenly a chill runs down your spine. It is here that the ascent commences.<sup>18</sup> The climb takes you 948 vertical meters over a distance of less than three kilometres. After three hours of climbing, you are now in an alpine zone until the descent into the Brintnell Creek in 2-3 days time. Walking along the plateau after the tiring ascent, you start to look for places to camp.<sup>19</sup> It is 10 pm in late July and the sun is only starting to descend behind the surrounding mountains, it is at this point where you see a lake with a glimmering structure floating on it and another structure on the shore. Here the powerful Northwestern sun illuminates the first two structures along the route. The shelter on the shoreline allows for you to immediately start cooking dinner instead of setting up camp. This structure allows you

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18. Lougheed and Beidermann, *Nahanni National Park: Cirque of the Unclimbables*.

19. Ibid.



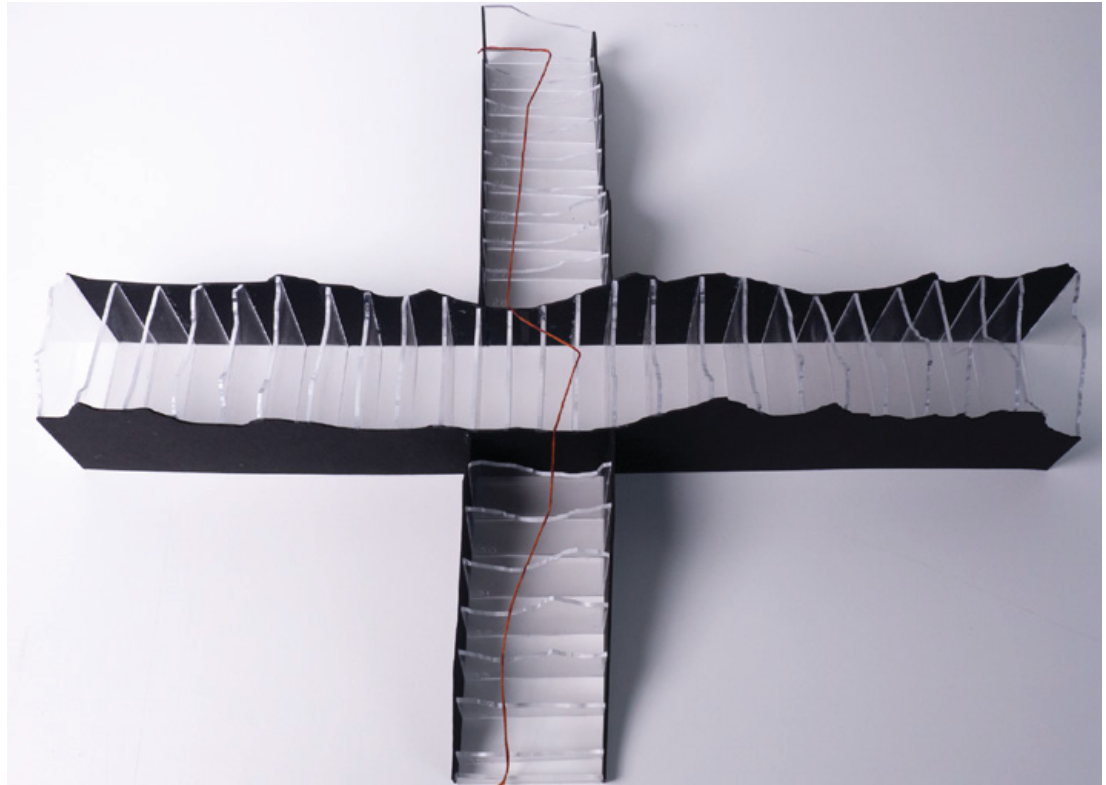
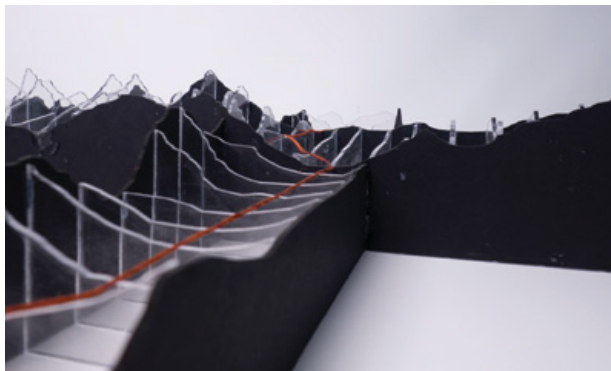
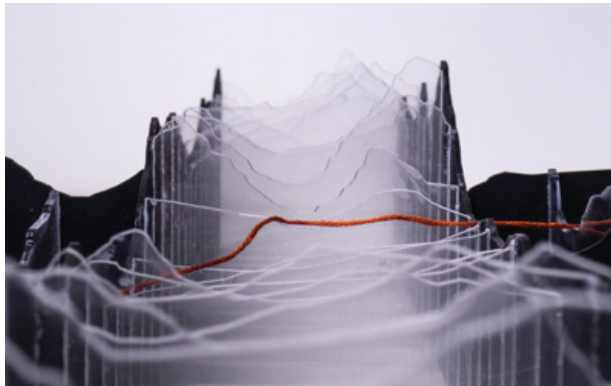
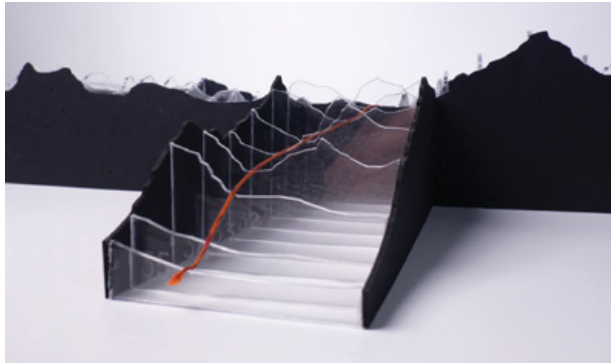


Figure 37-40. Site model of the Mount Sidney Dobson plateau showing a three dimensional view of the route and the approach to the site.



Figure 41. Exploded axo of floating sauna.

to relax sooner and creates a temperate environment in which you can enjoy the sunset and stunning views before calling it a night and retiring into your down sleeping bag.

The shelter structure would not be required to be heated, instead, it uses the strength of the summer sun to maintain a temperate environment. The structure allows hikers ample room to prepare for the remaining days, to sit and read a book while enjoying the view and being sheltered from the alpine winds. The shelter allows you to dry out your tents fully without hassle and allows you to fully relax and enjoy the surroundings. The metal perforated screens partially cover all the windows not only framing a tighter view, but also regulating the daylight while casting long shadows on the interior surfaces. This creates a tangible experience of light and it's hold on this vast landscape.

It is now 8 in the morning and the sun is already sitting high in sky as if it were noon. You wake up to the views of the lake and hanging glacier above. You might be lucky enough to witness a block of ice calving from the glacier into the lake below.<sup>20</sup> In any case, you recall the floating structure as you see it shine in the morning light. It is decided that after breakfast, you're going to investigate this peculiar structure.

Full from breakfast, you tidy up all your cooking supplies and prepare to descend further to shores

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20. Ibid.



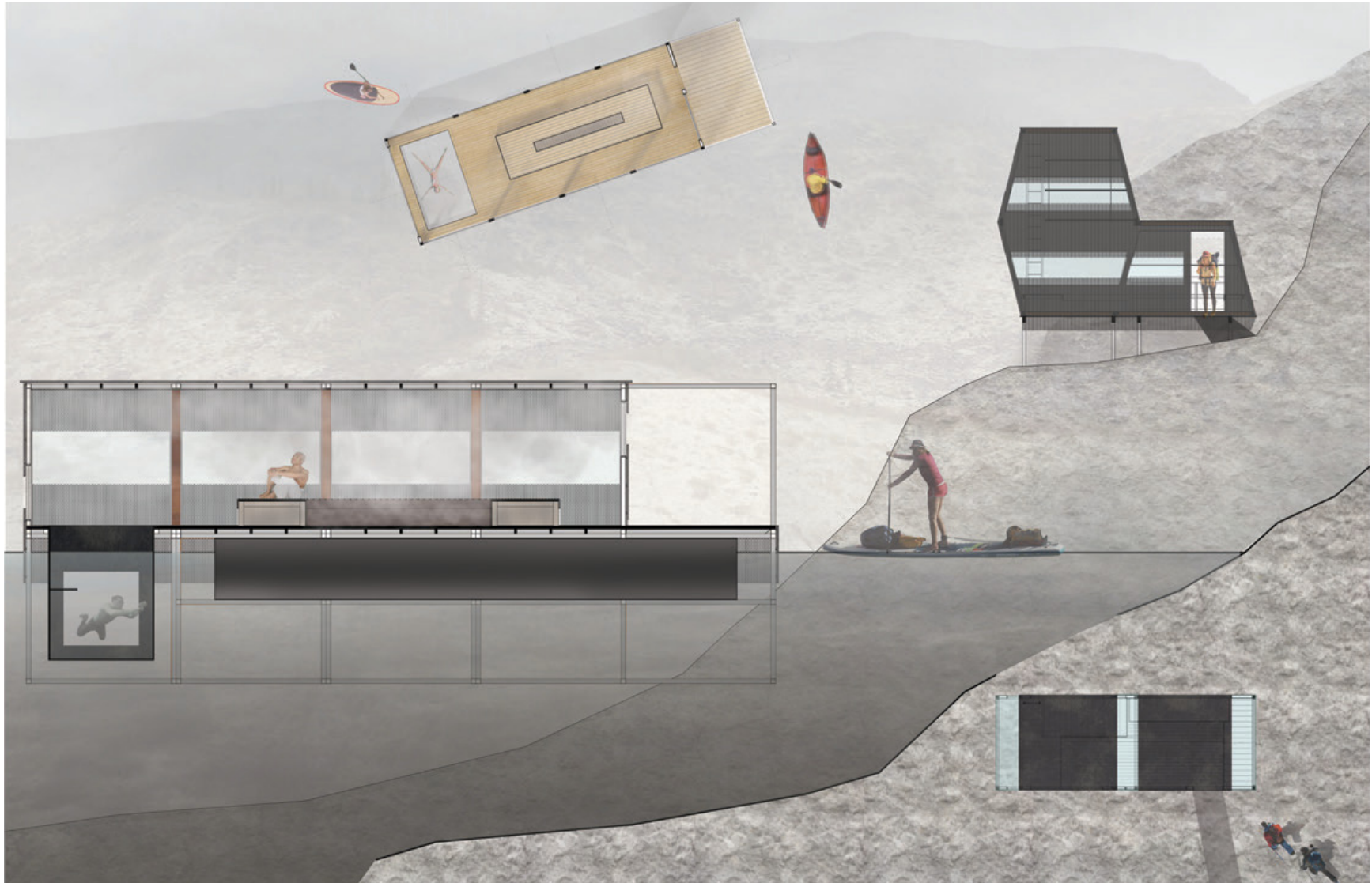


Figure 42. Section, Plan, and Elevation of shelter and floating sauna.



Figure 43. Interior view looking out to floating sauna from shelter.



Figure 44. Model of shelter, showing the modular structures with different cladding options; from Patrick Spelliscy.



of the lake where you find a couple of canoes and paddles. You hop into a canoe, push off and slowly make your way to the structure that is floating gently in the middle of the lake. As you near the structure, it becomes clearer that this is some sort of floating room. The canoe is tied to the structure and you open the door to a rush of warmer humid air pouring revealing a sauna and a plunge pool. At this point the sauna has only been heated by the morning sun, however you discover a heating system and excitedly you turn it on and prepare for the sauna to heat up.

Once the sauna reaches your desired temperature, you enter the room and sit down on the wooden bench situated between two, floor to ceiling, sloped glass windows. The top and the bottom of these windows are shaded by perforated screens that again cast shadows on all the interior surfaces of the sauna while focussing the views of the landscape. Once you start to heat up, you realize its time to take a plunge in the pool where you challenge yourself to stay in long enough to allow your breathe to calm and maintain a constant rhythm. This shock to your system brings forth a sense of self awareness and how vulnerable we are within this landscape. At this point you begin to relax and decide to swim through one of the two openings of the plunge pool into the open air. After several minutes a chill starts within you body, you swim back through the opening and reenter the sauna where you can safely warm up. This process can be repeated several times until full relaxation is achieved.



Figure 45. Cross Sections of floating sauna through plunge pool and bench.



Figure 46. Interior view of floating sauna

This floating sauna creates an interaction with the water that would not likely occur otherwise. The sauna becomes this threshold in which two extremes exist in harmony, the refreshing glacial water and the warm humid air of the sauna. In order for the sauna to operate at the proper temperature, it is heated by both the sun and a heater which sits within the bench. The sauna can be heated through either solar energy stored by batteries or by fuel. The most common utilized camping fuel is naphtha or commonly known as white fuel. Hikers carry canisters of white fuel which are refillable. In order for hikers to utilize the sauna through this method, they would be required to carry more fuel on their person. It is reasonable to assume that a party 4-6 people would be able to carry plenty of fuel for not only cooking but also for a couple of days use of the sauna (not continuous usage). Both options are viable options that would allow for further flexibility on the environments in which this structures can be placed.

After two days rest, it is time to continue the second half of the expeditions further towards the Mount Ida plateau before descending into the Brintnell Creek. Everyone in your party is relaxed, well rested, and full of energy ready to continue the journey through this thought provoking landscape.

## 6.4 Cleansing + Reenergizing

It's a late morning two days after you've departed the Mount Sidney Dobson glacial lake, you are situated on the North banks of Brintnell Creek in the

wake of Mount Harrison Smith (also known as Cathedral Mountain).<sup>21</sup> Here a creek runs along the base of the vertical granite face which ascends 847 metres above.<sup>22</sup> The steep ascent lasts 3 hours along a difficult talus slope but is the only way up to the Cirque of the Unclimbables.<sup>23</sup> Breaching the crest of slope you are greeted by the fingery cirques that are flanked by 1000m granite faces.<sup>24</sup> The Fairy Meadows is now in sight but further in the distance you see a shining beacon sitting at the base of the huge granite faces. Here in fairy meadows you begin to set up your camp and prepare dinner. Afterwards you continue towards the beacon sitting at the base of the Lotus tower (the granite face that is commonly ascended by rock climbers). By the time you approach the beacon, which is now obviously a tower, the cloud and fog begins to roll in fully enveloping the tower (now barely visible).

As you arrive at the base of the tower you begin to hear droplets of water hitting the boulders surrounding the tower. While exploring you begin to hear what sounds to be a bucket filling with water. You are unaware to the reason being to this tower, but you are intrigued to find it. The base of the tower has 4 ladders suspended just above the ground plane. Choosing a ladder, you begin to climb up to an unknown destination. The climb takes you through the core of the tower which is surrounded by these black mesh like nets that are covered in water droplets that are con-

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21. Ibid., 16.

22. Ibid., 18.

23. Ibid.

24. Ibid.



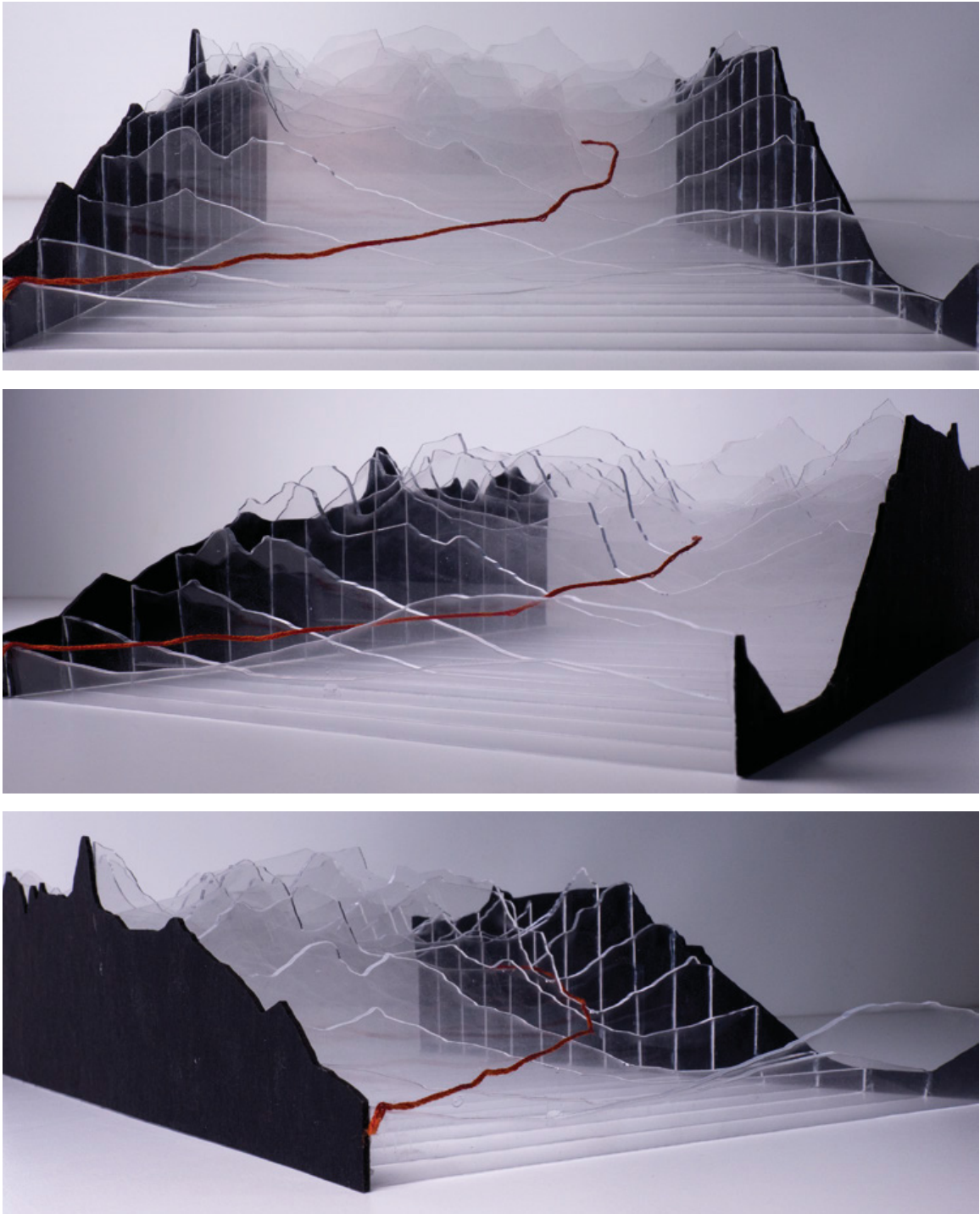


Figure 47-49. Site model of the Cirque of the Unclimbables showing a three dimensional view of the route and the approach to the site.



Figure 50. Sectional exploded axo of shower tower.





Figure 51. Approaching the shower tower



Figure 52. View of Shower Tower, Cirque of the Unclimbables

densing due to the all encompassing fog. After what feels to be three stories high, you arrive at a platform that protrudes out of the core structure. The sound of a bucket filling with water comes strongly from above where you notice a large dark tank suspended above the threshold of the tower. Realizing now the purpose for the tower you descend the ladder and return back to camp to dry out and rest.

Dawn comes quickly in the North, it is four in morning and you are awoken by a beautiful sunrise egging you on to get the day started. Eager to start the day and get climbing, you set off to ascend the world famous routes up the Lotus tower face. Throughout the day you catch glimpses of the tower shining below you. Seeing this you remember the large tanks sitting at the threshold of the platform, "surely these tanks will heat up from the strong northern sun" you think to yourself. After hours of scaling the granite face you descend back down and make your way to the shower tower. Arriving to the tower you ascend to the highest platform which sits 4 stories above the rocky ground below. In anticipation you pull the shower cord and feel the temperature of the water. The strong northern sun has managed to heat up the water to a comfortable temperature creating a reviving shower experience. As you cleanse, you admire the beauty that surrounds you evoking the feeling of the sublime catalyzed through the shower tower.

Located at the Cirque of the Unclimbables, the shower tower is a response to the majestic 1000m granite faces that surround the site. Here, there is a



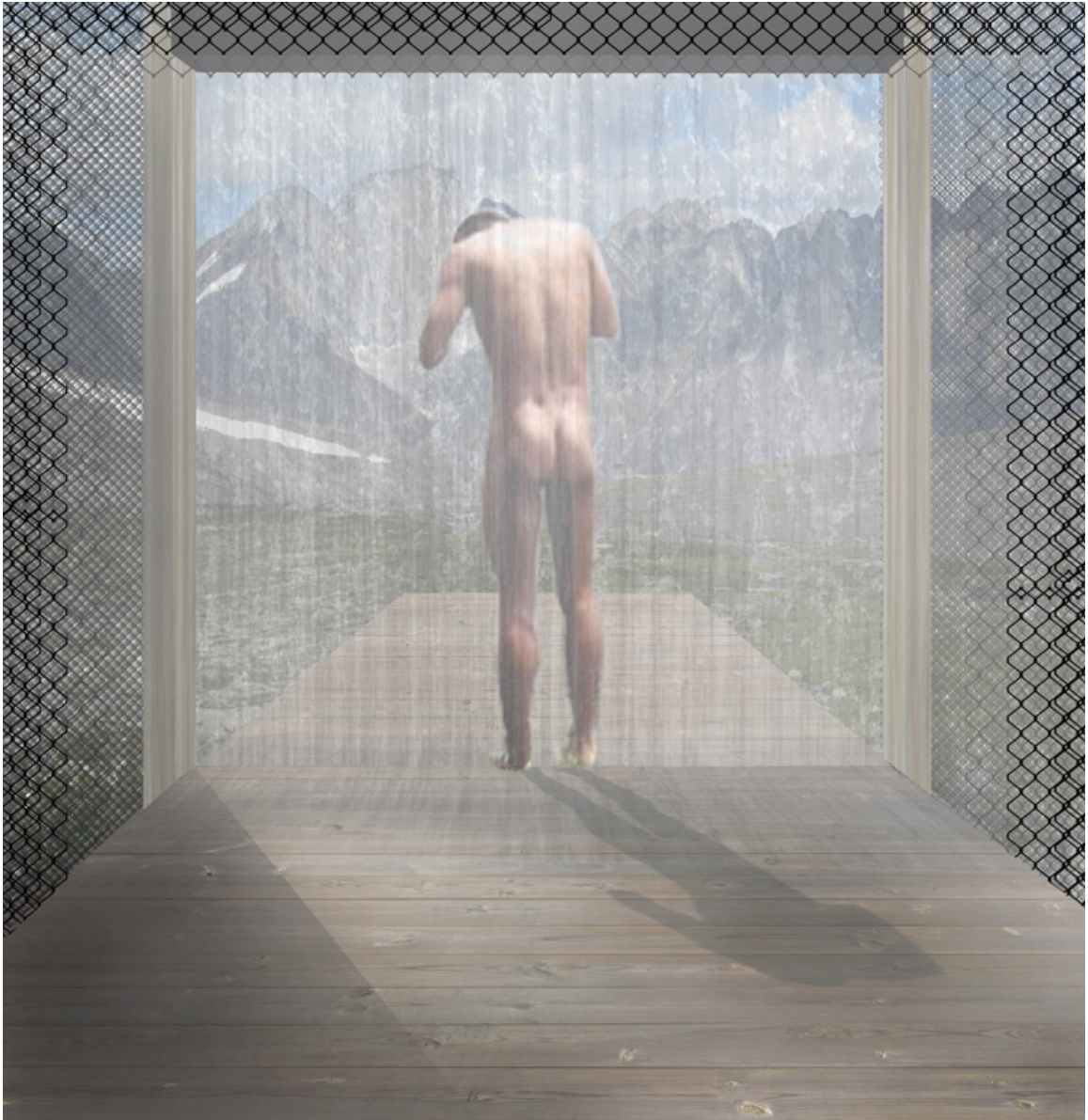


Figure 53. View looking out from Shower Tower

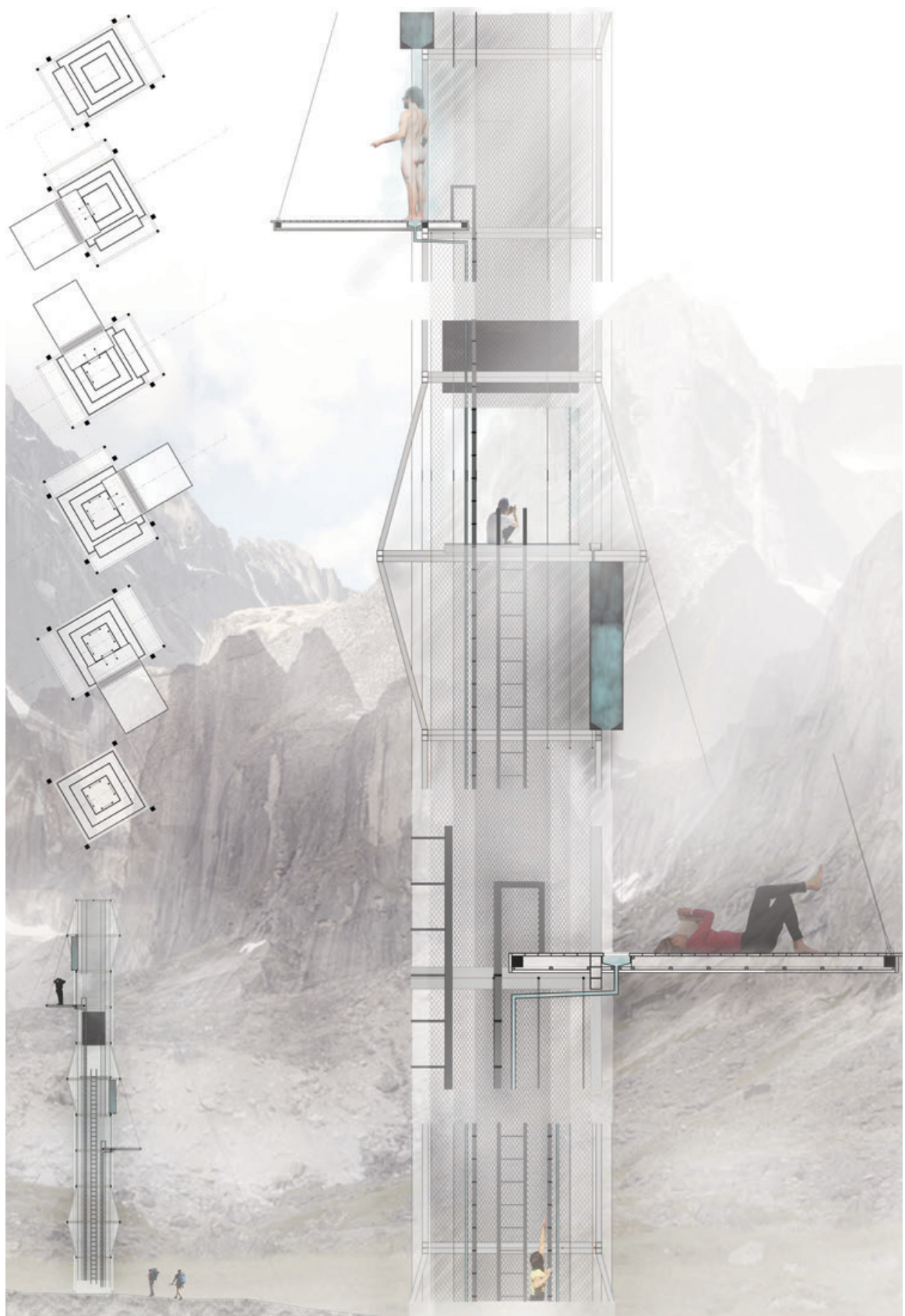


Figure 54. Sections and plans of shower tower.

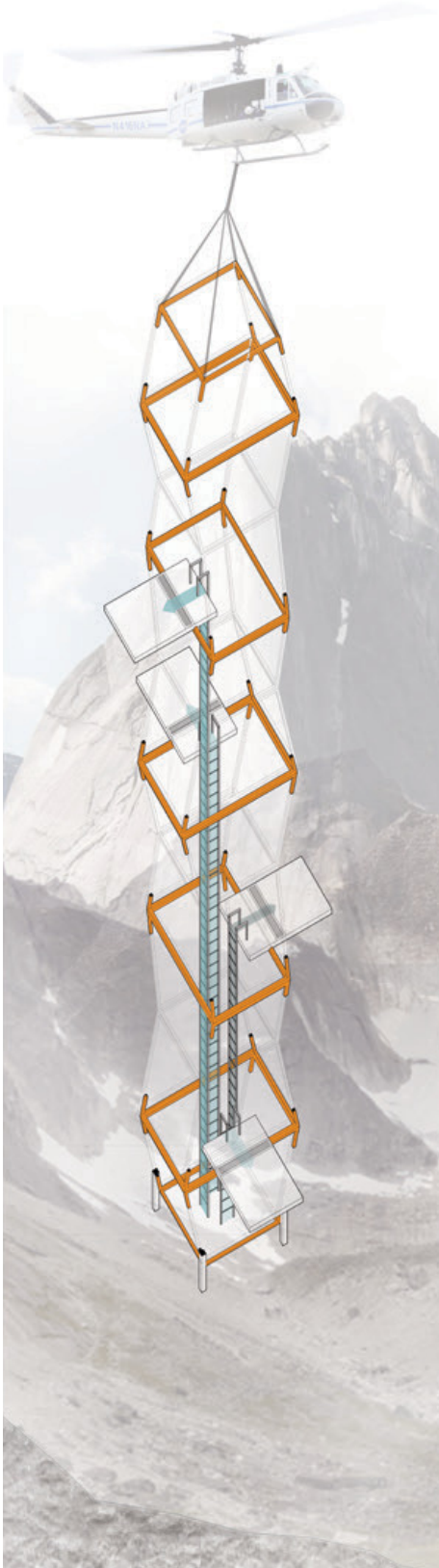


Figure 55. Circulation and transport of shower tower.

higher level of physical activity as the Cirque of the Unclimbables is a haven for rock climbers. This, for many, is the draw to the area. Because of the high frequency of activity, the shower tower became an opportunity to become the threshold where users can cleanse and reenergize after a long day of climbing. The tower houses 4 showers that are fed from the clouds and fog that pass through the landscape daily. Fog nets create a catalyst for water to condense and then feed into 4 individual storage tanks where the water is stored.<sup>25</sup> The tanks are passively heated from the sun where the region can see upwards of 20 hours of sunlight in the summer. This won't create hot showers similar to your home, however, users can access warm water which is a precious commodity in the backcountry.

25. Climate Tech Wiki, *Fog Harvesting*, accessed March 4, 2017, <http://www.climatetechwiki.org/content/fog-harvesting>.





Figure 56. View looking up to of first iteration model of shower tower.



Figure 57. View of interior of first iteration model of shower tower.

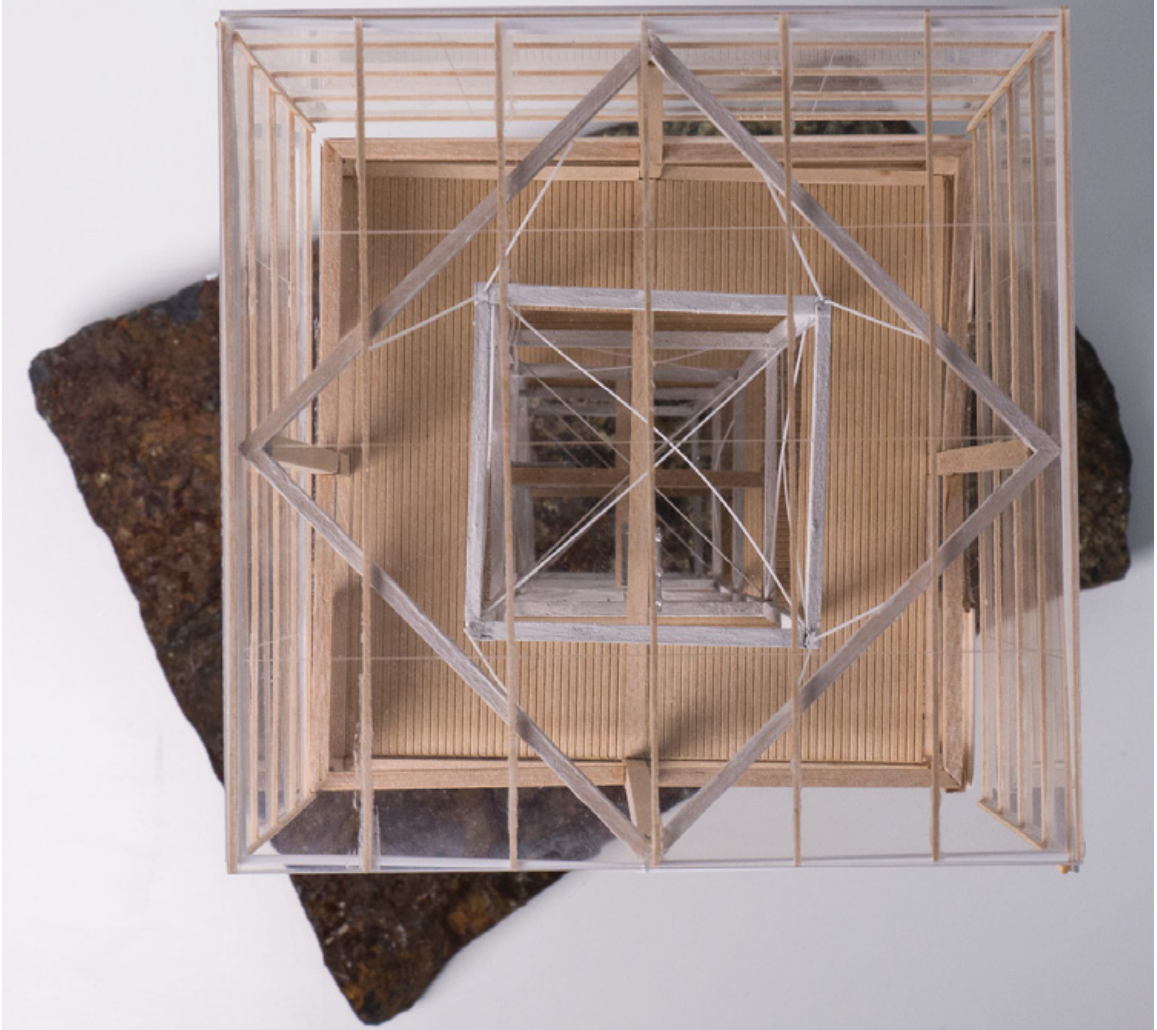


Figure 58. Plan view of first iteration model of the shower tower.

Figure 59. View of approach to first iteration model of the shower tower.



## Chapter 7: Conclusion

Architecture and wilderness are two distinct experiences that may seem an unlikely union, however, there is a way that these spaces, the natural and architectural, can synthesize to enhance one's experience of Nahanni National Park Reserve. Throughout this thesis, various methods are explored to help dictate a thoughtful response to how architecture can help enhances one's experience of the landscape and how to build in this extreme, remote landscape. Through studying the landscape, a modular structural system has been developed in such a way to be programmatically adaptable, while adapting to a variety of climatic and site conditions.

The shelter, floating sauna, and shower tower are responses to a varying degree of site conditions that exist along the route to the Cirque of the Unclimbables while addressing the programmatic requirements that help better serve the users of NNPR. These building typologies create a broad range of the structural requirements that the modular elements require, paired with a varying degree of interactions with rock and ground, water and ice, and cloud and sun. These typologies also address the phenomenology of the landscape through becoming the thresholds at which the user experiences the surrounding environment, effectively enhancing and creating a tangible experience of the landscape.

The ideas discussed in this thesis can be further developed and expanded upon for potential of being recreated and adapted for other extreme, remote landscapes alike. The modular structure allows a wide

range of programmatic requirements and site conditions. It is possible for these structures to be grouped within the landscape bringing forth the idea of creating settlements set within these landscapes and possibly redefining how we settle in remote environments. It should be noted that several considerations were overlooked during the thesis such as addressing environmental damage of the site from an increased number of visitors. This would require an extensive environmental report as it is the goal of the thesis to create architectural moments within the landscape without damaging the sensitive ecology of the place. It is also important to note that Nahanni National Park Reserve, or Nahą Dehé is the traditional hunting grounds for the Dehcho First Nations.<sup>26</sup> This means that the ultimate success of the project remains on the adaptability of the structural frame that would only be possible after a dialogue is opened with the Deh Cho First Nations gaining their input and insight on Nahą Dehé.

Architecture as a discipline has the ability to inspire, interact, and enhance the users environment. Paired with a beautiful untouched landscape, architecture is capable of enhancing the natural environment at which it exists. The shelter, floating sauna, and shower tower have created common individual experiences through the thresholds that they create shifting the users focus to the phenomena and the experience of the extreme, remote landscape of Nahanni National Park Reserve.

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26 Parks Canada, *Nahanni National Park Reserve: Cultural Heritage*, last modified March 31, 2017, <http://www.pc.gc.ca/en/pn-np/nt/nahanni/info/decouvrir-discover/natcul2>



Figure 60. Nahanni, NT

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